MANCHESTER 1824

The University of Manchester

# Faculty of Engineering and Physical Sciences

## School of Mechanical, Aerospace and Civil Engineering

Tyndall°Centre for Climate Change Research

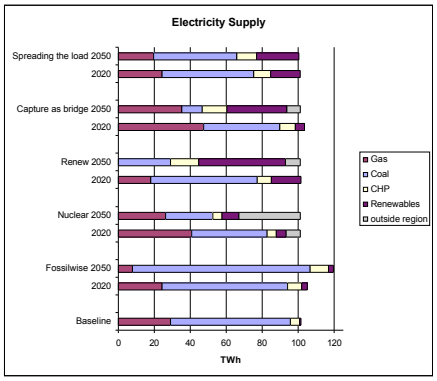
# Carbon Dioxide Capture and Storage

Geological carbon dioxide capture and storage (CCS) has the potential to make a significant contribution to the decarbonisation of the UK. Amid concerns over maintaining security, and hence diversity, of supply, carbon storage could allow the continued use of coal, oil and gas whilst avoiding the $CO_2$ emissions currently associated with fossil fuel use. However, as a new technology there remain many uncertainties relating to its viability, effectiveness and acceptability. A project funded by the Tyndall Centre is exploring some of these uncertainties from a range of perspectives and through a variety of academic approaches.

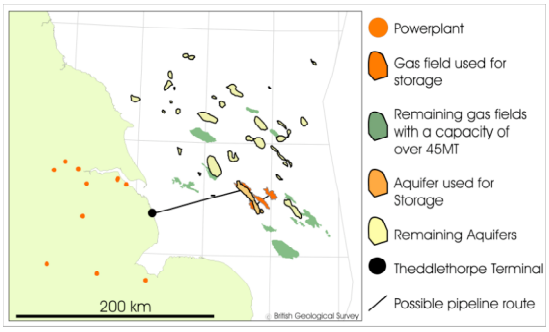
*CCS is currently occurring in Norway: CO2 removed from gas at the Sleipner field and stored deeper underground in a saline aquifer (copyright Statoil)*

## An Integrated Assessment

The Tyndall project has developed assessments of legal, techno-economic, geological, environmental and socio-political aspects of CCS. In addition we have developed long term scenarios for two Case Study regions (East Midlands-Southern North Sea and North West England – Southern Irish Sea) to explore the potential implementation options for CCS in the UK. We have now completed five scenarios for the energy mix in each region, incorporating varying levels of CCS exploitation and demonstrating potential routes from capture to storage of CO2.




*Different fuel mixes for power generation in the five scenarios (East Midlands and Yorkshire and Humberside)*




*Potential storage using gas fields and saline aquifer in the North Sea (Fossilwise Scenario)*

These scenarios will be the subject of stakeholder review through a multi criteria mapping process. This will help us to understand some of the trade offs associated with CCS and other mitigation options and how they are viewed by a variety of professional stakeholders.

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