SCCS
Annual Conference 2023

The Carbon Landscape:
Methods & Metrics of CO_2 Storage

Peterhead Carbon Capture Project and the Scottish Cluster

Tom Snow, SSE Thermal

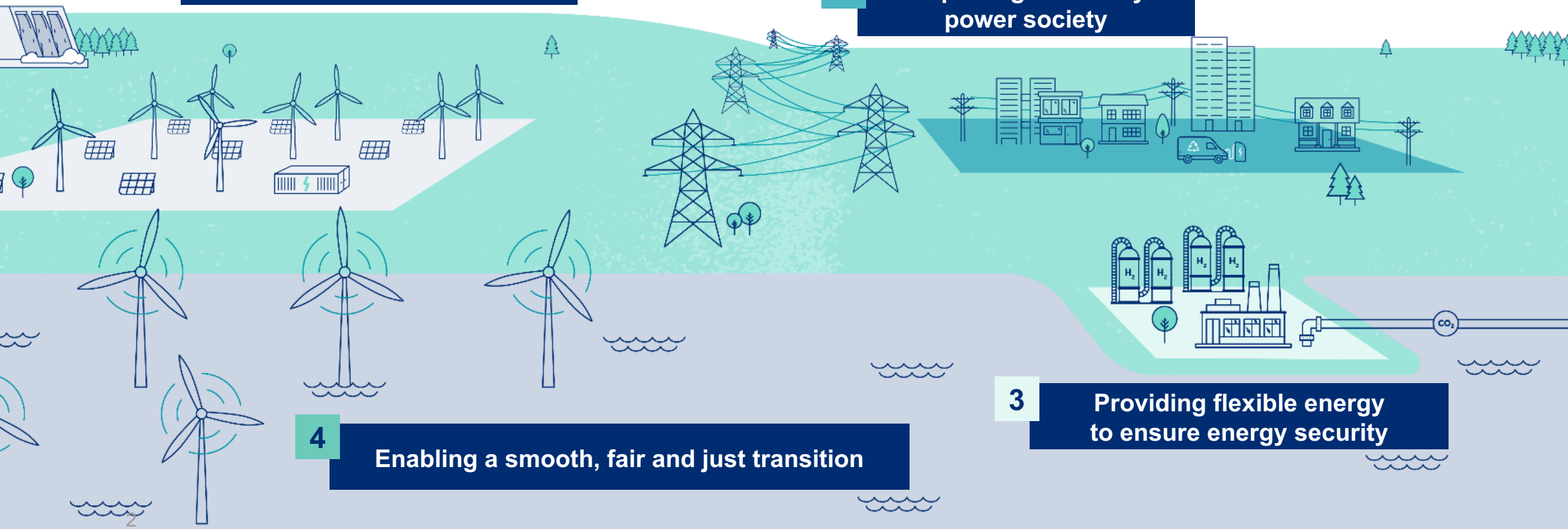
#SCCSconference

Strategy Aligned to Future Energy System

Decarbonising generation and enabling electrification

1 Creating renewable energy at home and abroad

2 Transporting electricity to power society



3 Providing flexible energy to ensure energy security

4 Enabling a smooth, fair and just transition

SSE Thermal

Powering change with flexible energy

> ***“SSE Thermal is on a mission to deliver the flexible energy needed today while powering the transition to net zero.”***

Our 660+ employees play a crucial role in keeping the light on across the UK and Ireland and we’re rising to the low-carbon challenge with our teams at the cutting-edge of vital technologies.

We’re developing ground-breaking carbon capture and storage projects and progressing plans for what could be the world’s first hydrogen-fired power station, as well as a major hydrogen storage facility and exploring other exciting options as we decarbonise.

