

Unlocking the hydrogen value chain

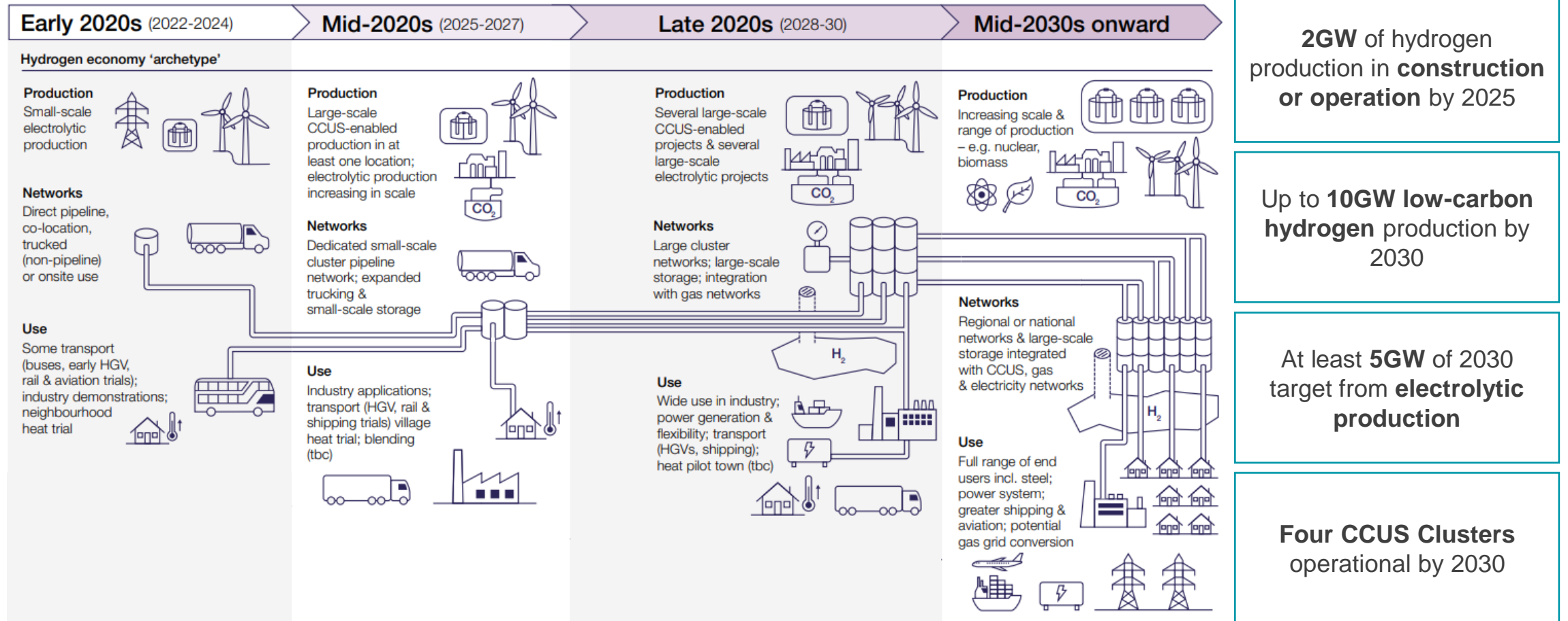
Catherine Raw
Managing Director, SSE Thermal

