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Workshop on Energy Strategies and Energy Research Needs

Introduction

Prof Jim Skea

Research Councils Energy Strategy Fellow

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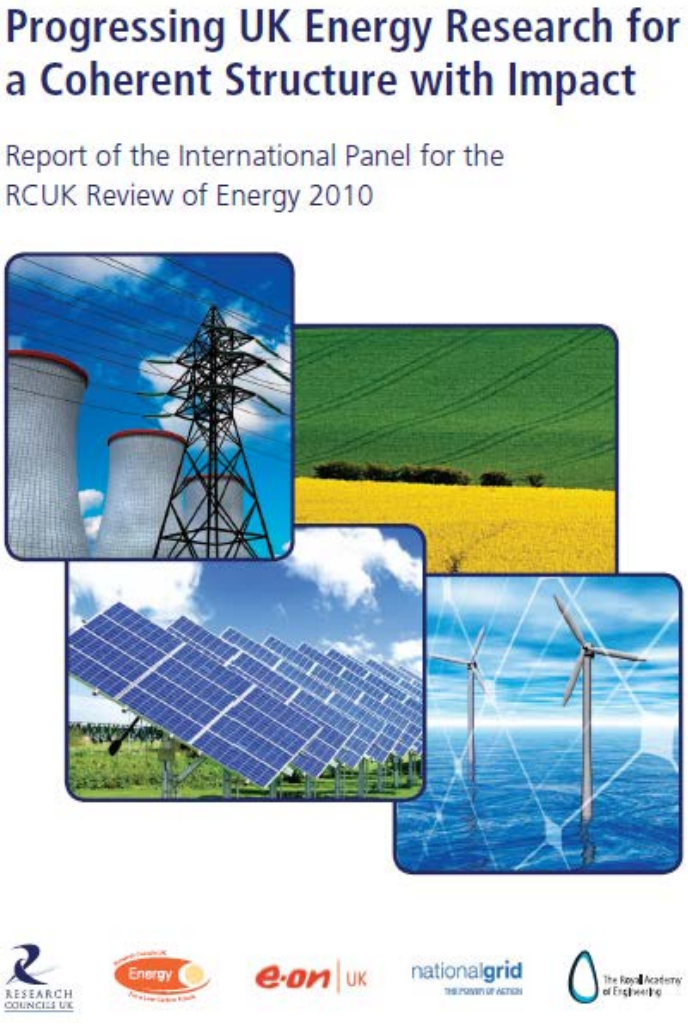
International Panel for the RCUK Review of Energy



Is the energy research funded by the UK government through the RCUK energy programme delivering impact in the UK and worldwide?

"Across almost all areas reviewed by us we found interesting, leading edge and world class research. The excellent international reputation of UK research is deservedly earned".

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Overarching conclusion and recommendation

- There are, however, fundamental weaknesses …these arise because of ***a lack of a sustained long-term coherent energy research programme across the different funding bodies,*** competition between the funding bodies, a lack of transparency ***and poorly executed or non-existent mechanisms for moving technologies from the research stages to early demonstration, application and deployment***.

- The Panel therefore recommends: ***a fully integrated "roadmap" for UK research targets*** be completed and maintained to allow all to know and understand what is considered essential to meet society's needs.

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Research Councils response : Energy Strategy Fellow

Develop a "roadmap" of research, skills and training needs across the energy landscape to meet the UK 2050 targets:

- Identify gaps and misalignments of activities with UK goals
- Research needs to be evaluated, prioritised and implemented
- Work closely with the Research Councils and the Department of Energy and Climate Change
- Organise meetings and workshops
- Act as advocate for the Energy Programme
- Act impartially and independently

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A vision for the "prospectus" not a "roadmap"

"The evidence base upon which the RCUK Energy Programme can plan its forward activities, acting in concert with Government, other RD&D funding bodies, the private sector and other relevant stakeholders."

Key issues:

- the interface between RCEP and other RD&D activity/funders
- Not just climate change: security; affordability; economic opportunity
- Robust against uncertainty
- Ensuring links with underpinning science and engineering
- Training/human capital as well as research

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The Prospectus: workplan

1. Scoping phase: documentary review; bilaterals with stakeholders; scoping top-level road-map – *Spring-summer 2012*
2. Data-gathering: topic-focused workshop activity - *Autumn 2012- Summer 2013*
3. Synthesis: peer review; top-level document; publication - *Summer-autumn 2013*

Throughout: Steering Group; website development

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The Scoping Phase : bodies consulted

BBSRC
Carbon Trust
Defra
Energy Efficiency Deployment Office
Energy Institute
Energy Research Partnership
Energy Technologies Institute
EPSRC
ESRC
IET
Institute of Biology
Institute of Chemical Engineering
Institute of Mechanical Engineering
Institute of Physics
Institution of Civil Engineers
International Energy Agency
IoM^3
Low Carbon Innovation Coordination Group
NERC
Ofgem
Royal Society of Chemistry
Science and Technology Facilities Council
Science and Innovation Group, DECC
Shell
US Department of Energy
Welsh Assembly Government

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Strategic workshops

- Energy Strategies and Energy Research Needs:
  24 October 2012
- The Role of the Environmental Sciences, Social Sciences and Economics:
  13 November 2012
- Research Councils and the Energy Funding Landscape:
  4 December 2012

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Expert workshops

Six workshops January – June 2013

- Fossil Fuels and CCS (w/c 7 Jan tbc)
  with UK CCS Consortium
- Energy in the Home and Workplace (w/c 4 Feb tbc)
  with EEDO
- Bioenergy (w/c 4 March)
  with BSBEC and Biomass SUPERGEN
- Electrochemical Energy Technologies (tbc)
- Energy Infrastructure (tbc)
- Transport Energy (tbc)
  with Low Carbon Vehicle Partnership

+ light-touch review: nuclear fission; wind/wave/tide; industrial processes

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Updating

- Annual consultation with RCUK Energy Programme and other key stakeholders
- Annual revision of top-level roadmap in light of policy change, technological developments etc
- Revision of /development of new topic roadmaps according to needs identified during revision of top-level roadmap
- The latter cannot be planned five years ahead – prudent resource provision in budget

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Workshop Agenda

- Opening plenary: review of approaches to energy futures
- Facilitated session on the range of possible UK energy futures
- Lunch
- Breakout session on energy research portfolios
- Pulling it all together

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Two conceptual thoughts

1. Categories of energy research

2. Responding to UK capabilities

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Categories of energy research

Grand challenge

Addresses fundamental limitations of current theories and descriptions of matter in the energy range important to most energy technologies.