PRESENCE ACROSS UK INDUSTRIAL CLUSTERS

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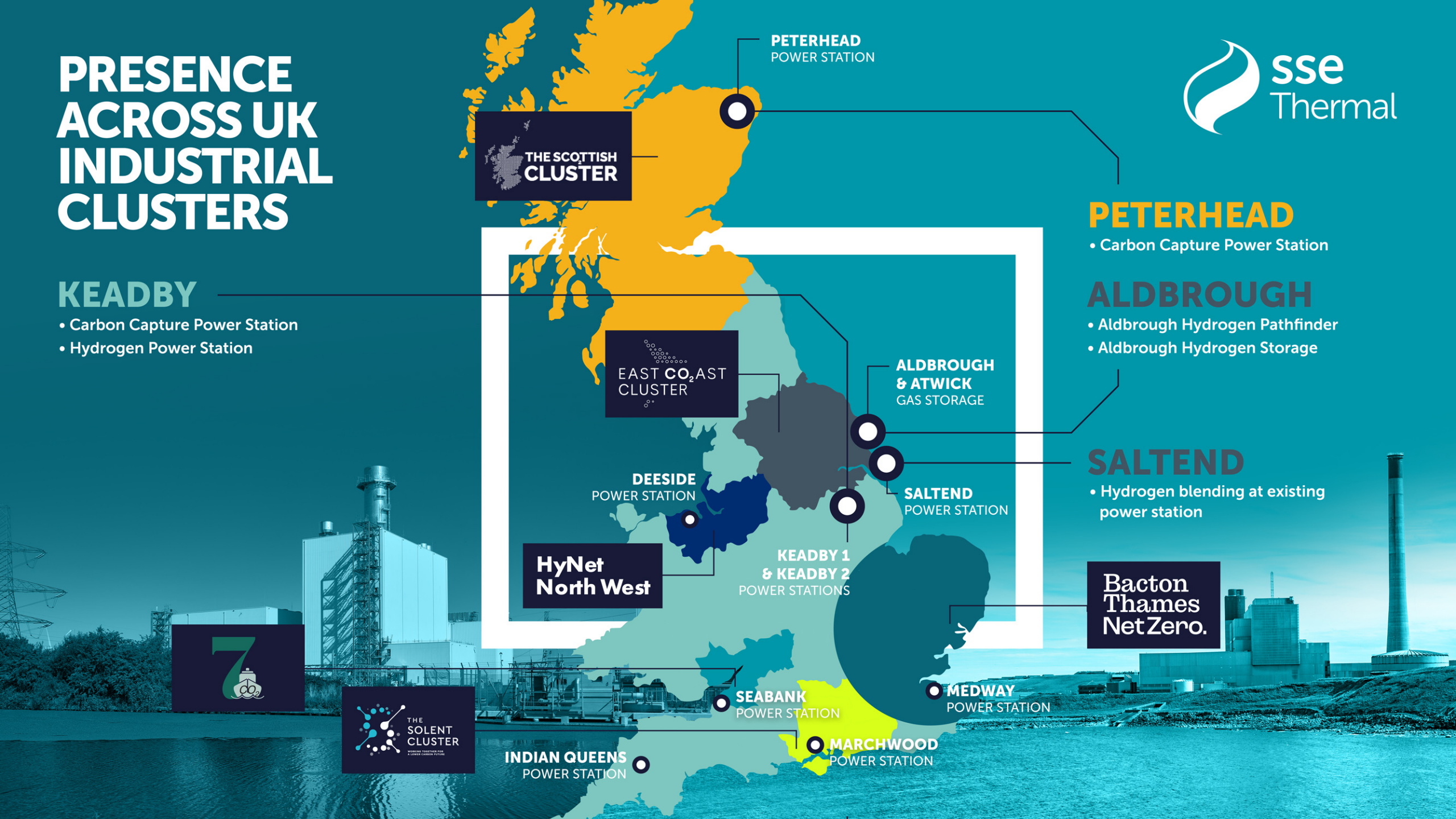


