

DeepWind Cluster: Shetland Supply Chain Opportunities

26th November

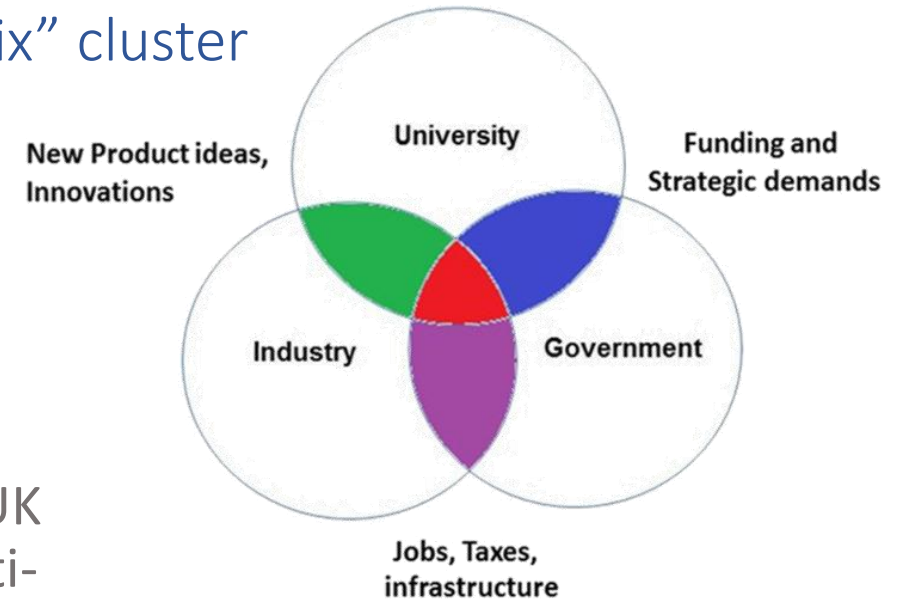


Membership

- Currently 520 members
- Membership Includes
 - 27 Offshore Wind Developers
 - 1 OEM Turbine Manufacturer
 - 12 Tier 1s
 - 8 Councils (Local Government)
 - 4 Universities and 4 Colleges
 - 25 ports and harbours
 - 3 Associations- AREG, Decom North Sea and Subsea UK
 - 436 supply chain companies from micro SMEs to multi-national companies
 - 2 of 6 Subgroups created so far to concentrate on Floating Offshore Wind and Power2X

Largest offshore wind cluster in the UK

A “triple helix” cluster



DeepWind Roadshows

May 2019 – Roadshows in Thurso, Invergordon, Inverness, Elgin, Fraserburgh and Aberdeen

May 2019 – ‘Meet the Buyer’ at All Energy, Glasgow

October 2019 - Argyll Roadshow, Oban in partnership with Argyll & Bute Council

Showcase Webinars

Aug 2020 - Western Isles – Webinar for local companies in partnership with Western Isles Council and Business Gateway

Nov 2020 - Shetland webinar in partnership with Shetland Isles Council and ORION project

Next webinar on December 17th will be the introductory webinar for our new Power2X Subgroup.

