

27 August 2021

Royal Society submission to the House of Commons BEIS Committee inquiry on “Net Zero Governance”

Summary

Two major structural changes will be required in government to support the delivery of net zero. First, the establishment of a new independent net zero advisory group with statutory powers, existing beyond the political cycle and working alongside the Committee on Climate Change.

Such a group would develop an evidence-based technology roadmap on how to deliver the reductions in carbon emission required by 2030 and net zero by 2050. It would ensure value for money to the UK Treasury, accelerate the pace to net zero, increase Government accountability and strengthen parliamentary scrutiny.

Alongside this group, there is a need for a cross-Whitehall body, likely inside No 10, able to work across Departments and take decisions on recommendations and spending to deliver net zero, as well as convening a cross-departmental taskforce for the digitalisation of the net zero transition.

In terms of metrics for measuring progress towards net zero, the focus should be on the gap between where carbon emissions are, and where they need to be. A co-ordinated digital strategy would help to establish the means to monitor the transition.

1. Introduction

The Royal Society welcomes the opportunity to submit evidence to the Committee’s inquiry into net zero governance. The Society is the National Academy of Science for the UK and the Commonwealth. It is a self-governing Fellowship of many of the world’s most distinguished scientists working across a broad range of disciplines in academia and industry. The Society draws on the expertise of its Fellows and Foreign Members to provide independent and authoritative scientific advice to UK, European and international decision makers.

This submission draws on a number of existing pieces of work which are currently underway in the Royal Society as well as the specific expertise of Fellows. This includes a collection of 12 briefings¹, drawing on the expertise of over 150 scientists from more than 20 countries, on science and technology areas that are key for accelerating progress towards net zero, addressing greenhouse gas emissions and developing increased resilience to climate change. It also includes our major policy report, *Digital Technology and the Planet*, which sets out the role for data and digital technology in reaching net zero.²

¹ <https://royalsociety.org/topics-policy/projects/climate-change-science-solutions/>

² <https://royalsociety.org/-/media/policy/projects/digital-technology-and-the-planet/digital-technology-and->

2. Establishing a Net Zero Advisory Group

An independent body – the **Net Zero Advisory Group** (NZAG) – is needed to support the development of a UK roadmap on how to deliver net zero. NZAG would identify which technologies are ready to deploy, which need further development and which further research. Such a body would help co-ordinate and build political and public consensus about the route to net zero that would persist over political cycles, and aid co-operation within the UK's nations and regions, as well as overseas, to render technologies commercially viable at scale. Crucially it would identify a roadmap that represents the best value for money to the UK taxpayer (largest reduction in carbon emissions per pound spent) and help the Treasury to prioritise investment to accelerate the pace of technological advances and deployment.

The NZAG group would be populated by the most eminent scientists, technologists, engineers, economists, investors and behavioral scientists across academia and industry, bringing together a range of disciplines in areas of relevance to R&D, innovation and deployment expertise. This would bridge the gap between BEIS policy setting and delivery by joining up local efforts across the UK and directing investment between government and the private sector.

NZAG would be a partner body to the Climate Change Committee, with the power to provide independent advice to UK and devolved governments on setting and following a net zero technology road map, with responsibility for modelling and ruthlessly tensioning one low carbon solution against another from a variety of perspectives to provide advice on which technology choices to make. It would also be responsible for providing advice on which scientific and technological solutions are ready to deploy now and what is needed to incentivize their deployment, which solutions require further development and demonstration at scale, and which solutions require further research.

There is currently no other group that sits within or alongside Government that performs this function. Further, the structural foundations of such a body would also position it in a unique manner. The clear potential for market failure and stranded assets together with the need to create confidence in investment lend weight to the need for such a Group. The UK led the world in establishing the Committee on Climate Change, it can lead again, showing the way to others by setting up NZAG.

3. Convening a cross-Whitehall body to offer confidence to business

Many of the actions needed to deliver net zero span the responsibilities of individual Departments and regulators, and therefore require a holistic approach. The best way to deliver this would be a **central cross-Whitehall body**, likely based within No10, which could take the big picture decisions on actions and spending to deliver net zero. This would include research areas into innovations which have the potential to deliver net zero solutions across a variety of sectors, such as hydrogen and ammonia, which are needed to decarbonise industrial processes, power Heavy Goods Vehicles, heat homes and in agriculture.

Creating such a structure would ensure that the recommendations from the Net Zero Advisory Group outlined above would be translated into action and, crucially, the combination of a cross-Whitehall body and NZAG would give confidence to the business and investment community on the direction of travel.

Clear direction is needed from the Government as the private sector is unlikely to invest in research and development if there is no clear commitment from the Government to use a certain technology. In addition, Government commitments are needed to encourage the private sector to make the necessary investments into the large-scale manufacture of net zero technologies, as well as setting up the right training programmes to ensure we have a workforce with the necessary skills to install and work with these new technologies.

4. Co-ordinating digitalisation of the net zero transition:

Digital technologies have transformed the economy, revolutionised communications and made it possible for a large part of the economy to continue to function during the pandemic. Data-enabled technologies such as machine learning and artificial intelligence have enabled efficiencies and optimisation across sectors.

Digital technologies will undoubtedly have a fundamental enabling role in delivering and monitoring net zero, and in advancing research and innovation by helping discover brand new solutions to the net zero challenge. It is therefore proposed that the government should convene a **cross-departmental taskforce** for the digitalisation of the net zero transition as part of the cross Whitehall body described above.

The UK is in a strong position to drive this digital transition, building on its world-leading research in digital technology and other disciplines, and vibrant tech start-up ecosystems. It is important to note that technology alone will not achieve the transition to a low-carbon economy. While digital technologies offer the promise to catalyse change, wider policies – including those on sustainability – will be vital to set a direction towards low-emissions ways of living and working, and to shape technology development to deliver positive outcomes for the planet. The right policies will also be needed to create critical digital infrastructures for net zero, that work for everyone. Action in key areas will help secure the transformation:

- building a trusted data infrastructure for net zero
- optimising the UK's digital carbon footprint
- establishing a data-enabled net zero economy
- setting research and innovation challenges to digitise the net zero transition.

With the right incentives, applications of digital technologies could bring about new services and business models allowing a shift away from resource consumption and carbon intensive wealth creation. The transformation towards a data-enabled net zero economy also promises to create many local jobs. The priority should be to secure a net zero transition that works for all, building digital skills and net zero knowledge at all levels.

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