

Energy Transition in action

The Acorn Project

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SPE Aberdeen Section
Wednesday 23rd February 2021



Co-funded by the Connecting Europe
Facility of the European Union
PCI Acorn SAPLING, Action 12.2-0036



Aberdeen Section

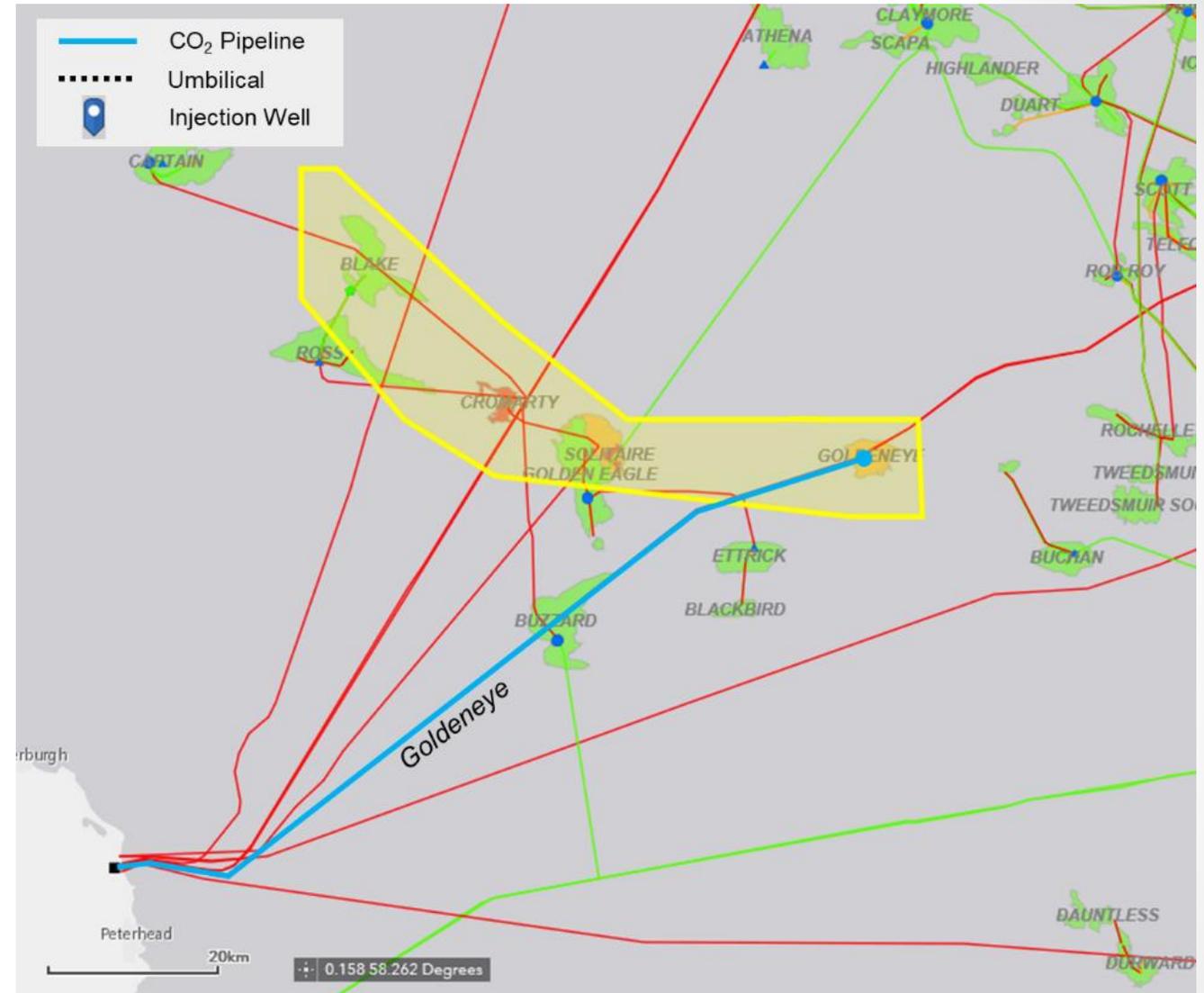
Outline

- **Geography**
- The key – the Acorn Storage Licence
- Acorn Project – CCS and Hydrogen
- Future buildout



