

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:

As the Committee on Climate Change's latest progress to Parliament acknowledges, reducing GHG emissions from the UK's built environment will be an essential part of meeting future carbon budgets.

It is becoming very clear that in order to meet the Paris Agreement goals the UK's built environment will need to be fully decarbonised by 2050. The proper insulation of buildings, alongside other measures including low and zero carbon heat, and carbon offsetting, will be needed to get to net zero. The quality and overall performance of buildings will continue to be very important.

The following two papers, which MIMA contributed to, demonstrate the scale of energy and carbon savings already achieved as a result of pursuing large-scale energy efficiency programmes, and what is possible in future if building improvement programmes are delivered at part of a funded infrastructure programme.

The 2017 report by Frontier Economics and the Energy Efficiency Infrastructure Group (EEIG) showed that there are nearly 20 million homes in the UK with needlessly poor levels of energy efficiency, and that raising the energy performance of these to EPC C (at least) means that, at a national level, up to a quarter of the energy consumed in homes could be saved cost-effectively, with the technical potential to cut energy use in half.

- EEIG and Frontier Economics "Affordable Warmth, Clean Growth" (2017) <https://www.frontier-economics.com/media/2248/affordable-warmth-clean-growth.pdf>
- UKERC "Unlocking Britain's First Fuel" (2017) <http://www.ukerc.ac.uk/publications/unlocking-britains-first-fuel-energy-savings-in-uk-housing.html>

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We would also point the CCC to the following publications and programmes on the net zero theme:

- C40 Cities Net Zero Carbon Buildings Declaration
<https://www.c40.org/other/net-zero-carbon-buildings-declaration>
- UKGBC task group on net zero carbon buildings (formed November 2018)
<https://www.ukgbc.org/news/ukgbc-launches-major-industry-task-group-on-net-zero-carbon-buildings/>
- Sustainable Homes "Housing 2050" programme (road map due in February 2019) <https://www.sustainablehomes.co.uk/5vitalsteps/>

The Committee on Climate Change will also be aware of new the Parliamentary Inquiry into the Government's approach to delivering energy efficiency improvements to buildings.

The Inquiry has been launched to investigate whether the Government's current delivery of energy efficiency improvements within residential, commercial and public-sector buildings is consistent with meeting targets set out in the Clean Growth Strategy, and the fourth and fifth carbon budgets.

Clearly, for emissions reduction goals, it essential that the energy and carbon savings are made in reality, and that tough policies are in place to deliver this. At present there is no such programme.

<https://www.parliament.uk/business/committees/committees-a-z/commons-select/business-energy-industrial-strategy/news-parliament-2017/energy-efficiency-inquiry-launch-17-19/>

Lastly, we would also ask the Committee keeps in mind the need for a balanced approach to building upgrades – factoring in the need for buildings to be energy efficient, but also deliver a range of other outcomes such as strong acoustic performance, fire safety, protection from damp and mould, avoidance of overheating etc. Reducing energy use in buildings is important, but standards need to be carefully updated, and in a holistic way. The regulation of energy standards must take place within the context of the 2050 net zero carbon requirement, and a challenging yet realistic trajectory set.

Question 2 (CO₂ 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:

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:

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:

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:

In terms of risks for the built environment, the "performance gap" – the difference

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between the modelled energy performance of a building and the real performance in use - is a reasonably well understood phenomenon. The construction and retrofit sectors are making substantial efforts to address the issue, for example, the creation of the Building Performance Network, but policy, regulatory and commercial frameworks also need to demand much improved real building performance.

A transition to such a framework will require the capacity to rapidly, and cost-effectively measure and verify performance and “reward” building owners who go down this route.

New methodologies and technologies will also need to be sufficiently reliable and forensic to accurately identify the cause of any potential shortfalls in performance. Otherwise, there is a risk that energy efficiency measures may incorrectly be seen as under-performing when in fact shortfalls are due to other causes. In addition, the methods and tools need to be able to identify sub-standard materials and systems when they are at fault.

The social housing sector may be an ideal sector to roll out Government-backed, large-scale demonstration and testing projects, not least because of the large portfolios of many social landlords and the long-term management role they play, but also because the benefits to low income tenants could be pronounced. The sector is already showing a willingness to trial new approaches, such as the Energiesprong model, and those who take part are being rewarded with great feedback and marketing opportunities.

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:

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?

ANSWER:

A building renovation and upgrade framework that enables high quality workmanship/delivery of construction and retrofit projects to be recognised and rewarded needs to be created. This includes requiring the supply chain to make better use of tools to track and record information about the work they do and the properties they work on, e.g. using smart phone apps, geo-tagged photos, smart meters, access to existing data about properties etc. This helps to create the “golden thread of building information” envisaged in the Hackitt Review.

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:

A key driver of success for energy efficiency and building upgrade programmes is engagement with residents. MIMA would echo this point. For example, the flagship retrofit project by Portsmouth City Council on Wilmcote House was designed in genuine collaboration with the residents. Their feedback led to significant amendments to refurbished flats (to improve comfort and quality of life) and the residents will receive ongoing support to maintain the outcomes of the refurbishment, such as through support with mechanical ventilation, which will improve building performance and energy use outcomes.

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?

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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?

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: