Building a zero-carbon economy – Call for Evidence

Background

On 15 October 2018 the governments of the UK, Scotland and Wales asked the Committee on Climate Change (CCC) to provide advice on the UK and Devolved Administrations' long-term targets for greenhouse gas emissions and the UK's transition to a net zero-carbon economy. Specifically: when the UK should reach net zero emissions of carbon dioxide and/or greenhouse gases as a contribution to global ambition under the Paris Agreement; if that target should be set now; the implications for emissions in 2050; how such reductions can be achieved; and the costs and benefits involved in comparison to existing targets.

The advice has been requested by the end of March 2019.

The UK's long-term emissions target is currently for at least an 80% reduction in greenhouse gas emissions from 1990 to 2050. It covers all sectors, including international aviation and shipping and is measured on a 'territorial' basis (i.e. based on emissions arising in the UK). On a comparable basis, emissions in 2017 were estimated to be 38% below 1990 levels.

The current target was set in 2008 based on advice from the Committee. That advice considered that to avoid the worst impacts of climate change, the central expectation of global temperature rise should be limited "to, or close to, 2°C", while the probability of crossing "the extreme danger threshold of 4°C" should be reduced to an extremely low level. That meant global emissions would roughly have to halve by 2050. The 2008 advice made the assumption that the UK should not plan to have a higher level of per capita emissions in 2050 than the global average.

The long-term target guides the setting of carbon budgets (sequential five-year caps on emissions that currently extend to 2032 and require a reduction in emissions of 57% from 1990 to 2030). Both the 2050 target and the carbon budgets guide the setting of policies to cut emissions across the economy (for example as set out most recently in the 2017 Clean Growth Strategy).

Any change to the long-term targets would therefore be expected to have significant implications, not just in the long-term but on current policies to drive the transition.

The CCC will advise based on a thorough consideration of the relevant evidence. We expect that to cover:

- The latest climate science, including as contained in the IPCC Special Report on 1.5°C.
- The terms of the Paris Agreement.
- Global pathways (including those reported by the IPCC) consistent with limiting global average temperature rise in line with the goals of the Paris Agreement.

- International circumstances, including existing plans and commitments to cut emissions in other countries, actions to deliver on those plans and opportunities for going further.
- An updated assessment of the current and potential options for deep emissions reductions in the UK and emissions removals from the atmosphere, including options for going beyond the current 80% target towards net zero.
- An appraisal of the costs, risks and opportunities from setting a tighter long-term target.
- The actions needed in the near term that would be consistent with achieving the long-term targets.

This Call for Evidence will contribute to that advice.

Responding to the Call for Evidence
We encourage responses that are brief and to the point (i.e. a maximum of 400 words per question, plus links to supporting evidence, answering only those questions where you have particular expertise), and may follow up for more detail where appropriate.

You do not need to answer all the questions, please answer only those questions where you have specific expertise and evidence to share. It would be useful if you could use the question and response form below and then e-mail your response to: communications@theccc.gsi.gov.uk using the subject line: 'Zero carbon economy – Call for evidence'. Alternatively, you can complete the question and answer form on the CCC website, available here.

If you would prefer to post your response, please send it to:

The Committee on Climate Change – Call for Evidence
7 Holbein Place
London
SW1W 8NR

The deadline for responses is 12 noon on Friday 7 December 2018.

Confidentiality and data protection
Responses will be published on our website after the response deadline, along with a list of names or organisations that responded to the Call for Evidence.

If you want information that you provide to be treated as confidential (and not automatically published) please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

All information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

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.

Part 1: Climate Science

Question 1 (Climate Science): The IPCC's Fifth Assessment Report and the Special Report on 1.5°C will form an important part 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 (CO_2 and GHGs): Carbon dioxide and other greenhouse gas gases have different effects and lifetimes in the atmosphere, which may become more important as emissions approach net-zero. In setting a net-zero target, how should the different gases be treated?

ANSWER:

Part 2: International Action

Question 3 (Effort share): What evidence should be considered in assessing the UK's appropriate contribution to global temperature goals? Within this, how should this contribution reflect the UK's broader carbon footprint (i.e. 'consumption' emissions accounting, including emissions embodied in imports to the UK) alongside 'territorial' emissions arising in the UK?

ANSWER: 3. Emissions are not currently a level playing field but are increasingly subject to how much action each territory is prepared to take or negotiates to take on unilaterally.

For the food and drink manufacturing and processing sector, including the secure supply of primary nutrient inputs such as fertilisers and feeds sectors, there is a need to consider international projects and tax adjustments.

In fertiliser production for example, UK producers have reduced their emissions by 40%. Fertiliser production emissions are more than 3 times higher from nitrogen fertilisers made in China and Russia. If too greater cost is placed on UK producers, there is a growing risk that UK producers become uneconomic and are replaced with imports which would simply increase emissions.

Question 4 (International collaboration): Beyond setting and meeting its own targets, how can the UK best support efforts to cut emissions elsewhere in the world through international collaboration (e.g. emissions trading schemes and other initiatives with partner countries, technology transfer, capacity building, climate finance)? What efforts are effective currently?

ANSWER: One means of bridging the gap is via the development of international project credits within the Paris Agreement (that can be used in a UK scheme) that allow cost efficient emission cuts elsewhere in the world through international collaboration.