Offshore Location

- Acorn Storage Licence
 - Straddles multiple oil and gas fields
- First CO₂ storage site
 - Former Goldeneye natural gas field structure
 - Using the disused former Goldeneye pipeline
- Build out options
 - Other former gas fields
 - e.g. Atlantic & Cromarty structures
 - Wider Captain sandstone
 - Large saline aquifer



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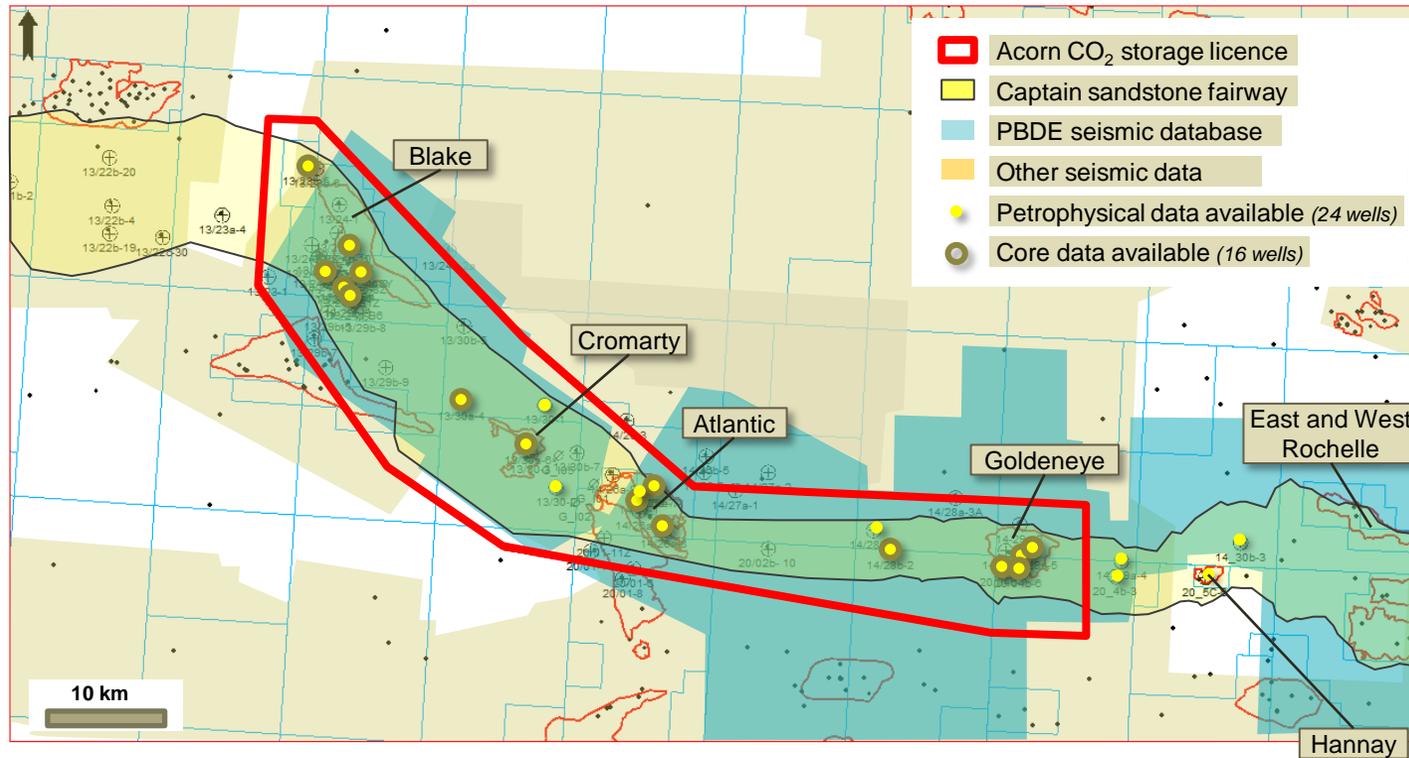