Community Engagement

12 industry webinars since March 2020

6 of which were joint events with Forth & Tay Cluster

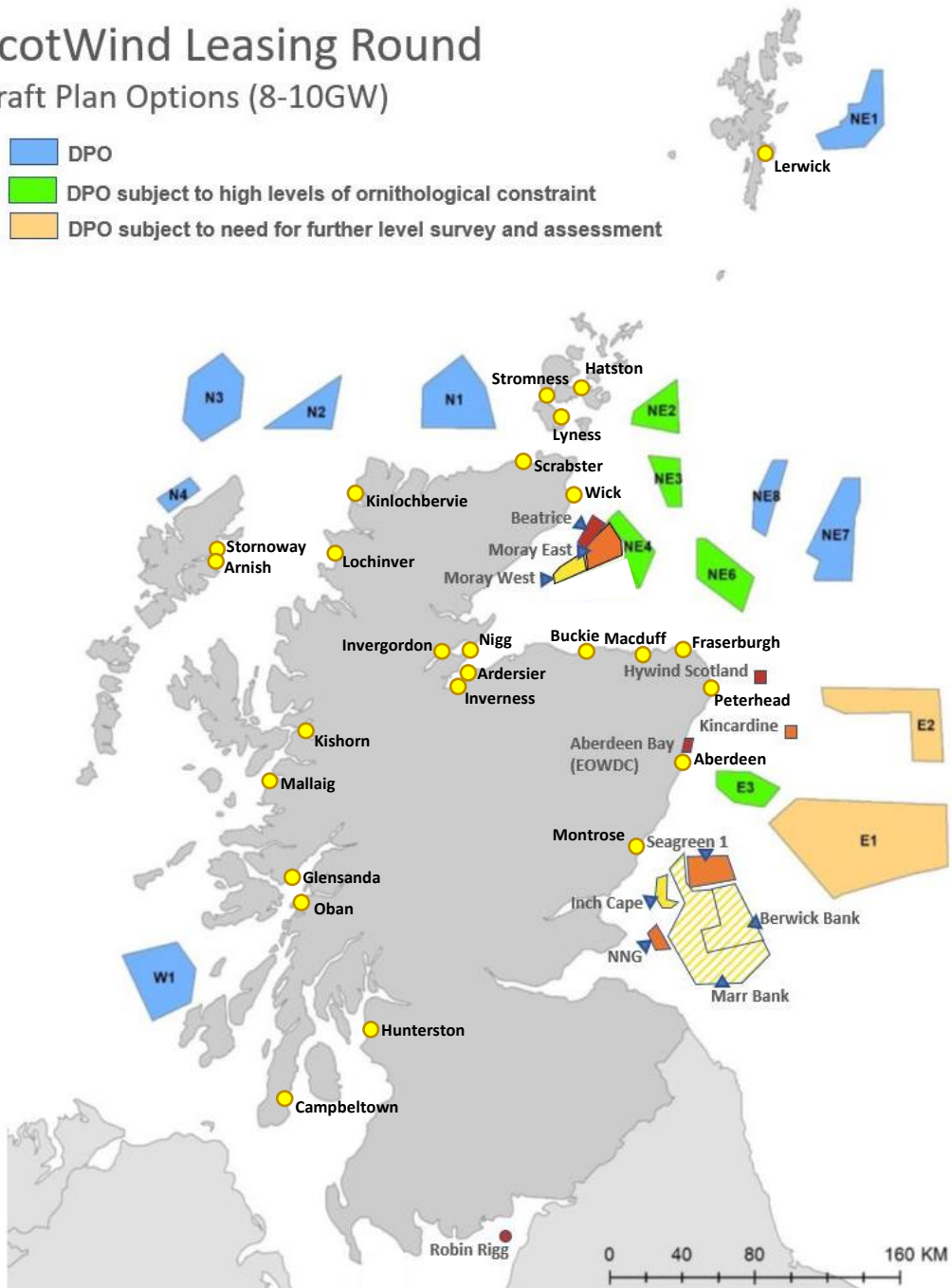
Local Members



ScotWind Leasing Round

Draft Plan Options (8-10GW)

- DPO
- DPO subject to high levels of ornithological constraint
- DPO subject to need for further level survey and assessment



SITE	DEVELOPER	CAPACITY
Robin Rigg	RWE Renewables	180MW
Hywind Scotland	Equinor	30MW
Aberdeen Bay	Vattenfall	93MW
Levenmouth	ORE Catapult	7MW
Beatrice	SSE/Red Rock Power	588MW
Kincardine	Cobra	50MW
Moray East	Ocean Winds	950MW
NNG	EDF Renewables/ESB	448MW
Seagreen 1	SSE Renewables/Total	1075MW
Inch Cape	Red Rock Power	1000MW
Moray West	Ocean Winds	850MW
ForthWind	Cierco	12MW
Berwick Bank	SSE Renewables	2300MW
Marr Bank	SSE Renewables	1850MW

