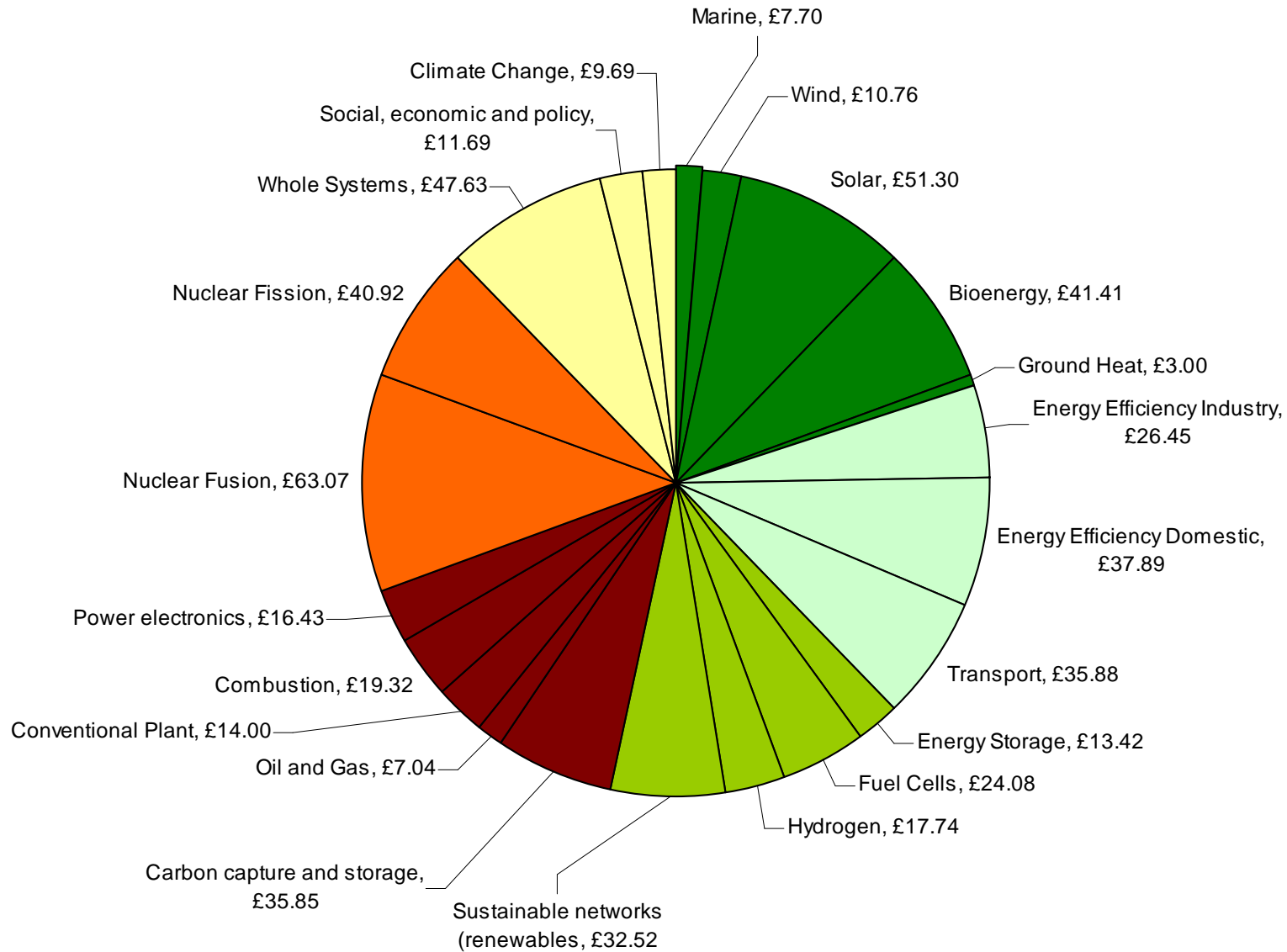


Research Councils UK Energy Programme and CCS

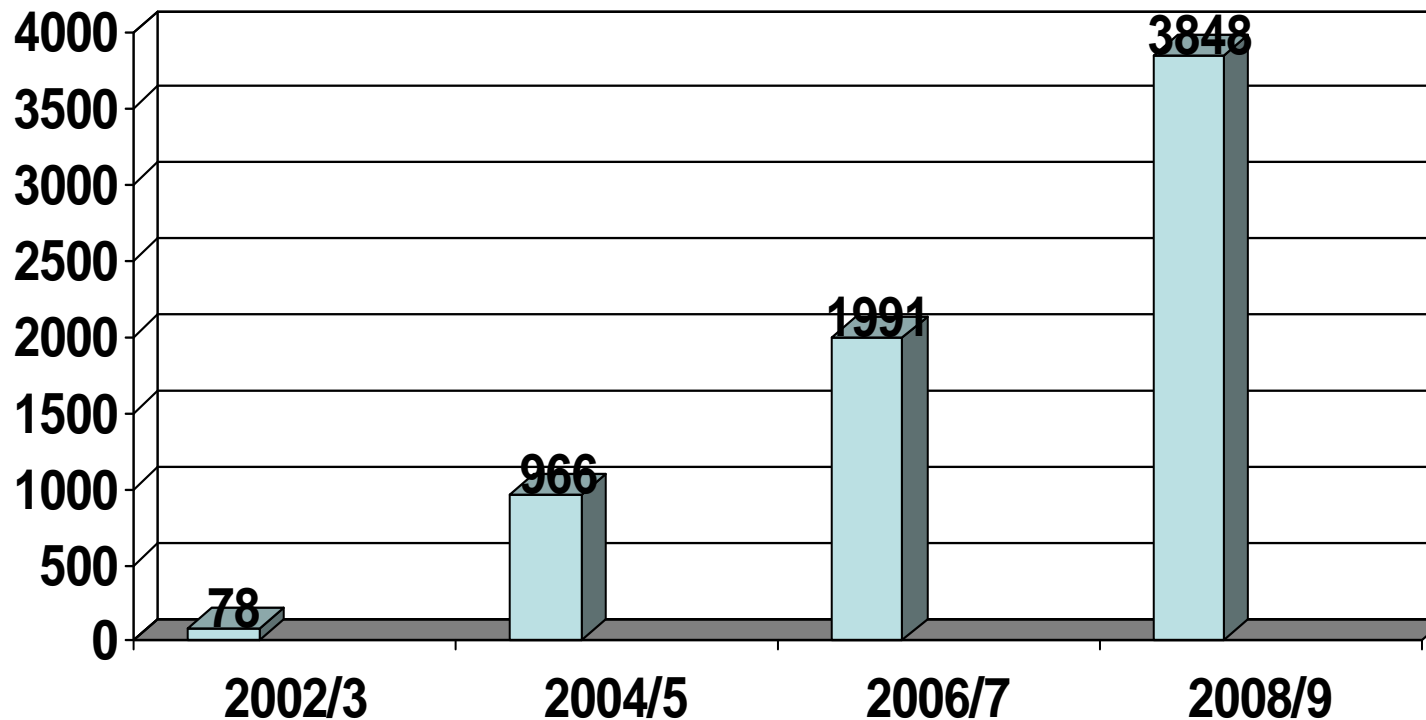
Jacqui Williams and Chris Baker

Portfolio by commitment (£567M total)



Carbon Capture and Storage: the growth in our portfolio

Expenditure by year (£k)



Carbon Capture and Storage: Current Support



CCS has been identified as a priority area for the Energy Programme. We now support over £40M in current grants for 39 research and capacity building projects in CCS including the network and:

- 4 Consortia researching carbon capture and transport (3 jointly supported with E.ON). £6.5m investment. Oxyfuel combustion, Materials for Next Generation CO₂ Transport Systems, Step Change Adsorbents and Processes for CO₂ capture, Innovative Gas Separations for Carbon Capture.
- Projects on Cleaner Fossil Fuels in collaboration with China covering OxyCoal combustion, adsorbent materials and processes for capture, syngas burning, hydrogen production network.
- Centre for Innovation in CCS at the University of Nottingham, focusing on promoting interdisciplinary activity to bring groundbreaking ideas from basic science and develop them into new products, processes and services, as well as considering public acceptability issues.

Carbon Capture and Storage: Current Support cont



