

Nuclear Academics Meeting

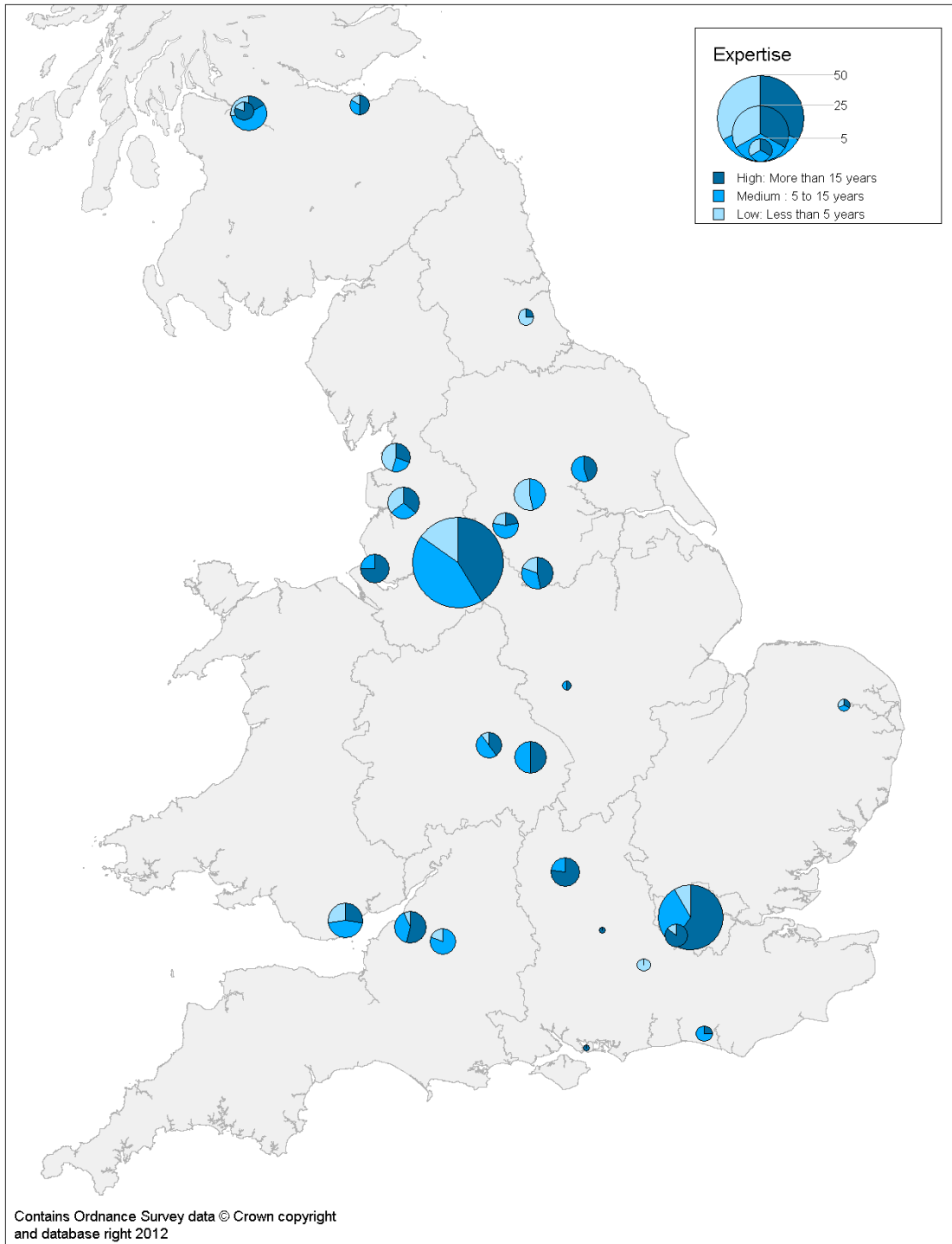
St. Anne's College, Oxford 13/14 2012

**Sponsored by the EPSRC Nuclear
Champion grant**

University Participants

Birmingham	– 8	Sheffield	– 3
Bristol	– 2	Southampton	– 1
Cambridge	– 2	Strathclyde	– 2
Central Lancashire		Surrey	– 3
– 3		Sussex	– 1
Edinburgh	– 2	Warwick	– 1
Huddersfield	– 2	City	– 1
Lancaster	– 1	Imperial College	– 9
Leeds	– 2	Keele	– 1
Liverpool	– 2	Loughborough	– 3
Manchester	– 17	Open	– 3
Nottingham	– 2	UCL	– 2
Oxford	– 4		