898MW

2523MW

1862MW

4150MW

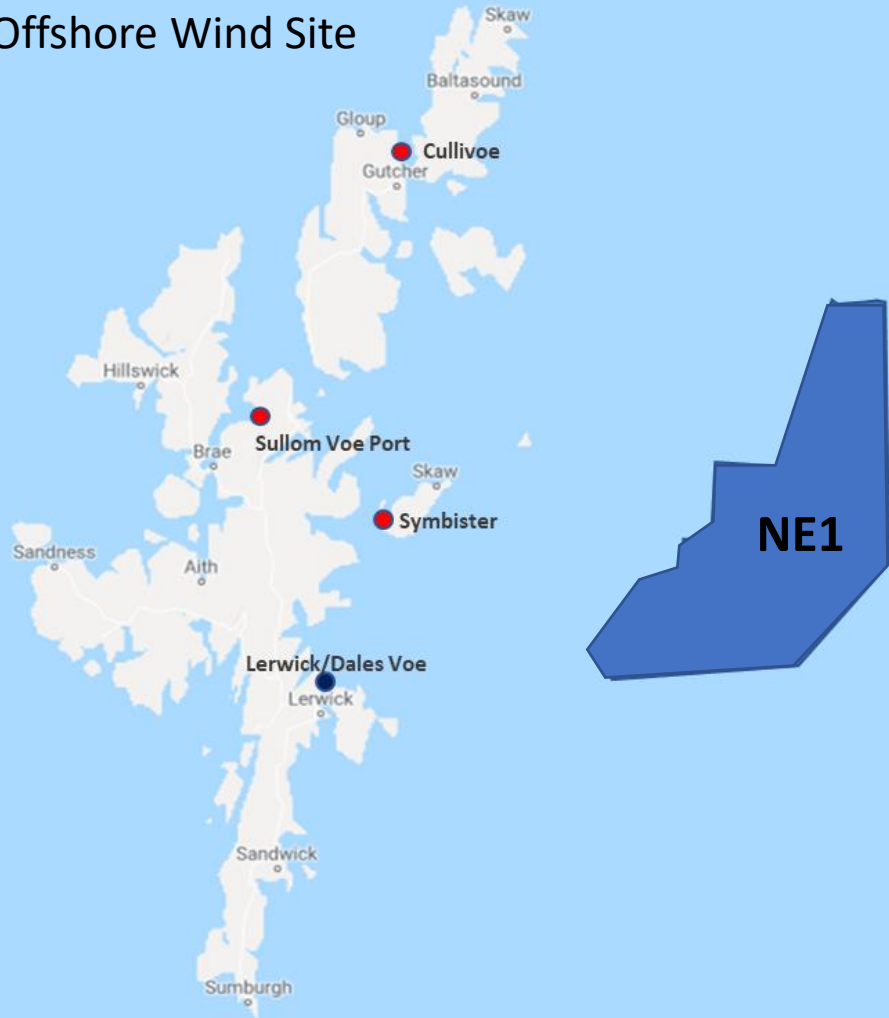
Current Wind Farms (9.4GW)

By status

- Operational
- Under construction
- Consented
- Planned

17GW still to deliver = £25Bn

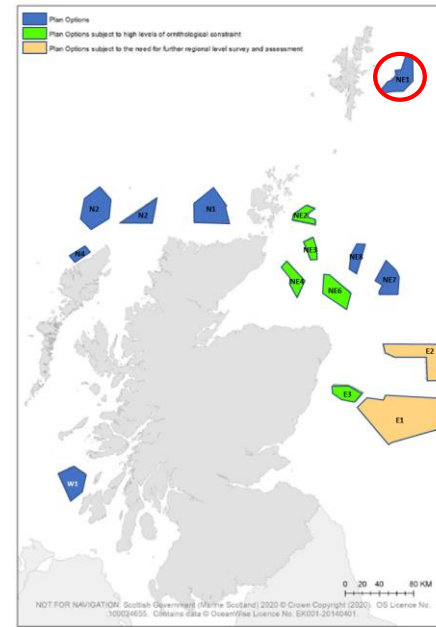
NE1 - Floating Offshore Wind Site



- Construction Port option
- O&M and Support Port option

NE1 – Shetland Isles

Site	NE1
Region	North East
Total DPO Area (km2)	751
Realistic Max GW	2
Realistic Max as % of area	53%
Minimum Water Depth	>100m
Maximum Water Depth	>100m



Leasing process

To be completed by Crown Estate Scotland

- All site bids to be submitted by end of March 2021
- Not known as yet if any developer is on NE1
- Outcome to be public by Q2-3 2021
- Clearing Round may be required

Projects

- Initial floating wind projects expected to be in the region of 300-500MW. (20-33 turbines and substructures)
- Up to £1bn Capex
- Early stage development in the order of £30-50m

