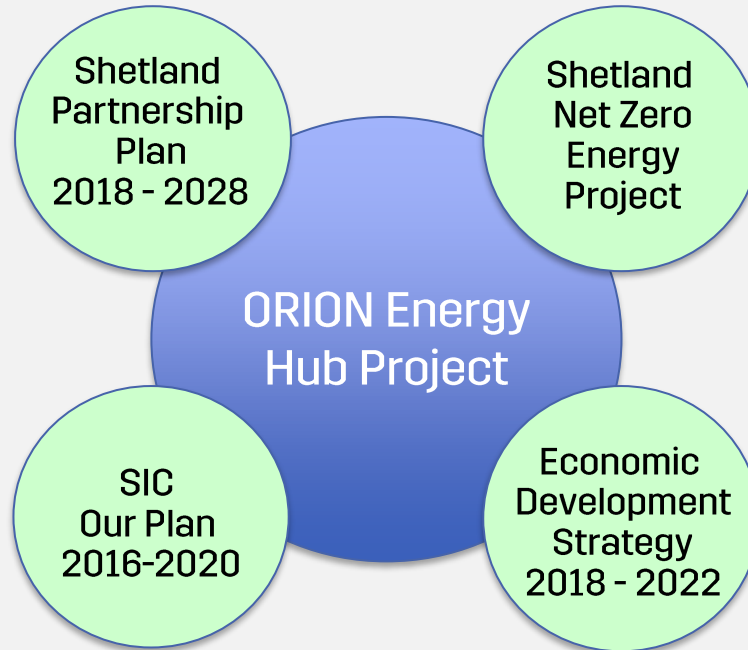


The logo features the word "ORION" in a stylized, white, sans-serif font. The letter "O" is a solid circle, "R" is a blocky shape with a dot, "I" is a vertical bar with a dot, "O" is a solid circle, and "N" is a blocky shape with a dot. To the right of the word is a vertical line, followed by the text "Clean Energy Project" stacked in three lines.

ORION | Clean
Energy
Project

Providing clean sustainable energy for our future

Opportunity **R**enewables **I**ntegration **O**ffshore **N**etworks



Objectives

Hydrogen	Supply 32TWh of low carbon hydrogen annually, 12% of the expected UK total requirement, by 2050
Transform	Produce green hydrogen, utilizing onshore wind and tidal energy, to fuel domestic heating, road, and marine transportation in Shetland
Electrification	Provide more than 3GW of wind generated electrical power to Shetland, to produce green hydrogen, supply the UK grid, electrify onshore and the offshore oil and gas sector
Net Zero	Enable all West of Shetland hydrocarbon assets to be net zero potentially by 2030 and abate ca. 8Mt/year CO2 by 2050
Revenue	Generate £5bn in annual revenue by 2050 and contribute significantly to the UK Exchequer
Employment	Provide sustainable employment for 1,750 people, both regionally and locally, whilst maintaining a pristine environment



Viking Wind Farm

Under construction with 103 x 4.3MW WTG's with total output of 443MW with a targeted load factor of 48%. Linkage to 600MW HVDC cable to mainland. Operational 2025



Energy Isles Wind Farm

Energy Isles, consortium of 50 local business partners & Statkraft, with 23 turbines with 180 MW output located on Yell. Currently seeking planning approval with construction late 2025



