



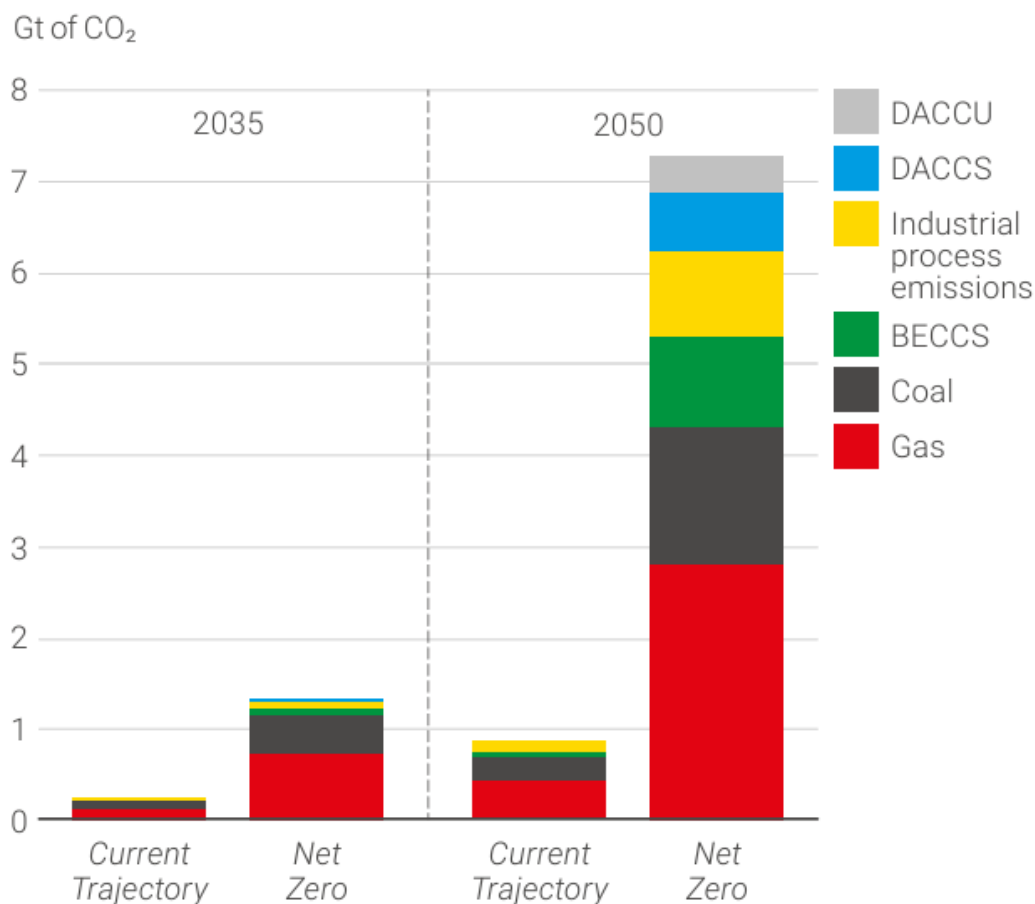
Role of CCS in Energy and Industrial Decarbonisation

