



# Humber Industrial Cluster Plan

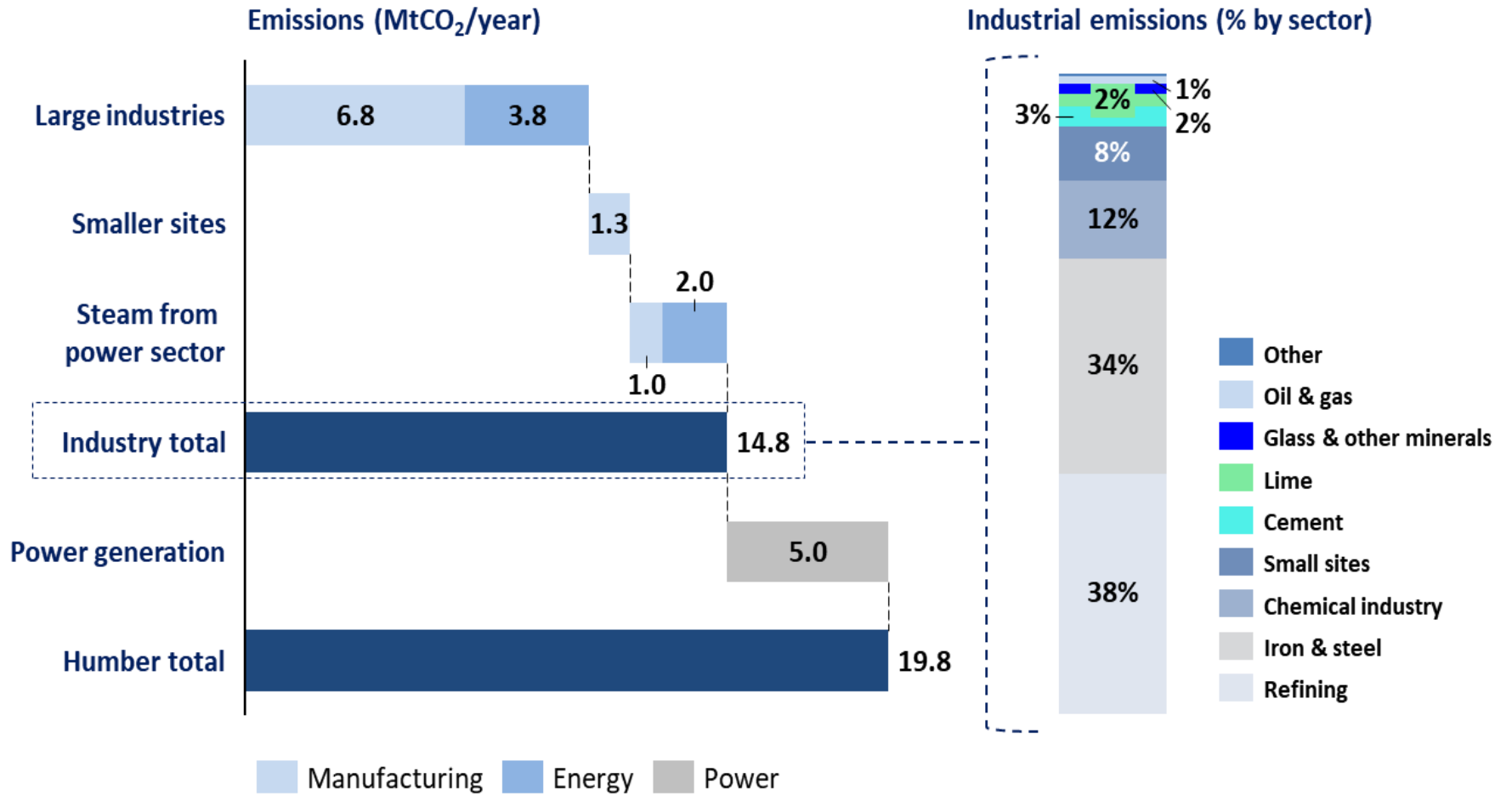
Katie Hedges

Head of Membership

& Low Carbon Strategy

18 March 2021



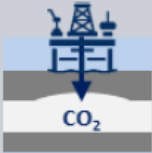


# Humber Emissions



# The Humber Industrial Cluster Plan

- Deliver a vision for UK's first low carbon industrial cluster by 2030 and a net zero industrial cluster by 2040
- A project total of £2.6million including Innovate UK grant and working closely with BEIS Industrial Decarbonisation Team
- Humber LEP (Hull City Council) and 8 industry funding match partners
  - British Steel
  - Centrica Storage
  - Drax
  - Equinor
  - National Grid Ventures
  - Phillips66
  - SSE Thermal
  - VPI Immingham
- CATCH match funding through membership fees Jan 21-Mar 23

