



UK Atomic  
Energy  
Authority

# Developing the ultimate energy source



# UKAEA programmes

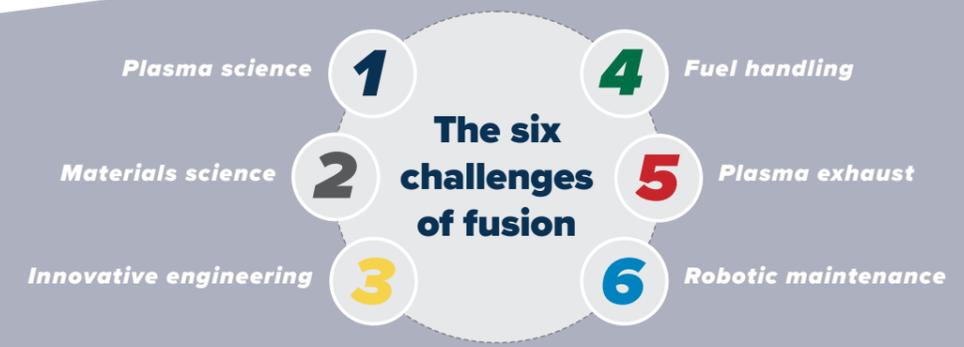
## Leading fusion power

**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. In addition we aim to make the UK the place where the first fusion power stations are designed.

Along the way we are securing benefits for British industry and science. We are working with national laboratories, universities and technology businesses to improve the UK's nuclear capability and exploit links in areas such as advanced materials, robotics in hazardous environments, nuclear modelling, tritium science, integrated systems and engineering.



### **BRINGING STAR POWER TO EARTH**

**Culham Centre for Fusion Energy** is the UK's national fusion lab, with world-leading expertise in fusion science and engineering. Operating JET for researchers around Europe, and taking on the plasma exhaust challenge with Britain's new fusion experiment MAST Upgrade.



### **DEVELOPING MATERIALS FOR NUCLEAR REACTORS**

**Materials Research Facility**, a new lab for UK nuclear researchers to study the materials needed for the reactors of the future. MRF is part of the Government's National Nuclear User Facility and the Henry Royce Institute for Advanced Materials.



### **ROBOTICS FOR CHALLENGING ENVIRONMENTS**

**RACE**, the Remote Applications in Challenging Environments centre, is developing robotic and remote handling technology – not just for fusion, but for other industries with conditions that are difficult for humans to work in. RACE's projects span nuclear, big science and transport amongst others.

### **TRAINING THE NEXT GENERATION OF TECHNICIANS AND ENGINEERS**

**Oxfordshire Advanced Skills** provides high-quality apprenticeship training to meet the demand for skills in the Thames Valley's hi-tech industries. OAS is a new training centre at Culham managed in partnership with the Science & Technology Facilities Council.



### **TECHNOLOGY TESTING FOR FUTURE FUSION POWERPLANTS**

**Fusion Technology Facilities** will work with industry to provide testing and manufacturing facilities to meet the challenge of building future fusion power stations.

### **CLOSING THE FUSION FUEL CYCLE**

**H3AT** will build on UKAEA's expertise in dealing with radioactive tritium fuel – offering new facilities to industry to ensure the UK leads the world in fusion fuel cycle management.

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



UK Atomic  
Energy  
Authority

**Find out more**  
**[www.gov.uk/uksaea](http://www.gov.uk/uksaea)**

United Kingdom Atomic Energy Authority  
Culham Science Centre  
Abingdon  
Oxfordshire  
OX14 3DB

**t:** +44 (0)1235 528822



CPS17.201\_Nov17  
Design and print  
Culham Studio