The Sustainable Energy and Environmental Protection Conference 2025

Martin Towns
VP Carbon Capture and Storage

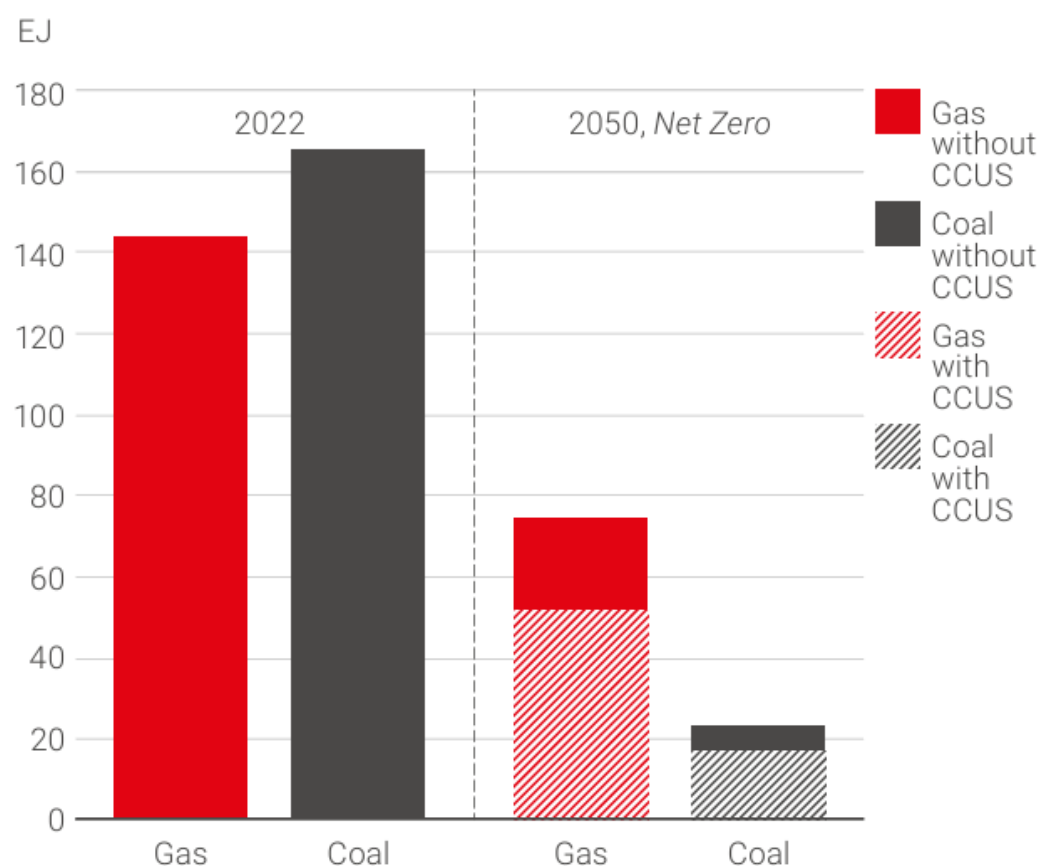
Carbon capture, use and storage plays an important role in supporting deep decarbonization pathways

Carbon capture, use and storage by emissions source



