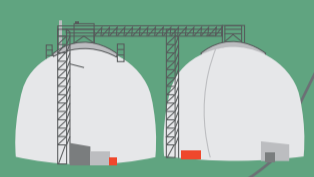


The Humber: A 2030 Vision for Industrial Decarbonisation



Over **£15bn** of private investment is to be unleashed in the Humber

ZERO CARBON HUMBER is a partnership formed to make the Humber the world's first net zero carbon industrial cluster through the production of low carbon hydrogen and CCS.



DRAX is set to run the world's first carbon negative power station with the largest decarbonisation project in Europe, reducing its emissions by more than 90%.

SSE THERMAL and **EQUINOR** are developing a new CCS-equipped power station, Keadby 3 Carbon Capture Power Station, which could be operational by the mid-2020s, and the world's first major 100% hydrogen-fired power station, Keadby Hydrogen Power Station, which could be operational by 2030.

BRITISH STEEL's ambition is for low-embedded carbon steel production with a phased reduction of CO2 intensity. Its Low-Carbon Roadmap will deliver net zero steel by 2050 and significantly reduce CO2 intensity by 2035.

NORTH LINCOLNSHIRE GREEN ENERGY PARK is exploring the possibility of linking to the **HUMBER LOW CARBON PIPELINES Project**, which is part of the East Coast Cluster.

px SALTEND CHEMICALS PARK

PENSANA's £100m rare earth processing facility is a world's first that produces earth oxides used in the manufacture of powerful permanent magnets.

INEOS operates a modern world-scale chemical plant producing ethyl acetate.

TRICOYA VENTURES operates the world's first Tricoya® wood elements manufacturing plant.

TRITON POWER

EQUINOR is developing the **HYDROGEN TO HUMBER (H2H) SALTEND** blue hydrogen production plant, which will provide around 600MW of low carbon hydrogen to decarbonise industrial users.

The **VIVERGO** Fuels plant will manufacture Bioethanol in early 2022 and help cut transport CO2 emissions by up to 750,000 tonnes per year.

World-leading researchers from across the **UNIVERSITY OF HULL** are tackling global challenges/climate change and pioneering low-carbon innovation and offshore wind energy, including at its specialist Energy and Environment Institute (EEI) and Aura consortium.

The River Humber is the **LARGEST** deep water estuary on the UK East Coast

SINGLETON BIRCH has its own Anaerobic Digestion facility which generates 70% of the site power consumption and has teamed up with **ORIGEN** to develop a new way of producing lime to remove carbon dioxide from the atmosphere.

The **ABLE** Energy Park, covering 721 acres, will be at the intersection of two national CCS / Hydrogen pipeline schemes, facilitating decarbonisation and green energy and renewable developments. The proposed £500m Able Humber Port will be Europe's largest port facility and offshore wind /renewables cluster.

AIR PRODUCTS and **ASSOCIATED BRITISH PORTS** are working together on a new green energy terminal in the Port of Immingham. The terminal will be a key piece of national infrastructure.

SSE THERMAL and **EQUINOR** are developing plans for one of the world's largest hydrogen storage facilities at the existing Aldbrough site. Aldbrough Hydrogen Storage could be storing low-carbon hydrogen by 2030.

The £200m **YORKSHIRE ENERGY PARK** combines on-site clean energy generation, data storage, education, R&D alongside business in a high quality campus setting and is to create c.4480 gross jobs.

The Humber Ports are the UK's busiest trading complex, handling **77m** tonnes of cargo worth **£75bn** each year

The **HUMBER LOW CARBON PIPELINES** project is set to create an onshore network of underground pipelines for the Humber to transport captured carbon dioxide and hydrogen as part of the **ZERO CARBON HUMBER** project.

The **EAST COAST CLUSTER**, a collaboration between **ZERO CARBON HUMBER, NET ZERO TEESIDE** and **NORTHERN ENDURANCE PARTNERSHIP**, stands ready to remove 50% of the UK's industrial cluster CO2 emissions.

