



Great South West Floating Offshore Wind Seminar – Mark III

Supply Chain Opportunities

27/06/2019

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Agenda

- ORE Catapult Overview
- Why Floating Wind?
- Floating Wind Locations and Market Value
- Supply Chain Requirements and Opportunities
- Summary

ORE Catapult Overview

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Innovate UK

- Designed to transform the UK's capability for innovation
- Core grant leveraged with industry and other public funding

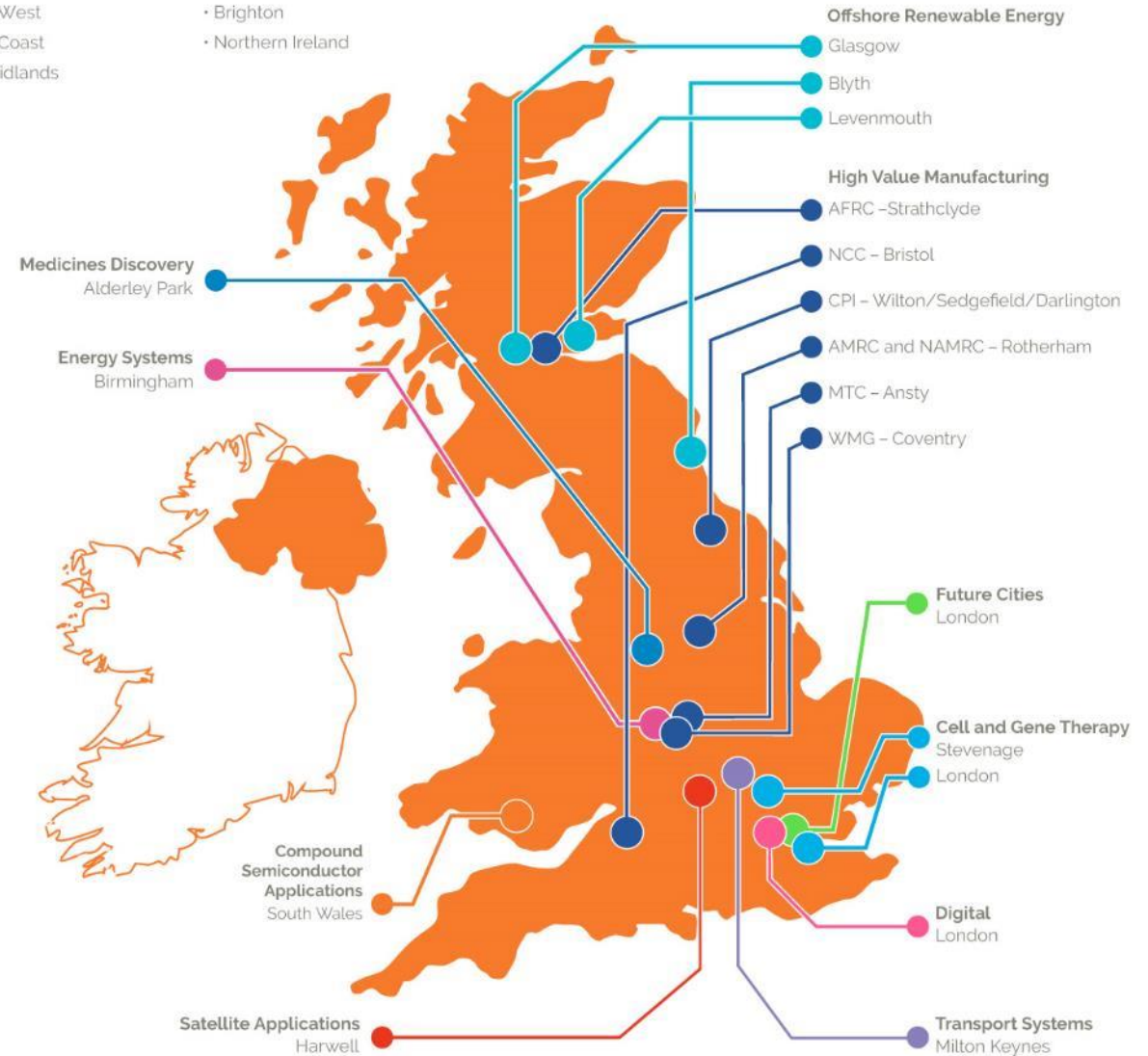
Regional Centres