BECCS: Bioenergy with carbon capture and storage.
DACCS: Direct air carbon capture and storage.
DACCU: Direct air carbon capture and use. This includes use as a source of carbon neutral CO₂ for hydrogen-derived fuels such as synthetic jet fuel.

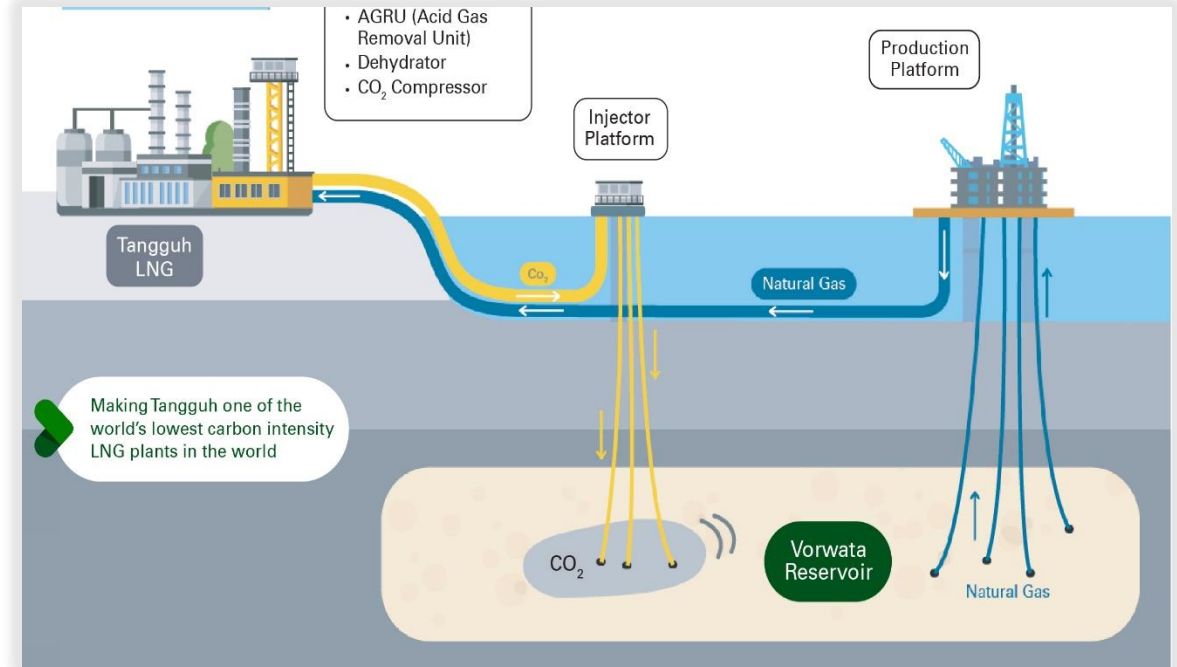
Gas and coal consumption, abated and unabated



