

West Burton selected as home of STEP fusion plant

- West Burton, North Nottinghamshire, selected as the home of the ambitious STEP fusion energy programme, underpinning an industry expected to be worth billions to the UK economy
- Fusion promises to be a safe, low carbon and sustainable part of the world's energy supply with potential to help sustain net zero in the future

The UK Government has confirmed the West Burton power station site in North Nottinghamshire will be home to the ground-breaking STEP prototype fusion energy plant.

The Spherical Tokamak for Energy Production (STEP) plant will be designed and constructed to demonstrate the ability to put net electricity on the grid. It will also pave the way to enable future commercial fusion energy plants to be commissioned and constructed.

Fusion energy has great potential to deliver safe, sustainable, low carbon energy for generations to come. It is based on the same processes that power the sun and stars.

The Government-backed STEP programme will create thousands of highly skilled jobs during construction and operations, and attract other high-tech industries to the region, furthering the development of science and technology capabilities nationally.

The ambitious programme will also commit immediately to the development of apprenticeship training centres in Nottinghamshire, building on the success of the UK Atomic Energy Authority's (UKAEA) Oxfordshire Advanced Skills centre in Culham, which develops around 180 apprentices from 25 employers every year.

Business & Energy Secretary Jacob Rees-Mogg said:

"Fusion offers unparalleled potential for clean power production, promising a future of inexhaustible energy that could unshackle us from fossil fuels and make us truly self-sufficient and secure.

"Over the decades we have established ourselves as pioneers in fusion science and I am delighted to announce an important step in that mission, replacing the West Burton coal-fired power station with a beacon of bountiful green energy. The plant will be the first of its kind, proving the commercial viability of fusion energy to the world.

"It could be an industry worth billions of pounds to the UK economy, positioning the UK to design, manufacture and export the first fleet of fusion plants, and putting us at the vanguard of a future market."

Professor Ian Chapman, UKAEA Chief Executive, said:

“Selecting the location of the STEP prototype plant is a huge, visible moment in the challenging and long-term endeavour of bringing fusion energy to the grid. West Burton is a natural fit for the STEP programme with a rich industrial heritage now being developed and repurposed for a low carbon future. It really is ‘from fossil fuels to fusion’.

“We look forward to working with people in the region to develop our ambitious plans and realising broader social and economic benefits.”

The West Burton site, which is home to a coal-fired power station owned by EDF, was selected following a rigorous assessment process over almost two years. Fifteen locations were long-listed following an open call for sites in December 2020 and this was reduced to five after assessments in October 2021. The second round of assessments concluded in the spring with UKAEA making its final recommendations to the Secretary of State in May 2022.

Fusion has the potential to provide a near-limitless future source of low carbon energy, complementing other sustainable sources like wind and solar. When a mix of two forms of hydrogen are heated to extreme temperatures – 10 times hotter than the core of the sun – they fuse together to create helium and release huge amounts of energy.

The energy created from fusion can be used to generate electricity in the same way as existing power stations. Fusion is many million times more efficient, per kilogram, than burning coal, oil or gas. The raw materials needed to provide the fuel for fusion are readily available in nature. However, there remains a number of significant technical hurdles to overcome to realise fusion, and the STEP programme aims to address these.

STEP is expected to pave the way to the commercialisation of fusion and the potential development of a fleet of future plants around the world. UKAEA, which carries out fusion energy research on behalf of the UK Government, is targeting first operations in the early 2040s.

The other sites shortlisted to host STEP were Ardeer, North Ayrshire; Moorside, Cumbria; Goole, East Yorkshire; and Severn Edge, Gloucestershire.