- CRIUS project at University of Cambridge which seeks to evaluate the kinetics of fluid-rock interactions in reservoirs which is necessary to accurately predict the extent of specific reservoir trapping mechanisms and containment.
- Work at the Sussex Energy Group on the development of UK policy for CCS and the financing of demonstration plant(s).
- CO2 Aquifer Storage Site Evaluation and Monitoring (CASSEM) project led by industry, and including research on public acceptance.
- Public engagement project led by the University of Edinburgh to communicate that the release of carbon dioxide into the atmosphere and the ocean is one of the greatest environmental problems that the next generation will face, but we can do something about it.

Carbon Capture and Storage:

Major research investments 2010



CCS research consortia

- Multiscale whole systems modelling and analysis for CO₂ capture, transport and storage: Imperial led (Durucan) , £1.5m
- Quantifying and monitoring potential ecosystems impacts of geological carbon storage: Plymouth Marine Lab led (Blackford) , £1.5m
- CCS: Realising the potential: Sussex led (Watson). Proposal funded through UKERC grant. £410k

Nanotechnology- carbon capture and utilisation consortia

- Bio-inspired (Fe,Ni) nano-catalysts for CO₂ conversion: UCL, £1.1m
- Nano-integration of metal-organic frameworks and catalysis for the uptake and utilisation of CO₂: Bath led, £1.2m
- Nano-structured catalysts for CO₂ reduction to fuels: Imperial led, £1.7m