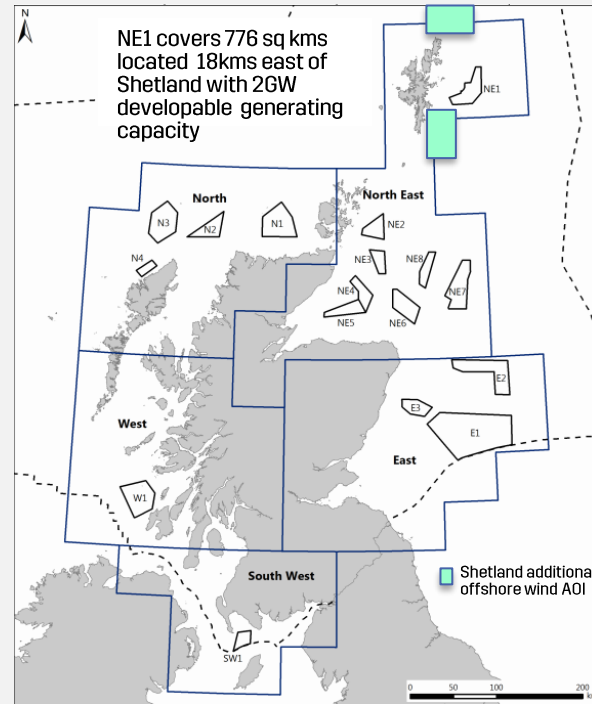
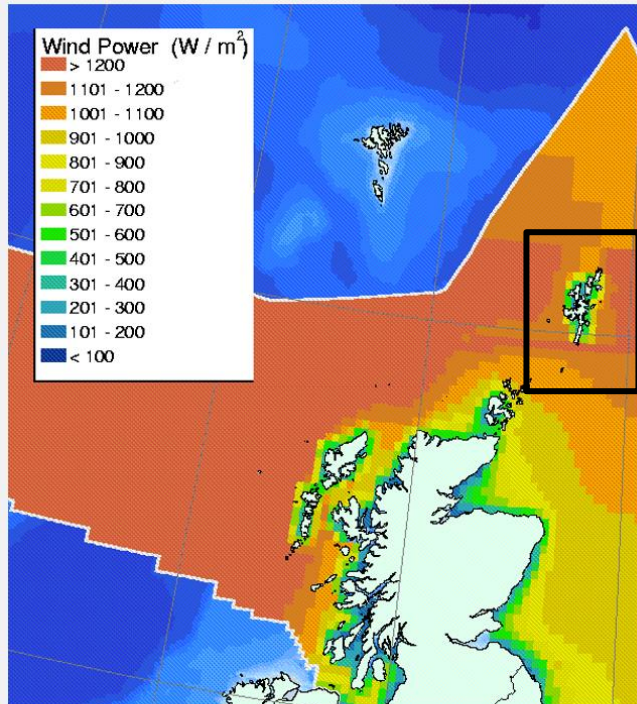
Peel Energy Wind Farms

Peel Energy is seeking final planning permission for Beaw Field on Yell with 17 WTF's providing 72MW output and Mossy Hill near Scalloway with 12 turbines providing 50 MW of output.

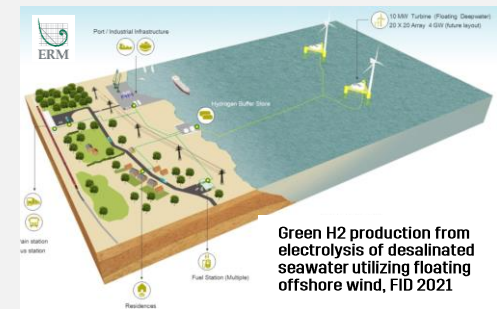


Local Wind Farms

Burradale windfarm, operated by Shetland Aerogenerators since 2000, generates 3.68MW powering 2000 homes with an average load factor of 52% making Burradale the most productive wind farm in the world per unit of installed capacity



