

Executive Summary

Grundfos is a global supplier of pumps for heating, air conditioning, irrigation, industry, fire prevention, groundwater, boosting and water treatment. We welcome the opportunity to contribute to the Committee on Climate Change's independent advice to government on building a low – carbon economy and preparing for climate change.

As a socially responsible and sustainability focused organisation, we are well placed to contribute to the debate surrounding the pathways the UK government should take in order to meet international, and national emission reduction targets. In the following response we share our experiences, instances of best practice and any challenges us (as a company) and our customers (prospective and actual) face in terms of emissions reduction, building a low carbon economy and preparing for climate change.

Where no response is offered (indicated by N/A), it means that this area falls outside our area of immediate expertise.

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?

N/A

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?

N/A

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?

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N/A

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?

N/A

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?

N/A

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?

Grundfos can draw upon our own best practice to demonstrate how a range of sectors can effectively reduce emissions to close to zero. In the last ten years, Grundfos has reduced its CO₂ emissions by 23%. Furthermore, we recently received our 14th consecutive Green Apple Award for Environmental Best Practice from The Green Organisation at the Houses of Parliament, demonstrating our commitment to environmentalism.

Further, our environmental efforts were recently recognised via a CEMARS (Carbon and Energy Management and Reduction Scheme) audit. We reduced our emissions intensity by an impressive 5.9% against 2012, which was our base line measurement.

The decision was made in May 2018 to stop the use and availability of any single use plastic bottles and cups. Staff at the Grundfos Pumps UK HQ have been issued with their own reusable drinks containers and all plastic cups have been replaced.

Moreover, Grundfos products offer solutions which facilitate the reduction of emissions in the industrial sector. Our energy efficient pumps are used in a variety of sectors (domestic & commercial building services, health, education, pharmaceutical, food & beverage,

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industrial applications, agriculture and the water sectors.)

As demonstrated, emissions can be reduced in these sectors in two ways – firstly businesses can create ‘green’ and extremely efficient products, and secondly, they can ensure that processes associated with production/operation are themselves low/zero emitting.

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?

N/A

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?

N/A

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?

To a great extent, behavioural change can be elicited, but this is largely reliant on a supportive policy environment. The UK has already seen significant behavioural change brought about by legislation (the smoking ban reduced the number of people smoking, recycling bins provided by local councils increased instances of recycling and so forth. Over time, people can be encouraged to adopt behaviours that will facilitate/aid emission reduction. As consumers become more aware of their ‘carbon footprint’, they may feel empowered to make choices which will reduce it. In the realm of environmental/climate change policy, government legislation regarding electric vehicles has resulted in an uptake of this vehicular type, however there is an awareness that, as with many choices people make, cost is a significant contributing factor.

One area where emission reductions are lagging is vis a vis domestic heat. People are unlikely to change their heating system (as they would a car for instance), unless it breaks therefore there must be policy intervention to encourage the uptake of lower emitting heating sources. Furthermore, oftentimes the person making the decision at the ‘end of life’ is not the bill payer and installers tend to actively seek to replace pumps with a ‘like with like’ pump – which will never be as efficient as newer options.

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In addition to messaging and marketing, a major driver for behavioural change in terms of domestic heating would be provision of financial support. People may wish to change their heating system to one that is more efficient (reducing energy bills) and 'greener' but may not be able to afford to do so. Subsidies for certain types of technologies would play a role here. Currently, the Domestic RHI helps support heat pump deployment – the removal of this measure in 2021 is concerning – we recommend offering another subsidy in its place else risk hampering attempts to decarbonise heat.

Further, domestic heating systems are still not experiencing maximum efficiency. We advocate policy which would mandate the balancing of all heating systems to ensure they are operating at maximum efficiency (hence lowering their emissions as well as reducing household heating costs and increasing thermal comfort.) Hydraulic balancing is a prerequisite for other interventions, like advanced controls and boilers minimum efficiency increases, to deliver true potential – any other domestic heating policies will not generate the desired impact on energy savings if they are not accompanied by encouragement of best practice, like the implementation of hydraulic balancing, to allow boilers to operate at lower flow temperatures and properly condense. Here there is a lack of regulation vis a vis promoting installers' best practice (installers should be mandated to ensure all new heating systems are balanced.) We have to start with those in the supply chain promoting good behaviour.

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?

As outlined in the answer to Question 9, effective decarbonisation of domestic heat is required in order for the UK to meet its 2050 targets.

Further, certain technologies could help enable the UK to meet its targets. Such technologies also play a wider role in building a low carbon economy and preparing for climate change. Efficient Grundfos pumps could save 2 billion m³ of water globally, or eight times of Denmark's annual water consumption. Upgrading pumps could save water and energy and help combat climate change (high efficiency circular pumps saved 6.6 kilowatt hours of energy in the EU in 2017 alone.) It is estimated that, if everyone currently using a pump switched to a high-efficiency pump, 4% of the world's total electricity consumption could be saved – equivalent to the residential electricity consumption of 1 billion people. Moreover, upgrading pumps can reduce householder's energy costs by 50% and their CO₂ emissions by 30%.

As aforementioned, businesses and industry can certainly play a role in enabling the UK to meet its targets. Grundfos has seen a 23% reduction in CO₂ emissions since 2008 and we encourage other organisations to seek to do the same. Advising businesses on how to reduce emissions and be part of the circular economy, and incentivising innovation is the approach we would advocate.

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?

N/A

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?

These differences are outlined and explored fully in the [IPPC's report](#).

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?

N/A

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?

N/A