77 academics from 24 Universities



University Participants

1. To help with the planning of the break-out sessions, could you please indicate [Create Chart](#) [Download](#) the sessions that you would be most interested to attend? It will be possible to move between the groups and to contribute to the outputs of groups that you don't manage to attend.

	Response Percent	Response Count
Fuel materials including reprocessing	25.0%	14
Reactor materials including sensors	30.4%	17
Reactor operation including life extension	30.4%	17
Environmental impact and geological disposal	32.1%	18
Waste management and decommissioning	46.4%	26
Future systems: fusion/fission, Gen IV including fast reactors	48.2%	27
Is there another topic that we should address? Hide Responses		14

Reports and Reporting

Key reports and recommendations in the last year:

- House of Lords Science and Technology Select Committee – Nuclear Research and Development Capabilities.
 - The Royal Society, Working Group on Non-Proliferation – Fuel Cycle Stewardship in a Nuclear Renaissance.
 - Office of Nuclear Regulation (ONR) reports on Fukushima and Reactor Stress Tests.
 - Energy Research Partnership - Nuclear Fission Technology Roadmap: Preliminary Report.
 - Committee for Radioactive Waste Management (CoRWM) – further discussion and clarification on waste and research needs.
 - Birmingham and Oxford reports.
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Why this meeting & why now?

- Demonstrate the ground swell of intellectual capacity that can deliver world class research. **Tick.**
- To facilitate & encourage the UK nuclear energy research community to step-up its research output (and skills development).
- This requires the community to participate, collaborate, deliberate and identify projects but also identify and justify the capabilities (people, facilities & equipment) required to deliver that work.
- Research Council consortia funding levels are unlikely to grow significantly so we need to get smarter; become more clearly useful to stakeholders (globally), re-establish the UK as a place where the best nuclear R(&D) is generated.
- Capacity will grow by networking existing capabilities and knowledge. But we are vulnerable to facilities disappearing and people with experience retiring.
- Demonstrate that the academic community is committed to playing a central role in delivering the research that the nuclear R&D roadmap requires. **We will shape the roadmap**

Research Councils UK (RCUK) Promotion of an Academic Nuclear Renaissance in the UK