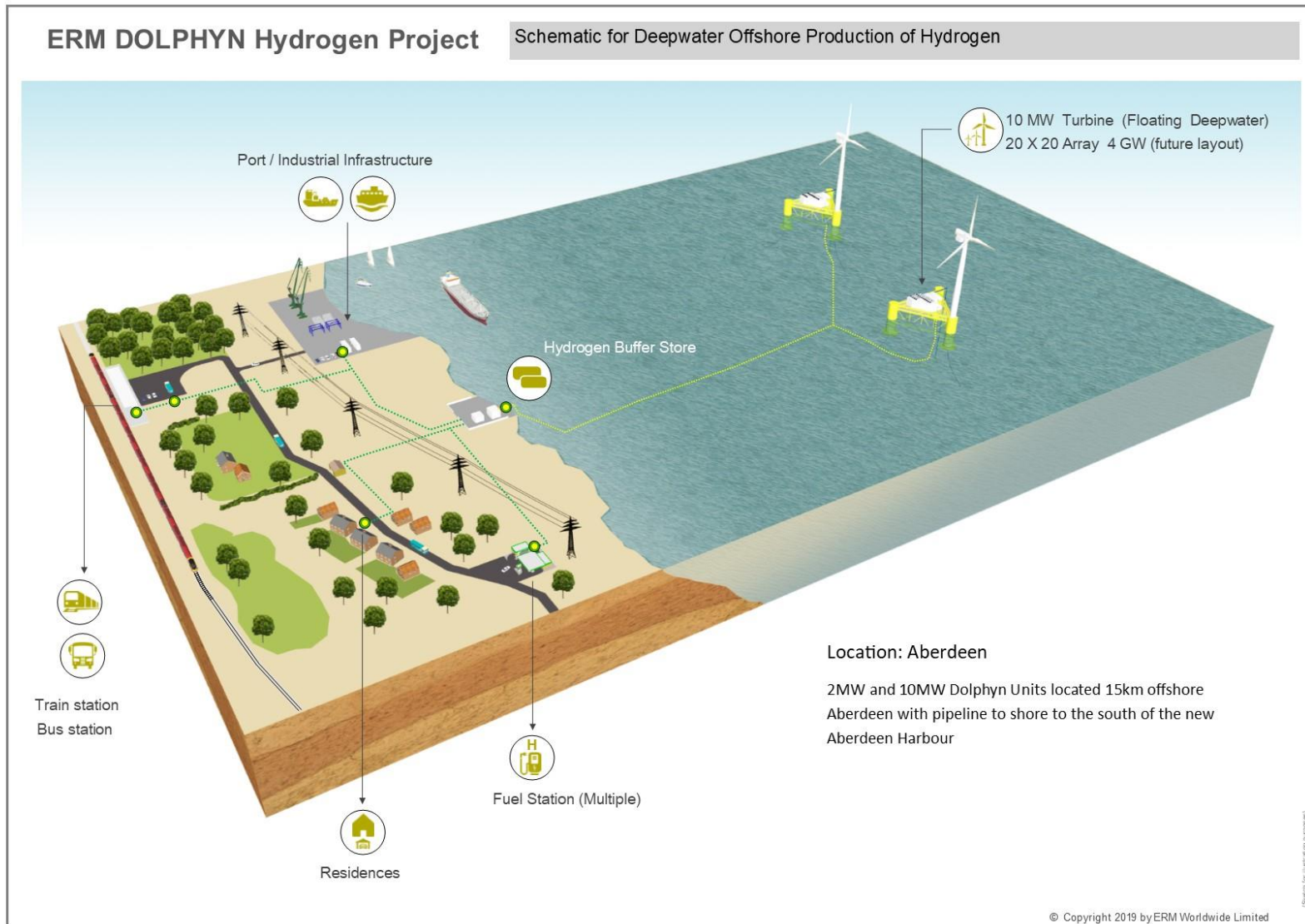
Shetland and SE1



SE1 and Orion

Green Hydrogen

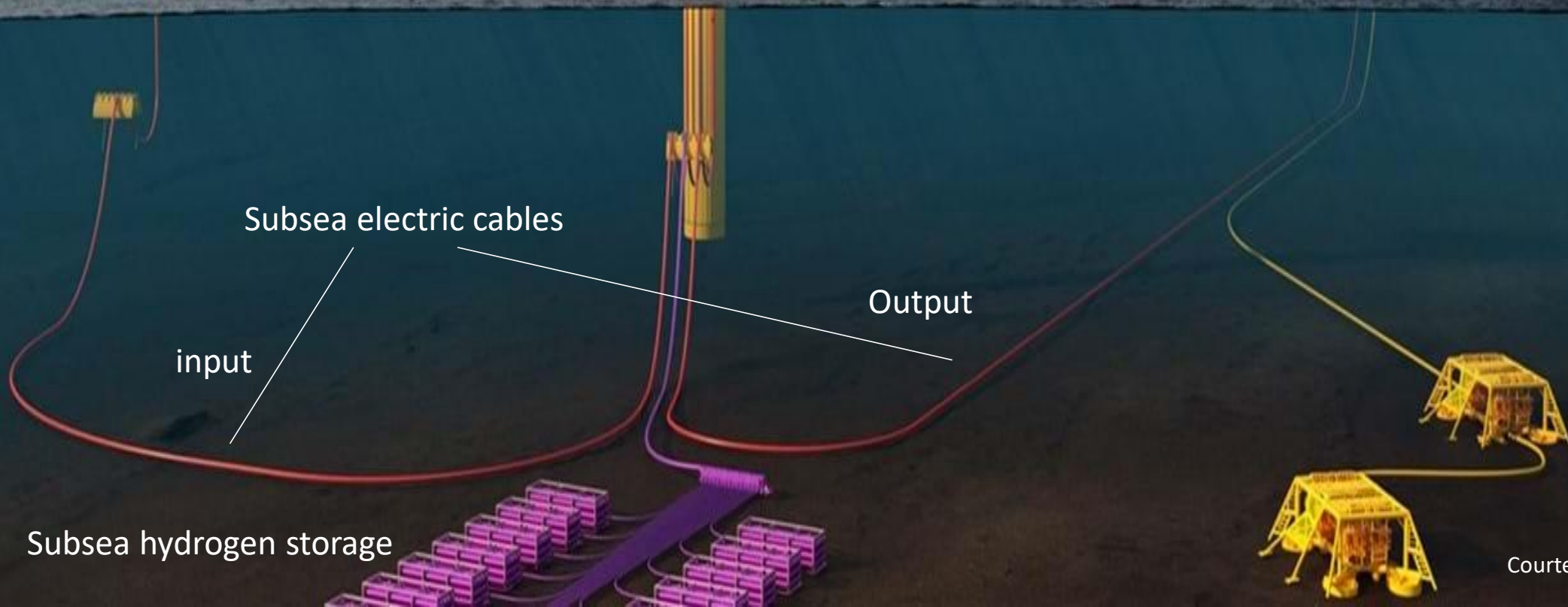
- Offshore/onshore production of green hydrogen from wind power
- Projects such as Dolphyn and DeepPurple propose to use floating wind to produce green hydrogen at scale