Satellite Applications

- North East
- Scotland
- South West
- South Coast
- East Midlands

Digital

- North East and Tees Valley
- Yorkshire
- Brighton
- Northern Ireland



Our mission

To accelerate the creation and growth of UK companies in the ORE sector

Our vision

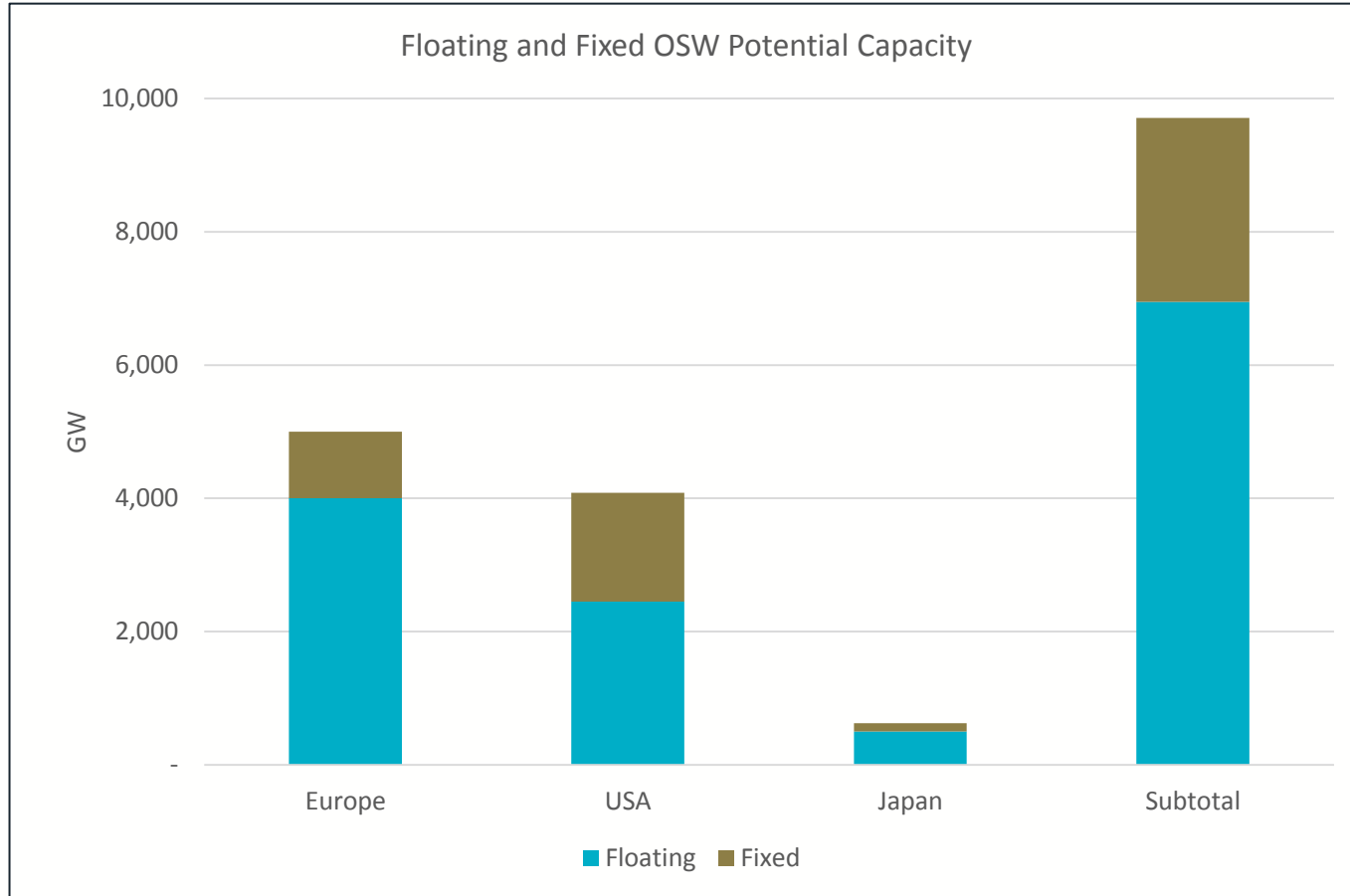
By 2023, ORE Catapult will be the world's leading offshore renewables technology centre

- Centres of Excellence
- Academic Research Hubs in partnership with leading universities
- Expanding our assets in Blyth and Levenmouth the world's foremost open-access facilities

