



STOREGGA - HYDROGEN

Inverhouse – Balblair Event

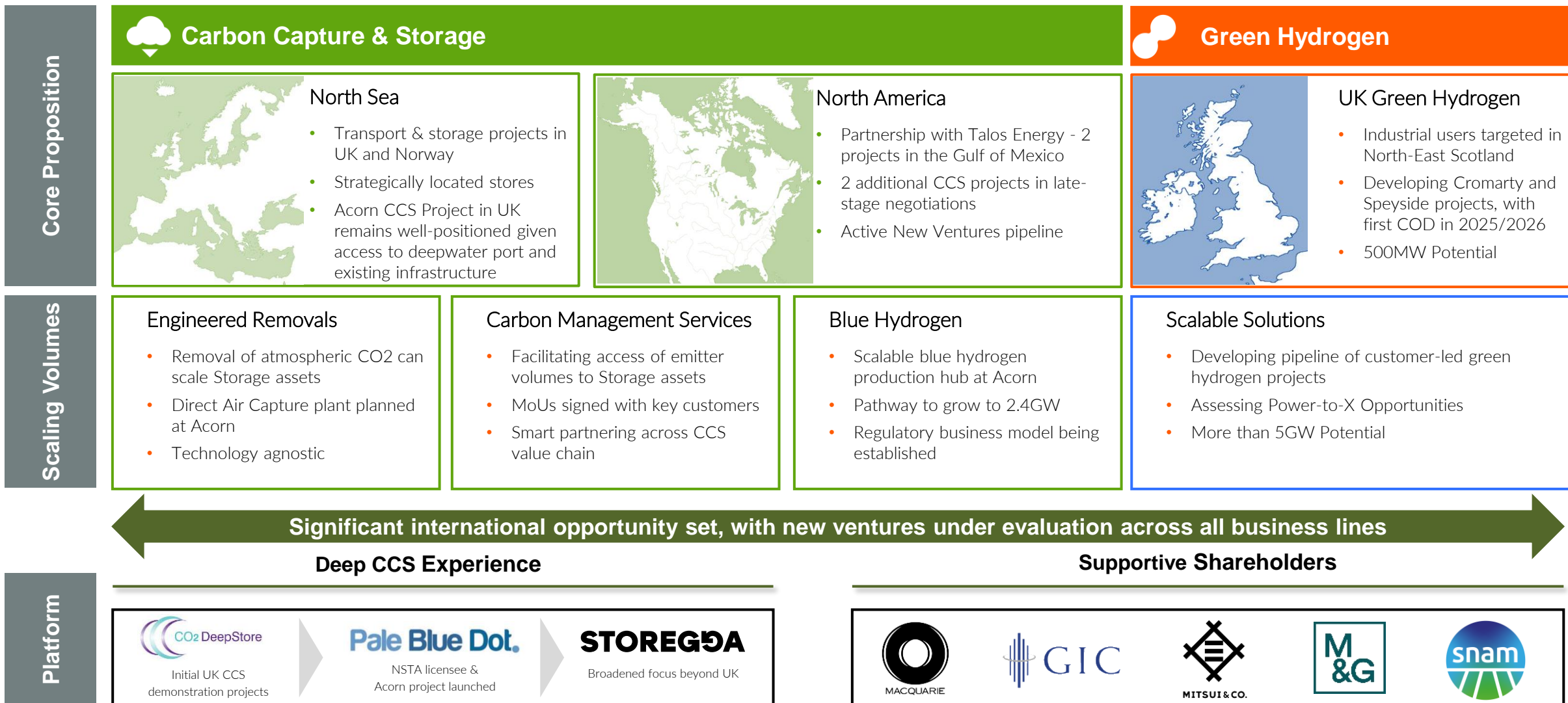
15 May 2023

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Storegga at a Glance

