
Net Zero Call for Evidence - Summary

Overview of the Call for Evidence

1. Background

In October 2018 the Committee on Climate Change released the consultation document: Building a zero-carbon economy – Call for Evidence.

The document provided background to this Report, information on the UK's current target, an overview of some of the key evidence the Committee would be considering, and called for evidence on 14 questions regarding:

- Climate Science
- International Collaboration
- UK Opportunities for Reducing Emissions
- Costs, risks and opportunities
- Devolved Administrations
- The Work Programme of the Committee
- The full Call for Evidence document in electronic format is available on the Committee on Climate Change website.

2. The Response to the Call for Evidence

The Committee received 130 responses to the Call for Evidence. Responses came from business and industry, NGOs, academia, individual and others. Some questions were engaged with more than others.

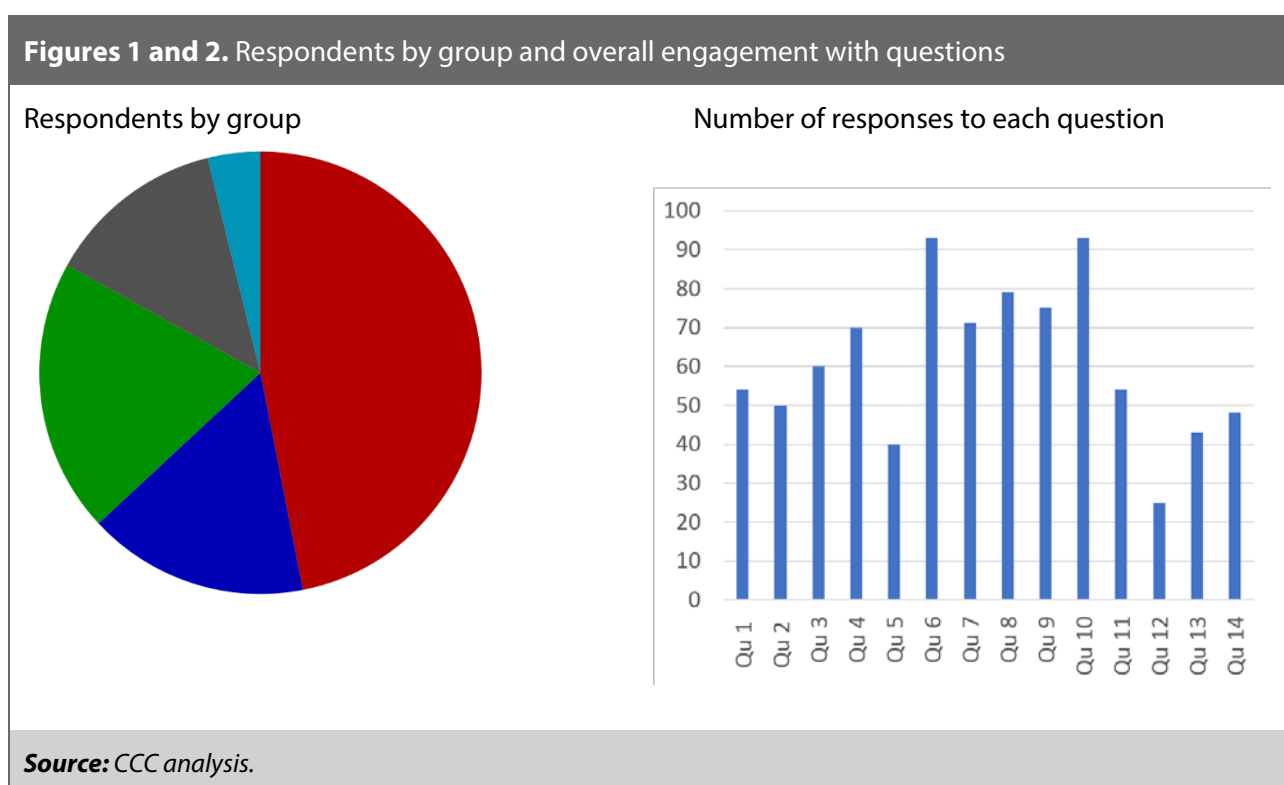


Table 1. All respondents		
Business and Industry	ADBA	Agricultural Industries Confederation
Airlines UK	Aldersgate	Anglian Water Services Ltd
Anglo American	Association for Decentralised Energy	Aviation Environment Federation
Battery storage equipment manufacturer	British Ceramic Confederation	Cadent GAS
Carbon Capture and Storage Association	Centre for Alternative Technology	Centre for Research into Energy Demand Solutions
Centrica	Chemical Industries Association	Climate Friendly Policy and Planning
Confederation of British Industry, CBI	Confor	Country Land and Business
DNV GL Limited	Drax Response	E ON
EDF Energy	Energy Networks Association	Energy System Catapult
Energy UK	Energy Utilities Alliance	ESTA Energy Services and Technology Association
Freight Transport Association	Grundfos	Industria Mundum AG
JRP Solutions	Mineral Products Association	Mineral Wool Insulation Manufacturers Association
National Farmers' Union, NFU	NFU Scotland	Northern Ireland Renewables Industry Group
Nuclear Industry Association	Oil and Gas UK	Oil Change International
Origen Power Ltd	Orsted	OVO
Prince of Wales's Corporate Leaders Group	Renewable Energy Association	RWE
Scotia Gas Networks	Scottish Carbon Capture and Storage	Scottish Power response

Table 1. All respondents		
Society of Motor Manufacturers & Traders Limited	Soil Association	Solar Trade Association
Storelectric	Synnogy	UKLPG
United Kingdom Onshore Oil and Gas, UKOOG	Unite Union	Vattenfall
Wales and West Utilities	WSP	NGOs
10:10 Climate Action	CAFOD, Christian Aid and Oxfam	Cambridge Sustainable Food Partnership
Client Earth	Climate Change Global Witness	Climate Outreach
Compassion in World Farming	Creativity Partnership	Discovery Mill
Friends of the Earth	Green Alliance	Green House
Greenpeace	Nourish Scotland	Richmond Heathrow Campaign
RSPB	RSPB Scotland	Stockholm Environment Institute