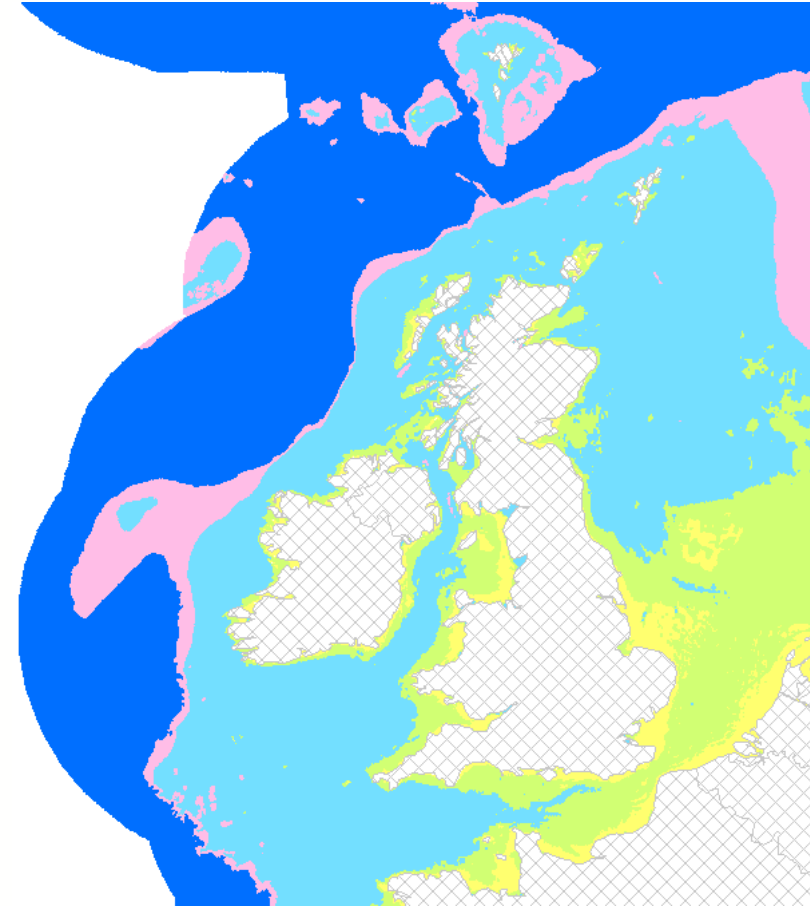


Why Floating Wind

Why Floating Wind – Deployment Potential



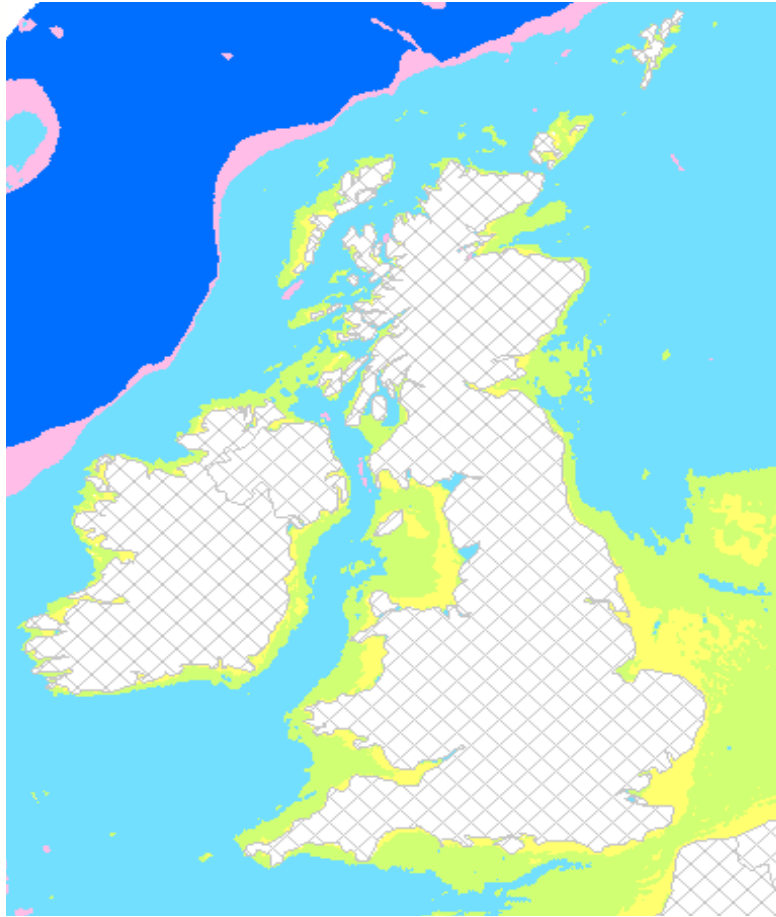
Based on analysis by Carbon Trust, 2015



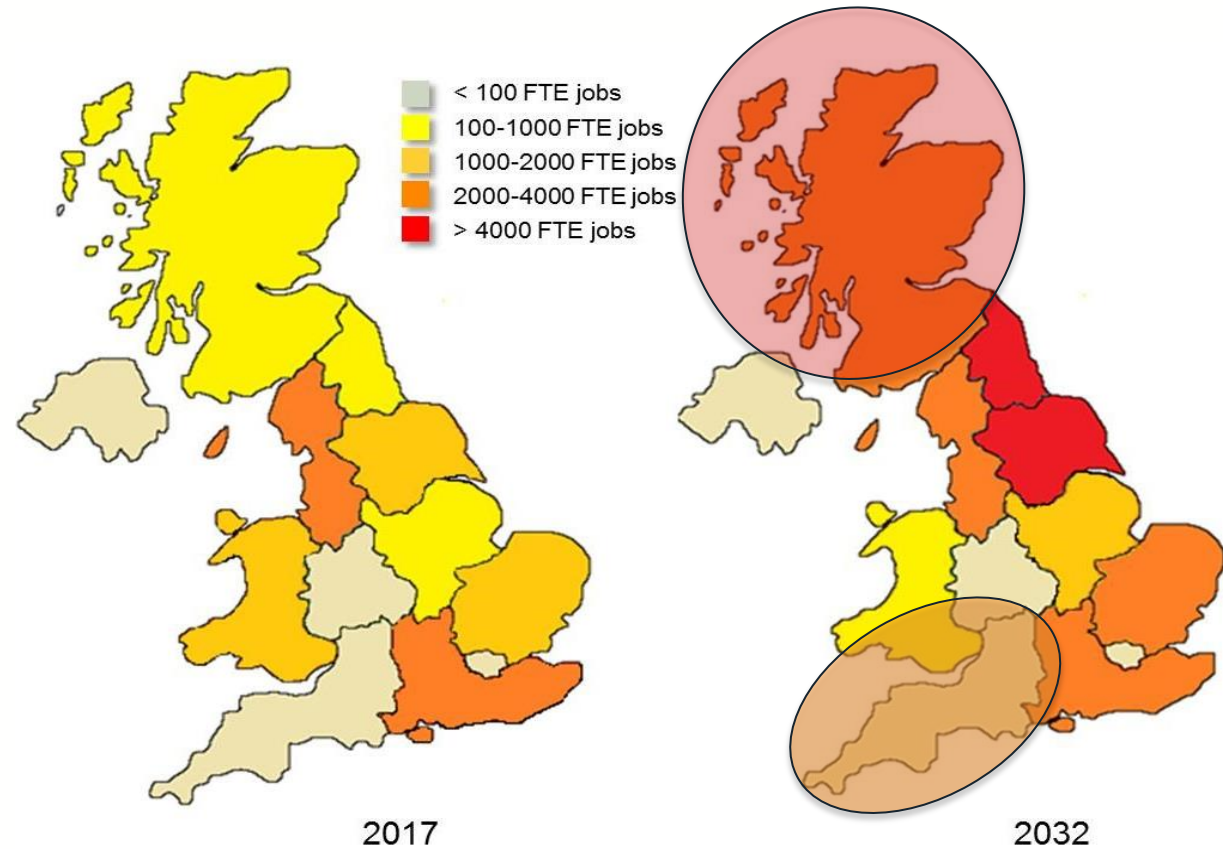
Friends of Floating Wind, 2018

- Key markets potential for 7,000GW = 30,000TWh p.a. (roughly current global demand)
- Even in UK waters, majority of potential is floating