- Power for offshore platforms and export to UK mainland and Europe
- Bulk liquid carriers using LOHC (Liquid Organic Hydrogen Carrier) or Ammonia (NH_3)



Dolphyn graphic courtesy of ERM

TechnipFMC's Deep Purple Project

Floating Hydrogen production and fuel cell platform

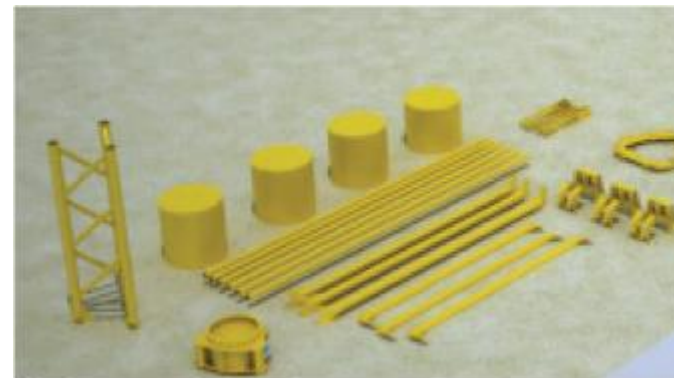
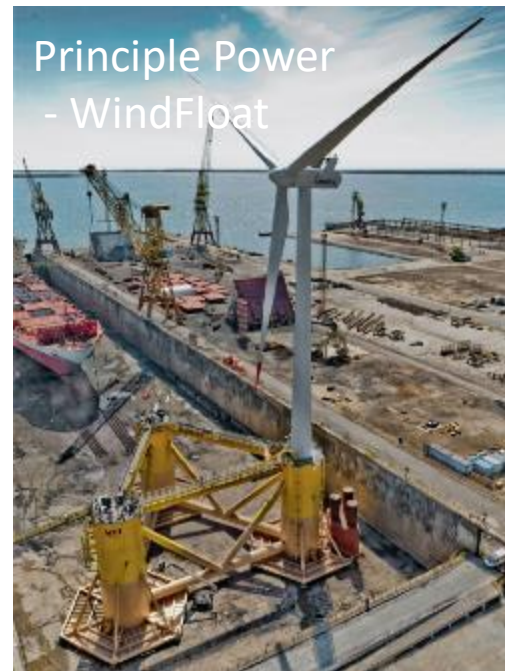