# Deep decarbonisation technology options

Type of Option	Key Technology Types	Key Sectors
 <b>Electrification</b>	Electric Boilers, Kilns, Furnaces, Ovens, Dryers, and Compressors Electric Arc Furnaces (for Iron and Steel)	All Sectors
 <b>Hydrogen (Green and Blue)</b>	Hydrogen Boilers, Combined Heat & Power, Kilns, Ovens, Furnaces, Dryers, and Compressors Hydrogen Direct Reduction (for Iron and Steel)	All Sectors
 <b>CCS</b>	Carbon Capture on: Internal Fuel Combustion, Large Equipment/Sources, Process Emissions	Refining, Chemicals, Cement, Iron and Steel
 <b>BECCS</b>	Carbon Capture on Existing Biogenic Emissions Fuel Switching to Biomass Combined with CCS	Waste Processing, Cement, Lime, Glass, Paper
 <b>Methane Management</b>	Leak Detection and Repair, Continuous Monitoring, Flaring Reduction	Fossil Fuel Production and Fugitive Emissions (FFPFE), Iron and Steel



# Energy systems modelling in the HICP

- How much of each technology is needed to meet net zero?
- Timescales (linking the model to industrial deployment projects)
- Mapping emissions and potential CO2 stores
- Rate of reduction in industrial emissions achieved in different scenarios
- Cost of different decarbonisation route
- Future emissions scenarios ( e.g. new industries moving into Humber)
- Skills and jobs needed to deploy projects