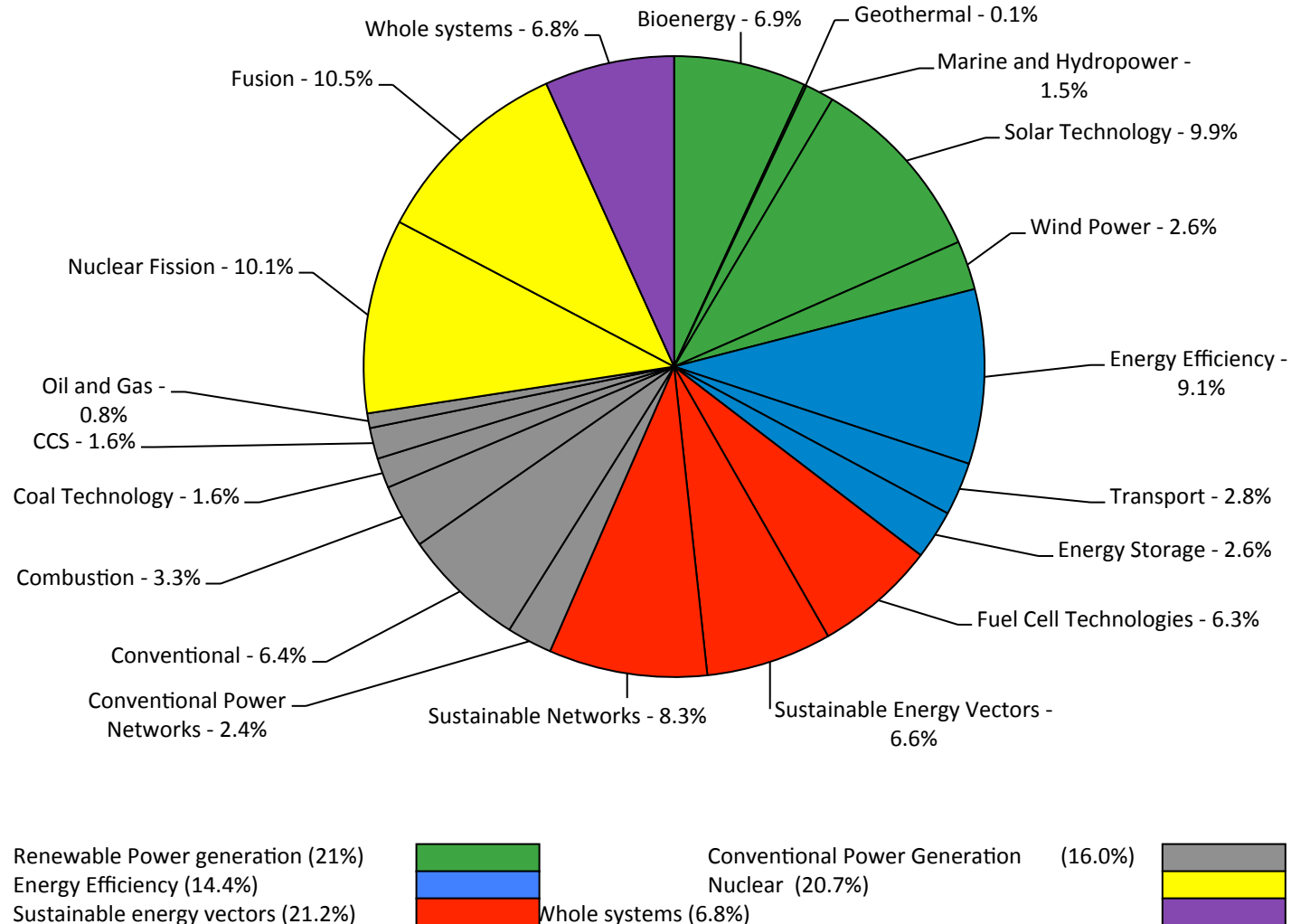
- When did it start? (building on BNFL centres)
 - How did the UK Research Councils go about re-energising the University sector?
 - Where are they now – what international collaborations are being pursued?
 - Why was it (is it) considered (should be considered) so critical to a renaissance?
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Situation by the End of KNOO