The licencing regime

- Legal foundation
 - Directive 2009/31/EC of The European Parliament and of The Council of 23 April 2009 on the Geological Storage of Carbon Dioxide”, otherwise known as the ‘EU CCS Directive’,
 - Transposed into UK law using secondary regulation
 - Storage of Carbon Dioxide (Amendment and Power to Modify) (EU Exit) Regulations 2018
- Crown Estate Scotland
 - Lease option on full area issued 27th November 2018
 - First ever such lease option
 - Requirement to convert to full lease prior to FID
- Oil and Gas Authority
 - CO₂ Storage licence issued 6th December 2018
 - First ever licence issued by the OGA

The key – the Acorn Storage Licence

The Acorn Storage Licence



Rock
Core
data on
16
wells

Detailed
petrophysical
analysis on
24
wells

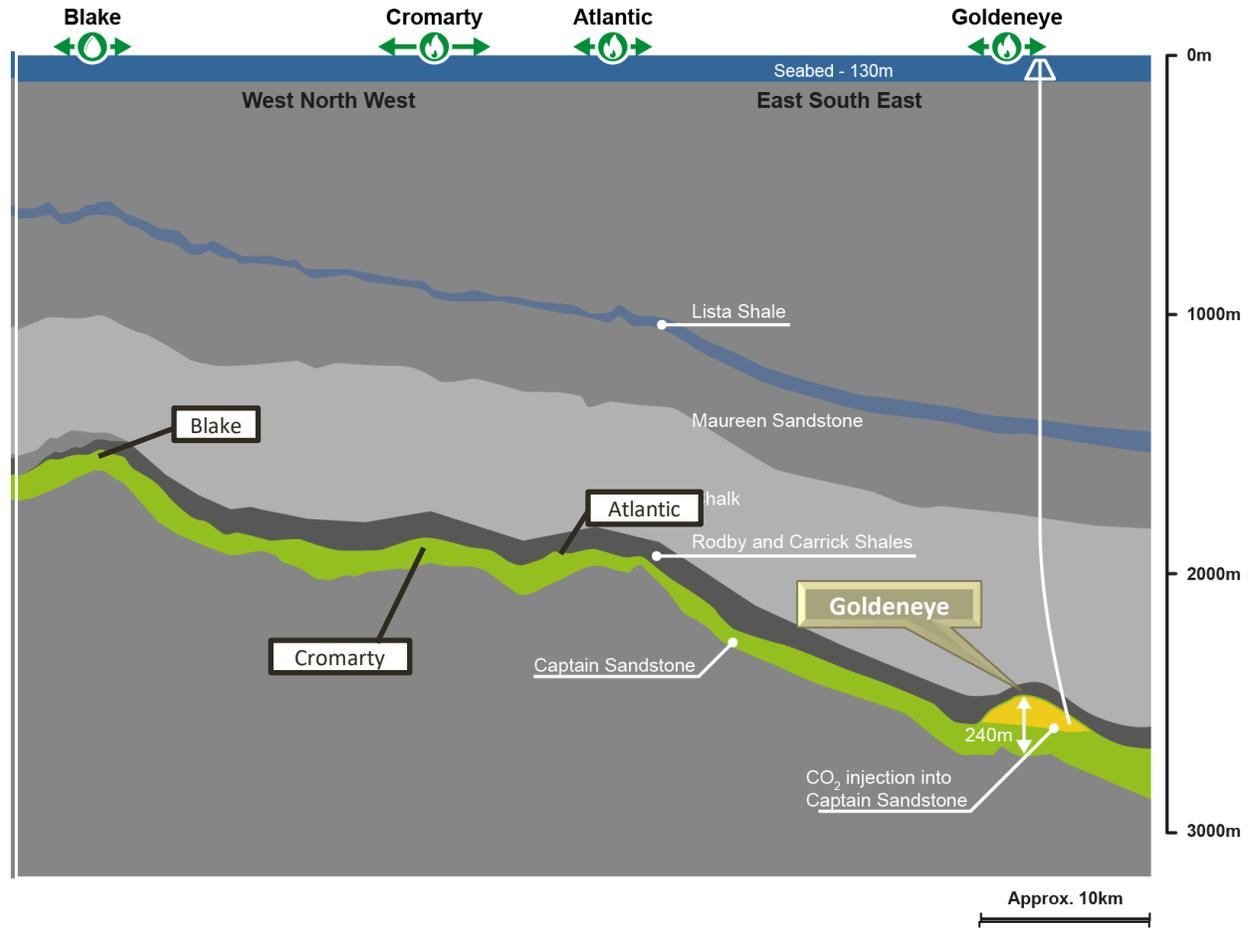
Data
available for
73
wells

Extensive
Seismic
available



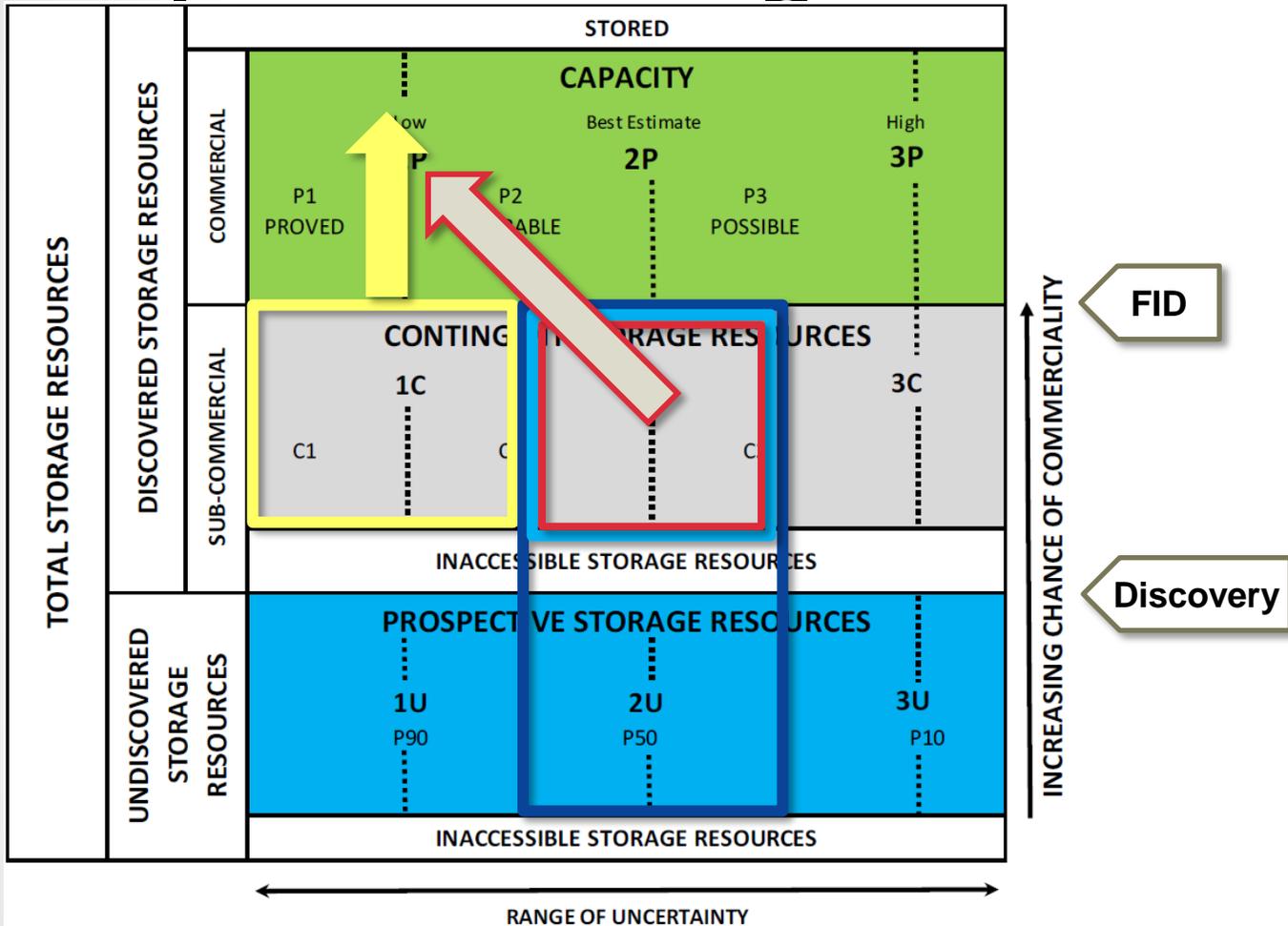
