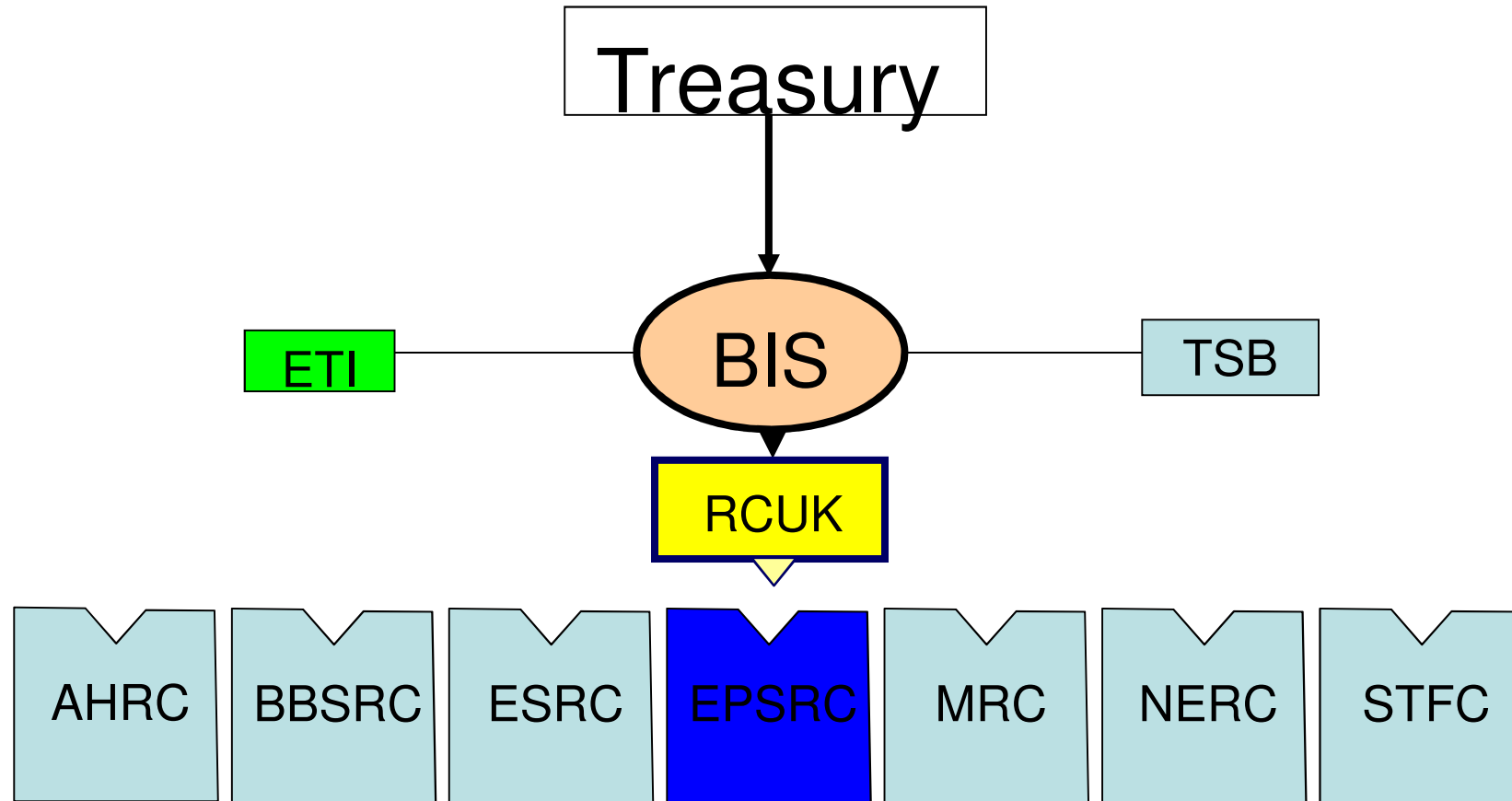


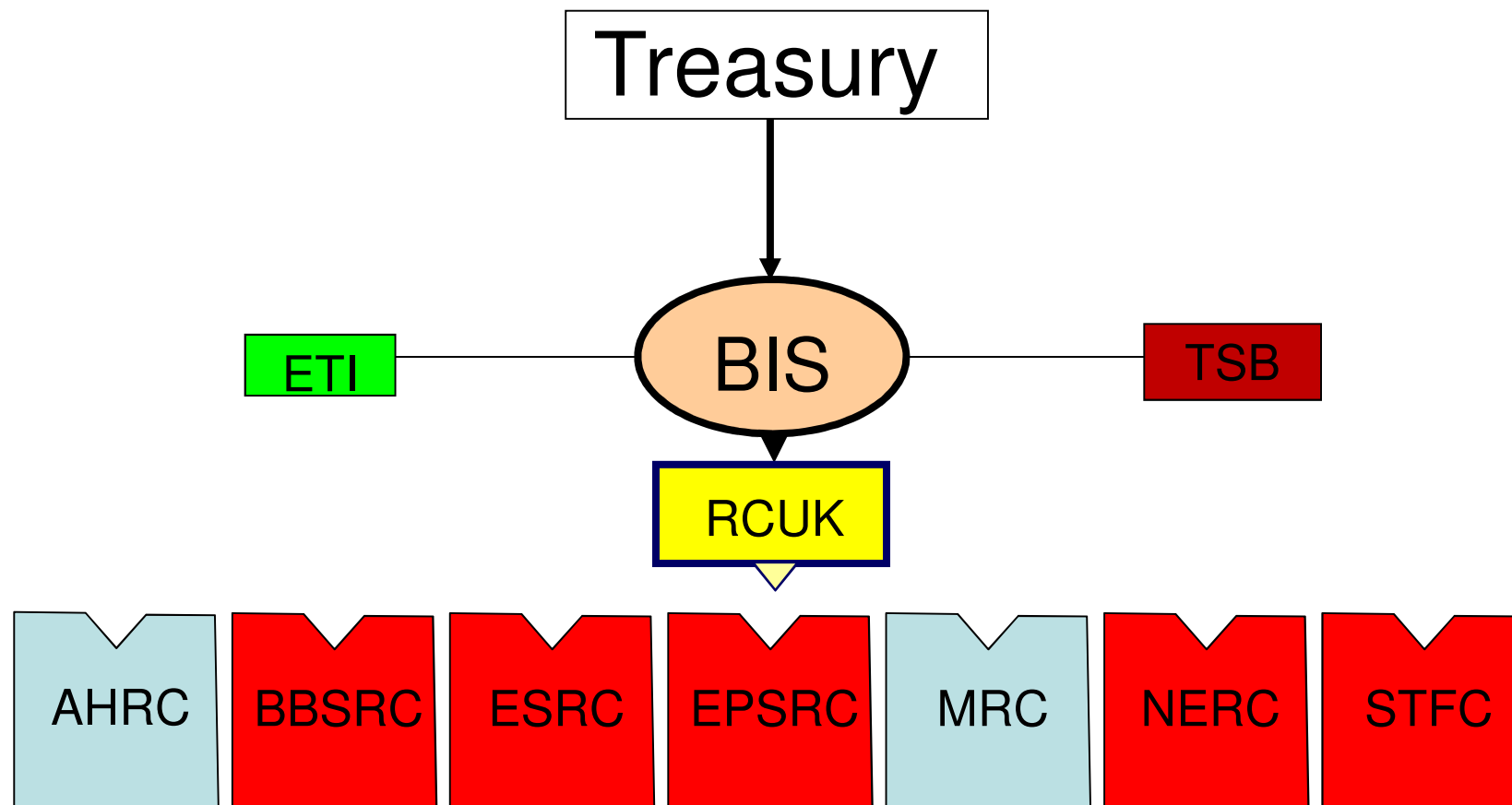
Research Councils UK Energy Programme

For a Low Carbon Energy Future

Jason Green



Cross Council Energy Programme



Mission



To position the UK to meet its energy and environmental targets and policy goals through high quality research and postgraduate training.