7 March 2023



UK Hydrogen Strategy

A whole system approach



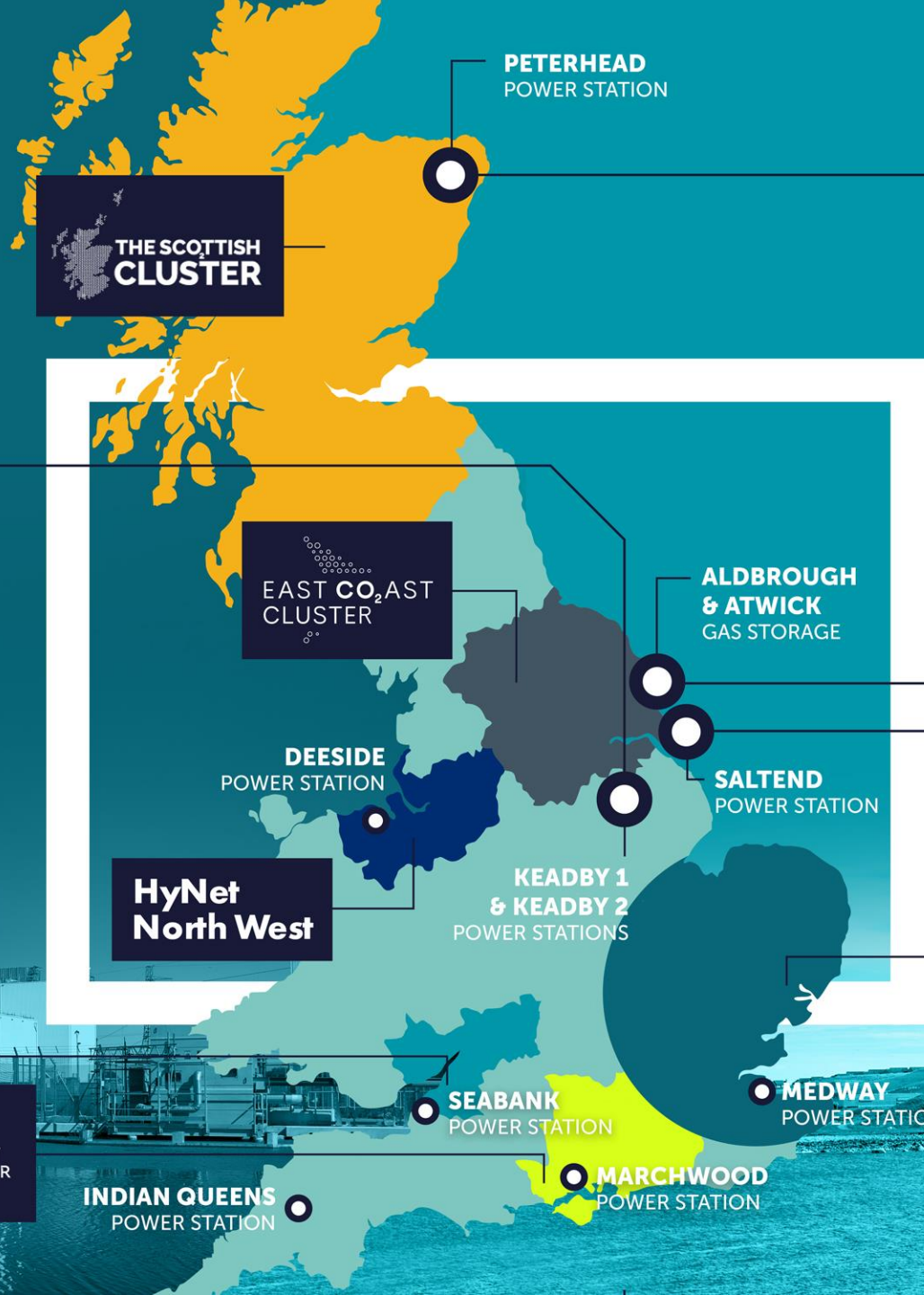
*UK Government Hydrogen Strategy, August 2021

PRESENCE ACROSS UK INDUSTRIAL CLUSTERS



KEADBY

- Carbon Capture Power Station
- Hydrogen Power Station



THE SCOTTISH
CLUSTER

PETERHEAD
POWER STATION

PETERHEAD

- Carbon Capture Power Station

ALDBROUGH

- Aldbrough Hydrogen Pathfinder
- Aldbrough Hydrogen Storage

EAST CO₂AST
CLUSTER

ALDBROUGH
& ATWICK
GAS STORAGE

SALTEND

- Hydrogen blending at existing power station

DEESIDE
POWER STATION

KEADBY 1
& KEADBY 2
POWER STATIONS

SALTEND
POWER STATION

HyNet
North West

Bacton
Thames
NetZero.



INDIAN QUEENS
POWER STATION

SEABANK
POWER STATION

MEDWAY
POWER STATION

MARCHWOOD
POWER STATION

Leading the way in the Humber

Power CCS & H2 production, storage and offtake in the Humber



Keadby CCS **shortlisted** as one of 3 **Power CCS** projects in BEIS cluster sequencing process