The key – the Acorn Storage Licence

The Captain Sandstone



The key – the Acorn Storage Licence

Up to 20Gt Storage Resource



Within 50km of St Fergus pipelines
Storage Resource ~20 Gt

Acorn Licence Area
Storage Resource R 150+ Mt

Acorn South Goldeneye
SR ~30 Mt

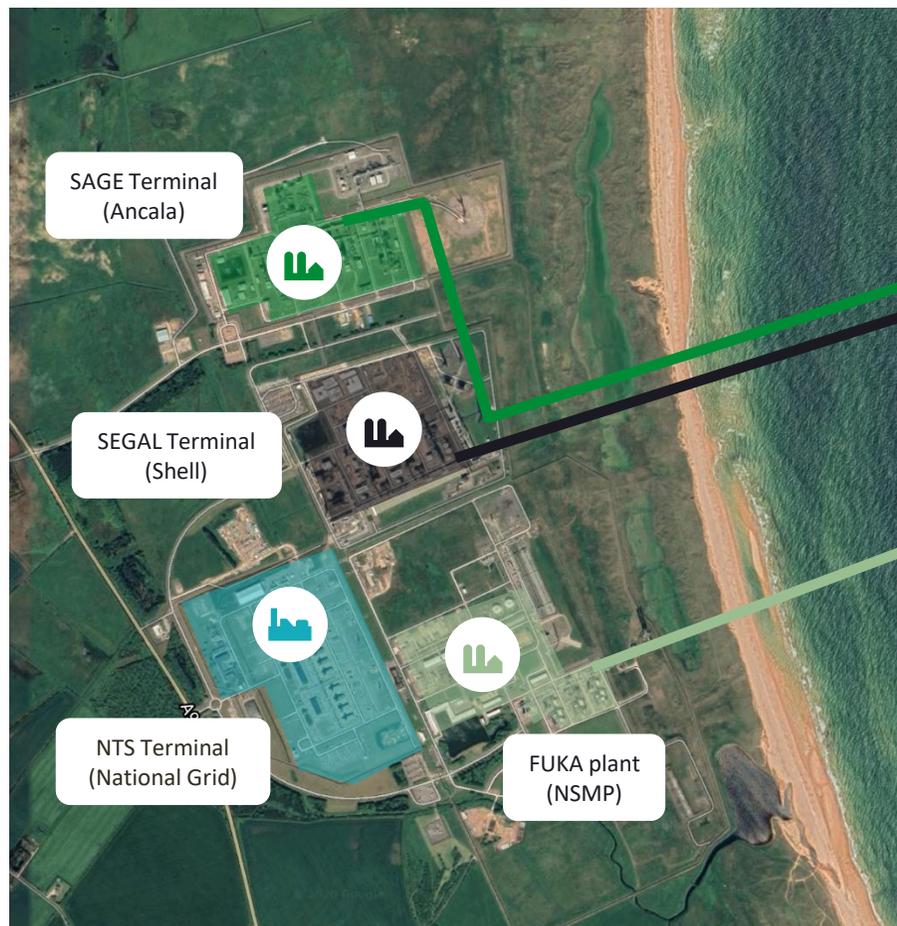
Acorn East
SR ~15-30 Mt

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St Fergus Gas Terminal in Aberdeenshire