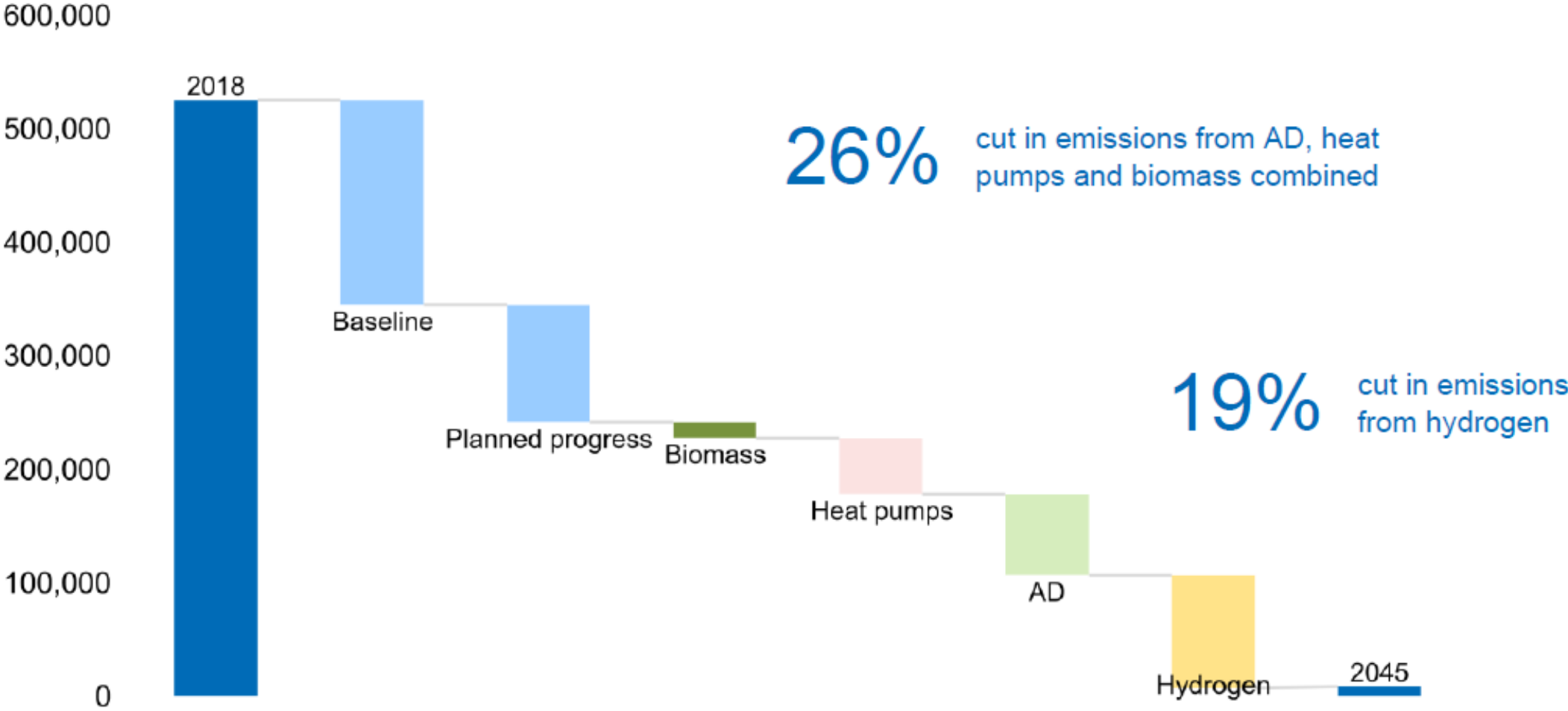
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Pure-play global developer of low-carbon solutions across the carbon capture and hydrogen value chains