Why Floating Wind – Offshore Wind Regional Benefit



Friends of Floating Wind, 2018

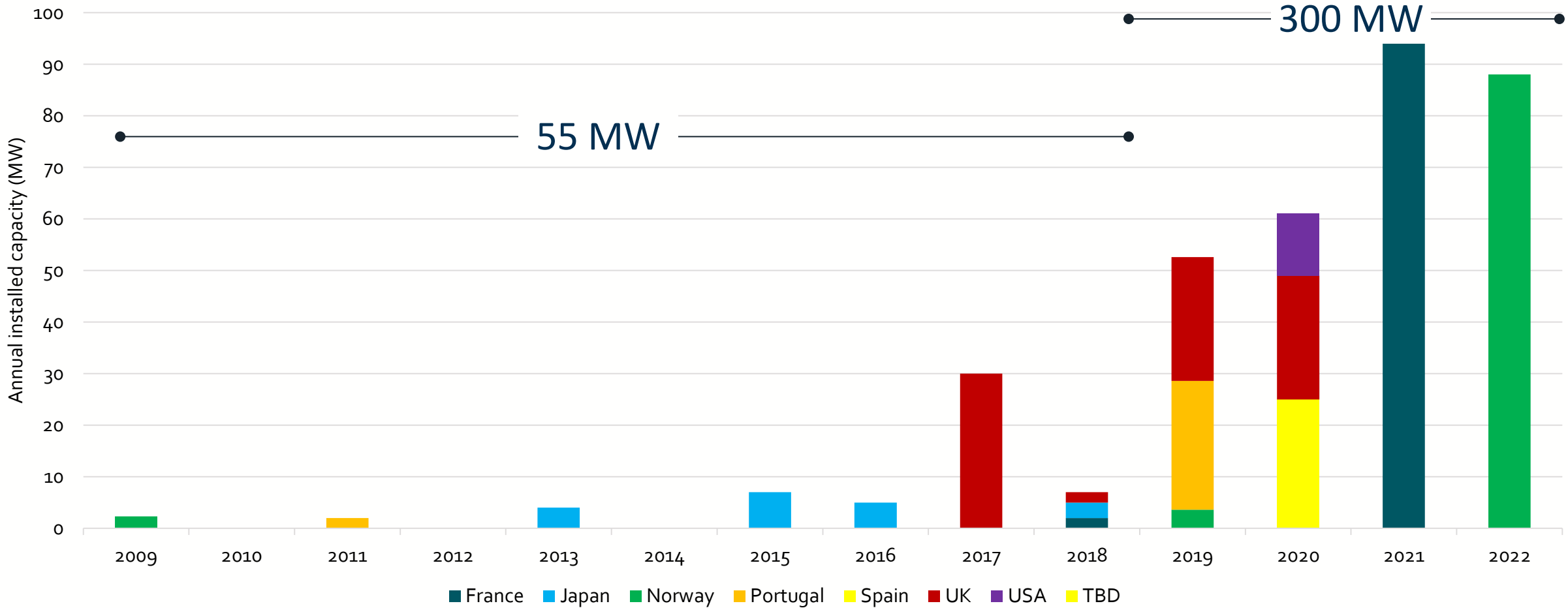


Cambridge Economics: Future UK Employment in the Offshore Wind Industry, 2017

- Based on current project pipeline, largest employment offshore wind expected to be seen in East of England
- Floating wind opportunity to extend economic benefits, particularly to Scotland and Greater South West