bp Energy Outlook: 2024 edition

Indonesia Tangguh CCUS

Enhanced gas recovery and lower carbon intensity LNG production



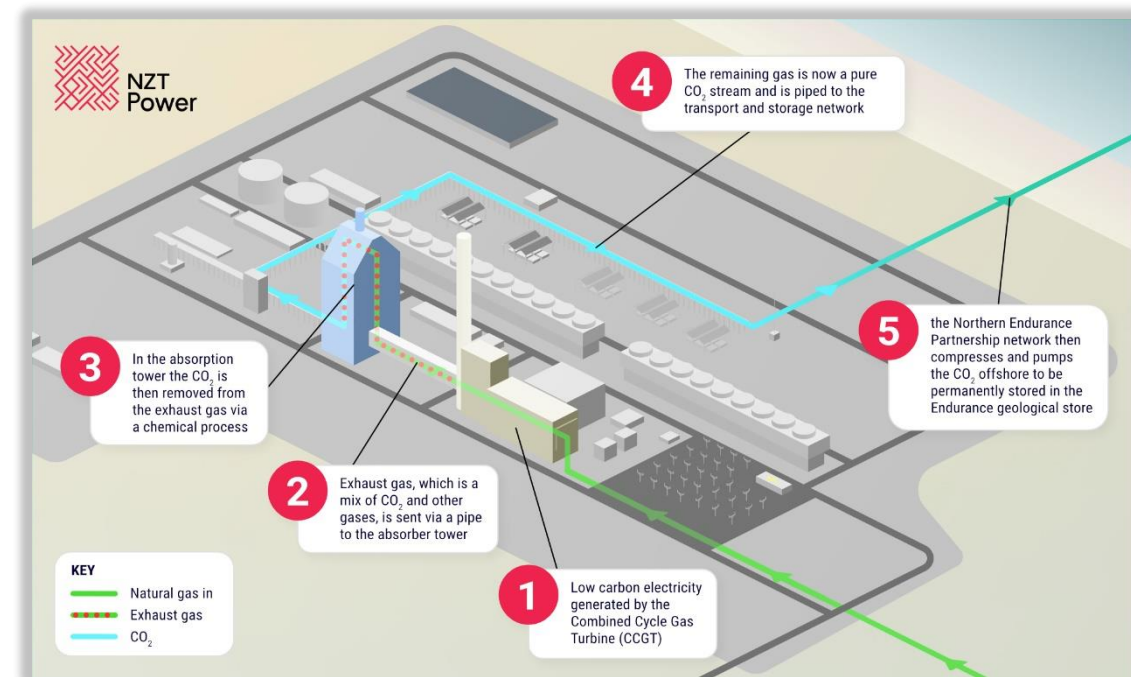
bp and its Tangguh partners are developing the Ubadari, Compression and Carbon Capture (UCC) Project that features Indonesia's first at-scale enhanced gas recovery through CCUS.