Scotch Whisky Association's Pathway to Net Zero

Balanced scenario - emissions reduction by measure



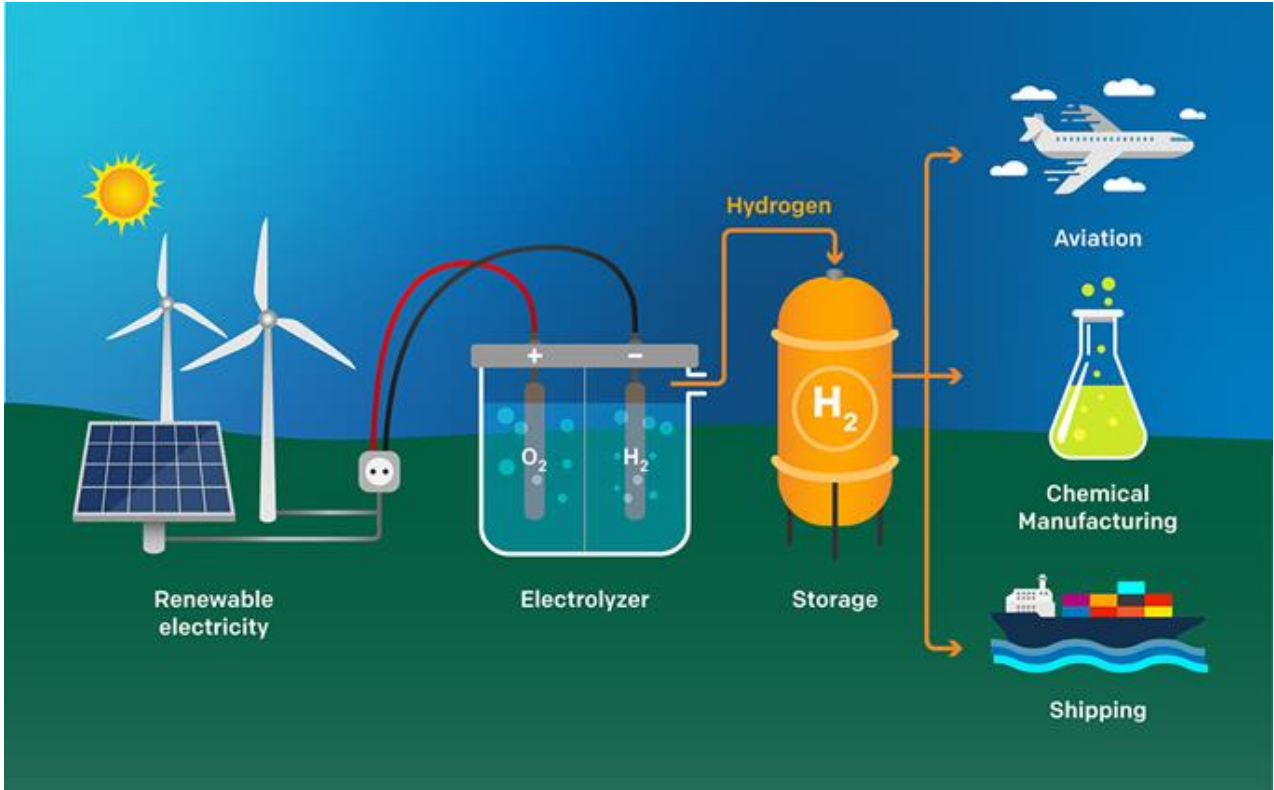
Minimise demand and where possible use heat pumps. Fuel switch remaining demand.

Low Carbon Hydrogen (Blue & Green)

Blue Hydrogen: Reforming of natural gas into hydrogen and CO₂. Latter permanently removed through sequestration (Carbon Capture & Storage (CCS))

Green Hydrogen: Use of renewable electricity to power electrolyzers which split water into hydrogen and oxygen.

Both can produce hydrogen that meets the UK Government's Low Carbon Hydrogen Standard which requires hydrogen producers to meet a Green House Gas emissions intensity of 20g CO₂e/MJLHV of produced hydrogen or less for the hydrogen to be considered low carbon.



North of Scotland Hydrogen

Blue and Green via North of Scotland Hydrogen Programme

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Acorn Hydrogen Phase 1: Unit 1 300MW start 2028/2029 (0.6mtpa CO₂)

Full Build Out: Beyond Phase 1 900MW (1.8mtpa CO₂) tbc

Cromarty Hydrogen Phase 1: 30MW start end 2025 (60ktpa CO₂)

Regional Build Out: up to 300MW by 2030 (0.6mtpa CO₂)

Speyside Hydrogen Phase 1: 70MW start end 2026 (140ktpa CO₂)

Regional Build Out: up to 200MW by 2030 (0.4mtpa CO₂)

Future expansion ambition includes additional production for export via Cromarty, Buckie, Peterhead and Interconnector(s), i.e. extended SGN AVP.

Multi centre modular approach, storage and interconnectivity provide system resilience.



Acorn

Acorn Development Partners

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Cromarty Hydrogen Project

- Existing onshore renewable power. Gaseous hydrogen. Fuel switching of in region “heavy heat” and “heavy transport”.
- Developers: ScottishPower and Storegga
- Phase 1 30MWe electrolyser capacity operational by end 2025
- Demand led Build Out Phases to 300MW of electrolysis operation by end 2030