Suffolk Climate Change Partnership	Sustainable Food Cities Campaigns	Sustainable Food Trust
WWF and Vivid	WWF Scotland	Academia
Alayne Perrott, University of Swansea	Allen Duncan, University of Greenwich	Cardiff University Risk Group
Dave Reay, University of Edinburgh	Dr Hanna Nuuttila, University of Swansea	Dr Michelle Cain, University of Oxford
Dr Michelle Felton, Centre for Agri-Environmental Research	Grantham Institute	IGov
Kate Scott, University of Manchester	Matthew Brander, University of Edinburgh Business School	Michele Stua, University of Sussex

Table 1. All respondents		
Naomi Vaughan, Mirjam Roder, Anna Harper and Claire Gough	Nick Cowern, Newcastle University	Nils Markusson, Lancaster University
PhD student, University of Cambridge	PhD student, University of Southampton	Phil Renforth, Cardiff University
Phil Williamson, University of East Anglia	Prof Keith Barnham, Imperial College London	Rob Bellamy, University of Manchester
Royal Society and Royal Academy of Engineering	Ruth Buckley Salmon, University of Southampton	Tyndall Research Institute, select researchers
UK CCS Research Centre	University of Sussex, Science Policy Research Unit	Others
Green Party, Climate Change Policy Working Group	Leicester City Council	Office of the Mayor of London
Met Office Hadley Centre	Royal Town Planning Institute	Tees Valley Combined Authority
Individuals	Andrew Stott	Anna Morafon
Brian Drummond	David Warren	Goodwin Gibbens
John Briggs	John Ingleby	Mike Webber
Paul Mather	Pause Forthought	Richard A Shirres
Robert Proctor	Roc Sandford	Ron Hughes
Rosalind Kent	Steve Hack	Victoria Redhead
Source: Responses to the Call for Evidence.		

The Call for Evidence was an important part of the Committee’s engagement programme, but not the only one. We also held a large number of roundtable and bilateral meetings, including with relevant groups that did not respond to the Call for Evidence (e.g. the finance sector and trade unions).

3. Overview of the responses

Most responses to the Call for Evidence were comprehensive and provided relevant and useful evidence and comments. Following are some key points from the responses to each question.

They provide an overview of responses, it does not cover every submission that was made. All of the responses are provided in full on the Committee on Climate Change website.

Question One, 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?'

Over a thousand different pieces of evidence were cited across responses to all questions. Among the most cited were:

- Energy Transitions Commission (2018), Mission Possible: Reaching net-zero carbon emissions from harder-to-abate sectors by mid-century
- Intergovernmental Panel on Climate Change (2018), Special Report: Global Warming of 1.5°C
- Met Office (2018), UK Climate Projections 2018 (UKCP18)
- The Royal Society (2018), Greenhouse Gas Removal Report.

