

UK to take a big 'STEP' to fusion electricity

Secretary of State for Business, Energy and Industrial Strategy, Rt Hon Andrea Leadsom MP, announced the funding package during a visit to the UK Atomic Energy Authority's Culham Science Centre HQ in Oxfordshire – the UK's world-leading fusion research laboratory.

Fusion offers a virtually limitless source of cleaner electricity by copying the processes that power the Sun – the collision of hydrogen atoms to release large amounts of energy. Researchers around the globe are now developing fusion reactors that can turn this into a commercial technology to help satisfy the world's ever-increasing demand for energy.

STEP will be an innovative plan for a commercially-viable fusion power station – offering the realistic prospect of constructing a powerplant by 2040. The investment will allow engineers and scientists to produce a conceptual design for the reactor (known as a 'tokamak') that will generate fusion energy and convert it into electricity. UKAEA and partners from industry and academia will pool their expertise to complete the design by 2024.

The STEP programme will create 300 jobs directly, with even more in the UK fusion supply chain. In addition, the spin-outs from the design work are expected to be enormous – both in terms of synergies with other fusion powerplant design activities (such as Europe's 'DEMO' prototype power station) and other hi-tech industries.

STEP builds on UKAEA's expertise in developing so-called 'spherical tokamaks' – compact and efficient fusion devices that could offer an economical route to commercial fusion power. The new MAST Upgrade spherical tokamak experiment is due to start operations at Culham early in 2020. Its work will play a key role in the STEP design.

Andrea Leadsom, Secretary of State for Business, Energy and Industrial Strategy, said: "This is a bold and ambitious investment in the energy technology of the future. Nuclear fusion has the potential to be an unlimited clean, safe and carbon-free energy source and we want the first commercially viable machine to be in the U.K.

"This long-term investment will build on the UK's scientific leadership, driving advancements in materials science, plasma physics and robotics to support new hi-tech jobs and exports."

Professor Ian Chapman, CEO of the UK Atomic Energy Authority, added: "The UK has a proud heritage of pioneering developments in fusion research. This announcement demonstrates the UK government's commitment to translating that R&D leadership into a working fusion reactor. We are excited to work with our partners to take the next step towards a fusion-powered future."

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