



Department
of Energy &
Climate Change

DECC Science Advisory Group

Annual Report 2011/2012

July 2013

Introduction

This paper is a report on the work of the DECC Science Advisory Group as set out in the [Terms of Reference](#). It provides a high level overview of the work the SAG carried out in 2011 and 2012 and an evaluation of progress made by the group.

Overview

The Science Advisory Group (SAG) helps to ensure the quality and appropriateness of DECC science and its use, by providing strategic advice on DECC's science activities, their relationship with the wider UK and international science base and the effectiveness with which science is used to inform the development and delivery of DECC's policy goals.

Its Terms of Reference and current membership are given in Annex 1 & 2

The SAG was formed in April 2010, and the composition of the group (see Annex 1) was planned by the CSA and the Chair to include a mix of scientists and engineers as well as a social scientist, an industry expert, and people with interests in and experience of social, policy and economic issues. The long-term intention is for the SAG to move to a more formal footing, as an independent non-departmental public body (NDPB), in accordance with the OCPA Code of Practice and in line with the Nolan Principles of Public Life guidance.

Background

Since its inception in 2010 the group has held nine meetings and has provided independent and objective advice to the DECC CSA and a number of policy teams around DECC, through both face-to-face meetings and occasional reports. It sets its own agenda but has also responded to requests to provide advice to the CSA and policy teams on specific issues. Examples include advice on the Renewable Heat Incentive, future oil & gas supplies, a briefing note on carbon capture and storage, and a note on shale gas extraction.

The SAG usually meets quarterly for one full day in Dec/Jan, Mar/Apr, Jun/July and Sept/Oct. Its meetings normally include an update from the CSA on his current work and matters of interest & concern, usually triggering considerable discussion. This provides an opportunity for the CSA to determine where SAG members may be able to advise or support him in particular issues. The remainder of the meetings normally consists of a number of presentations from DECC policy teams and/or SAG members on specified topics, with extended periods of discussion and feedback: these provide a valuable opportunity for face-to-face interaction between the SAG and DECC staff. Finally, SAG discusses any other business and updates its forward look on business for future meetings.

SAG members are expected to attend three or four such meetings a year, but it is envisaged that each SAG member will also participate in urgent business (e.g. national emergencies that fall within DECC's remit) as necessary, and in some circumstances this could involve meetings called at short notice.

Meetings in 2010/2011

Topics included:

- DECC Science and Innovation Strategy- presented by Nafees Meah, DECC (*July 2010*)
- 2050 calculator - presented by the DECC CSA (*July 2010*)
- Green Deal: think piece on underlying technical realities in the building sector- presented by Tadj Oreszczyn (*November 2010*)
- Green Deal: policy position- presented by Sam Thomas (*November 2010*)
- Climate and Energy Policy: think piece on social constraints and opportunities- presented by Nick Pidgeon (*November 2010*)
- DECC Innovation Prioritisation – presented by Paul Durant, DECC Energy Innovation(*March 2011*)
- CCS -Geology, technology and policy- presented by Stuart Haszeldine and Jon Gibbins. (*March 2011*)
- Results of DECC inquiries into peak oil and gas availability - presented by Alex Whitmarsh, DECC Energy Markets & Infrastructure; and Lawrence Newland, DECC International Energy & Climate Change. (*March 2011*)
- Low carbon electricity supply and distribution, grid balancing and threats to grid stability- presented by Jon Gibbins. (*July 2011*)
- Renewables – Potential, intermittency, storage, grid stability and public attitudes – by Nick Jenkins. (*July 2011*)
- Renewable Heat Incentive – DECC policy update by Andrej Miller DECC Heat Team
- Bioenergy (update on evidence and policy position) - presented by Martin Meadows, Science and Innovation Group. (*July 2011*)
- Current state of climate science – presented by Peter Cox. (*October 2011*)
- Public perception of climate change – presented by Nick Pidgeon (*October 2011*)
- EMR: DECC Perspective – presented by Nick Skates, DECC. (*October 2011*)

More detail on the topics of discussion can be found in the meeting minutes.¹

Meetings in 2012

There were four meetings during 2012². Some of the topics covered included:

¹ Full minutes of these meeting are available at:

<http://webarchive.nationalarchives.gov.uk/20120406022940/http://www.decc.gov.uk/en/content/cms/about/science/sag/docs/docs.aspx>

Energy Research Partnership nuclear roadmap and Nuclear Power – Alternative technologies discussion (*Presentations by Sue Ion*)

Sue Ion summarised the Energy Research Partnership (ERP) nuclear road map. The ERP report provided a strategic outline of issues which need to be addressed in developing a UK Nuclear R&D Roadmap, some of which required urgent attention. It also highlighted that a range of technology pathways could be needed each with significantly different R&D requirements and opportunities for the development of UK industry and the supply chain depending on how much nuclear energy was expected to be in the UK energy mix by 2050 and beyond.

The SAG provided CSA with their opinion on how current, and possible future, DECC policy could lead to the development and deployment of new nuclear technology and IV Generation reactors in particular. They also expressed their concern about the public perception of nuclear energy and suggested that significant work that lies ahead before new nuclear plants can come online.