Atlantic and Cromarty pipeline

Goldeneye pipeline

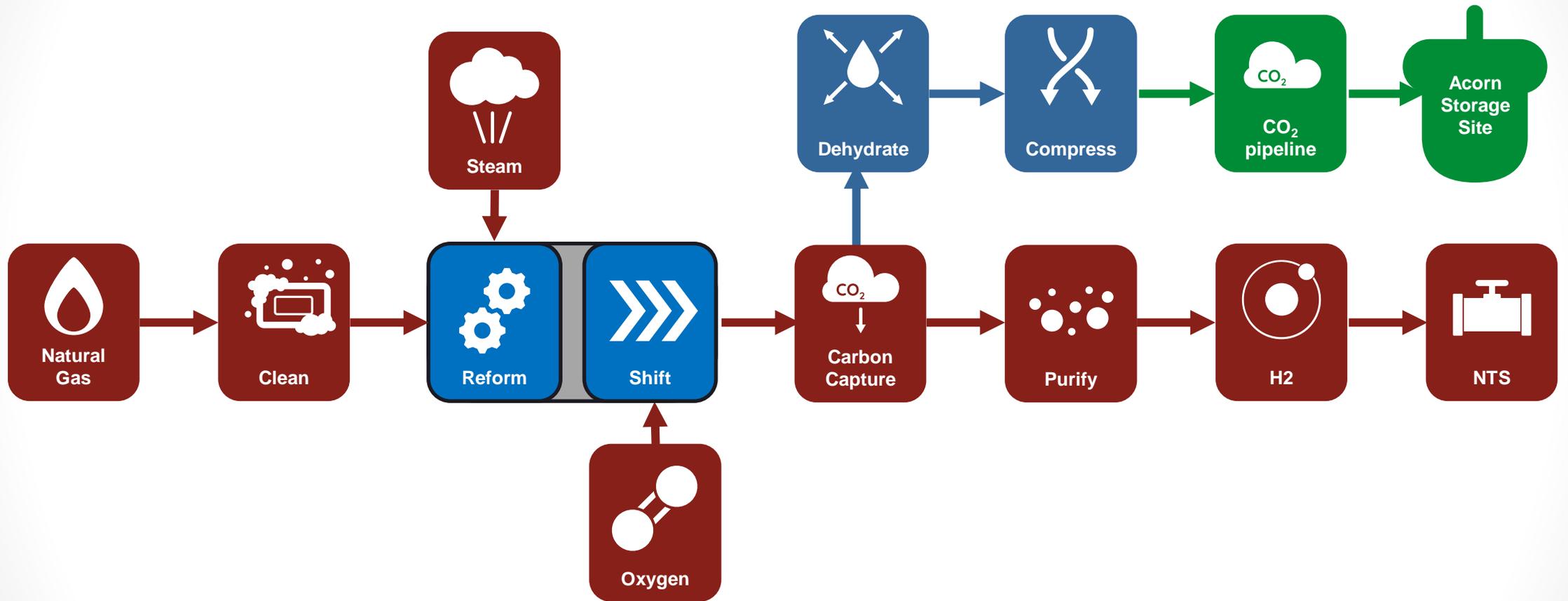
Miller pipeline

CO₂ capture at St Fergus



The current leading concept is that the carbon capture plant will be located at the NSMP North site and the Compression and Conditioning plant will be located on NSMP South site

