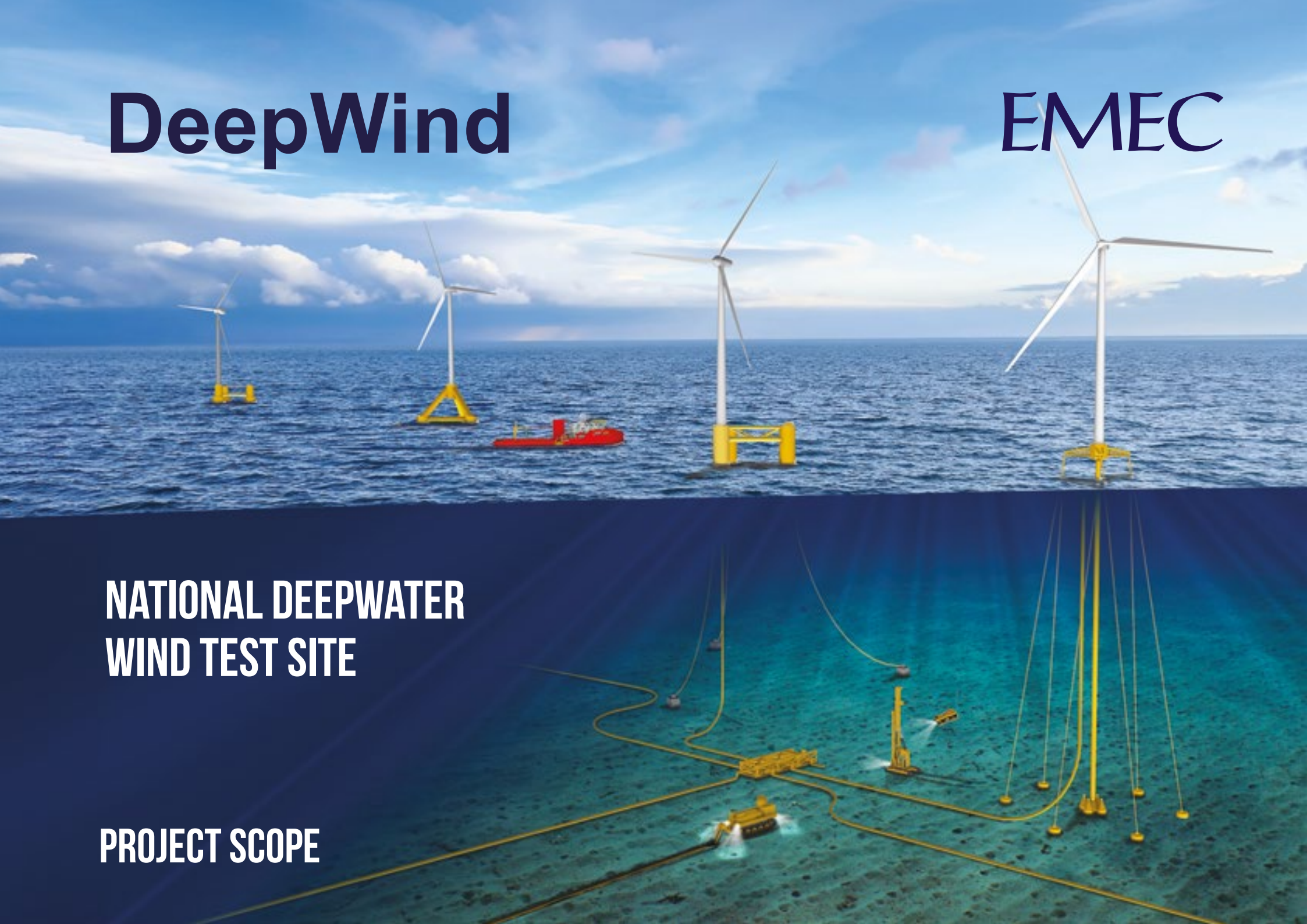
DeepWind

EMEC



NATIONAL DEEPWATER WIND TEST SITE

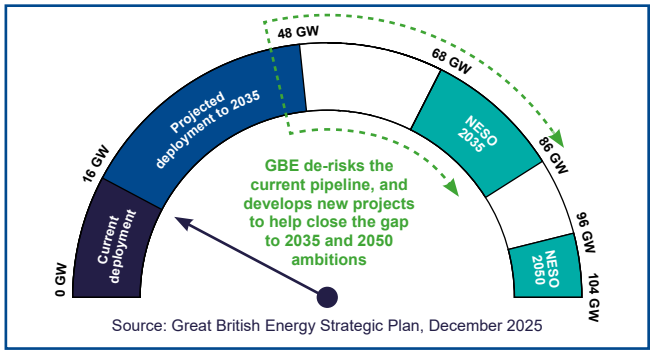
PROJECT SCOPE

THE DEEPWATER WIND OPPORTUNITY

The UK stands at the cusp of a transformative era for the offshore wind industry, having set highly ambitious goals for offshore wind deployment with a pipeline of >48 GW of floating and deepwater offshore wind projects already announced.

In Scotland, the recent ScotWind and INTOG leasing rounds committed 19 GW and 5 GW of floating offshore wind capacity, respectively. Meanwhile, in the Celtic Sea, The Crown Estate Round 5 leasing programme is expected to deliver up to 4.5 GW of floating offshore wind capacity. This initial phase is intended to be operational by 2035, with an ultimate target to achieve 24 GW of operational capacity by 2045.