Hywind Scotland floating wind farm



ERM Dolphyn 2MW pilot project

Substantial wind resource in Shetland region

ScotWind round awards 1Q2021



Turbine deployment



Turbine operational



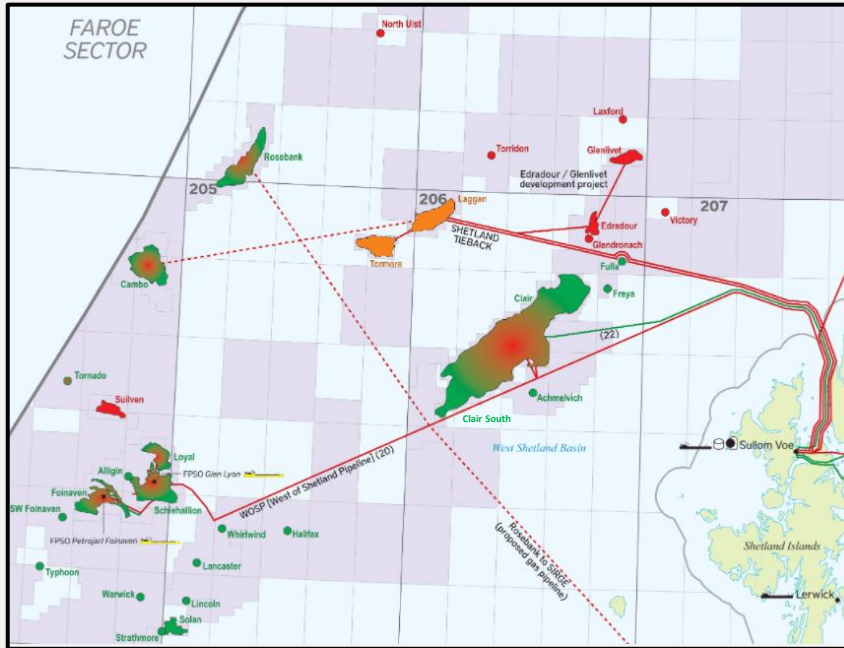
Energy storage



Predictable sustainable energy supply to the grid

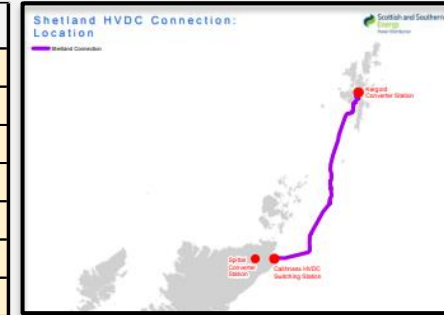
- First operational tidal array globally in 2016
- Bluemull Sound pilot with 6 turbines
- Output to be increased from 0.6MW to 2 MW
- Additional site under review to produce 15MW

West of Shetland electrification



WOS producing fields & developments

Facility	MW
Rosebank (development)	35
Cambo (development)	35
Clair Ridge	39
Clair Phase 1 Platform	26
Clair South (development)	25
Glen Lyon	34
TOTAL	194