The **world's first major 100%-hydrogen-fired power station** – Keadby Hydrogen



One of the world's largest hydrogen storage facilities at Aldbrough site



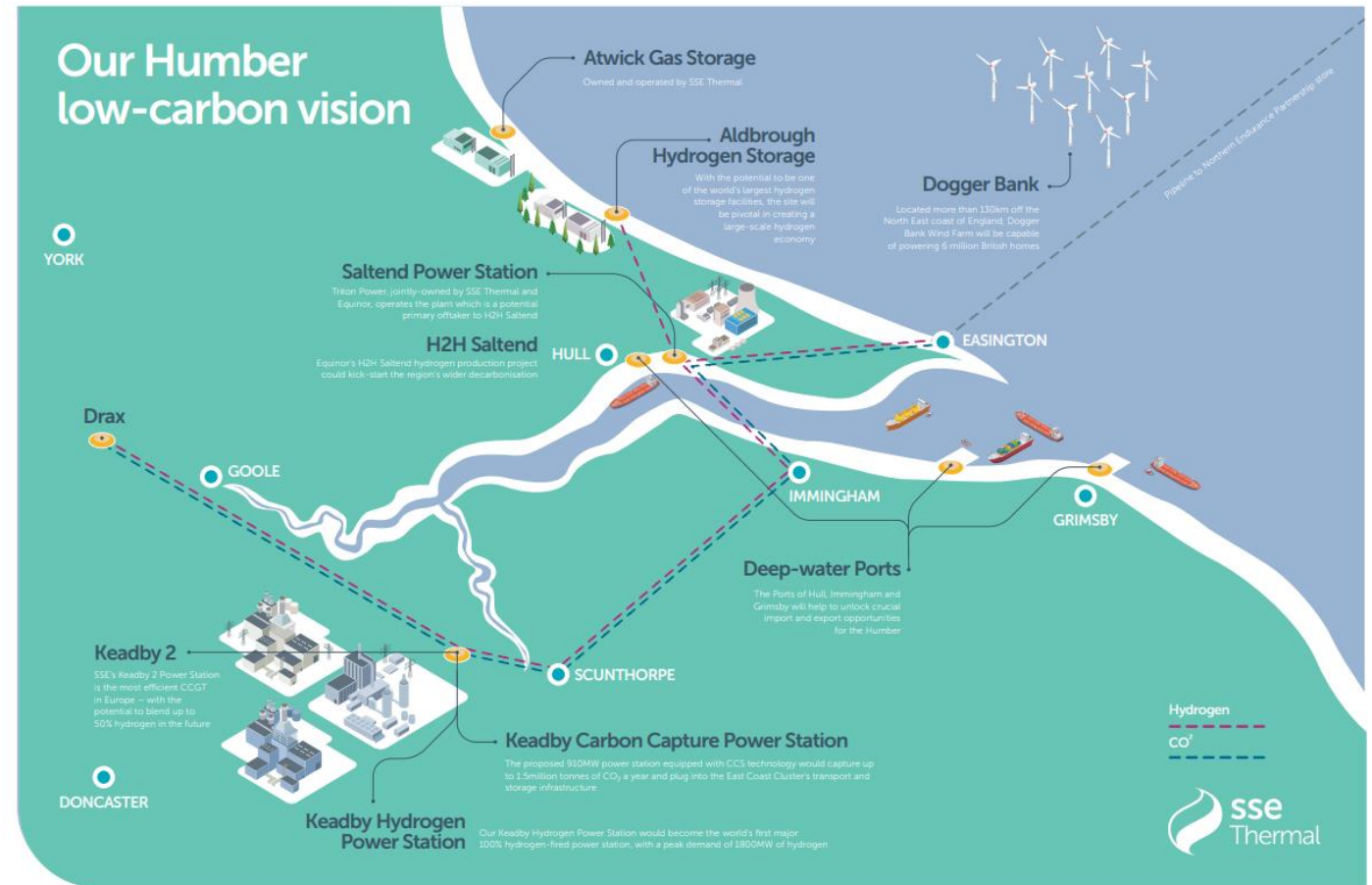
Aldbrough Pathfinder – across H2 value chain



Hydrogen blending options at existing power generation sites – Keadby 2 and Saltend (Triton Power)



Hydrogen electrolysis projects



Low-carbon hydrogen growth

What enablers will make the market take-off?

Technology

- While SMR for blue Hydrogen is an established technology, **electrolysers are still in the early stages of development.**
- While globally targets are much higher, **the largest operational electrolyser projects installed to date are ~20MW.**

Infrastructure

- **No current transportation/storage infrastructure.** Cannot use current gas grid.
- **Storage required to enable economy,** both small and large-scale.

Policy

- Clear **policy direction needed to encourage demand switching and grow supply.**
- **Industry is working to find decarbonisation solutions,** but clarity through policy would encourage greater investment.

Cost Support

- Low-carbon H2 **significantly more expensive** than Grey, or fuels it is replacing.
- **Cannot be used instead of other fuels – processes / technology / infrastructure needs to be completely replaced.**