# Humber deployment projects



**ZEROCARBON**  
HUMBER

H2H Saltend

 Net Zero Teesside & **ZEROCARBON**  
HUMBER

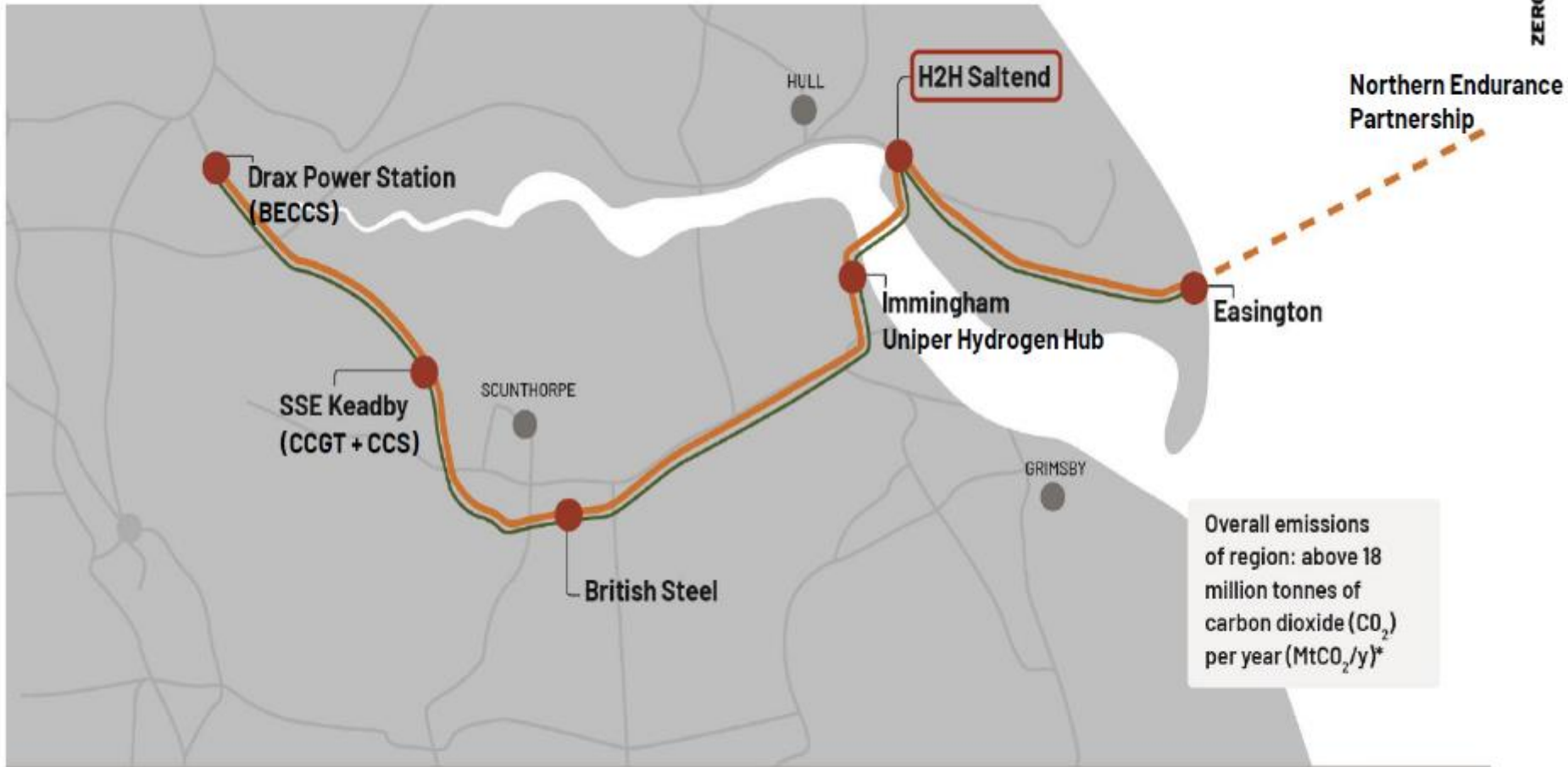
Northern Endurance Partnership

**V Net Zero**



# Zero Carbon Humber onshore plans

## A £75M BLUEPRINT TO KICK-START A NEW LOW CARBON ECONOMY



KEY

— Hydrogen pipeline (illustrative)

— CO<sub>2</sub> pipeline (illustrative)

● ZCH businesses / facilities

\* Combined industry and power emissions for the Humber, excluding Drax Power Station

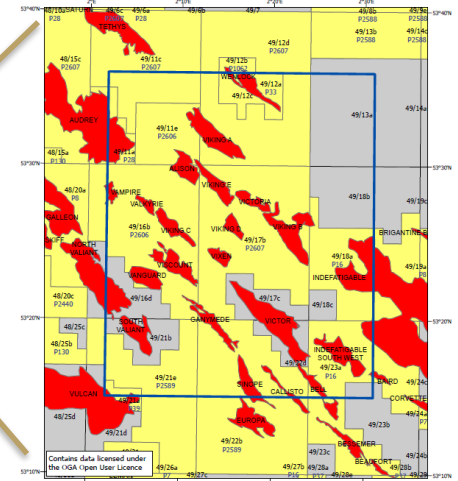
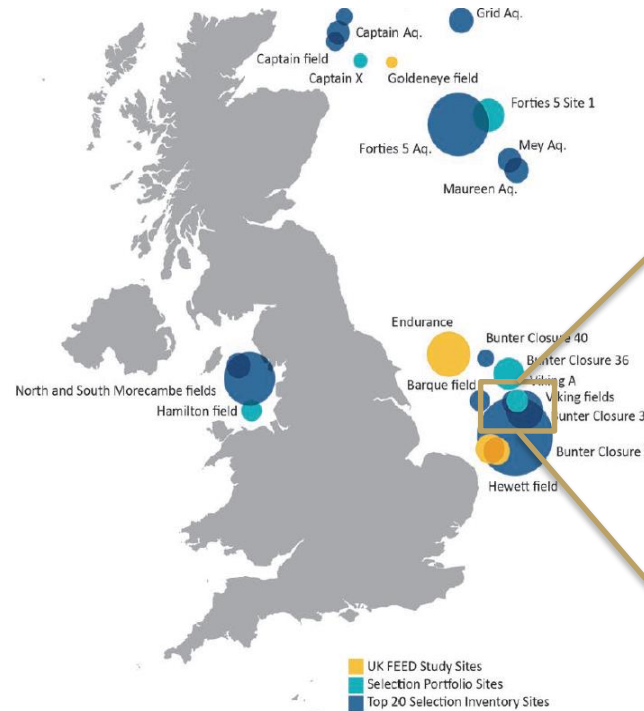
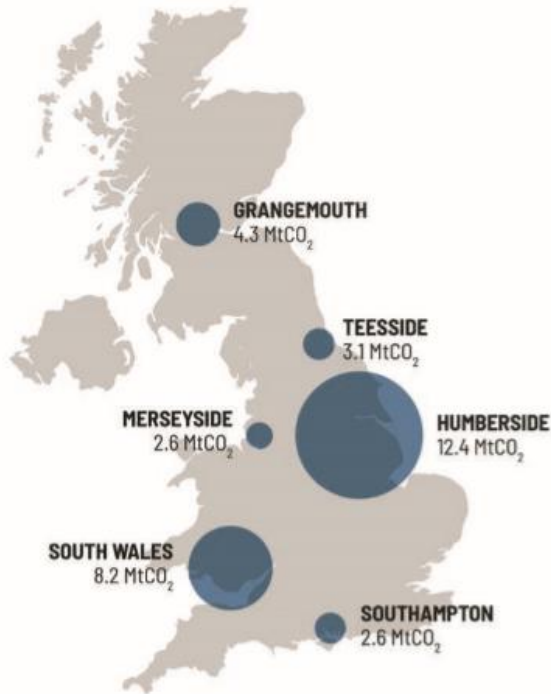


CHRYSAOR

# V Net Zero: CO<sub>2</sub> Storage Adjacent to UK Industrial Centre in the Humber Region

UK Industrial Cluster's CO<sub>2</sub> Emissions

UK Offshore High-Graded CO<sub>2</sub> Stores, with Viking Area Well Situated to the Humber Region



The Viking Area's depleted gas reservoirs represent a high quality and material CO<sub>2</sub> storage opportunity in proximity to primary UK industrial region of Humber with 40+ yrs of Chrysaor Operator knowledge.