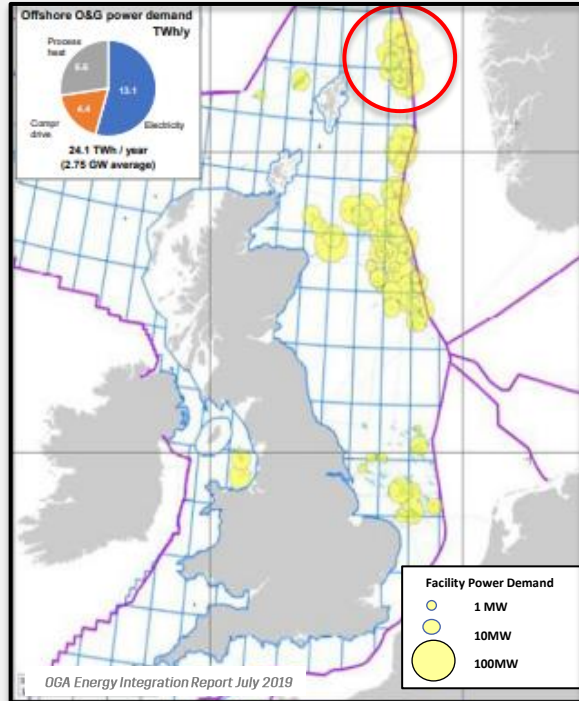


Offshore power requirements

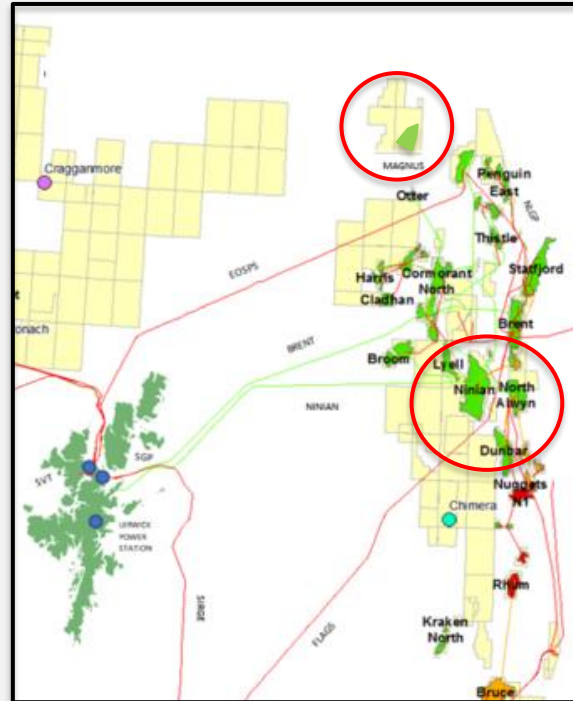
HVDC Interconnector (600MW)

- Significant long-term production in region e.g. Clair complex
- Clair South, Rosebank & Cambo (600mmboe) seeking FID
- Electrification key enabler to abate CO2 emissions in region
- Onshore wind & interconnector critical enabler for electrification

East of Shetland electrification



Oil & gas platform power requirements



EOS major oil & gas fields

Facility	MW
Magnus Platform	48
Penguin Re-Development FPS	8
Ninian Northern Platform	15
Ninian Central Platform	35
Alwyn North NAB Platform	72
Ninian Southern Platform	18
TOTAL	196

Offshore power requirements

- Magnus & Alwyn producing post 2030
- Other fields decommissioned next 10 years
- Region has significant offshore wind potential
- Possible new developments e.g. Galapagos



Sullom Voe facilities and infrastructure

Facility	MW
Sullom Voe Terminal (SVT)	8*
Shetland Gas Plant (SGP)	6
Sullom Voe Port (SVP)	20
TOTAL	34

* Post-2025

Onshore power requirements

- Requirement to reduce facilities & vessel emissions
- Terminal power consumption will reduce with time
- Port onshore electrification initially “plug-in & charge”
- Electrification for future green hydrogen production

Blue hydrogen



Natural Gas

Gas supply from Laggan Tormore gas condensate fields and associated gas from West Shetland current oil production e.g. Clair and future developments providing about 10% of UK current gas supply exported to St Fergus



Industrial Site

Sullom Voe Oil & Gas Terminal (1000 acres) with 50% site currently not used, Shetland Gas Plant Site with (133 acres), Sullom Voe port with loading and construction jetties and Scatssta airport for both helicopter and fixed wing operation



Export

There are two options for hydrogen export namely by pipeline mixing with natural gas in SIRGE and FUKA, via EOSPS pipeline system, or export by tanker via Sullom Voe port using LOHC, ammonia or methanol



CO2 Transport

CO2 transportation is primarily a bi-product from blue hydrogen production utilizing current pipeline infrastructure such as EOSPS or redundant oil lines or liquified tanker export



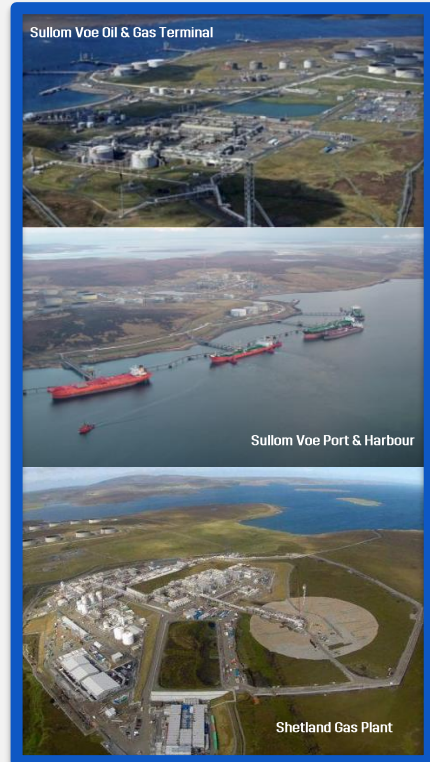
CO2 Storage

CO2 flood for EOR at Magnus or stored in East of Shetland depleted oil and gas fields such as Frigg and Brent