Carbon Capture and Storage: Future Activities

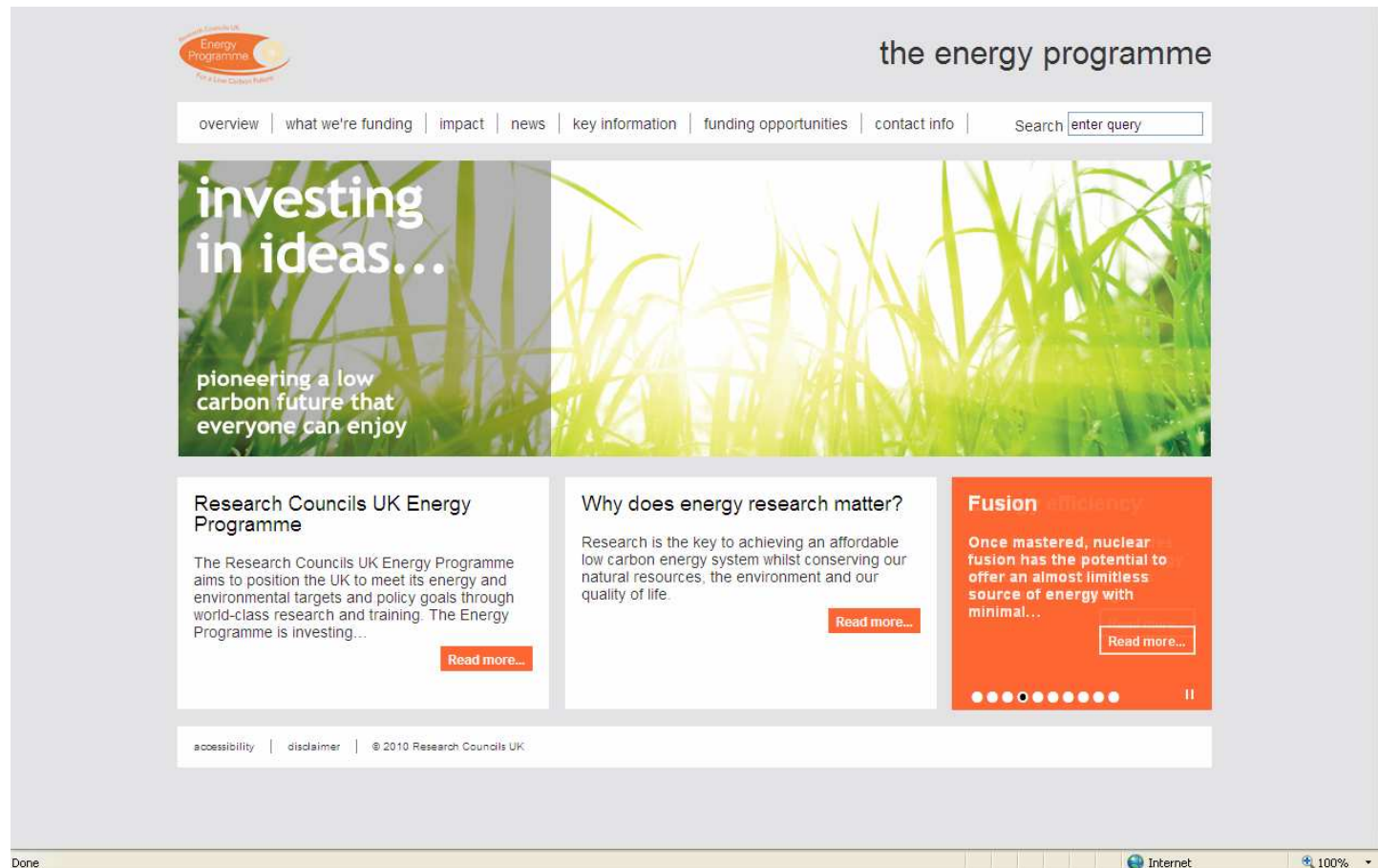


- We have taken forward almost all of the recommendations from a community meeting held in February 2008.
- We have massively increased the support for research and capacity building in CCS.
- We have developed strong links with China and would like to do so with the US.
- We are exploring the gaps and challenges to inform what we should be doing next. CCS and international engagement are both priority areas for support.

Further information



www.rcuk.ac.uk/energy



EPSRC/NERC areas in CCS



- ☞ Injection of CO₂ and injection sites - eg cap rock. [Injection EPSRC; Cap rock NERC]
- ☞ Monitoring, measurement and verification. [Depends on focus]
- ☞ Modelling eg of reservoirs. [Generally NERC, fluid dynamics EPSRC]
- ☞ Enhanced oil recovery. [Usually EPSRC]
- ☞ Behaviour and migration of trapped CO₂. [NERC]
- ☞ Permeability and porous media. [Usually NERC]
- ☞ Pore scale studies [Probably NERC]

- ☞ **Capture and transport and whole systems modelling: EPSRC**
- ☞ **Storage and environmental aspects of CCS: NERC**