- Launched with investment announced in 2002
- Continues to be a major investment strand (£540m over 4 years from 2011-15 Spending Review period)

Key UK Targets:

- 80% reduction in greenhouse gas emissions by 2050.
- 15% of energy from renewable sources by 2020.
- Increases in energy efficiency.



Drivers:

- Tackling climate change by reducing carbon dioxide emissions both within the UK and abroad.
- Ensuring energy security.
- Ensuring energy affordability.



Our Objectives



To support a **full spectrum of Energy research** to help the UK meet the objectives and targets set out in the 2007 Energy White Paper

To increase the **international visibility** and level of international collaboration within the UK energy research Portfolio.

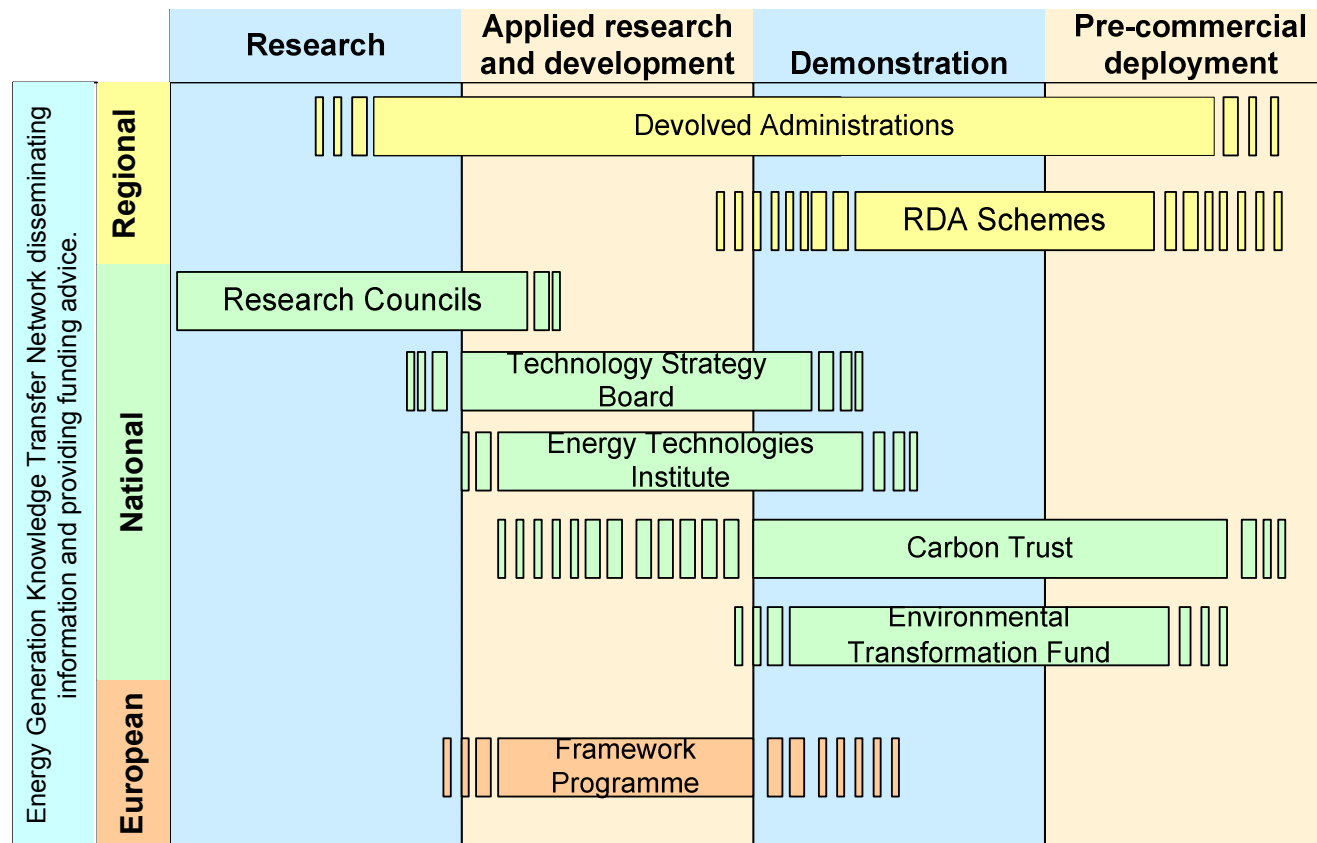
To **work in partnership** to contribute to the research and postgraduate training needs of energy-related business and other key stakeholders