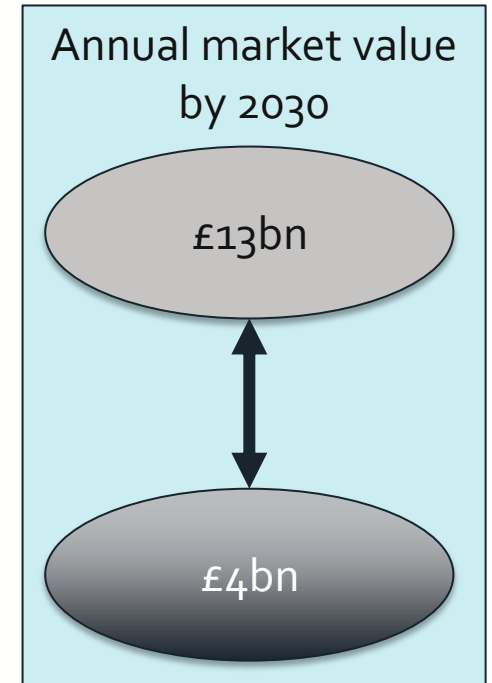
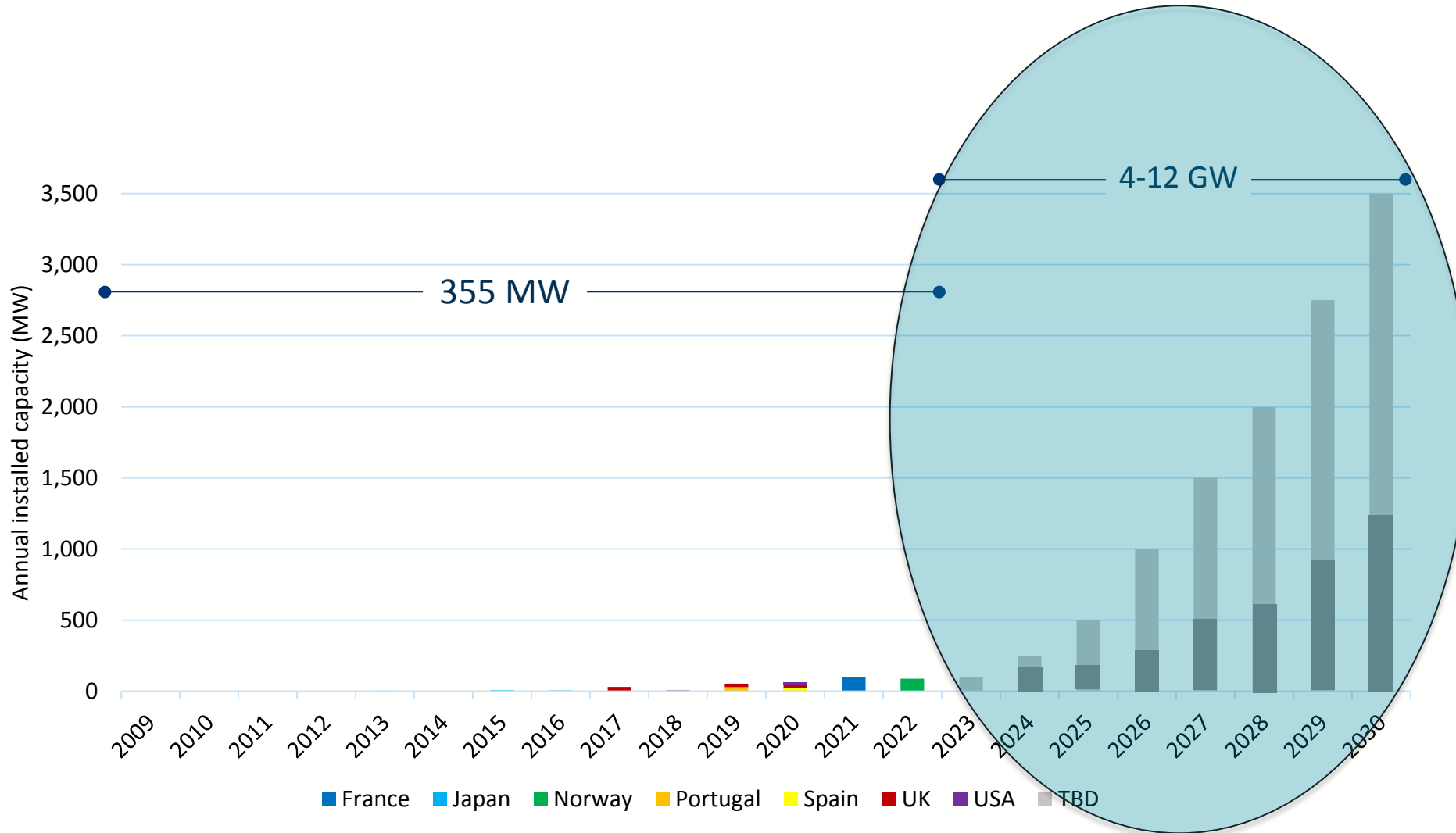
Floating Wind Locations and Market Value