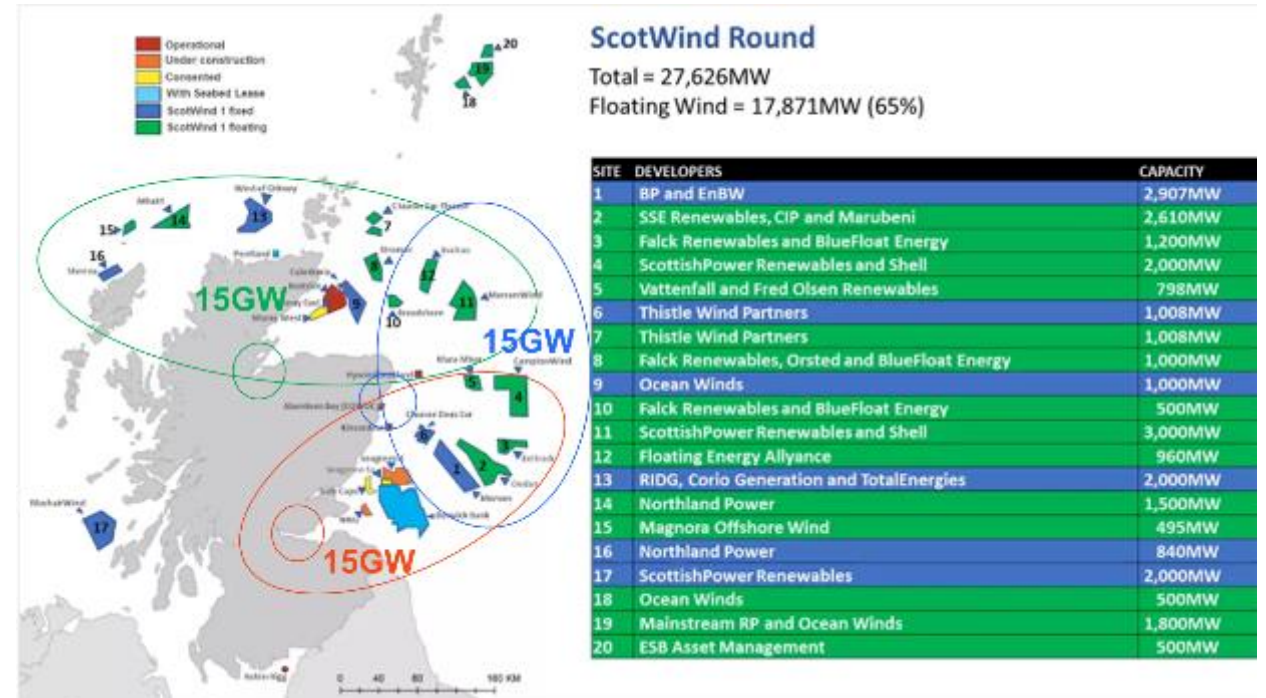
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Cromarty PtX Project

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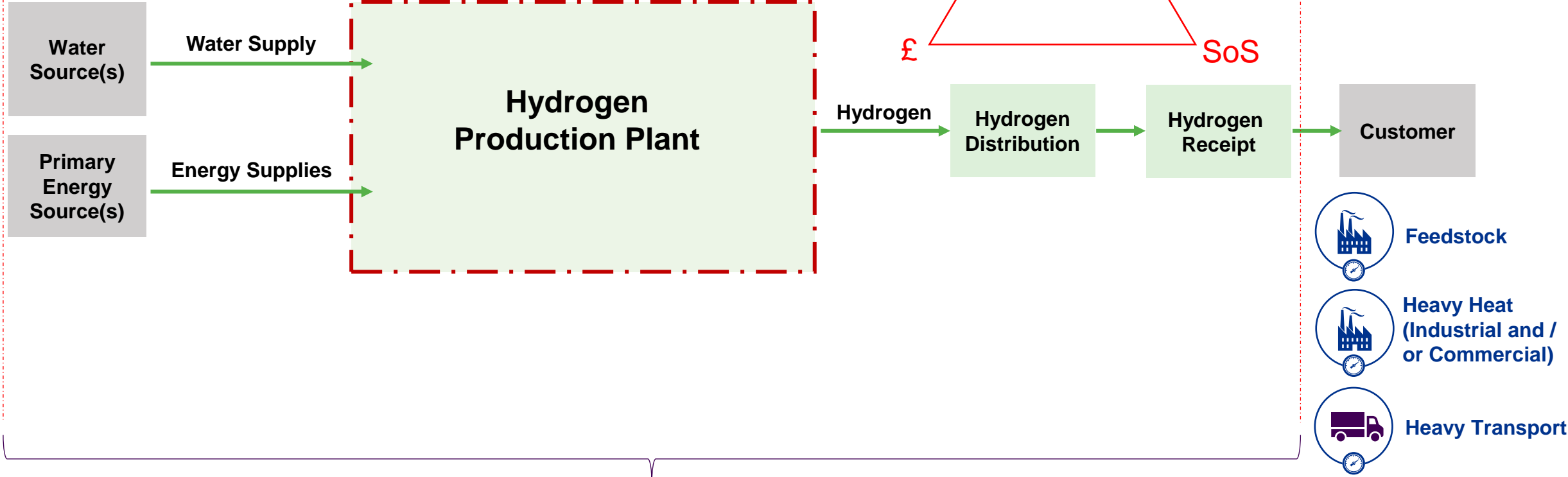
- Mainly new offshore renewable power. Hydrogen carrier(s). Exported from region via ship. Pipelines? Green Freeport status.
- Developers: Storegga and tbc
- Phase 1 600MWe electrolyser capacity operational by end 2027
- Demand led Build Out to 5GW of electrolysis operation by end 2035. Further market led capacity beyond 2035.



