UK Atomic Energy Authority

H3AT – A world leader in tritium innovation

Leading **fusion power**

Nuclear fusion has the potential to change our world. Fusion – the process that powers the Sun – offers low-carbon energy with virtually limitless fuels. Bringing it to the electricity grid is one of the grand challenges in technology, but potentially one of the most rewarding.

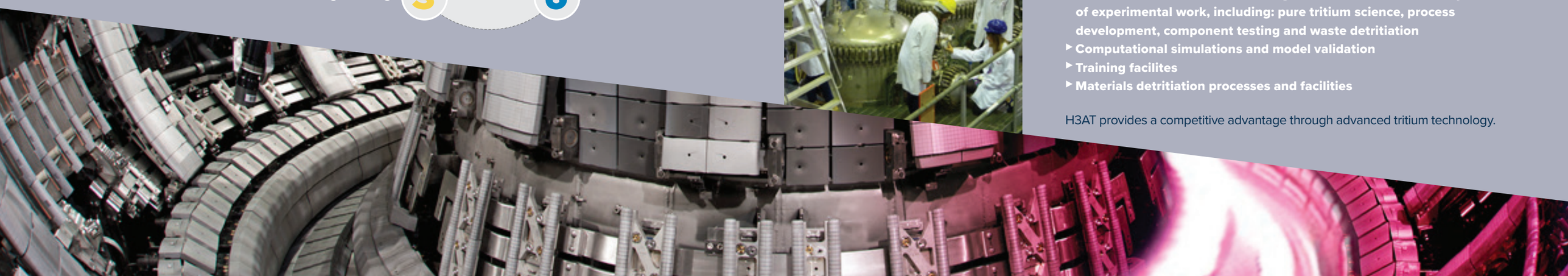
The UK Atomic Energy Authority's mission is to lead the commercial development of fusion power and related technology, and position the UK as a leader in sustainable nuclear energy.

Based at Culham Science Centre near Oxford, we run the UK's fusion research programme and operate the Joint European Torus (JET) experiment on behalf of scientists from 28 European countries. We are keeping Britain at the forefront of fusion as the world comes together to build the first reactor-scale experiment, ITER – one step away from electricity from fusion.

A key challenge for fusion energy is the development of new processes and technologies for handling tritium, the fuel that will power fusion reactors. These developments in tritium technologies required for fusion can also have beneficial applications to other market sectors.

The six challenges of fusion

1. *Plasma science*
2. *Materials science*
3. *Innovative engineering*
4. *Fuel handling*
5. *Plasma exhaust*
6. *Robotic maintenance*



H3AT

The Hydrogen–3 Advanced Technology centre (H3AT) will provide a unique opportunity for academia, industry and partners to benefit from a world-class tritium technology centre. In addition to state-of-the-art tritium systems and infrastructure, H3AT users will benefit from a high level of technical expertise, available to provide training and R&D.

H3AT represents an important step in the development of tritium technology; allowing vital research and development to keep pace with the growing demand for tritium expertise both in the UK and the rest of the world.

The H3AT facilities will comprise:

- **Advanced tritium infrastructure, to feed, recover, store and recycle tritium**
- **A flexible suite of enclosures designed to enable a wide variety of experimental work, including: pure tritium science, process development, component testing and waste detritiation**
- **Computational simulations and model validation**
- **Training facilites**
- **Materials detritiation processes and facilities**

H3AT provides a competitive advantage through advanced tritium technology.

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Find out more
www.gov.uk/ukaea

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