"Known" Global Floating Wind Deployment 2009 - 2022



Source: Carbon Trust, 2018

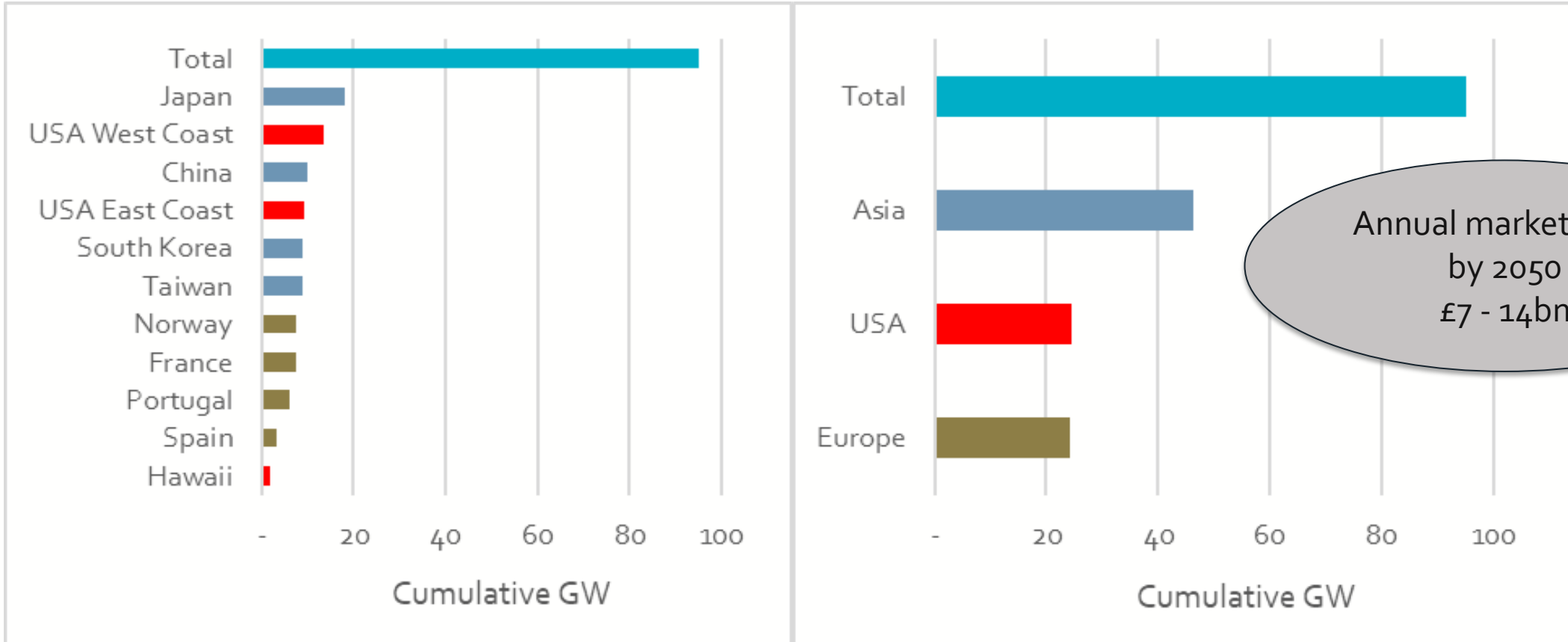
Expected Global Floating Wind Deployment 2023 - 2030



Source: Carbon Trust and ORE Catapult, 2018

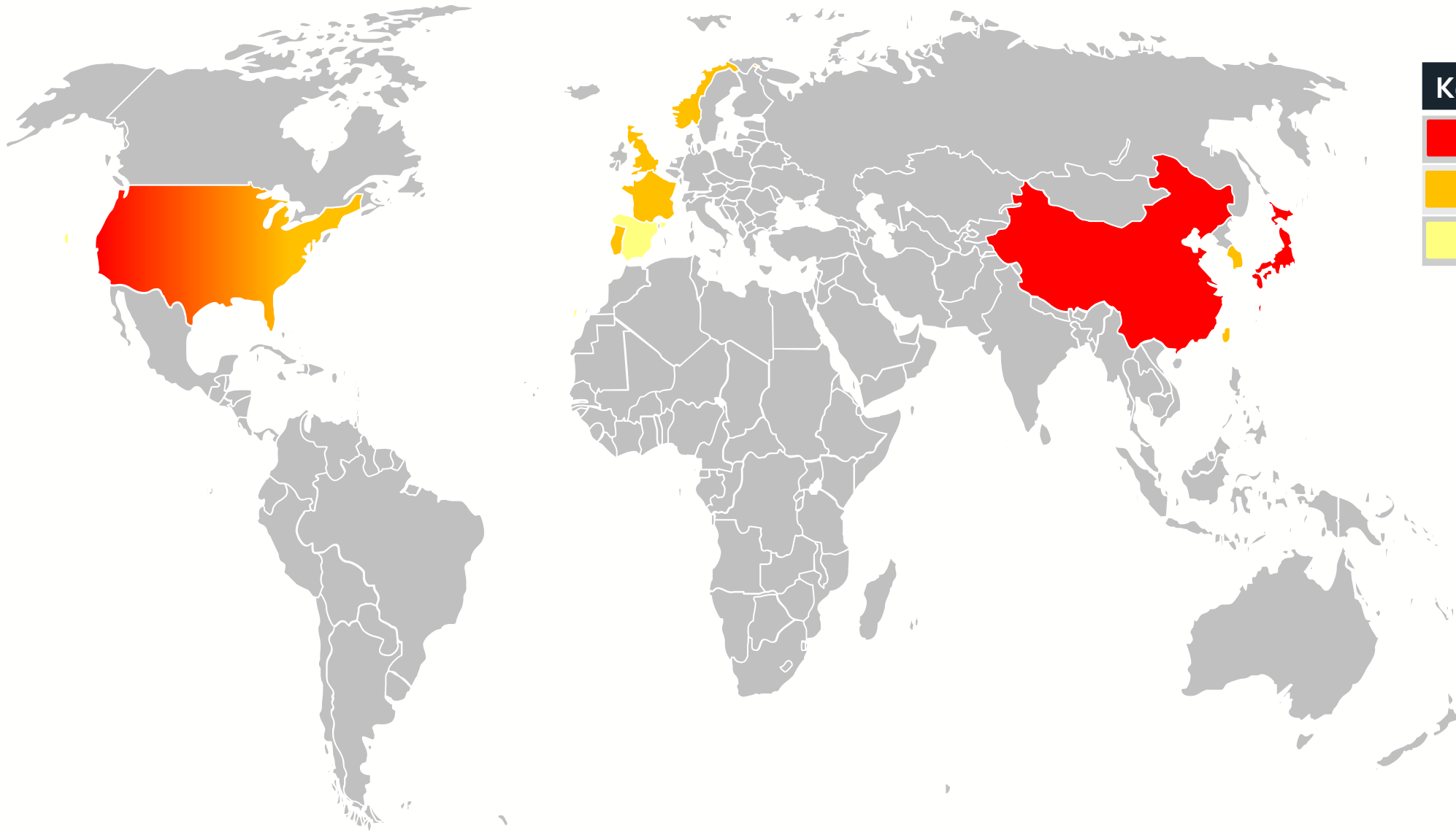
Potential Global Floating Wind Deployment 2031 - 2050