Question Two, CO₂ and GHGs: 'Carbon dioxide and other greenhouse 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?'

Many respondents stated that they do not feel adequately informed on the issue of different gases. Among those who did express a view, there were a range of opinions including that:

- the UK should take an innovative approach to the different gases and move away from current practice and guidance
- the UK should maintain current practice and follow international practice
- the UK should prioritize the reduction of CO₂ and aiming for net-zero CO₂, but soften ambition for methane
- the impacts of methane are being underestimated.

Question Three, 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?'

Nearly every respondent who answered this question stated that the UK needs to either formally or informally account for consumption emissions. This view was based on a variety of reasons, including the belief that territorial accounting is inequitable, will move UK business offshore, and will have an adverse effect on global emissions.

- 'The carbon accounting system actively incentivises carbon intensive imports over lower carbon domestic production. Such perverse incentives must be addressed.' – UKOOG
- 'Ideally a pathway is provided that delivers on net zero domestically and substantially reduces our non-territorial emissions significantly.' – Friends of the Earth

Question Four, 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?'

Most submissions noted that the UK can assist international efforts by taking a leadership role. Ideas of what such a leadership role would look like varied. Suggestions included:

- developing and exporting new technologies (either for free or at cost)
- coordinating the deployment of technologies where it is geographically most effective
- growing and coordinating scientific communities to share best practice
- taking ambitious action under multilateral agreements such as the UNFCCC and ICAO
- engaging and trading with countries that embed principles consistent with the Paris Agreement
- providing significant international finance.
 - 'We believe that if the UK continues to set ambitious greenhouse gas reduction targets this in itself will support efforts to cut emissions elsewhere in the world.' – Anglian Water Services

Question Five, 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?'

Responses to this question can be categorised into two distinct groups: those who support the use of carbon credits, and those who do not.

Many of those who are in favour noted they should not replace domestic mitigation action, and should be subject to a robust and credible system. Many also felt very strongly that the UK should stay part of the EU Emissions Trading System or link to it as soon as possible after exiting the EU.

Those who do not support carbon credits think that they are ineffective, reduce mitigation efforts, and that supporting other countries' transitions should be done in other ways.

- 'The outsourcing of action on climate targets from the UK to other countries through a trading mechanism is necessary, essential and fraught with complexity.' – Origen Power Ltd
- 'Carbon credits can indeed support climate action leading to emissions reductions in developing countries, but these should be accompanied by robust oversight to ensure projects deliver measurable and verifiable carbon reductions.' – Energy UK

Question Six, 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?'

There was a call from nearly all respondents for clear and stable policy in all sectors, particularly those that are hardest to reduce emissions.

- 'Ambitious targets, supported by consistent policy measures will give investors, entrepreneurs and innovators the confidence to invest and hence maintain the UK's position as a prosperous and respected nation during the transition to the low carbon economy.' – Creativity Partnership
- 'There is still a lack of clear, long-term signals and supporting policies from Governments... Ambitious long-term strategies can play a key role in informing policy and business decisions, encouraging the investment and creativity that would help build a zero emissions and climate-resilient future, and avoiding stranded assets and mis-investments' – Prince of Wales Corporate Group

A small number of respondents pointed to the importance of high-profile decisions (e.g. Heathrow expansion, and 'fracking') in signalling the Government's commitment to tackling climate change. Some respondents suggested that these major decisions would make achieving net-zero emissions more difficult.

Hard to reduce sector: Aviation

Many submissions that discussed aviation suggest a decrease in the number of flights or a tax on flights to incentivise frequent fliers to use other modes of transport and to use technology for business instead of flying.

Some respondents had concerns regarding the International Civil Aviation Organisation (ICAO), for example that insufficient consideration of Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) could lead to either double counting, or UK airlines becoming uncompetitive.

Hard to reduce sector: Agriculture

Some respondents suggested that the UK's exit from the EU could be an opportunity to make significant emission reductions from the Agricultural sector, for example by implementing an ambitious replacement for the Common Agricultural Policy (CAP).

Many submissions called for support and incentives to reduce on farm emissions and also to convert some or all of farmland to enable carbon sequestration.

Question Seven, 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?'