Discovery

Seeks fundamental new understanding of materials or processes that may revolutionize or transform future energy technologies.

Use-inspired

Pursues fundamental new understanding usually focused on scientific showstoppers, to advance energy technologies

ARPA-E

Establishes proof of new, higher-risk concepts; prototypes new technology concepts

Applied Research

Conducts research to meet technical milestones, emphasizing development, performance, cost reduction and durability

Source: US Dept of Energy

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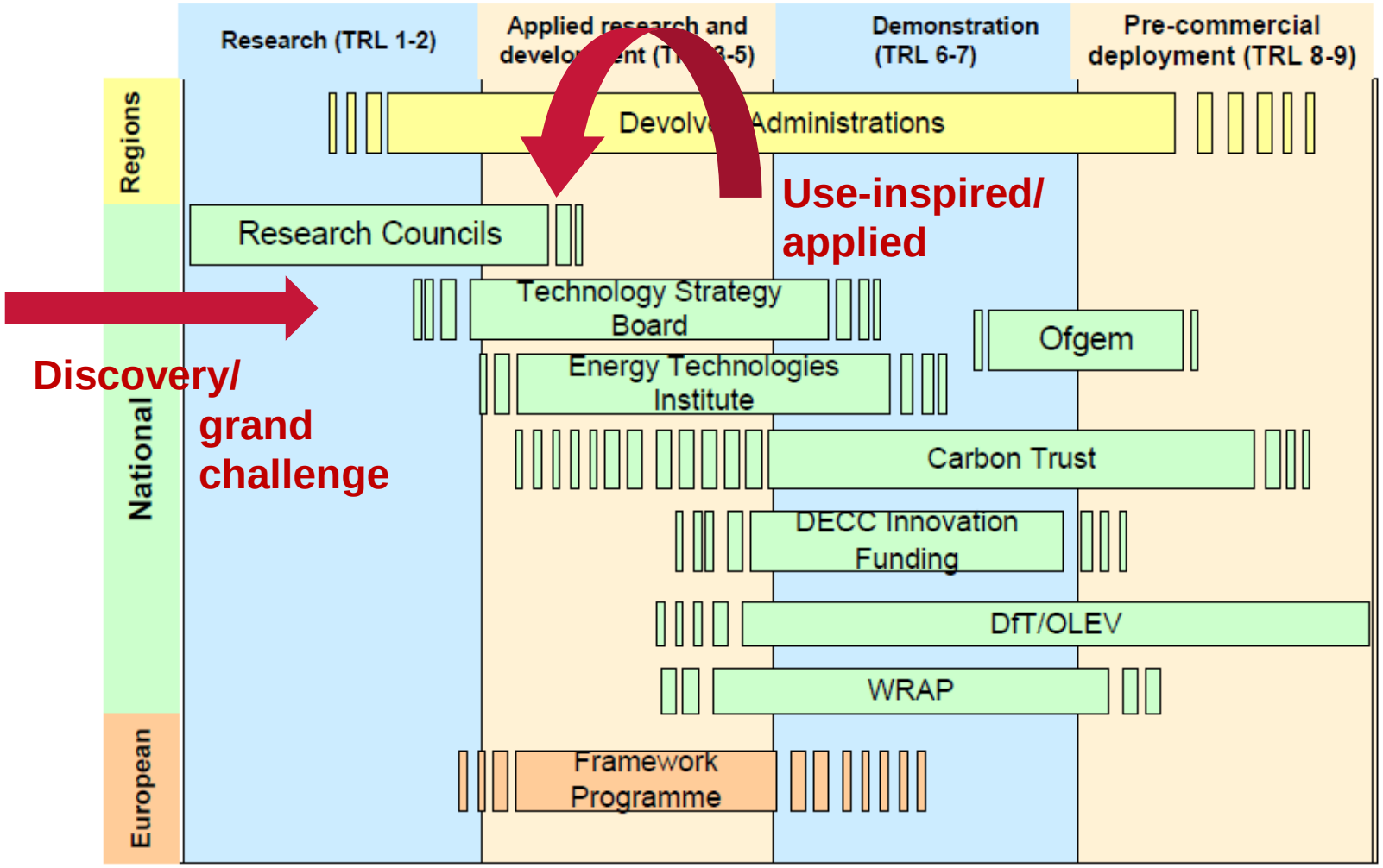
The UK Energy Innovation Funding Landscape



Source: DECC

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Responses to UK capabilities

- ***Develop and deploy***
  Where the UK has a particular advantage – for example where the UK has the full range of manufacturing and business R&D facilities.

- ***Deploy***
  Where the UK lacks an advantage in production - UK based suppliers may participate in supply chains and international collaborations but the pace and scale of development will be determined overseas.

- ***Research and deploy***
  Where technologies are further from market and it is unclear which country has, or could have, a particular advantage. Public support should not direct academic research but should ensure that the results of research and development programmes are disseminated widely

Source: Committee on Climate Change