Hydrogen customer requirements from a full chain project

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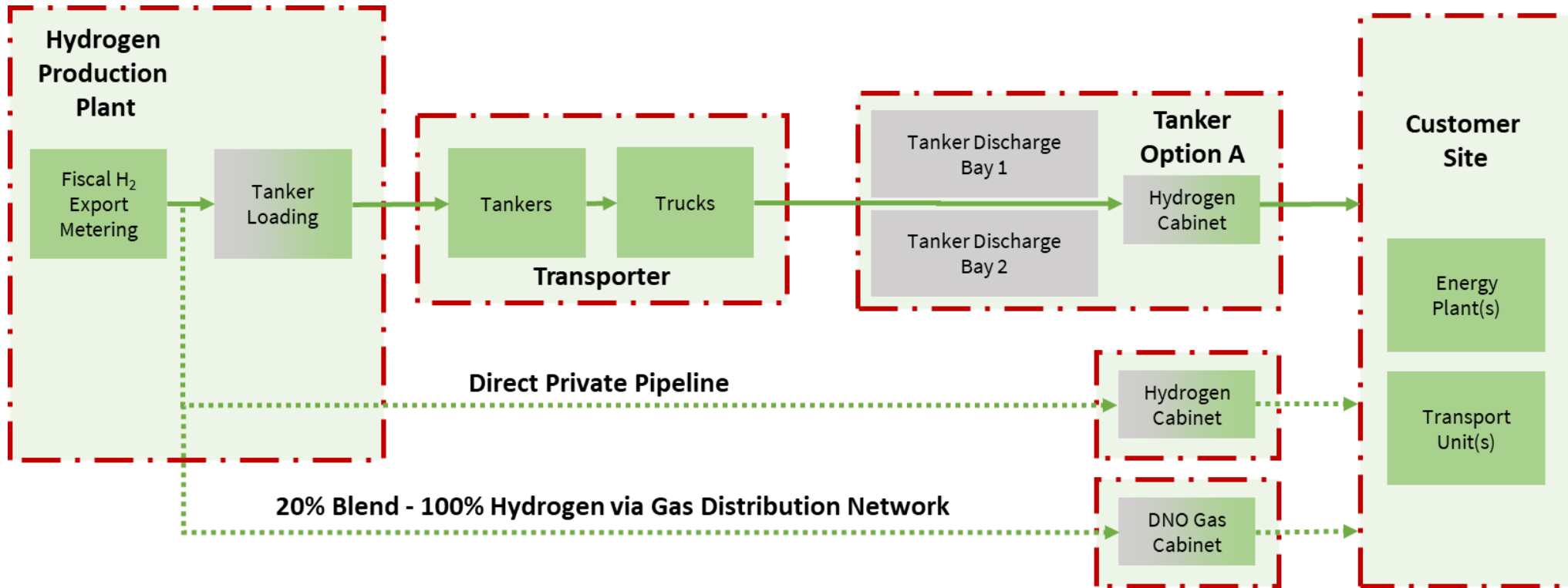
- 1. Security of Supply (SoS)
- 2. Security of Cost (£)
- 3. Net zero targets (CO2)



Developer responsible for full chain solution – thus “reverse engineering” is key

Fuel switching of “Heavy Heat” and “Heavy Transport”

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Site-1 Phase 1 & 2: 380bar trailers which “plug-in” to Customer sites

- 30MWe (17MWt) Phase-1 oversubscribed – 8 Offtakers, mainly distillers, 12 locations most within 25 miles

Site-2 Phase 3 & 4: a) Trailers; b) Private Pipe and/or c) Distribution via SGN’s gas distribution network

- Accelerated regional decarbonisation requires UK Gov “Go” on Gas Network Blending & Conversion to enable:
 1. Gas Network Operator (SGN) to implement their strategy to convert entire network to 100% by 2035
 2. Distillers etc. in Cromarty Region to meet Scotland’s 2030 Interim 75% Carbon Emissions Reduction Target