



CAPABILITY NEEDS

Research Needs & University Alliances

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- ◆ UK capability historically met by UKAEA, CEGB, BNFL, MoD, Dept of Energy
- ◆ Industry has changed radically over recent years – none of the above or their successor companies is currently responsible for the ongoing requirement.
- ◆ Recent White Papers together with creation of NDA are also driving significant changes in UK industry.
- ◆ Important that UK long-term nuclear infrastructure needs are protected for:
 - Ongoing operation of current facilities
 - Decommissioning and clean-up activities
 - Potential for new nuclear power (build, operation and support)

- ◆ Sufficient people with operational and regulatory skills
- ◆ Specialist facilities for waste disposal, post-irradiation examination and research (e.g. material test reactor)
- ◆ Research capability
- ◆ Fuel cycle services
- ◆ Specialist support services (e.g. dosimetry, health physics, remote inspection, NDT, engineering support)

Risks

- ◆ Scarce UK skills are mobile
- ◆ New build, if it occurs, will place pressure on existing infrastructure
- ◆ Ageing workforce
- ◆ General demand for engineering/technical skills

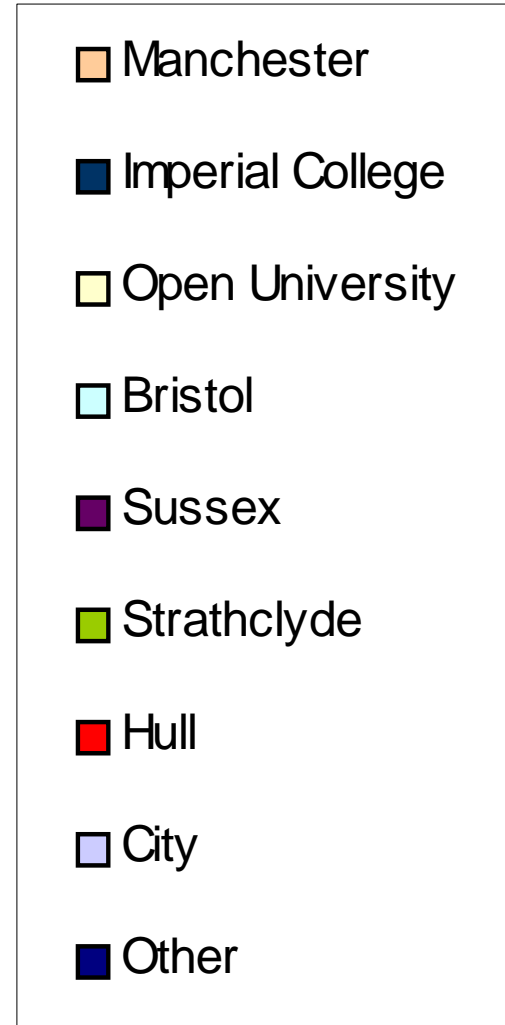
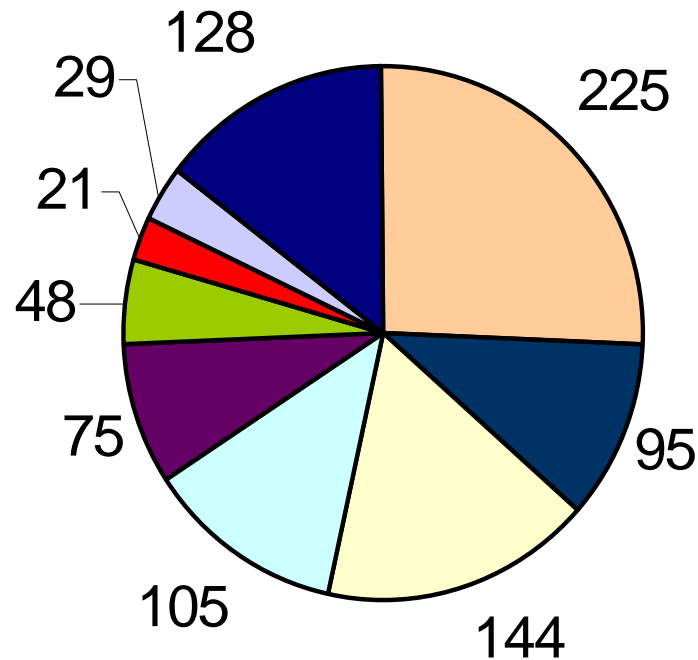
Opportunities

- ◆ Key UK players work together to meet some needs
 - E.g. Nuclear Engineering Doctorate Scheme
- ◆ Partnership of key players could assist in strategic planning for UK infrastructure needs

- ◆ Mitigate Risks (e.g Graphite core, Fuel integrity, Boiler integrity)
- ◆ Address Opportunities (e.g. AGR Life extension, New Nuclear Build)
- ◆ Maintain In-depth Technical Skills in key areas (In-house, Suppliers)
- ◆ Maintain Facilities (e.g. AGR boiler rig, access to materials test reactor, creep testing)
- ◆ Show Innovation
- ◆ University Alliances can help provide these needs

- ◆ Excellent project performance in some areas
- ◆ World-class specialists at universities
- ◆ Good record with EU and other funded projects
- ◆ Tax incentives
- ◆ Current spend about £1M p.a. by BE
- ◆ Some links with EPSRC
- ◆ Diverse projects with variable gearing at a large number of universities when reviewed recently

BE University Spend, £K (2004-05)



Benefits of Developing Alliances

- ◆ Long-term investment planning for research work
- ◆ Streamlined research management process
 - model contracts, fewer contracts, greater accountability
- ◆ Increased return on investment via increased gearing
- ◆ Maintain/build key teams to complement in-house skills
 - Improved knowledge capture and transfer
 - Improved training and recruitment in key skills areas
- ◆ Improved flexibility
 - research to mitigate long-term threats
 - may be deflected to short-term problems

University Alliances Set Up

◆ Manchester - Materials Performance Centre

- BE has joined the NDA Materials Centre
- Expertise in Graphite and Fracture Mechanics
- Linked with Engineering Doctorate Centre in Nuclear Engineering

◆ Strathclyde Advanced Diagnostics Centre

- Expertise in graphite core monitoring
- Other technical links being explored
- BE lecturer appointed
- Linked with Engineering Doctorate Centre in Nuclear Engineering (EngDs to be appointed)

◆ Bristol - Systems Performance Centre

- Strong links in Control & Instrumentation, Structural Integrity
- Linked with Engineering Doctorate Centres in Systems Engineering and Nuclear Engineering
- Bristol University KTP and EngD Students working at BE
- Bristol University/EPSRC Advanced Fellow working at BE
- BE Royal Society Industrial Fellow working at Bristol

◆ Imperial College (Nuclear Science and Technology)

- BE has joined the Research Centre for NDE
- BE is supporting a chair jointly with RAEng
- Linked with Engineering Doctorate Centre in Nuclear Engineering and KNOO

- ◆ Capability needs are an issue for BE
- ◆ As part of British Energy's long-term research strategy, the company is developing a number of university links.
- ◆ Bristol, Manchester, Strathclyde and Imperial College have been chosen as the key suppliers.
- ◆ Alliances should address both research capability requirements and also wider capability needs through training.