



Translational Energy Research Centre

**A new centre of excellence
for low-carbon research
and pilot-scale testing**

www.terc.ac.uk

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What we do

- **State-of-the-art facilities**
- **Expertise** - Flagship interdisciplinary research collective at the Energy Institute.
- **Pilot-scale** - Facilities for research at a TRL of 3-6 – shape and upscale early stage research.
- **Multidisciplinary knowledge** - All relevant engineering, science and social science disciplines backed by the University of Sheffield.
- **Capacity, Flexibility, Capability**
- **Fully-integrated, plug and play approach** – a flexible space accommodating visiting academics and ensuring a ‘whole system’ approach
- **Engaged and practical innovation** - Real world solutions
- **Ambitions to be world leading** in energy research and excellence

Research areas

Carbon Capture Utilisation and Storage (CCUS) – Next Generation Technology

CCUS + MCFC (Molten Carbonate Fuel Cell)

CCUS + MCFC + H₂ (with Hydrogen co-product)

RPB for CO₂ Capture (Rotating Packed Bed)

sCO₂ technology (Supercritical CO₂ Chemical Kinetics + Heat Exchanger)

BECCS

Amine capture plant at high capture fractions (95% and above)

Hydrogen

Green and Blue Hydrogen Production

Hydrogen Combustion in GT

Hydrogen Burner Design for MGT, GT and Process Industry (Joint with AMRC)

Sustainable Fuel Production and utilisation

Sustainable Aviation Fuel (SAF) from CO₂+H₂

Zero Carbon Fuels

NH₃ combustion (fundamental research)

NH₃ and SAF chemical kinetics at high pressure

Biomass Combustion

Biomass Grate Boiler + Waste to Energy + Organic Rankine Cycle, with CCUS



A project led by the Translational Energy Research Centre, which will investigate the integration of biomass to produce high-purity hydrogen, has been awarded funding by the Net Zero Innovation Portfolio (NZIP) under Department for Business, Energy and Industrial Strategy (BEIS), through its Hydrogen BECCS Innovation Programme.



Sustainable aviation fuels which will reduce the carbon emissions associated with flying will be driven by a new partnership between Boeing and the University of Sheffield.



The Department for Business, Energy & Industrial Strategy (BEIS) has awarded grant funding of £515,000 to the FOCUSS project, which is led by SSE Thermal and supported by AECOM and the University of Sheffield for a project to reduce the cost of achieving high capture levels from flexible power stations