Potential 2050 floating wind deployment shown by country and by region



Source: ORE Catapult, 2018

Potential Global Export Hotspots



Key	2050 cum. GW
	> 10 GW
	5 – 10 GW
	< 5 GW

Supply Chain Requirements & Opportunities

Requirements for 1GW of Floating Offshore Wind (66 x 15MW turbines)



2 years(???) of port leasing

Design services
Surveys
Monitoring
PM

170,000 tonnes of primary steel

400+ mechanical connectors;
~130 electrical connectors

8,000 tonnes of secondary steel

140km of mooring lines;
200+ anchors

7,000 tonnes of auxiliaries



150km of array cables and associated protection and install

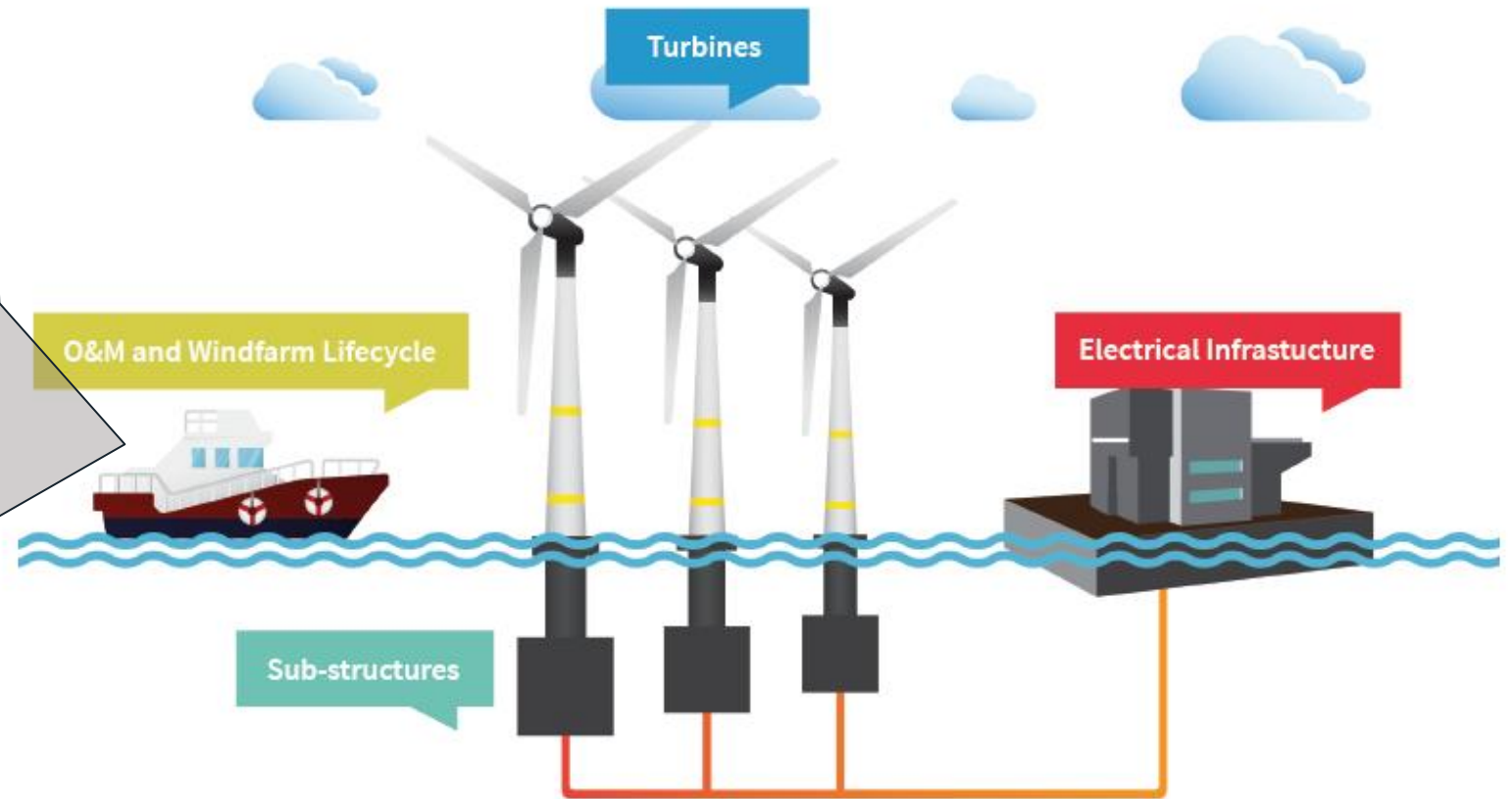
2,000 vessel days for anchors/mooring and platform/turbine installation