Hydrogen Project overview

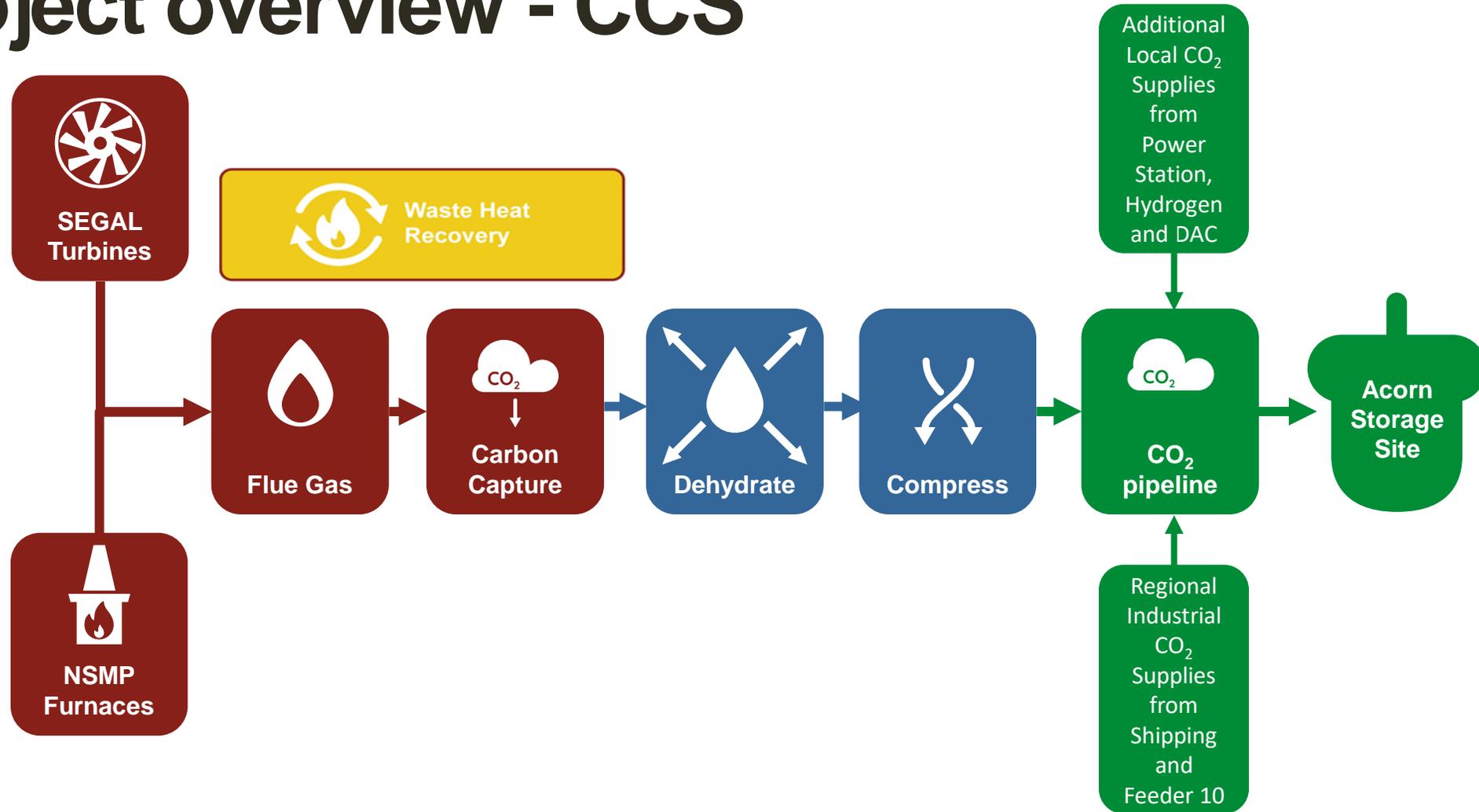


CO₂ capture at St Fergus

- The current leading concept is that
 - The carbon capture plant will be located at the NSMP North site
 - The Compression and Conditioning plant will be located on NSMP South site