KEADBY

- Carbon Capture Power Station
- Hydrogen Power Station

PETERHEAD

- Carbon Capture Power Station

ALDBROUGH

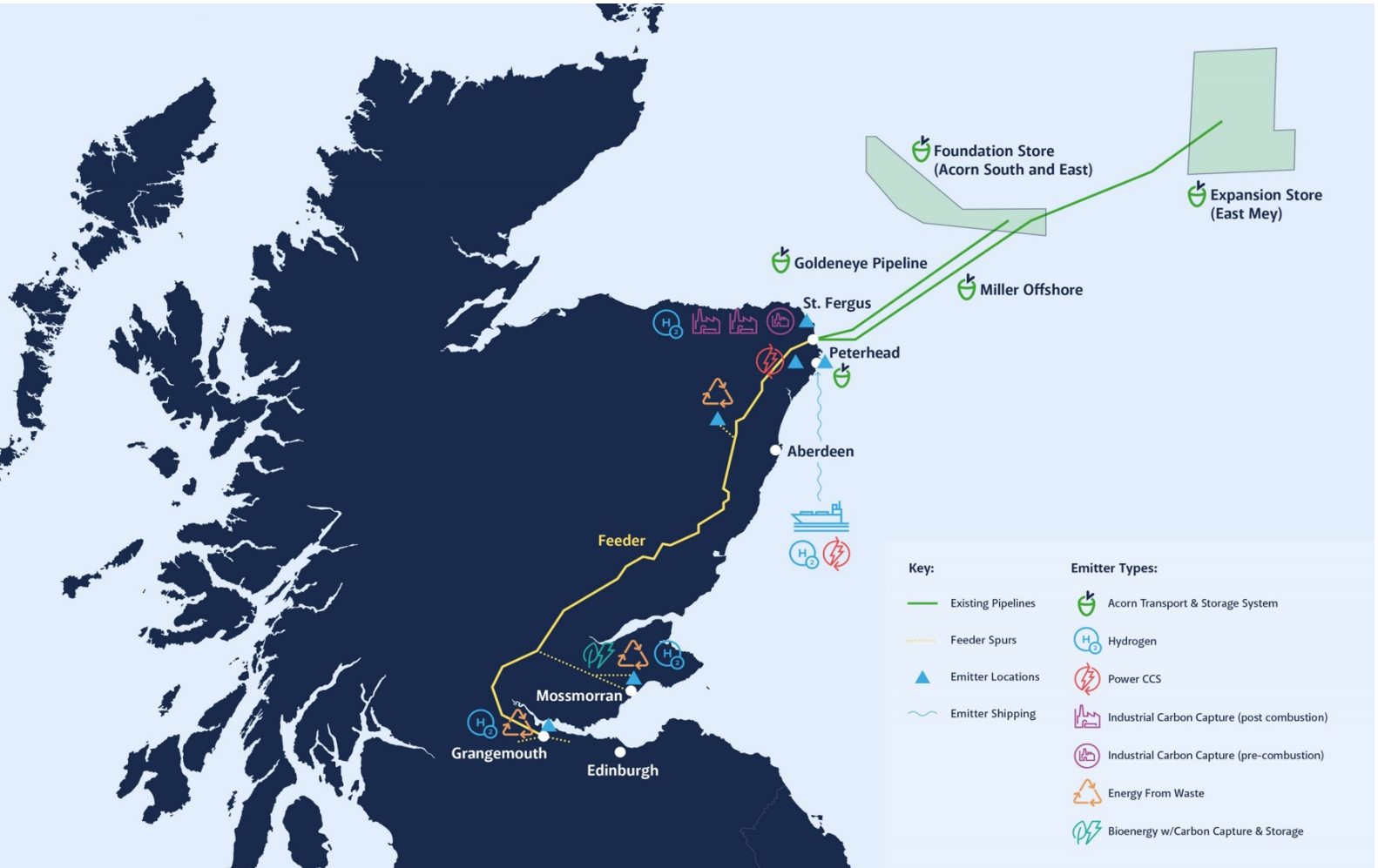
- Aldbrough Hydrogen Pathfinder
- Aldbrough Hydrogen Storage

SALTEND

- Hydrogen blending at existing power station

Acorn: leading the decarbonisation of Scottish industry

World-class geological CO_2 storage, connected to industry through repurposed legacy oil and gas infrastructure.



Stores

- **5-10 Mtpa** CO_2 stored per year by 2030
- Up to **20 Mtpa** CO_2 stored beyond 2030
- Est **240 Mt** Resource

Infrastructure

- **420 km** Existing offshore pipelines
- **30%** UK storage within 50km of pipelines
- **35%** UK gas processed at St Fergus

Peterhead Port

- Up to **14 m** depth berthing capacity
- **8 km** from St Fergus facilities
- Up to **12 Mtpa** Import capacity from UK & Europe

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PIVOTAL PETERHEAD

Integral to Scotland's energy system

- **First became operational in 1982** as an oil-fired power station.
- **Major repowering project in the 2000s** to convert it into an efficient gas-fired power station.
- Only major thermal plant north of Leeds, playing a **critical role in keeping the lights on** and providing **flexibility to the grid**.
- **Over 40 full-time employees** on site, plus apprentices – with a record intake in 2021.
- SSE has been exploring **plans to decarbonise Peterhead for more than a decade**.

CARBON CAPTURE AT PETERHEAD

A major step towards net zero for Scotland and the UK

- **SSE Thermal and Equinor** are developing plans for a new power station with CCS technology - **capturing up to 1.5MT of CO2 annually, 5% of the UK's 2030 target.**
- The project **will ultimately replace the existing plant**, accelerating the transition to net zero.
- As a key early emitter, the power station will help **kick-start wider decarbonisation in the Scottish Cluster**.
- The project could see **£1.6bn spent in the UK, with £1.1bn in Scotland**.
- Over **1,000 jobs would be created during construction**, with around **240 jobs supported during each year of operation**.