Workforce

Skilled workforce and supply chain with more than 40 years experience in the Oil & Gas sector & associated industries



All key ingredients available for production of blue hydrogen



Offshore Wind

Offshore wind energy source (2GW+) converted to electricity and exported to shore utilizing an offshore gathering station to produce hydrogen onshore



Repurposing

Removal of topsides during decommissioning of mature East of Shetland (EOS) oil fields and repurposing for hydrogen production utilizing offshore wind



Onshore Industrial

Onshore wind and tidal power electrifying SVT, SGP and port facilities with surplus output (200MW+) to produce H₂ for conversion into marine fuel or H₂ derivatives

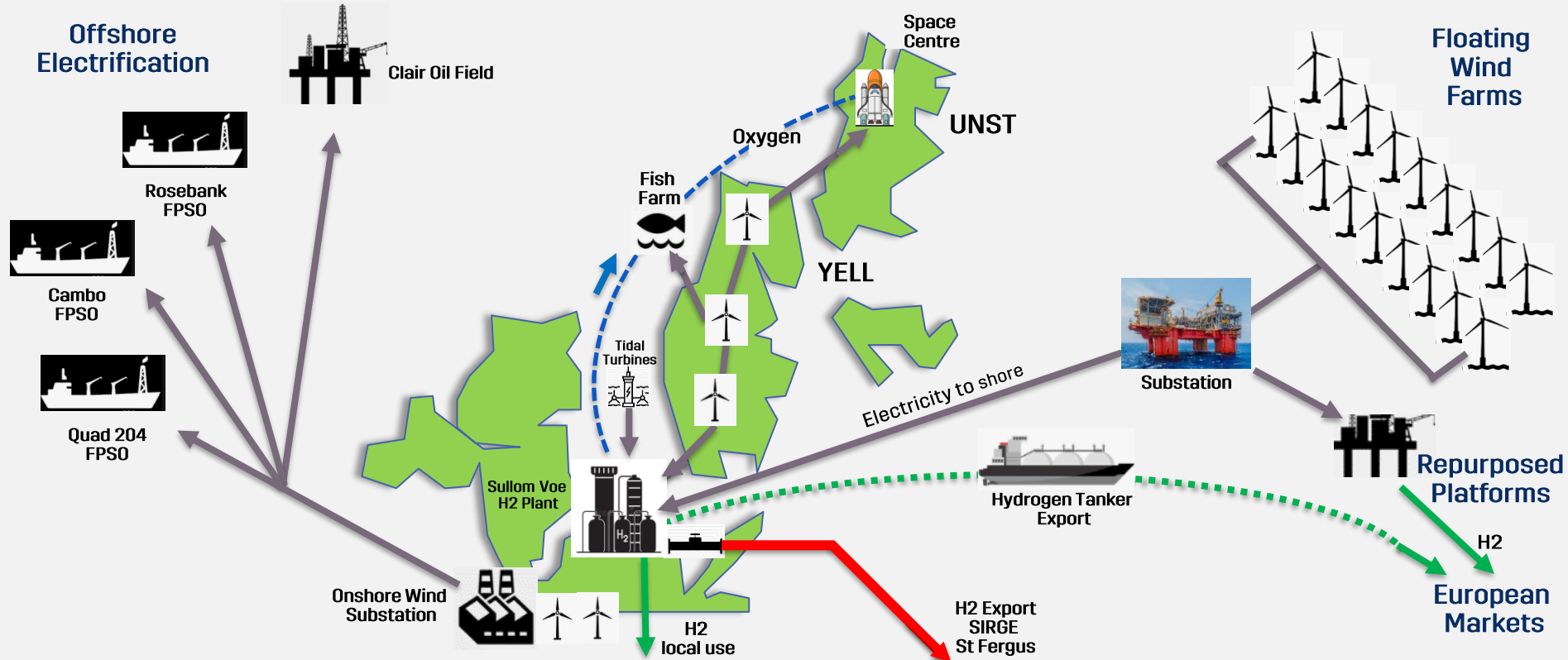


Onshore Local

Onshore wind power to create hydrogen, utilizing curtailed wind, for use in fueling heavy duty vehicles, home heating & power and aquaculture