To expand the **UK research capacity** in energy-related areas.

The Energy Landscape

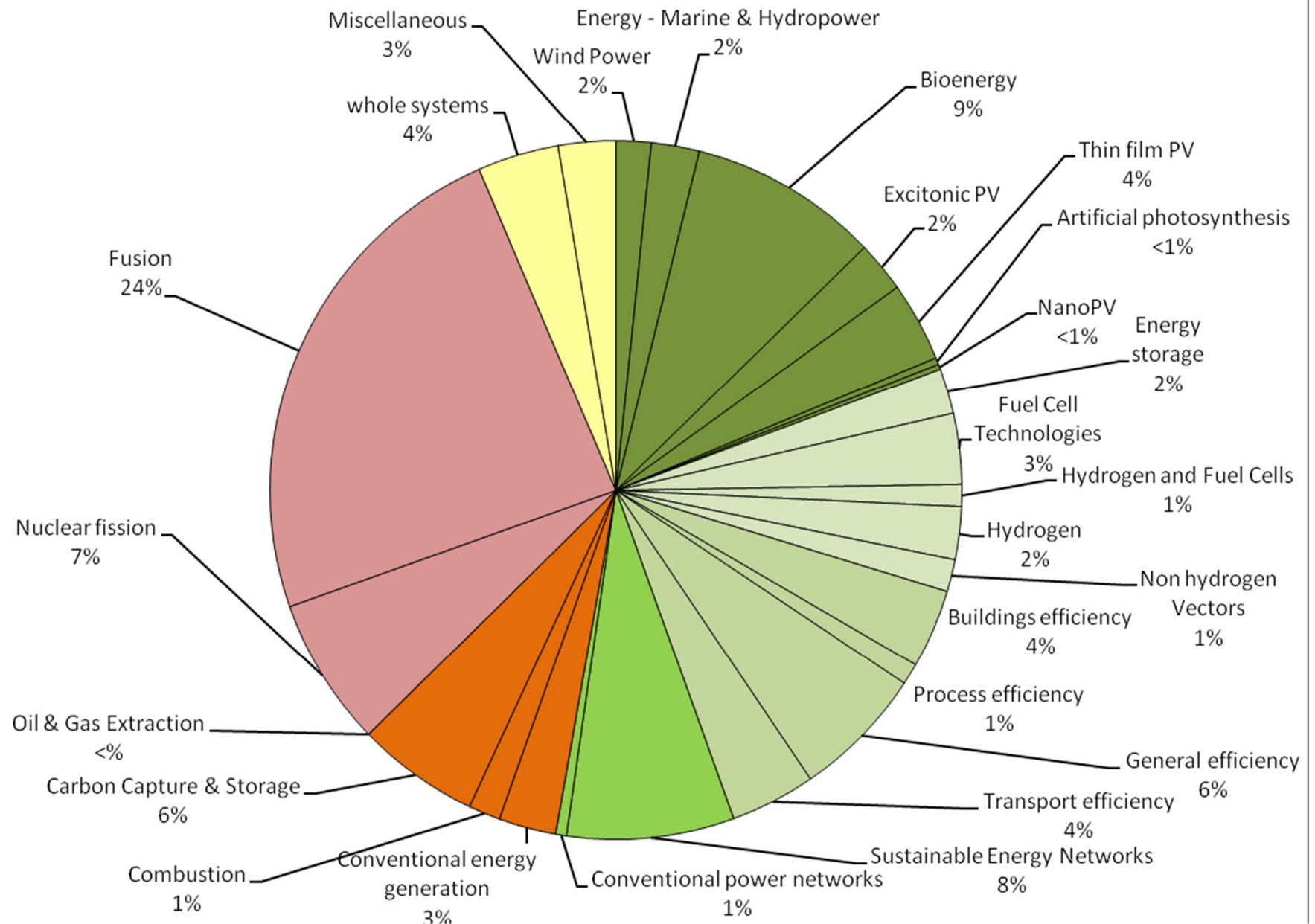


Public Sector organisations working together to provide coordinated activity and a complete innovation chain. Coordinated through the Low Carbon Innovation Group led by DECC.



RCUK Energy Programme Commitment Portfolio December 2011.

