CASE STUDY

A world designed to last

Net Zero Teesside Power

Delivering the world's first commercial scale gas-fired power station with carbon capture and storage in the UK



T.EN TECHNIP ENERGIES



Overview

Technip Energies, leader of a consortium with GE Vernova and local construction partner Balfour Beatty, supported by technology partner Shell Catalysts & Technologies, is executing a major(1) contract for the Net Zero Teesside Power (NZT Power) project in the United Kingdom on behalf of NZT Power Limited.

This landmark project aims to be the world's first gas-fired power station with carbon capture and storage. Up to 2 million tonnes of CO_2 per year will be captured at the plant and transported and permanently stored by the Northern Endurance Partnership. The plant could produce up to 742 megawatts of flexible, low-carbon power equivalent to the average annual electricity needs of more than 1 million UK homes, further supporting the UK's transition to cleaner energy.

As part of the UK Government's £21.7 billion pledge to advance carbon capture projects, NZT Power could create and support more than 3,000 construction jobs and generate 1,000 jobs annually during operations. This major development is expected to attract private investment and support the UK in meeting its climate goals while aligning with its long-term objective of reducing carbon capture emissions by 2050.

(1) A "major" award for Technip Energies is a contract award representing above €1 billion of revenue. The award will be included in backlog in Q4 2024.

1+ MILLION
EQUIVALENT TO THE NUMBER OF UK HOMES POWERED ANNUALLY

UP TO 2 MTPA OF CO_2
TO BE CAPTURED AND STORED

3,000+ JOBS
TO BE CREATED AND SUPPORTED DURING CONSTRUCTION

Challenge

Delivering a first-of-its-kind gas-fired power station with carbon capture and storage

Gas-fired power at commercial scale is a new area for carbon capture with Net Zero Teesside Power set to become a world-class example. NZT Power is a new-build facility, which must successfully integrate the combined cycle gas turbine provided by GE Vernova and generate electricity in dispatchable operation with a highly efficient carbon capture rate of around 95 percent.

This world-first application at scale leverages the best of global technology and expertise while meeting expectations on local content and social values. Additional project challenges involve the requirement for a synergistic solution with the wider Northern Endurance Partnership network and site integration within the Teesside industrial area and surrounding communities.



Technologies

Technip Energies - Shell Catalysts & Technologies Alliance

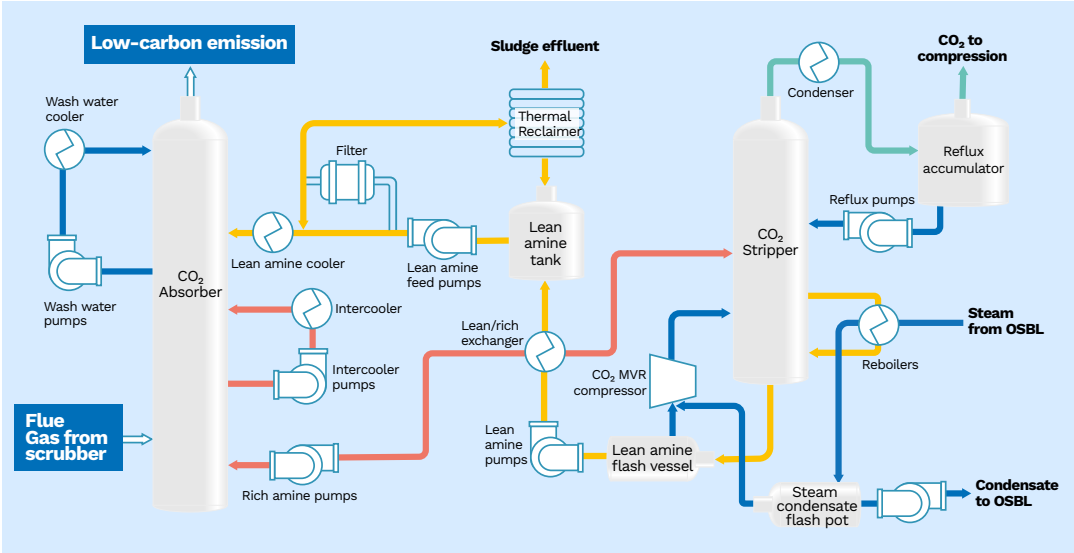
Tackling low-CO_2 concentrations with CANSOLV CO_2 Capture System

Since 2012, Technip Energies and Shell Catalysts & Technologies have been working together as an alliance, continuously evolving to meet dynamic market needs and deliver scalable carbon capture solutions.

Building on this successful collaboration and a deep commitment to the energy transition, the two industry leaders recently agreed to strengthen their relationship and move toward global exclusivity for the delivery of amine-based, post-combustion carbon capture based on Shell's cutting-edge CANSOLV* CO_2 Capture System.

CANSOLV is a leading, proven amine-based carbon capture technology designed to effectively manage the technical challenges presented by low-carbon concentration flue gases. As amine-based capture technologies use heat to regenerate the solvent, optimum energy integration with the new power plant design has been critical to successful technology deployment.

Shell CANSOLV® CO_2 Capture System, a leading amine-based technology



*CANSOLV is a Shell trademark

Alliance Partners

GLOBAL REACH
Execution centers across the world engaged in +200 prospects

PROJECT EXECUTION EXCELLENCE
From concept to EPC

LEADING-EDGE TECHNOLOGY
Shell CANSOLV* CO_2 Capture System

FULL RANGE OF PRODUCTS
Post-combustion solutions for every industry

Solutions

Working as a team to develop smart solutions

The partnership, built on Shell's technology leadership and Technip Energies' project delivery excellence, has enabled the creation of Canopy by T.EN™ powered by Shell CANSOLV®, offering a comprehensive range of post-combustion carbon capture solutions.

For NZT Power, Technip Energies and its partners will deploy Canopy C+, a highly efficient, carbon capture solution, optimizing the balance between capital and operating expenditures. The Canopy C+ solution ensures a carbon capture recovery rate of around 95 percent, combining a fit-for-purpose design that allows for capturing large capacities and offers an adjustable level of modularization.

Canopy C+ will seamlessly integrate with the advanced GE Vernova gas turbine, a steam turbine, a generator and a heat recovery steam generator (HRSG) to offer the most cost-effective conversion of fuel to electricity while providing operational flexibility and enabling increased dispatch capabilities and additional ancillary revenue.

Captured CO_2 from the power station will be conditioned and compressed before entering the pipeline system. As part of the Northern Endurance Partnership, the NZT Power project will transfer CO_2 into a wider gathering network, which connects to injection wells at the offshore Endurance reservoir in the UK Central North Sea.



Results

Pioneering global impact in gas-power decarbonization

Technip Energies, along with GE Vernova and Balfour Beatty and supported by Shell Catalysts and Technologies, are the key partners in delivering this groundbreaking project, bringing their project execution excellence, advanced solutions and expertise in carbon capture to help make NZT Power a model for sustainable transformation.

The project partners are deeply committed to long-term investment in the UK and already have a significant local footprint and supply chain. By working closely with local stakeholders and leveraging regional resources, Technip Energies reinforces its commitment to fostering economic growth while advancing decarbonization.

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This award confirms Technip Energies' leading position as a provider of state-of-the-art integrated CCUS solutions. This groundbreaking project represents a significant milestone in our collective efforts to advance carbon capture technology at scale and support the UK's ambitious climate goals through low-carbon power generation from gas combined with renewables. By leveraging our Canopy by T.EN™ solution powered by Shell CANSOLV®, we aim to set a new standard for low-carbon power generation."

Arnaud Pieton
CEO Technip Energies