The project, which aims to sequester around 15 million tonnes of CO₂ in its initial phase, enables Indonesia to recover more gas and supply lower carbon LNG to markets.

Plan of Development for first phase approved by the Government of Indonesia and FID taken in November 2024. Future potential for CO₂ storage services for domestic and international customers.

UK East Coast Cluster

A flagship portfolio of projects creating a low carbon industrial cluster

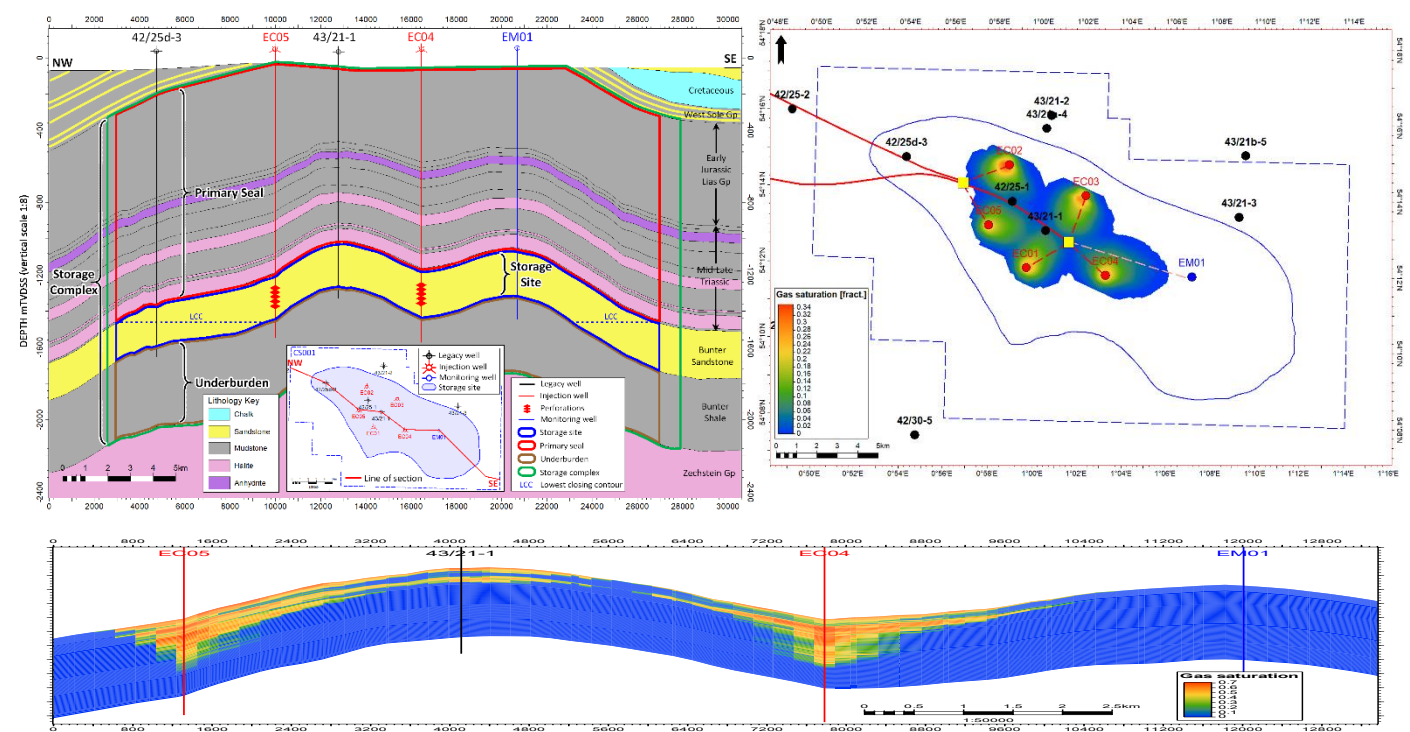
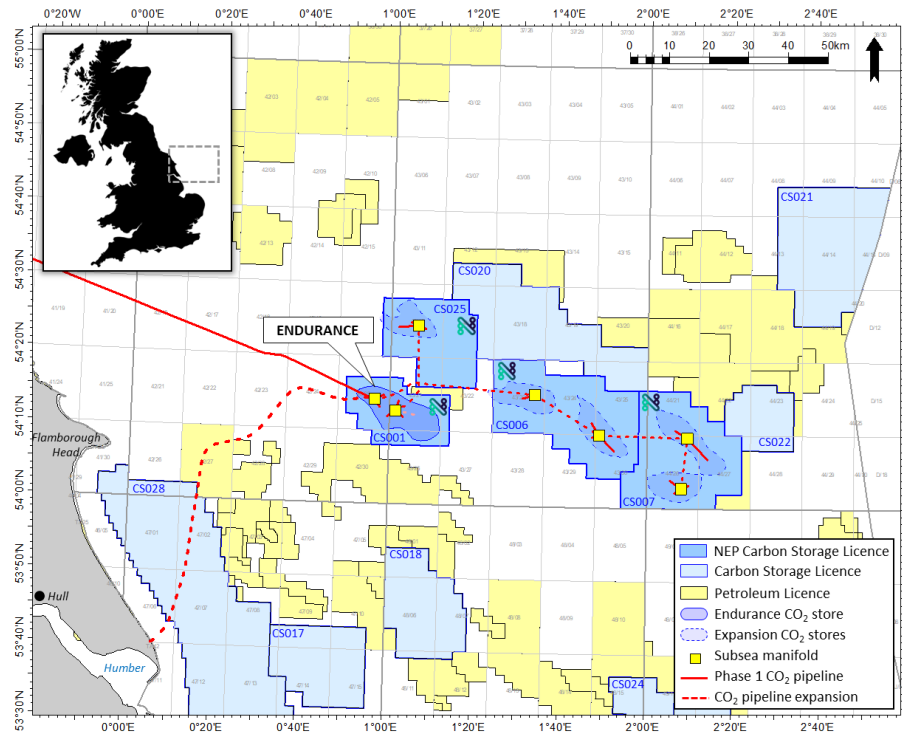