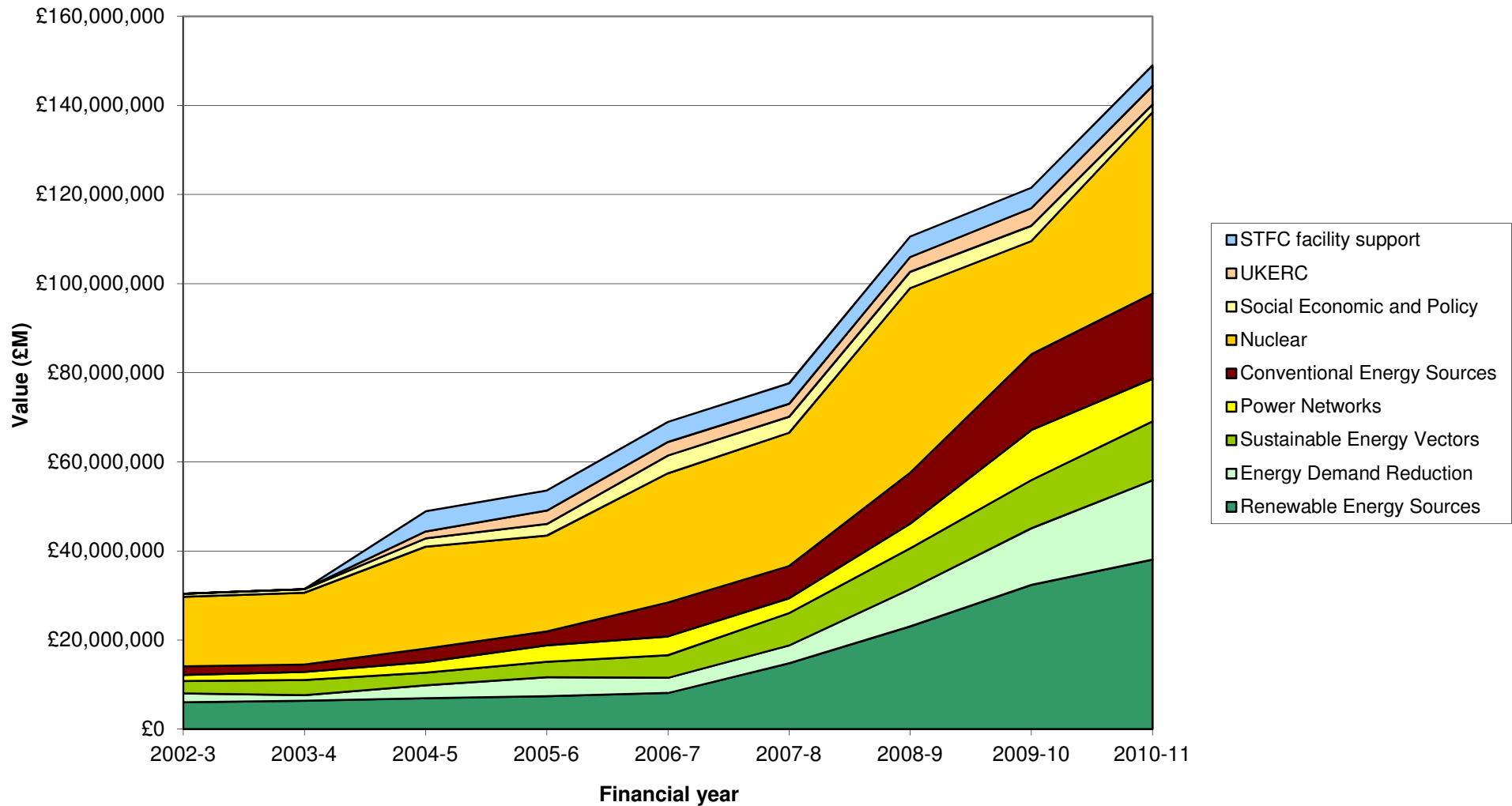
Total Portfolio £724.6M



Growth in Annual Expenditure by Research Theme, 2002-2011



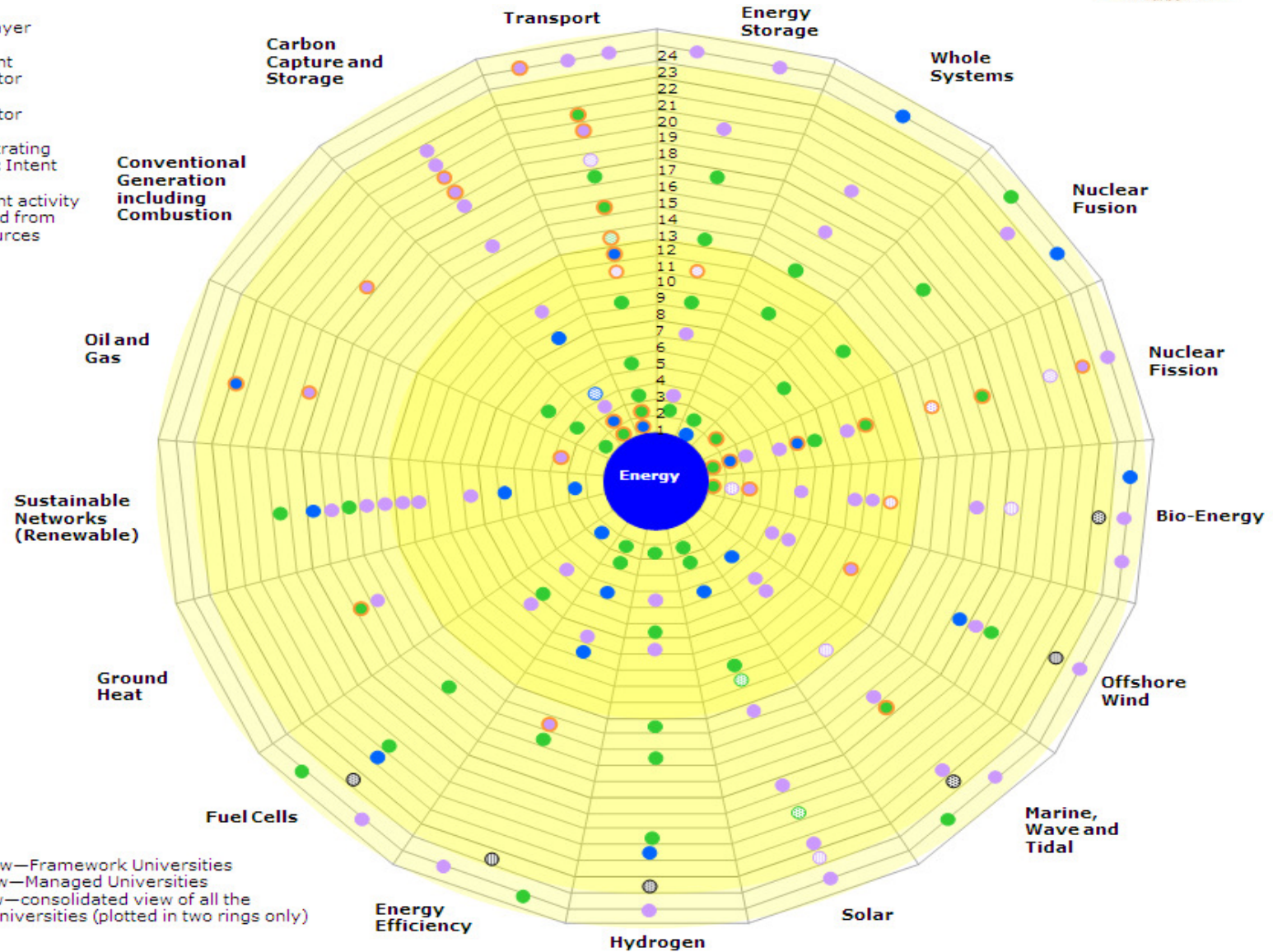
Growth in Support by Theme



Knowledge Map



- Major Player
- Significant Contributor
- Contributor
- ⊙ Demonstrating Strategic Intent
- Significant activity supported from other sources



Carbon Capture and Storage in the Energy Programme



CCS has been identified as a priority area for the Energy Programme. We now support over £38M in current grants for 36 research and capacity building projects in CCS including:

- 4 Consortia researching carbon capture and transport (3 jointly supported with E.ON). £6.5m investment.
- Projects on Cleaner Fossil Fuels and CCS technologies in collaboration with China (NSFC).
- Capacity building award for 6 new lectureships in CCS to Edinburgh and Heriot-Watt universities.
- 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:



Other major current projects include:

- Multiscale whole systems modelling and analysis for CO₂ capture, transport and storage
- A network to link together the research community £1m
- Quantifying and monitoring potential ecosystems impacts of geological carbon storage
- 3 projects in nanotechnology – carbon capture and utilisation
- CCS: Realising the potential
- CRIUS project which seeks to evaluate the kinetics of fluid-rock interactions in reservoirs
- 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 projects.

Also British Geological Survey activities, and PML, NOCs.

Carbon Capture and Storage: Capacity Building



CCS Centres for Doctoral Training (**£11m+ investment**)

- University of Nottingham with Birmingham and Loughborough: Efficient Power from Fossil Energies and Carbon Capture Technologies Industrial Doctorate Centre.
Developing engineering research leaders to tackle the challenges in producing near-zero emission power from fossil fuels, by capturing carbon emissions before they are released.
- University of Leeds: Technologies for a Low Carbon Future.
Bringing together research students and supervisors to develop innovative technologies for a low carbon future.
Includes carbon storage as one of its 4 key themes.

Energy Programme CCS current activities

Calls

- ☞ CCS for natural gas power stations . Up to £5m.
- ☞ Fellowship call: early career and established career proposals invited in CCS. Out now.
- ☞ UK CCS Centre for Research. Up to £10m.

Future activities

- ☞ Stage gating of carbon capture and utilisation projects
- ☞ Grand Challenge in CCS
- ☞ Storage activity led by NERC
- ☞ We have massively increased the support for research and capacity building in CCS and are consider the next challenges e.g. next generation capture, injection, MMV.

Other fossil energy activities



- ☞ Conventional generation and combustion - £27m.

Projects in :

- ☞ Oil and gas extraction - £8m. Projects in drilling , multiphase flow, modelling, extraction, etc
- ☞ Supergen centre in Conventional Plant Lifetime Extension - £4m

Energy Programme and the market place