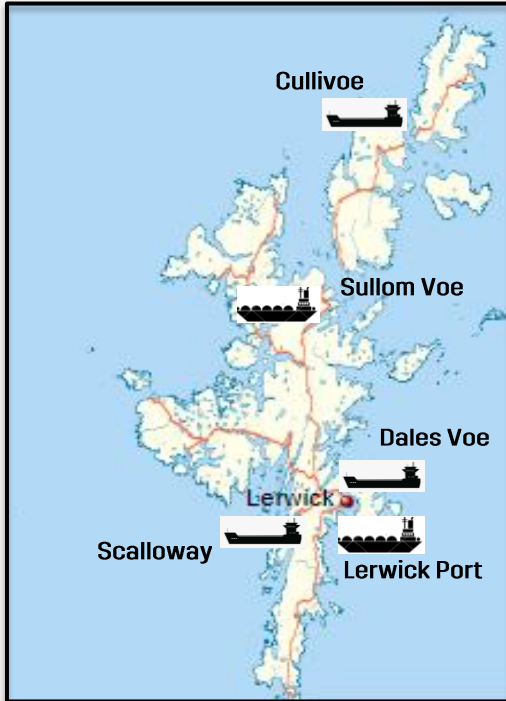


Electrification & hydrogen hub

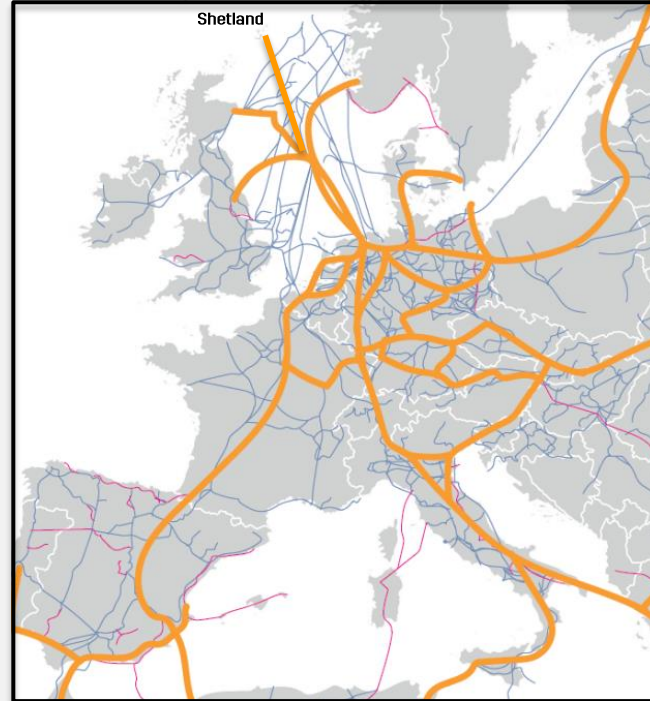


Wind and tidal energy used to electrify onshore, offshore & produce green H2

Export & support



Shetland Main Ports



European Hydrogen Backbone



- 40 years tanker experience at Sullom Voe
- Sullom Voe berthing facilities 25m water depth
- Sullom Voe & Dales Voe support offshore wind
- ORION linked EU & UK government port initiatives

Sullom Voe Port transformation



- Electrification onshore facilities
- Provide electrical power to vessels
- Tug replacement & clean fuel usage
- Local green hydrogen production

2025 - 2030

- Support offshore wind sector
- Export green H2 or H2 derivatives

2025 - 2035

Local opportunities



Power storage



Data Centre



Industrial park



Vehicle electrification



Fish feed

- Fibre-optic cable installed with SSE interconnector
- Natural gas feedstock for fish feed using bacteria
- Sullom Voe area significant industrial land available
- Conversion vehicle & marine transport to clean fuel