Net Zero Teesside Power: 742 MW flexible, dispatchable, low-carbon power, with capture capacity for 2 mtpa of carbon dioxide. Start-up in 2028. Supported by Dispatchable Power Agreement (DPA) with UK Gov's LCCC. Partners bp and Equinor. FID taken Dec 2024.

Northern Endurance Partnership: Carbon dioxide transport and storage network with initial capacity to store 4 mtpa (enough for NZT Power, H2Teesside and Teesside Hydrogen CO2 Capture). Potential for expansion across Teesside and Humber regions to 23 mtpa. Start-up 2028. Supported by Transport and Storage Revenue Investment model (TRI). Partners bp, Equinor, TotalEnergies. FID taken Dec 2024.

Geological sequestration

Applying industry expertise to permanently lock away carbon



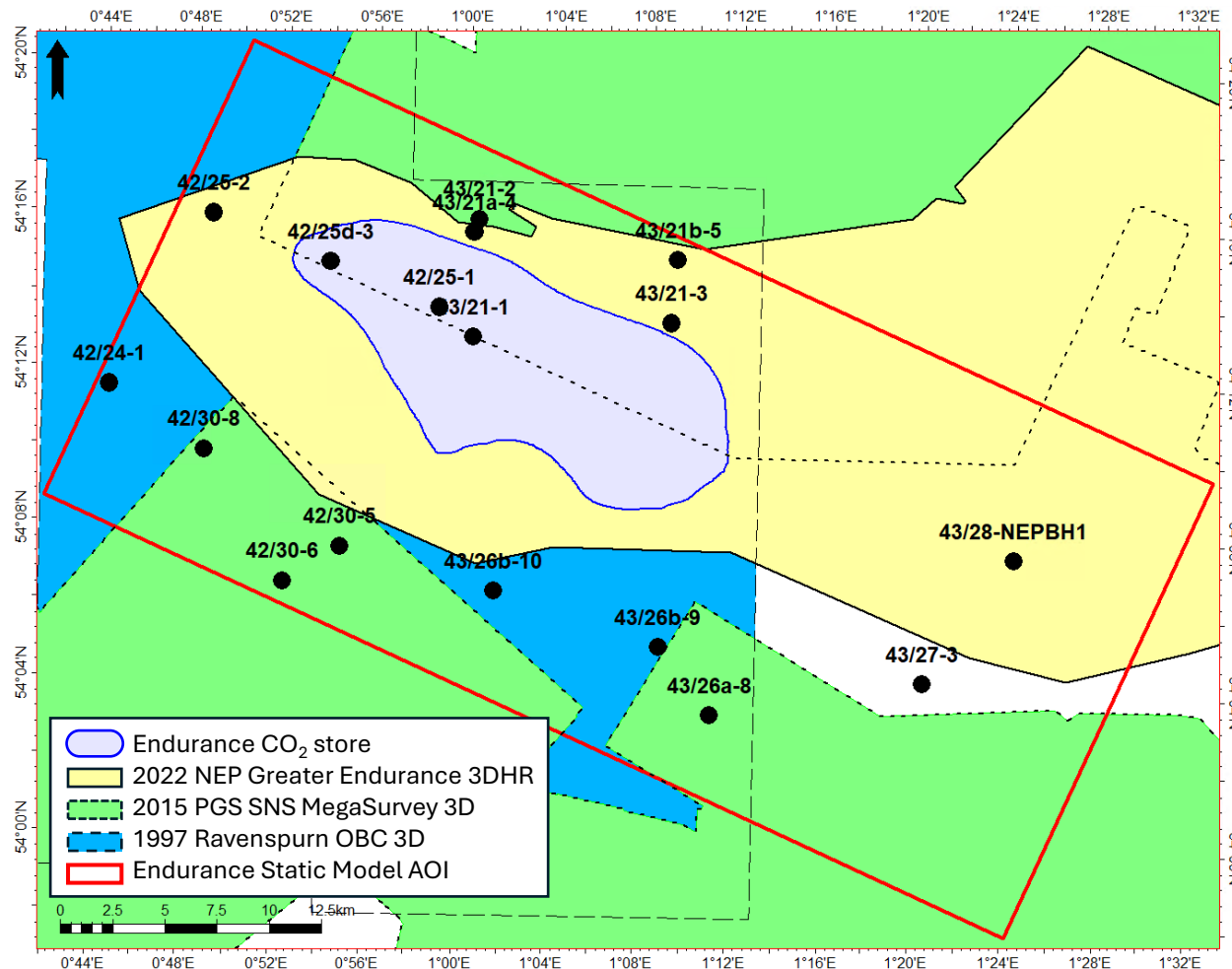
Reservoir: Thick (250 m) and laterally extensive Bunter Sandstone fluvial sandstones with excellent reservoir quality

Seal: 4-way dip closure structure under a primary seal (950 m) of mudstones and evaporites