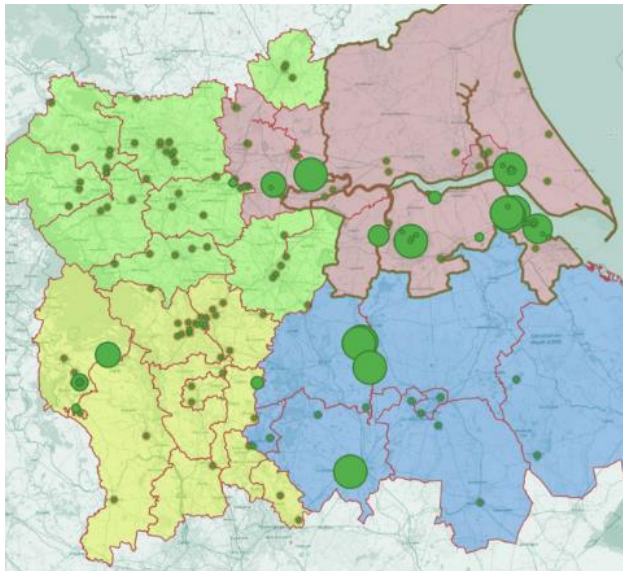


# V Net Zero: CO<sub>2</sub> Transportation and Storage Overview

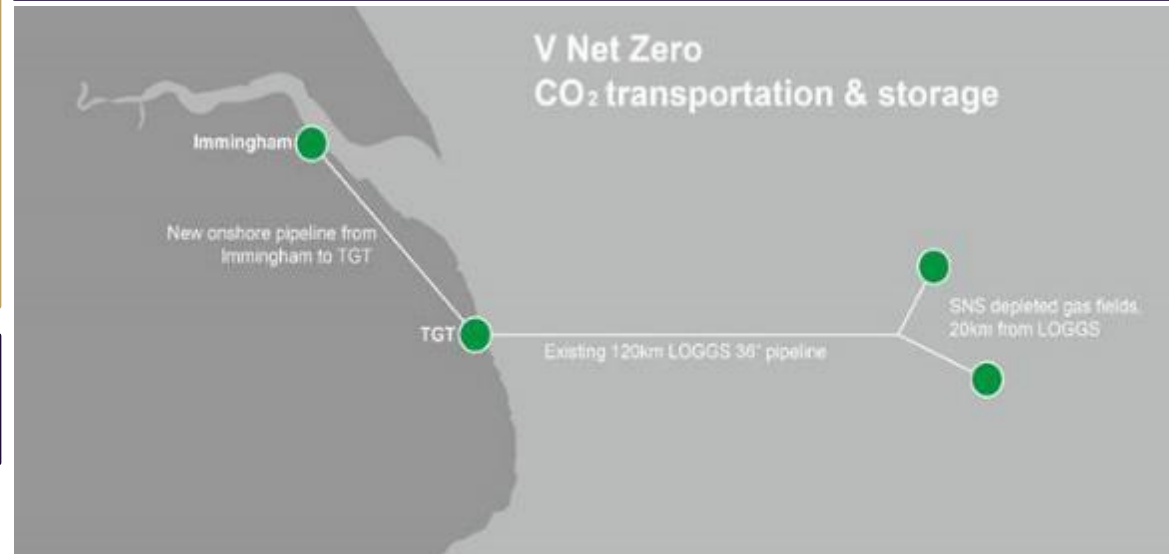
## Key Points

- Proximity to the Humber Region Energy Intensive Industries, Humber Zero / Immingham 8MTPA target by 2030 (Power, Industrial & Hydrogen capture);
- V Net Zero infrastructure repurposing offers credible route to **rapid deployment and lower cost pathway** for CO<sub>2</sub> transportation;
- Diverse depleted gas reservoirs with **robust operator-knowledge** to support evaluation of CO<sub>2</sub> storage potential.

## Power & Industrial Major Emitters Humber Region



## V Net Zero: Strategic Decarbonisation Infrastructure in Greater Lincolnshire



- Diverse storage site opportunities within Viking Area depleted gas reservoirs;
- Examine repurposing high capacity gas transportation infrastructure;
- Potential to develop new infrastructure between Immingham & TGT;
- Collaboration to evaluate TGT as a future *“SuperPlace”* for the Energy Transition
- Promote infrastructure integration in Greater Lincolnshire’s low-carbon economy.