



Fuelling nuclear power's regeneration



Concerns over security of energy supplies, fossil fuel prices and global warming have combined to put nuclear power firmly back on the agenda.

In January 2008, the UK government gave its backing for a new generation of safer, cleaner, more efficient nuclear power stations.

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2020

First of a new generation of nuclear power stations could be operational.

Work supported by the Research Councils' Energy Programme will provide the skills and knowledge to support this ambition.

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The Research Councils' Energy Programme is ensuring we have the skills, technologies and informed debate to support this ambition.

Keeping the Nuclear Option Open (KNOO)

This consortium is helping to develop a skills base that can underpin the building and operation of new UK nuclear plant. Work packages are focusing on more efficient fuel and reactor systems; materials that can function at extremely high temperatures; handling and reduction of nuclear waste; and safety issues.

"It's vital that our nuclear sector attracts high-calibre scientists and engineers," says Professor Robin Grimes of Imperial College London. "This will help provide a sound basis for the success of new nuclear build here."

Sustainability Assessment of Nuclear Power

This project is developing a decision support framework that will enable policy-makers, the nuclear industry and the public to assess objectively the sustainability of nuclear power.

Focusing on the entire nuclear energy life cycle, it is looking at issues as diverse as environmental impacts, investment costs, health and safety, security and waste disposal, with dialogue as a key feature. "We need to identify all relevant sustainability criteria so we can produce something of genuine value to the nuclear debate," says Professor Adisa Azapagic of the University of Manchester.

Fusion

Replicating a process that occurs naturally in the sun, nuclear fusion may one day transform the energy landscape. Although decades away from commercial demonstration, research teams worldwide are advancing fusion technology step by step and exploring alternative reactor designs.

The MAST (Mega Amp Spherical Tokamak) experiment is working on technology suited to deployment in relatively small, more efficient power stations of the future. "Developing materials to withstand the huge temperatures produced in a fusion reactor is a top priority," says Chris Warrick of the Culham Science Centre.

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**Research Councils' Energy Programme,
led by EPSRC**

The mission of the Energy Programme is to position the UK to meet its energy and environmental targets and policy goals through high quality research and postgraduate training.

The programme builds on a strong portfolio in power generation and supply and aims to grow the portfolio areas of demand reduction, alternative energy vectors, transport and security of supply.