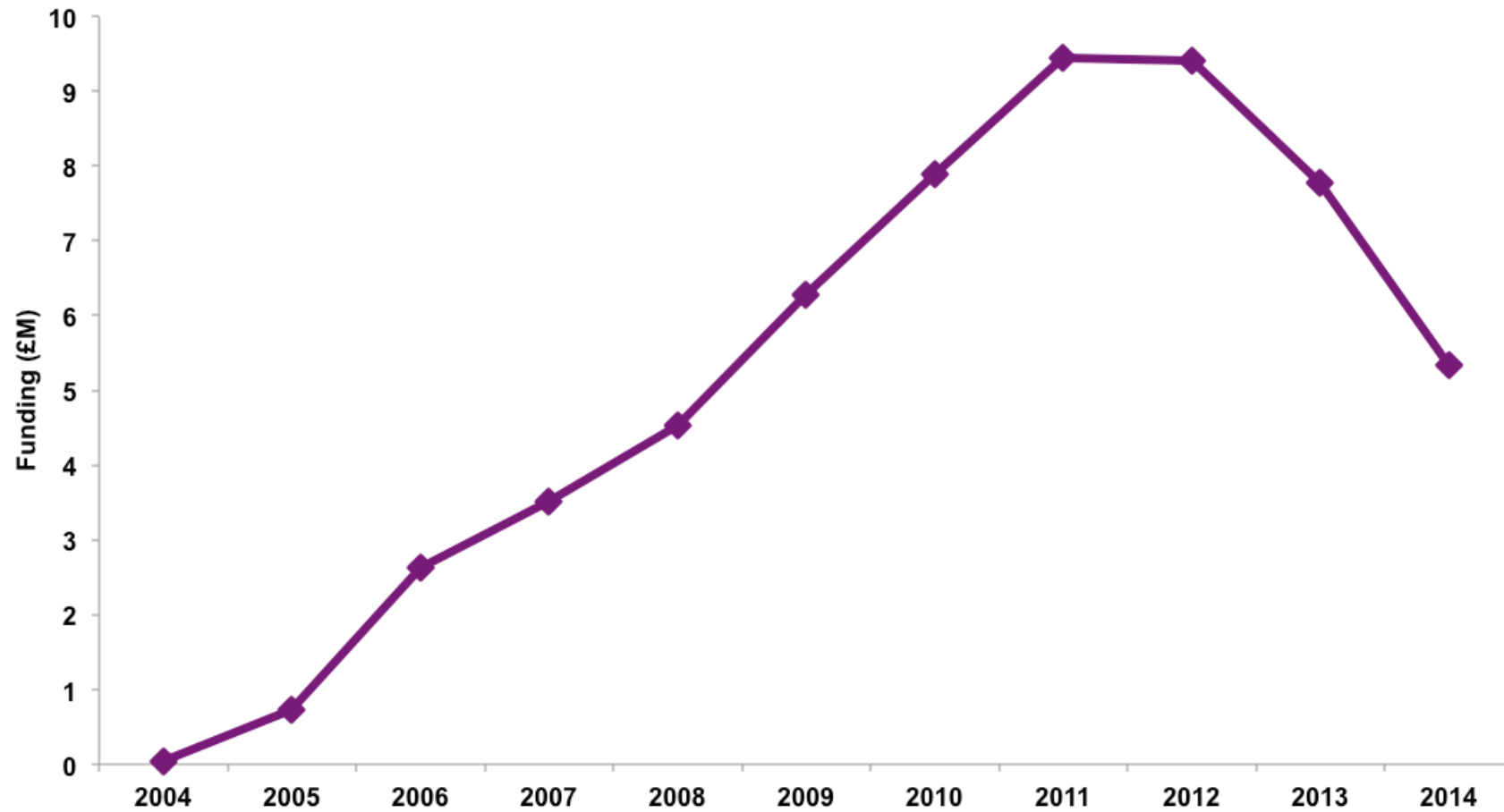
- Research Consortia - £7.8M
- Training Consortia - £11.3M
- Nuclear Waste - £6.1M
- People - £0.6M
- Capability - £8.2M
- Responsive mode - £3.4M
- Public understanding - £2.3M
- International - £1.3M

Research Portfolio

Portfolio at October 2010 (total value £588m)



EPSRC Fission Funding Since 2004



Major Current EPSRC Research Consortia

- Biogeochemical Applications in Nuclear Decommissioning and Waste Disposal
 - Materials for Fusion & Fission power
 - Performance and Reliability of Metallic Materials for Nuclear Fission Power Generation
 - The Development of Advanced Technologies and Modelling Capabilities to Improve the Safety and Performance of Nuclear Fuel
 - Nuclear Data: Fission Yields, Decay Heat and Neutron Reaction Cross Sections
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Major Current EPSRC Research Consortia

- Computational Modelling for Advanced Nuclear Systems
 - Fundamentals of current and future uses of nuclear graphite
 - Realising the Commercial Potential of the Multi-Physics and Multi-Scale FETCH Technology for Nuclear Safety Applications
 - Core UK Equipment Base for Characterisation and Analysis of Highly Radioactive Materials
 - Nuclear Universities Consortium for Learning, Engagement And Research: NUCLEAR
 - MBase: The Molecular Basis of Advanced Nuclear Fuel Separations
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Projects with India: round 1

- Civil nuclear collaboration on damage and radiation effects in amorphous materials £220K
- Characterisation of the atomic scale structure of yttria-based particles in oxide dispersion strengthened steels £150K
- Irradiation effects on flow localisation in zirconium alloys £320K
- JOINT: an Indo-UK collaboration in joining technologies £320K
- Validation and verification for critical heat flux and CFD £210K
- Sustainability and proliferation resistance assessment of open cycle thorium-fuelled nuclear energy £260K