Question 5 (Carbon credits): Is an effective global market in carbon credits likely to develop that can support action in developing countries? Subject to these developments, should credit purchase be required/expected/allowed in the UK's long-term targets?

ANSWER: Subject to the development of an effective global carbon market, the AIC would support the use of project credits to satisfy the UK's long-term targets, e.g.: under article 6.4 of the Paris Agreement (1).

We note support was given to the use of good quality international carbon credits in the UK's Clean Growth Strategy, where the government stated that they are prepared to use this flexibility to meet our domestic carbon budgets, if this presents better value for UK taxpayers, businesses and domestic consumers.

Part 3: Reducing emissions

Question 6 (Hard-to-reduce sectors): Previous CCC analysis has identified aviation, agriculture and industry as sectors where it will be particularly hard to reduce emissions to close to zero, potentially alongside some hard-to-treat buildings. Through both low-carbon technologies and behaviour change, how can emissions be reduced to close to zero in these sectors? What risks are there that broader technological developments or social trends act to increase emissions that are hard to eliminate?

ANSWER: The recent CCC publication on 'Land Use' summarises well the potential for agricultural emissions to be offset, as far as technically feasible, within the carbon sinks and energy generation potential of the rural landscape. Further that this potential will largely depend on the skills and capability of farmers to improve their productivity and efficiencies.

Positive policy levers which drive the process of CPD in the sector and enable demonstrable performance to be estimated, for the benefit of agriculture and the environment, are needed. The joining of state funded and commercial delivery is key to driving the technological and attitudinal change:

https://www.agindustries.org.uk/latest-documents/status-of-agricultural-knowledge-development-and-advice/

The evidence sources in the Land Use report are equally useful, as a contribution, to the analysis: building an overall zero carbon economy. However, we note one apparent major

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omission in the work: – the global value of the UK livestock production system (within a maritime landscape) for export as well as for home production. This scenario needs to be considered alongside options for efficiencies to balance out increasing population pressure on food requirements, similarly, for UK's crop exports. NW Europe especially, has advantages climatically for grass and therefore livestock production as well as for rain-fed cropping therefore avoiding displacement of activity at net cost globally:

https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/economic-assessment-ghg-mitigation-policy-options-eu-agriculture

It will also be necessary to read across the GHG Inventories to present landscape emissions in totality, and to enable credits between accounting sectors to be acknowledged.

Question 7 (Greenhouse gas removals): Not all sources of emissions can be reduced to zero. How far can greenhouse gas removal from the atmosphere, in the UK or internationally, be used to offset any remaining emissions, both prior to 2050 and beyond?

ANSWER:

We agree that it is important to acknowledge that not all sources of emission can be reduced to zero and that it is better to be open and transparent about how low it is possible to go for these sectors, while exploring the off-setting potential.

If all other practically feasible options, given the right economic climate, for reducing anthropogenic activities could approach net zero, will that be enough, considering it is not technically feasible to cut food production emissions entirely? Could this analysis be done? Lord Adair Turner, first Chair of the CCC made this point.

There is a growing concern that the UK's energy policy is isolated from food and farming. This risks placing the Food and Drink Industries and the primary producers of the feeds and fertiliser nutrients, in an increasingly exposed position – the knock-on effect of exporting manufacturing and processing off-shore on integrated and reliable food supply chains in the UK, and the climate change consequences need to be looked holistically in the zero carbon economy analysis.

Question 8 (Technology and Innovation): How will global deployment of low-carbon technologies drive innovation and cost reduction? Could a tighter long-term emissions target for the UK, supported by targeted innovation policies, drive significantly increased innovation in technologies to reduce or remove emissions?

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ANSWER: Global deployment of low carbon technologies will only work if there is a level playing field and a global carbon price. It is a balancing act. A tighter UK target, supported by innovation policies alone simply will not work. They will simply drive out UK production capacity, as UK producers become uncompetitive (and cannot pass through costs, whilst there are alternatives that are not subject to stringent targets). A productive and profitable manufacturing and agricultural sector have to go hand in hand with emission reduction. Adding extra cost to businesses exposed to international competition would risk creating adverse emission outcomes.

Question 9 (Behaviour change): How far can people's behaviours and decisions change over time in a way that will reduce emissions, within a supportive policy environment and sustained global effort to tackle climate change?

ANSWER:

Question 10 (Policy): Including the role for government policy, how can the required changes be delivered to meet a net-zero target (or tightened 2050 targets) in the UK?

ANSWER:

Part 4: Costs, risks and opportunities

Question 11 (Costs, risks and opportunities): How would the costs, risks and economic opportunities associated with cutting emissions change should tighter UK targets be set, especially where these are set at the limits of known technological achievability?

ANSWER:

Question 12 (Avoided climate costs): What evidence is there of differences in climate impacts in the UK from holding the increase in global average temperature to well below 2°C or to 1.5°C?

ANSWER:

Part 5: Devolved Administrations

Question 13 (Devolved Administrations): What differences in circumstances between England, Wales, Scotland and Northern Ireland should be reflected in the Committee's advice on long-term targets for the Devolved Administrations?

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ANSWER:

Part 6: CCC Work Plan

Question 14 (Work plan): The areas of evidence the Committee intend to cover are included in the 'Background' section. Are there any other important aspects that should be covered in the Committee's work plan?
ANSWER: