



Record Heating Power Achieved on the Joint European Torus (JET)

In November 2019, record neutral beam powers of 30.8MW were injected into a JET plasma. The new record was achieved during tests preparing the plasma scenarios required for JET's deuterium-tritium experiments in 2020, which aim to achieve high fusion power for a stable five seconds. Increased heating powers are crucial to achieving this target. CCFE engineers upgraded JET's neutral beam system from its previous capacity of 23 megawatts to a potential maximum of 34 megawatts. The extra power will support researchers using JET to simulate plasmas for the ITER tokamak.

CCFE (Culham Centre for Fusion Energy) is the UK's national nuclear fusion laboratory and part of the UK Atomic Energy Authority. Operated by CCFE, JET is the world's largest and most advanced tokamak. High power particle beams of neutral atoms (neutral beam systems) are one of the main plasma heating schemes on fusion devices such as JET and ITER. Energetic particles are injected into the plasma (usually deuterium particles), providing plasma heating as well as being used as a plasma diagnostic.

"The achievement is the result of the hard work and dedication of the neutral beam, power supplies and many other teams and gives us our first glimpse at how ITER-relevant scenarios perform at these record power levels.

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