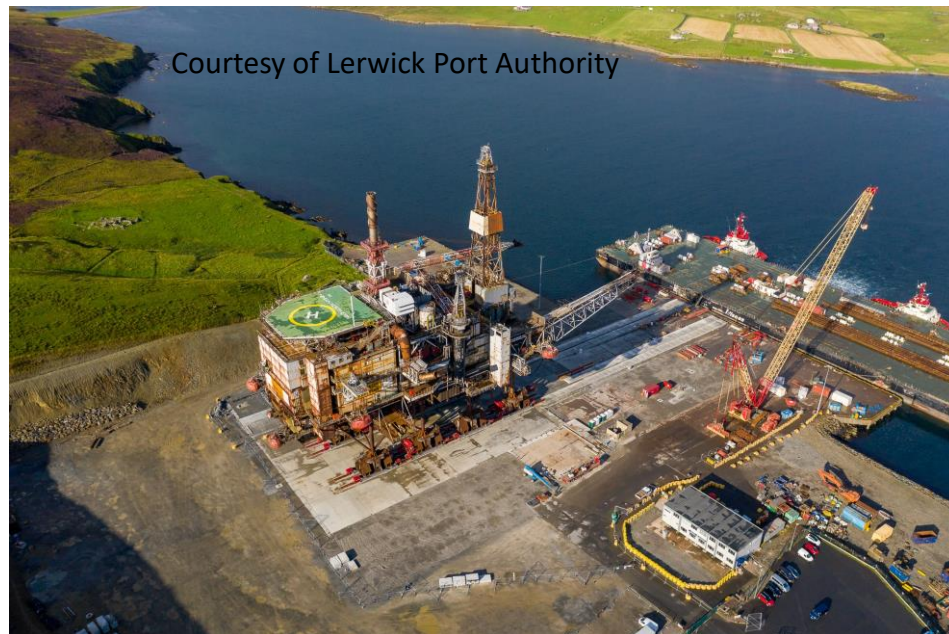
- e-Fuel and e-Fertilizer
- Electricity
- Green Hydrogen (e-H₂)
- CO₂ (captured from industrial processes or directly from air)

ScotWind

Substructure companies
interested in Scotland



Shetland Ultra Deep Water Quay



Floating Wind

- Large scale substructures up to 80m in diameter
- Water depth at quayside 10-12m for semi-sub designs, much higher for spar systems and submersible barge launch systems
- Dales Voe could be suitable for substructure assembly and launch or turbine assembly on the substructure at the quayside

SSE Wick O&M Base

...and after





Wick O&M Base – Crew Transfer Vessels

Rapid transfer vessels used to deliver technicians to the offshore wind farm. Length 18-26m.

- Siemens Gamesa used 4 at Wick to service the turbines at the Beatrice project
- SSE Renewables had a small fleet of CTV in addition to these to cover other BoP activity at the wind farm e.g. blade inspection campaigns
- ScotWind 1GW projects would be likely to have between 8-10 such vessels in a local harbour O&M base.



Service Operations Vessels - SOV

Mothership vessel approach which stays on station in the wind farm for weeks. Walk-to-work access systems and a crew of 60-150 including turbine technician rotations depending on vessels size.

Requires a larger harbour facility than CTVs with an average length of 70-90m and a draft of 5.5-6.5m

A Sea of Opportunities

- Early stage survey work
- Vessel supply and logistics
- Geo-technical studies
- GWO training (College)
- Harbour infrastructure upgrade
- Onshore substation civils
- Cranes (onshore)
- Offshore construction and installation
- Tugs
- Guard vessels
- Operation and maintenance sites (70-120 personnel per site for operational life i.e. 30-60 years)
- Cross-sector co-located industries
 - a) Aquaculture – Shellfish and seaweed
 - b) Green Chemicals – Hydrogen and Ammonia (Methanol if CO2 capture is available)



Thank you

To join the cluster

Email: paul.obrien@hient.co.uk

Or visit: www.offshorewindscotland.org.uk