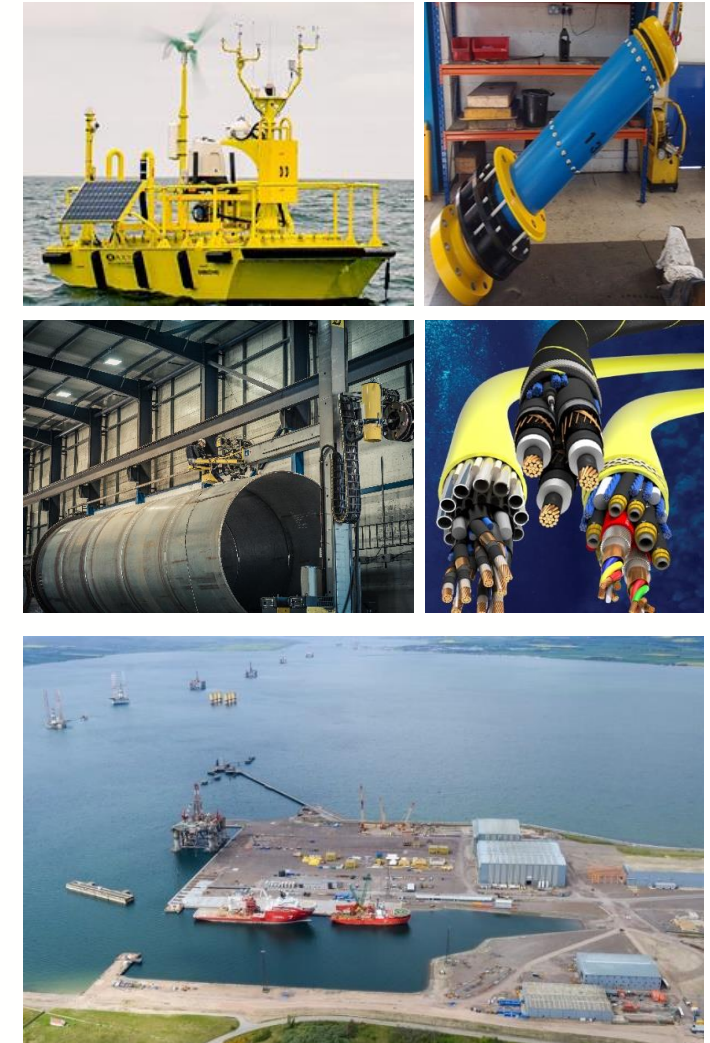
Enabling tow-to-port
(disconnect/re-connect,
onshore facilities)

Enabling fix-on-site
(new HLV's, floating-
floating access)

Enabling work in deep
water / far from shore
(autonomous vessels,
remote subsea inspection,
condition monitoring)



Supply Chain Segment	Overview of UK Situation
Development & Design	Major strengths in development & consenting, surveys, certification, PM, FEED. Limited or no investment required. All highly exportable skills.
Manufacture	Hard to compete on large-scale fabrication, but potential in specialist components (eg. connectors, integrated moorings), which are also exportable. Option to invest in heavy industry.
Assembly	Some ports well suited to assembly of pre-fabricated large components and turbine-foundation assembly. Investment in port facilities will enhance the offering. Skills exportable.
Installation	Number of marine contractors operate vessel fleets capable of installing FW. Potential to take on EPC role. Skills exportable.
O&M	As per Installation. Plus experienced UK offshore wind and O&G O&M bases. Skills exportable.
Decommissioning	Benefit from similar capabilities to installation and can leverage on design capabilities for whole-life design and end of life management. Skills exportable.



Summary

- Floating offshore wind meets key tests of low-cost, secure, job-creating, energy supply
- The market for supply chain to aim at is post-2023
- There WILL be large export markets; we are here today to ensure near-term UK market
- Opportunities exist throughout the value chain
- Innovative solutions will give great advantage
- No one can do everything, but collaborations and partnerships open new possibilities

Contact us

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