Project overview - CCS



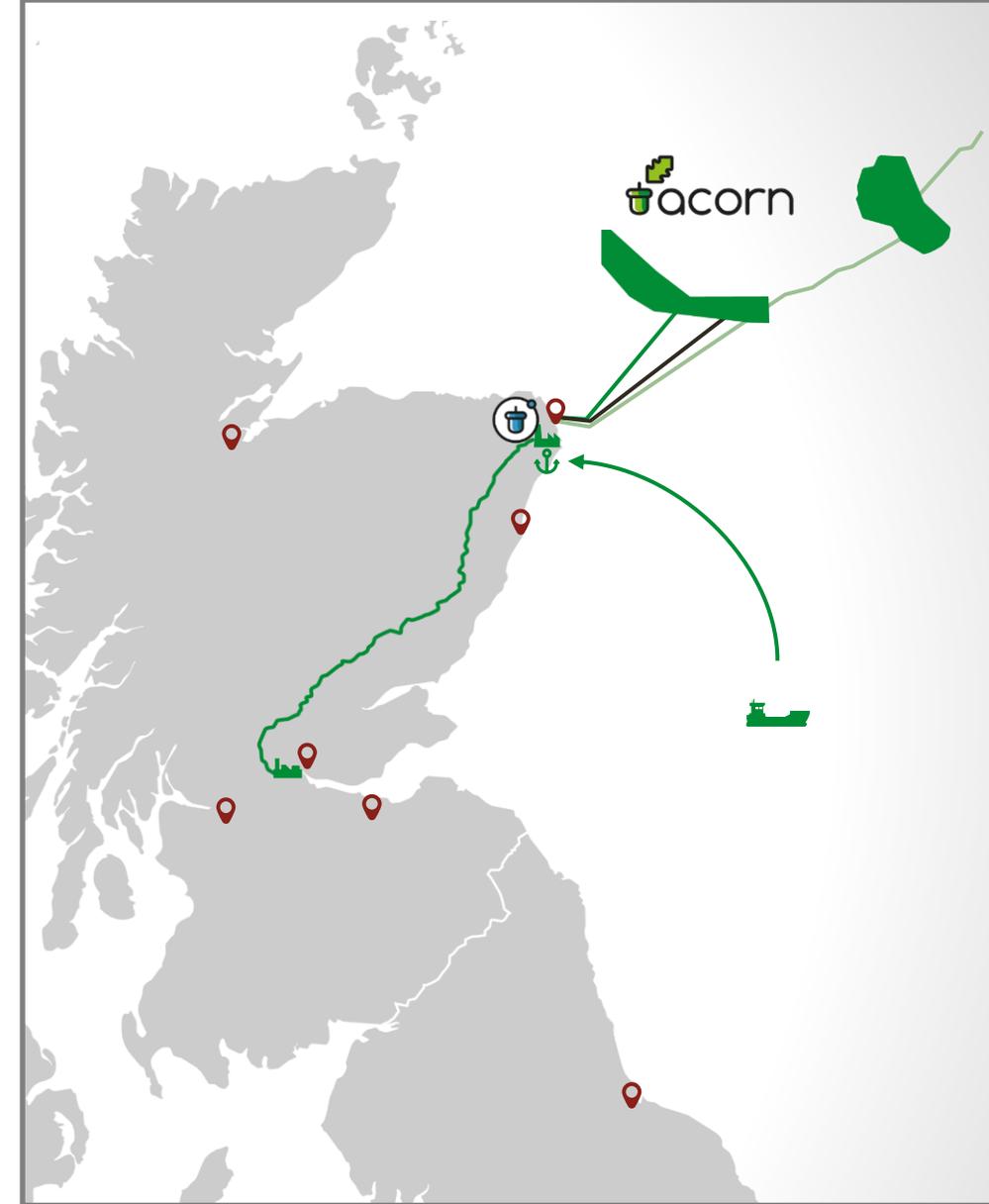
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Future build-out potential

- Peterhead port
 - CO₂ importation by ship
- Grangemouth / Feeder 10
 - CO₂ capture and transmission
- Further decarbonisation at St Fergus
 - Blue hydrogen
 - Hydrogen export by pipeline
- CO₂ pipeline throughput
 - Initial pipeline ~5 Mtpa
 - Additional pipelines add 15 Mtpa
 - Total capacity >20 million tpa
- Offshore storage resource >20Gt



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