PROJECT OVERVIEW

- **Design Capacity:**
  - Up to 910MW
- **Design Base:**
  - 1x Mitsubishi Power 701JAC Gas Turbine and Steam Turbine
  - Mitsubishi Heavy Industries Carbon Capture Plant with their proprietary KS-21™ solvent
- **Engineering Delivery Consortium:**
  - Mitsubishi Heavy Industries [MHI]
  - Mitsubishi Power
  - Worley
  - Tecnicas Reunidas [TR]
- **Design Stage:**
- Front End Engineering Design (FEED) Part A supported by funding from

Delivered by Innovate UK

Scope Split

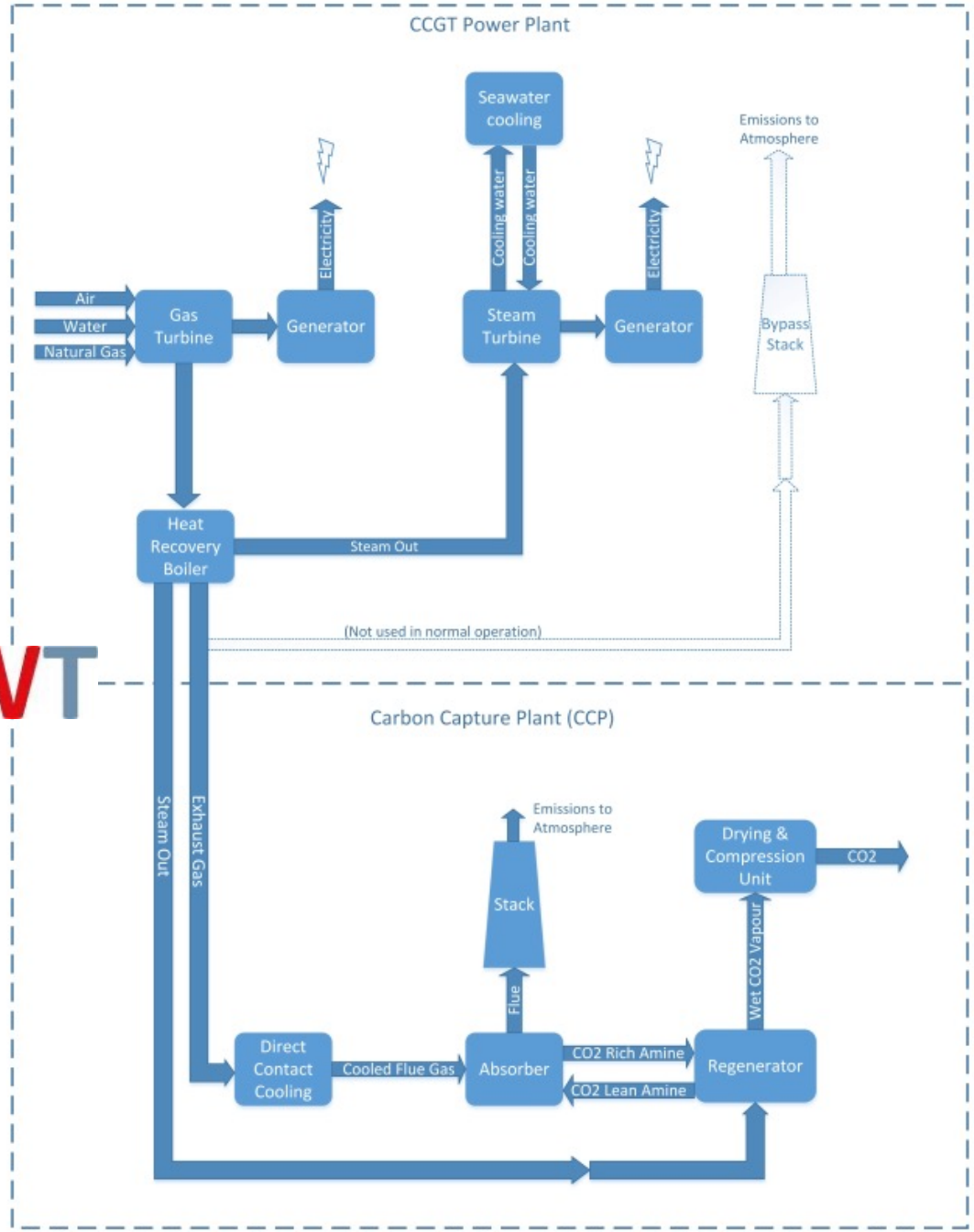
Combined Cycle Gas Turbine Power Plant

- *Mitsubishi Power and TR Scope*

MITSUBISHI POWER

TECNICAS REUNIDAS

MWT



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PETERHEAD CARBON CAPTURE POWER STATION

A collaboration between SSE Thermal and Equinor

Carbon Capture Plant

- *Mitsubishi Heavy Industries Engineering (MHI) and Worley Scope*

worley DELIVERING SUSTAINABLE CHANGE

MITSUBISHI HEAVY INDUSTRIES

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Thank you

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