Shale Gas (*Presented by Stuart Haszeldine*)

Stuart Haszeldine presented a briefing note on geological aspects of fracking for shale gas extraction. This note reaches very similar conclusions to the DECC commissioned [report](http://og.decc.gov.uk/en/olgs/cms/explorationpro/onshore/cuadrilla_decc/cuadrilla_decc.aspx) (http://og.decc.gov.uk/en/olgs/cms/explorationpro/onshore/cuadrilla_decc/cuadrilla_decc.aspx)

He advised that disposal of recovered water may prove to be the most significant environmental issue. Substantial monitoring of fracking activities is needed as well as effective regulation to prevent leakage of fugitive emissions which could prove problematic to the UK carbon responsibilities. The SAG noted that the benefits of a “Joint competent authority” approach noted in the Offshore Oil & Gas regulatory regime review would apply equally to shale gas exploration onshore.

The potential for Smart Controls of home heating (*Presented by Tadj Oreszczyn*)

Tadj Oreszczyn presented to the SAG on domestic Smart technology. This presentation was linked to a warmer homes project being carried out by the Energy Efficiency Deployment Office (EEDO) and a strong area of interest for the CSA as, in his view, Smart Controls offer a way to significantly reduce energy use in homes.

The SAG commented that there is a need for much more work to be done to better understand consumer behaviour, both now, and with improved controls, as there is significant potential for unintended consequences i.e. smart heat may result in increased energy use if used to improve comfort levels. SAG members were fully supportive of the CSA’s idea to setup a research programme to trial innovations in the area of smart thermostats and heat meters, with the aim of reducing the costs of manufacture and installation of these.

² Full minutes of these meetings are available at <https://www.gov.uk/government/policy-advisory-groups/112>

Horizon Scanning

As set out in the ToR the SAG can be asked to participate in horizon-scanning and long-range planning exercises to help identify emerging challenges and opportunities for DECC science, and develop options for responding to these.

A horizon-scanning exercise was carried out during the final SAG of 2012. SAG members provided a list of potential threats posed to delivery of DECC objectives, and opportunities that might enhance delivery of these objectives. SAG members then prioritised these according to

- The likelihood of this issue (threat or opportunity) becoming manifest
- The impact of such an issue
- Whether or not (in the opinion of the SAG) DECC was already sighted on this issue

The outputs of this session were be turned into paper from the SAG to CSA providing advice on what DECC scientists, engineers and social scientists can do about the highlighted issues.³

Other topics

- Electricity System- presented by Rachel Crisp DECC
- Implications of different generation mixes on the electricity system – presented by Nick Jenkins
- Real-time characteristics of a wind/nuclear/storage/controllable electricity mix – presented by Jon Gibbins
- Electricity Storage Technology Innovation Needs Assessment - presented by the DECC CSA.
- Bioenergy Strategy- presented by Anna Stephenson, DECC.
- Geological Disposal Facility (GDF) – presented by Mark Higson, DECC
- Energy Efficiency Strategy- presented by John Sartin, DECC
- Technical aspects of Smart Meters and Smart Grids- Peter Morgan, DECC

Evaluation of Performance

During a recent GO Science review of cross departmental Science Advisory Councils and Groups, the DECC CSA expressed his appreciation for the support given to him by the SAG in completing his own objective of providing scientific stringency to DECC policy.

The SAG has regularly acted as a reliable source of information and challenge, by energetic discussions with DECC staff, in the form of short notes and commentary, through identification of key publications and papers of interest to DECC, and by providing the details of other academics to peer review DECC papers.

Moving into the future the DECC CSA would like:

³<https://www.gov.uk/government/policy-advisory-groups/112>

1. More updates from the SAG members to inform DECC of external work, particularly related to evidence collection and analysis, of interest to DECC.
2. Members to keep the secretariat aware of work they are participating in so the register of interests can be updated.
3. More comments on draft papers before they are finalised – to ensure that papers produced by the SAG are as complete as possible and reflect the views of all members

Overall DECC is pleased with the contribution made by the SAG and considers that it has proven to be a worthwhile, constructive and low-cost means of improving the quality of scientific advice to the Department. It has no plans to make any major changes to its mode of operation in the near future, except to plan for the orderly rotation of its membership beginning in 2014.

Annexes

Annex 1: List of SAG members

Professor John Shepherd FRS (Chair) - School of Ocean and Earth Science, National Oceanography Centre, University of Southampton

Chris Mottershead - King's College London

Professor Nick Jenkins - Cardiff University

Professor Tadj Oreszczyn - Bartlett School of Graduate Studies, UCL

Professor Stuart Haszeldine - University of Edinburgh

Professor Peter Cox - College of Engineering, Mathematics and Physical Sciences, University of Exeter

Paul Watkiss - Paul Watkiss Associates (independent research consultancy specialising in climate change, environmental and economic policy advice)

Dame Sue Ion - Imperial College London

Professor Nick Pidgeon - Cardiff University

Professor Jon Gibbins - Institute of Materials and Processes, University of Edinburgh

Annex 2: Summary Terms of Reference

The DECC SAG primary objective is to provide advice to DECC's Chief Scientific Advisor (CSA), and in particular will:

- provide independent advice on:

- the strategic direction of, and priorities for, departmental science;
 - the balance, relevance and adequacy of science activities supporting Departmental objectives;
 - broad strategic issues, priorities and policies from a science perspective;
 - the design and effectiveness of procedures relating to science advice;
 - both pressing and emerging science issues facing DECC.
- participate in horizon-scanning and long-range planning exercises to help identify emerging challenges and opportunities for DECC science and develop options for responding.
 - provide independent review of scientific activities relating to DECC's preparation for and response to emergencies in DECC's areas of responsibility; and
 - advise the CSA on specialist expertise available in the science community that DECC could benefit from.

The complete ToR can be found at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/66752/2091-decc-sag-terms-of-reference.pdf