Storage resource description and characterisation

Assessing storage site suitability and capacity

Database: 3D seismic and wells

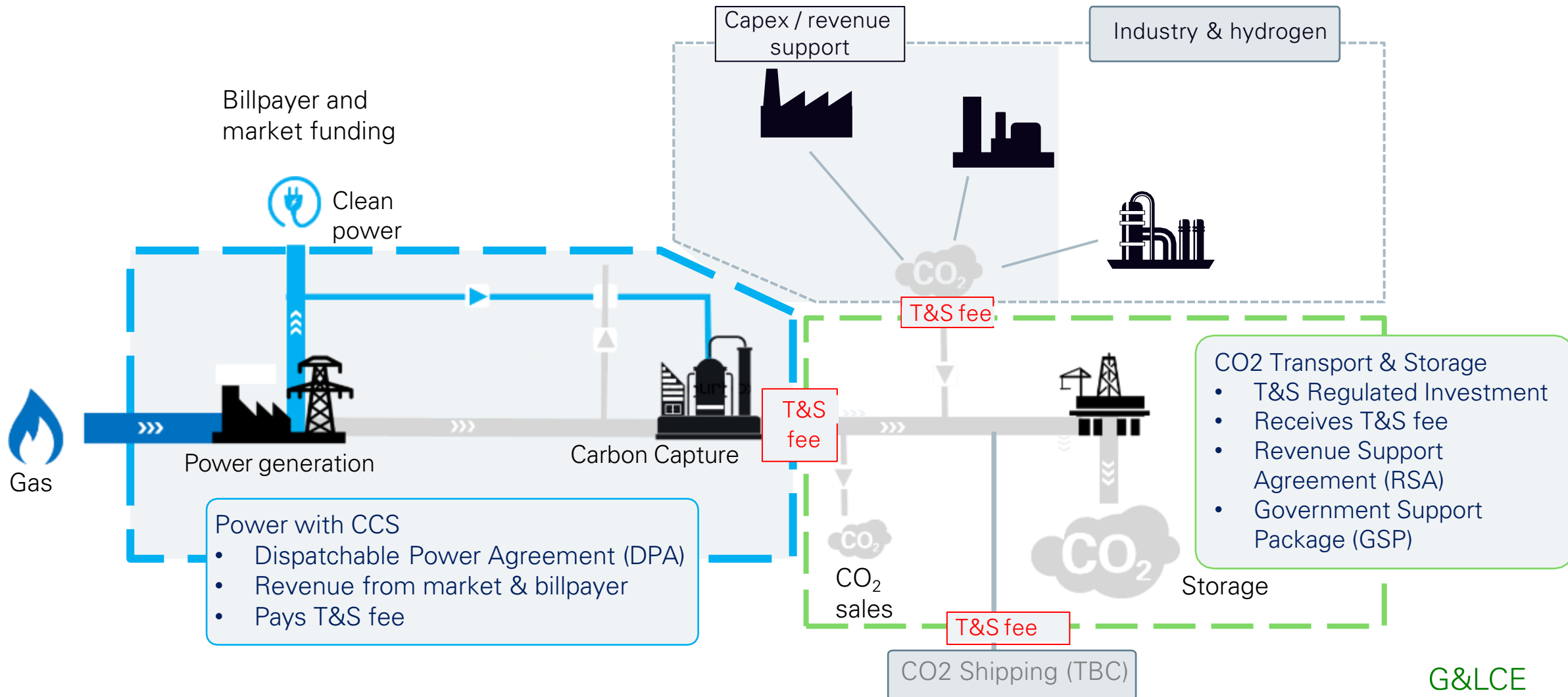


Methodology:

1. Define structural framework (shape of container)
2. Describe stratigraphic architecture (fill of container)
3. Assess connectivity and rock quality of reservoir units (injectivity)
4. Assess continuity and integrity of seal units (containment)
5. Calculate net pore volume and effective storage resource (capacity)
6. Integrate geomechanical, geochemical, hydrogeological & numerical flow simulation analyses