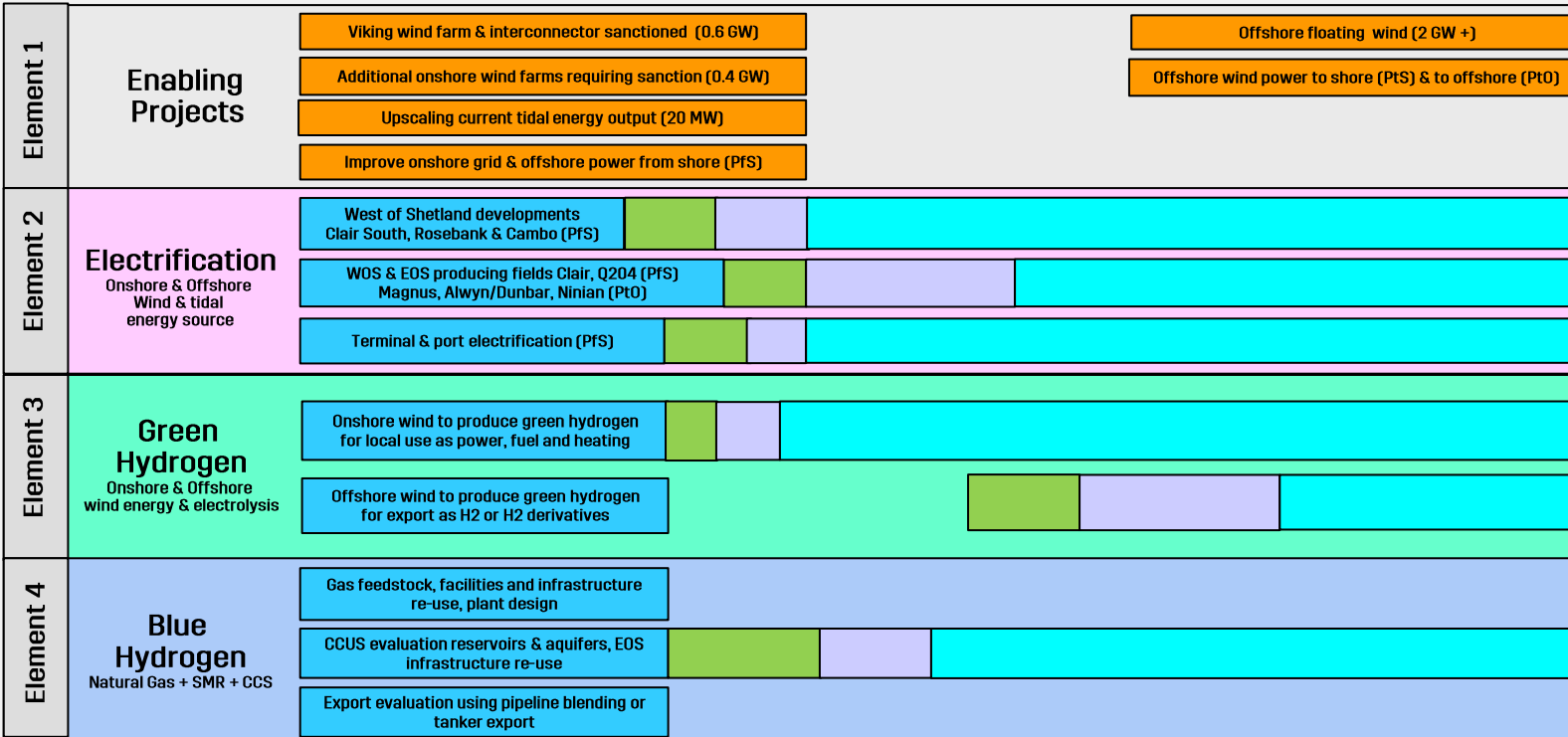
Project timings

2020

2025

2030

2035



Key

- Concept & feasibility studies & pre-Feed
- Sanction & investment
- Design & construction
- Operating

Requirement for concept and feasibility studies to be initiated

- Business case for Energy Transition Fund submitted to Scottish Government end October with funding decision end year
- Strategic Outline Case prepared by SIC & HIE submitted for Islands Fund support for pilot green hydrogen projects on Shetland
- Shetland engagement and communication plan under development with launch in early 2021
- Workshops being held with supply chain companies during 4Q 2020 followed by evaluation and tendering process in 1Q 2021