The **NORTHERN ENDURANCE PARTNERSHIP (NEP)** is developing offshore carbon dioxide (CO2) transport and storage infrastructure in the UK North Sea.

35% of total UK offshore wind capacity is operating from the Humber and growing

The **HUMBER OFFSHORE WIND CLUSTER** is the UK's most established offshore wind cluster.

CENTRICA STORAGE is developing a project to convert the Rough gas storage reservoir into what would be the world's first and largest low carbon offshore hydrogen storage facility.

CENTRICA STORAGE and **EQUINOR** are exploring a potential GW hydrogen production hub at Easington which could be operational by 2030.

FAST FACTS

The Humber is home to Europe's **LARGEST** bio-mass power station with potential for **16Mtpa** of BECCS - 1/4 of the UK's total target figure.

The Humber has a Hydrogen store capacity of **10,000Gw** hours.

Deploying CCA and hydrogen technologies in the Humber would deliver a peak of **£3.2 billion** per year in direct, indirect and induced GVA.

Humber ambition to be first industrial cluster to reach net zero by 2040.

1 in 10 regional jobs will be safeguarded and thousands of new jobs created by decarbonising the Humber.

KEY

- HUMBER INDUSTRIAL CLUSTER PLAN PARTNERS
- REGIONAL DEPLOYMENT PROJECTS
- HYDROGEN
- CO2
- DOGGER BANK OFFSHORE CABLE CORRIDOR
- HORNSEA OFFSHORE CABLE CORRIDOR
- NORTHERN ENDURANCE PARTNERSHIP PIPELINE
- CO2 PIPELINE
- HYDROGEN PIPELINE
- PIPELINES ARE INDICATIVE

IMMINGHAM

PRAX Lindsey Oil Refinery is a world-class supplier of quality fuels. It has the capacity to process up to 113,000 barrels of oil a day.

PHILLIPS 66 LTD. Humber Refinery is recognised as one of the best in the world and is key in the supply chain for battery technology development, with capacity equivalent to 1.3 million EVs per year today, with plans to expand. The refinery is also the only producer of sustainable aviation fuel at scale in the UK.

UNIPER and **SHELL** are developing a low carbon hydrogen production hub at Uniper's Killingholme site, with a capacity of up to 720 megawatts, using gas reformation technology with carbon capture and storage.

VPI IMMINGHAM is one of the largest combined heat and power plants in Europe, capable of generating 1,240mw and up to 930 tonnes of steam per hour.

CATCH is a leading cluster engagement partnership supporting the energy intensive industries on their journey to net zero.

The **EPUK** energy centre will use 600,000 tonnes of waste materials per year to produce enough low-carbon electricity to power 50,000 homes.

The UK's flagship renewable green hydrogen project, **GIGASTACK**, aims to create a blueprint for the deployment of industry-scale renewable hydrogen from offshore wind.

HUMBER ZERO is a world scale CO2 reduction project that could remove up to 8 million tonnes of CO2 every year from 2027. Collaborators include **PHILLIPS 66 LTD. & VPI IMMINGHAM.**

The Humber is the **UK'S ENERGY ESTUARY**

c 20,000 new jobs created across the Humber industrial clusters with the onset of Hydrogen economy

80% of the UK's licensed CO2 storage capacity is accessible from the Humber

The Viking Area carbon stores are high-quality depleted gas reservoirs that can be filled with captured CO2 and have over **300 MT** of storage potential

The **UNIVERSITY OF LINCOLN** is at the forefront of the UK's decarbonisation agenda, partnerships are wide in providing evidence-based, sustainable, and forward-thinking solutions in all forms of decarbonisation and the hydrogen economy.

Led by **HARBOUR ENERGY**, **VIKING CCS** is a CO2 capture, transport and storage network targeting start-up in 2027. Working with a wide range of cluster members including **ASSOCIATED BRITISH PORTS, PHILLIPS 66, RWE, VPI** and **WEST BURTON ENERGY** the network is targeting a reduction of 15 million tonnes of UK emissions per annum by 2035.

