

Towards negative emissions with Worley

Image courtesy of Drax

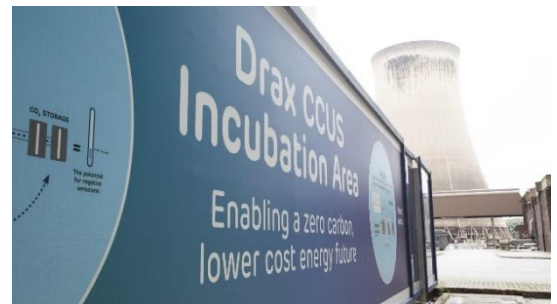
BCECA Engineering Project Focus

The UK needs negative emissions technologies to meet its 2050 net-zero carbon target. Europe's first bioenergy carbon capture and storage project is underway at the Drax power station in North Yorkshire

BCECA member Worley is a global company headquartered in Australia that provides project and asset services to the energy, chemicals and resources sector. Worley is providing the early front-end engineering design (pre-FEED) at Drax Group's power station in North Yorkshire. Each unit is expected to capture approximately four million tonnes of carbon dioxide a year. The contract includes developing plant layout, cost estimation and schedules for FEED, detailed engineering procurement and construction.

An innovative engineering solution

The negative emissions technology deployed at Drax involves burning compressed wood pellets produced from sustainably managed working forests to generate electricity. The CO₂ produced can then be captured and stored underground. More forests are then planted, absorbing CO₂ from the atmosphere. These are eventually harvested, processed into more pelletised wood fuel and burned, taking more CO₂ underground in a virtuous cycle. Negative emissions offer an innovative engineering solution to remove greenhouse emissions from the atmosphere and slow the impact of climate change.



Bioenergy with carbon capture

Carbon capture and sequestration (CCS) to mitigate CO₂ emissions arising from the power generation sector has been widely investigated. The use of biomass as an energy source by humans dates back to prehistoric times. Bioenergy with carbon capture and storage (BECCS) combines two well-known technologies for climate change mitigation. Drax first piloted BECCS at its North Yorkshire power station in 2018, with the plant capturing its first carbon in early 2019.

A second, larger BECCS pilot facility was constructed at the power station in 2020. The pilot studies proved successful, which prompted Drax to agree a long-term contract to use Mitsubishi Heavy Industries' Advanced KM CDR Process™ CCS technology. Worley is exploring options to integrate the technology into the existing Drax site at an industrial scale and provide further cost and performance optimisation studies.

Zero carbon cluster

Becoming the world's first carbon-negative power station would also make Drax a hub of the UK's first zero-carbon industrial cluster – known as Zero Carbon Humber, helping to decarbonise the North of England.

For more information about our member companies, including Worley, and other exciting developments in the engineering contracting sector, contact BCECA at 10th Floor, Camelford House, 89 Albert Embankment, London SE1 7TP

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