

MEETING NOTE

Meeting title:	LWEC Geoengineering meeting
Venue:	BIS, 1 Victoria Street, London
Date and time:	20 th May 2011, 10.30 – 15.30h

Attendees:		
Oliver Boucher (Met Office)	Nick Cook (EPSRC)	Peter Cox (Exeter Univ.)
Humphrey Crick (Natural England)	Faith Culshaw (NERC)	Owen Dowsett (ESRC)
Piers Forster (Leeds Univ.)	Chris Franklin (NERC)	Ned Garnett (NERC)
Jeff Grainger (BBSRC)	Gideon Henderson (Oxford, Earth Sciences)	Tim Jickells (UEA, NERC theme leader)
Tim Kruger (Oxford Geoengineering)	Tim Lenton (Exeter Univ.)	Cathal Linnane (Defra)
Jo Oates (NERC)	Dan Osborn (RCUK theme leader for LWEC)	Andy Parker (Royal Society)
Kevin Smith (STFC)	Andrew Stott (Defra)	Nem Vaughan ((UEA)
David Warrilow (Chair)	Andrew Watkinson (LWEC Director)	Matt Watson (Bristol Univ.)
Sam White (BIS, <i>am only</i>)	Phil Williamson (UEA)	Richard Wood (Met. Office, NERC theme leader)
Lisa Hole (Secretary. NERC, LWEC)		

Note:

Objective

To consider the need for a future LWEC activity in geoengineering by discussing the existing and planned work in this area and the requirements of LWEC Partners.

It is very important to stress that the Government's priority remains **mitigation** of climate change by reducing emissions of greenhouse gases at source and **adaptation** to unavoidable climate change.

Geoengineering options are NOT being considered as an alternative to emissions reductions but it is possible that geoengineering might have a role to play in the future in supplementing mitigation efforts. However, before any possible large-scale techniques can be brought into play, it is important that the risks, costs, benefits and efficacy of such techniques are understood, and work across a wide range of disciplines, including science, technology, economics, ethics and law, will be needed.

The Government view was provided in a published response (Command paper 7936, available at www.official-documents.gov.uk) to the House of Commons Science and Technology Committee 2009/10 inquiry into the national and international regulation of geoengineering.

1. Introduction (Chair)

- Currently there is ongoing activity on assessing the state of play of geoengineering internationally. An IPCC expert meeting on geoengineering will be held in Peru on 20 to 22 June 2011, and a cross-Whitehall group has been set up to develop a formal position on geoengineering research and deployment given existing knowledge, and to explore the issues surrounding governance of geoengineering. This group will be chaired by Paul Hollinshead, DECC Director of Science and Innovation, on behalf of David MacKay and will be held on 19 July. DECC will be the main lead on geoengineering overall. Geoengineering has been considered by governments at an international level via the UN Convention on Biodiversity (CBD) and the London Convention and Protocol (Note: Defra leads on these).
- Any work on geoengineering must sit within Government policy, i.e. the priority must remain mitigation through GHG emissions reductions at source and to adapt to unavoidable climate change. The current Government view was provided in a published response (Command paper 7936, available at www.official-documents.gov.uk) to the House of Commons Science and Technology Committee 2009/10 inquiry into the national and international regulation of geoengineering.
- DECC wishes to understand the risks, costs, feasibility and benefits of geoengineering techniques and wants to link with LWEC to achieve this.
- DECC has not begun to consider governance of geoengineering yet but will be exploring this issue through its Working Group. At present, geoengineering is regulated under current legislation where it exists (e.g. ocean fertilisation under London Convention/Protocol).
- Transboundary consequences are a major issue for geoengineering.
- Communication is a challenge to government as it is not promoting geoengineering.
- The IPCC will cover geoengineering in its Fifth Assessment Report, due to be published in 2013/14, and include the findings of the recent IPCC expert meeting on impacts and efficacy of geoengineering techniques..

2. to 5. Presentations

Attendees gave presentations to provide an overview of the current status of geoengineering activities and associated risks, as well as identification of current research gaps. Presentations on governance and international regulation of geoengineering were also made. These are all available on the LWEC Climate Challenge website <http://www.lwec.org.uk/challenges/climate-challenge/what-geoengineering>

6. Discussion session

Attendees were split into two groups and asked to consider the list of research gaps identified by Nem Vaughan (see website link above) and to develop a list of the main research priorities. The groups were also asked to consider the following questions based on their research priorities list.

1. What is the policy relevance?
- 2a. What are the social implications?
- 2b. What are the communication needs?
3. Who are the relevant LWEC Partners?
4. Are there opportunities for international co-funding?
5. Other factors – cost, capability, timeliness etc.

7. Plenary session

Group 1 – Dan Osborn (Chair), Richard Wood (Rapporteur)

- Suggested that geoengineering is not considered in isolation, rather that it should form part of the portfolio of environmental options.
- Embed in local and global environmental governance eg. global treaties for air pollution.
- Make opportunistic use of natural events eg. volcanoes. This would help with upscaling issue.
- Social issues and governance – consider any previous examples of global scale intervention eg. Stratospheric ozone – but these are very rare.
- Need to consider when geoengineering technique(s) would be employed eg. when long-term mitigation is not achieving its target OR when approaching threshold.
- Should we focus on particular geoengineering technologies or take a broader approach?

Broad research needs:

- Pure engineering feasibility studies could be conducted.
- More socioeconomic research is needed to reduce uncertainties in cost.
- Reversibility/recovery times
- Air capture – limited UK research at present
- Land-based weathering
- Marine weathering – mitigation for acidification might be possible on a regional basis.
- Make use of existing research, for example, on thresholds, impacts, economics.
- Research on the ethics of geoengineering research might be useful, including public perception which is important.

Quick wins

- Consider viability of air capture – effectiveness, economics, scaling
- Conduct top down studies – scenarios of emissions and climate change, cost/benefit of mitigation vs. geoengineering.

Group 2 – Andrew Watkinson (Chair), Tim Jickells (Rapporteur)

- This group felt that it did not have sufficient expertise to identify research priorities.
- Suggested that expert science groups should be convened for each of the following types of geoengineering technology:

1. Marine Carbon
2. Land Carbon
3. Air capture
4. SRM

These groups should be asked to identify a prioritised research list, and give information on the efficacy of each piece of research. In order to achieve this, they should consider the scale and nature of each technology and what can be delivered in terms of a carbon or climate currency eg. radiative forcing.

These groups should include biodiversity experts so that the link can be made between geoengineering and biodiversity, including integrated assessment management.

Discussion

- A couple of points raised in the ensuing discussion were:
- Other countries, including developing ones, should be engaged in the geoengineering debate
- Public dialogue in geoengineering should be maintained but the public's views should only be one of the factors to take into account when planning research, and research priorities should be determined by science experts.

8. Next steps (Chair)

- The Chair suggested using expert groups to develop proposals on geoengineering that can be taken forward under LWECC.

Points of Action	Owner	Due date
1. Put presentations from this meeting on the LWECC Climate Challenge website [DONE] http://www.lwec.org.uk/challenges/climate-challenge/what-geoengineering	Lisa Hole	ASAP
2. Set up follow-up meetings for relevant LWECC Partners (Research Councils, DECC and Defra) [DECC mtg 13 July]	Lisa Hole	ASAP