There was general support for GHG removals. Many respondents had some reservations, including concern that GHG removals could distract from other mitigation efforts. Other submissions noted that GHG removals should be used responsibly and only where it is extremely difficult or impossible to reduce emissions to zero without them.

- 'It is important to stress that these removals must not be used to reduce the pressure on reducing GHG emissions as far as possible. The scale of the challenge to deliver on the

aspirations in the Paris Agreement will require large quantities of net negative emissions in the second-half of the century' – Friends of the Earth

- 'Provision for greenhouse gas removal must be made only to the extent that there is demonstrably adequate governance of the associated negative environmental and social impacts, a coherent and robust system of accounting, and – having in mind the moral hazard of negative emissions – the explicit prioritisation of emissions reductions to the greatest extent possible. – ClientEarth

Some submissions note that if the UK plans to rely on GHG removals to achieve carbon budgets, then the Government needs to invest in their development and deployment.

Question Eight, 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?'

There were a range of responses including:

- the UK should be taking full advantage of technologies available now, rather than just focusing on future technologies
- breakthroughs in technology should be expected, but not relied on to meet targets, instead policies that take into consideration current technologies should be implemented to achieve them
- investment in new technologies needs to be targeted and courageous
- there is currently insufficient technology to reach net zero
- the UK needs to act as a global citizen and share its technologies and learn from others.
 - 'Clearly shared technological agendas have the potential to drive down costs as deployment ramps up across countries. UK has been instrumental in doing so in North Sea, with Germany, Netherlands and Denmark collectively driving sharp cost reductions in offshore wind.' – Greenpeace
 - 'The cost-reduction trajectories of renewable electricity generation have been effectively driven by early financial support, clear government targets, coordinated policy and a reasonable timeframe for progress towards competitive auctions.' – Northern Ireland Renewables Industry Group

Question Nine, 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?'

Some respondents feel that behavioural change is difficult or impossible and therefore policies should align with current behaviours. Others felt the opposite, stating that there needs to be fundamental shifts in behaviours.

Many of those who submitted that behavioural change is unlikely were from the energy sector, many of which discussed heating. Many of those who submitted that behavioural change is possible and necessary focused their discussion on diet and aviation.

Some respondents think that it is those on high incomes that should be targeted to change their behaviour given they are often the highest emitters, and could bear any potential costs associated with changes.

Question Ten, 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?'

Across all groups of respondents, there was a call for a just transition, that is, one that is fair, equitable, and inclusive. Nearly all submissions from business and industry called for collaboration with, or support from, Government. Many noted they would welcome sector specific roadmaps to guide their transition.

There were many different views on how changes should be delivered. There was recognition that transitions will look different for different sectors, administrations, and regions, and that Central Government cannot achieve the UK target alone, instead local authorities and groups as well as business and industry will need to play a role.

Question Eleven, 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?'

Nearly every respondent who answered this question noted that taking action now will be much more cost effective than taking it in the future. Some respondents do not think there is any risk or cost associated with action, but rather see it as an investment.

Many respondents raised concern about unintended consequences of climate change action and called for flow on effects to be thoroughly evaluated.

Question Twelve, 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?'

Many of those who answered this question noted that the differences in climate impacts in all parts of the world need to be considered. This view was based on climate change being a global effort, and also on potential flow on effects on the UK.

- '... climate impacts elsewhere in the world will increasingly affect the UK too, in terms of knock-on economic impacts, international investments, political instabilities, climate refugees, food security and sustainable development goals – as detailed in the IPCC Special Report on 1.5°C.. Caution is therefore needed in giving too much emphasis on UK-scale impacts; they are in addition to the impacts elsewhere, not an alternative perspective.' – Phillip Williamson

Question Thirteen, 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?'

Most responses to this question noted the different natural resources and landscapes of England, Wales, Scotland, and Northern Ireland. Respondents feel that policies need to reflect these differences to be effective. There were two main opposing views linked to these differences. Some respondents think that greater climate action in some Devolved

Administrations could help make up for inaction in others, while others are concerned any averaging could reduce overall progress.

Question Fourteen, 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?'

64% of respondents did not suggest additions to the proposed work plan. Of those that did respond to this question, some mentioned topics that are addressed in this Report, such as the costs and benefits of a net zero target, or topics that have been addressed in previous CCC reports, such as emissions from housing.

The additional aspects that other respondents suggested were diverse, including:

- the UK post 2050 and post net zero
- exiting the EU
- capacity building
- the role of non-State actors in decision-making
- emissions from the military
- emissions from IT