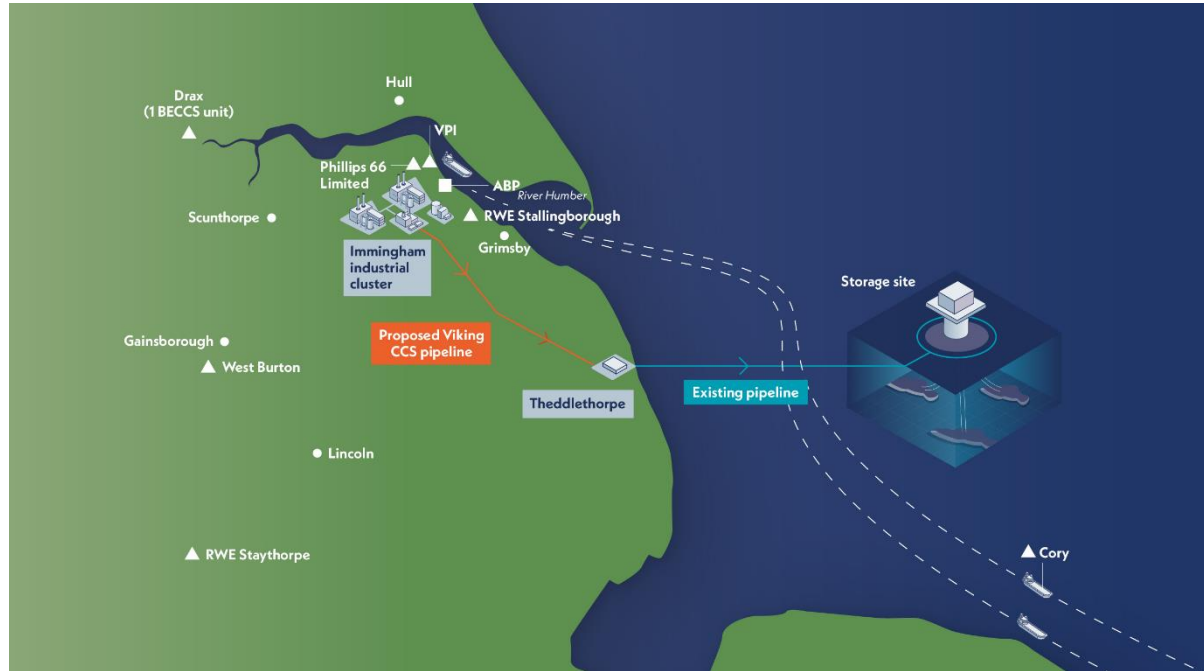
Creating investable business models

Revenue assurance and cross-chain risk management are key to financability



Viking CCS

Next wave of UK projects



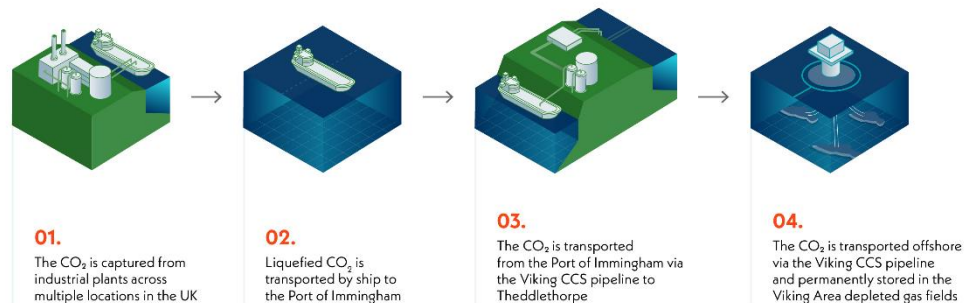
bp holds a 40% stake in the Viking CCS Project operated by Harbour Energy. This project has been selected by the UK Government as a Track 2 cluster, setting it on track toward the award of an economic licence.

Phase 1 – CO₂ will be transported from anchor emitters on the Humber via a new onshore CO₂ pipeline to Theddlethorpe and from there to the depleted Victor field via the repurposed LOGGS pipeline.

Future expansion would include the addition of further sources of CO₂ connected by pipeline and potentially shipped CO₂ via a new terminal at the deepwater port at Immingham.

Shipped CO₂ could come from the UK's dispersed clusters or from the EU.

The UK government announced development funding for the project as part of the 2025 Spending Review.



Angel CCS

Opportunity to create a CCS hub in NW Australia



Australia has a well-developed regulatory environment for CCS, rated world leading by the GCCSI

Woodside, bp, MIMI, Shell [and Chevron] have developed a CCS hub concept using the depleted Angel gas field (GHG Title 21-4)

Vision for a large-scale, multi-user CCS hub with an initial project capacity of 5 mtpa.

Region is home to CO₂ intensive LNG, mining and petrochemical operations and is strategically located for receiving future shipped CO₂

Business model development with financial incentives is required to enable further progress

Thank you