Across the UK, this represents a pipeline of more than 48 GW of floating and deepwater wind by 2050, notwithstanding any new rounds yet to be announced.



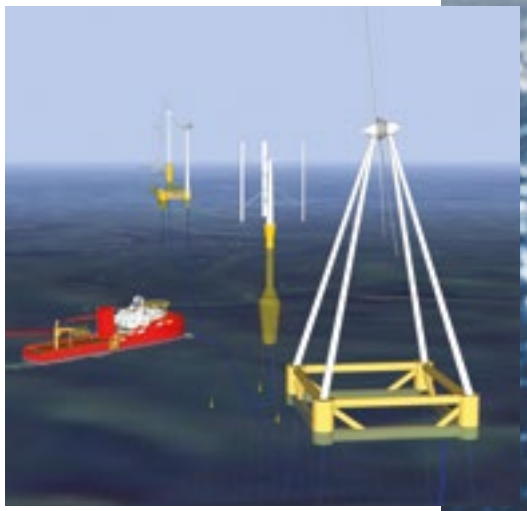
Source: Great British Energy Strategic Plan, December 2025

Delivering these projects will be critical to keeping the UK on track to achieve net zero by 2050 (and Scotland by 2045).

The Climate Change Committee estimates the UK will need to install 125 GW of offshore wind by 2050 to achieve a balanced net zero pathway, with floating and other deepwater technologies expected to play an increasingly important role in meeting that ambition.

For perspective, the current operational offshore wind capacity in the UK is around 16 GW, almost all of which has fixed bottom foundations.







THE NEED TO PROVE AND DE-RISK

Despite this extensive project pipeline, floating and deepwater wind is still an immature industry. The majority of project developers have little or no floating or deepwater experience, and none of the technologies being proposed have been deployed and proven at the scales required.

The scale and speed of deployment needed to meet the UK's targets requires rapid progression of the deepwater supply chain to commercial scale projects, but it is folly to rush on at pace if the technology is insufficiently proven in the environment into which it will be deployed.

The UK is fortunate to benefit from consistent high wind speeds due to its geographical position at the end of a long fetch over the North Atlantic, with the North Sea to the east.

Whilst this creates consistent strong winds for power generation all around the country, the energetic wave and wind conditions are a challenging environment for floating structures to operate in. As a result, floating platforms, turbines, cables, mooring systems and other components will all need to be proven in these harsh conditions before they can be deployed confidently at scale into these challenging conditions.

16 GW 2025

Current offshore wind capacity in the UK, almost all of which has fixed bottom foundations

125 GW 2050

Required installation of offshore wind to achieve a balanced net zero pathway

New technologies will typically be required to demonstrate a minimum of 8,000 hours of normal operations in a representative environment (i.e. at full scale and in real world conditions) to satisfy certification bodies. This is essential to avoid an expensive and limiting "prototypical" insurance basis from underwriters. Without full scale testing, project certification becomes much more challenging.

Insurance and certification are both vital to ensuring final investment in a project. The increased level of confidence in projects proven by adequate testing will help keep insurance premiums realistic and the cost of capital affordable. This will then translate into valuable reductions in levelised cost of energy (LCOE), which is highly sensitive to cost of capital, thereby maintaining competitiveness for developers and reducing the cost of clean energy to government and consumers in future CfD auctions.

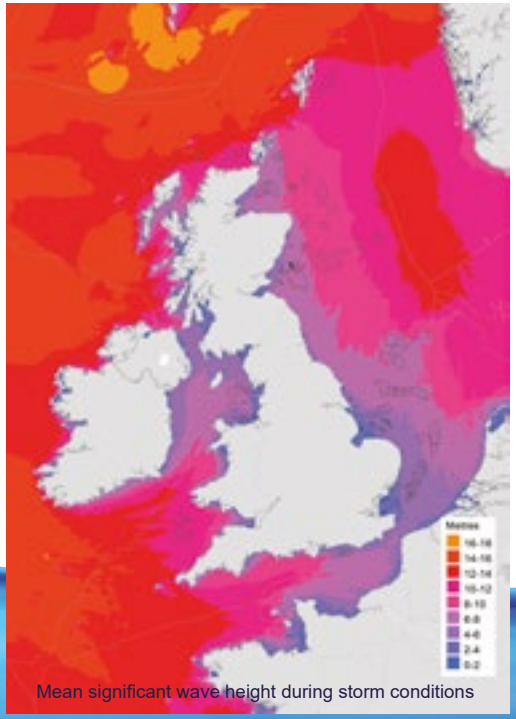
There is currently a diverse landscape of deepwater platform designs and EMEC anticipates at least 15–20 different floater designs successfully coming to market in the decades ahead.

These technologies will be developed simultaneously and in competition with one another. Testing and proving in real sea conditions will not only enable progression towards bankability, but promote a clearer picture of the advantages of each design to better inform technology selection decisions.

DeepWind, EMEC's proposed deepwater wind test site, will provide developers with the opportunity to better understand technical, safety and environmental risks.

Through testing of the planned transport, installation, commissioning and operational processes in a low consequence environment, the test centre will ultimately lead to highly optimised technologies and safe practices being developed.





Mean significant wave height during storm conditions

Introducing DeepWind

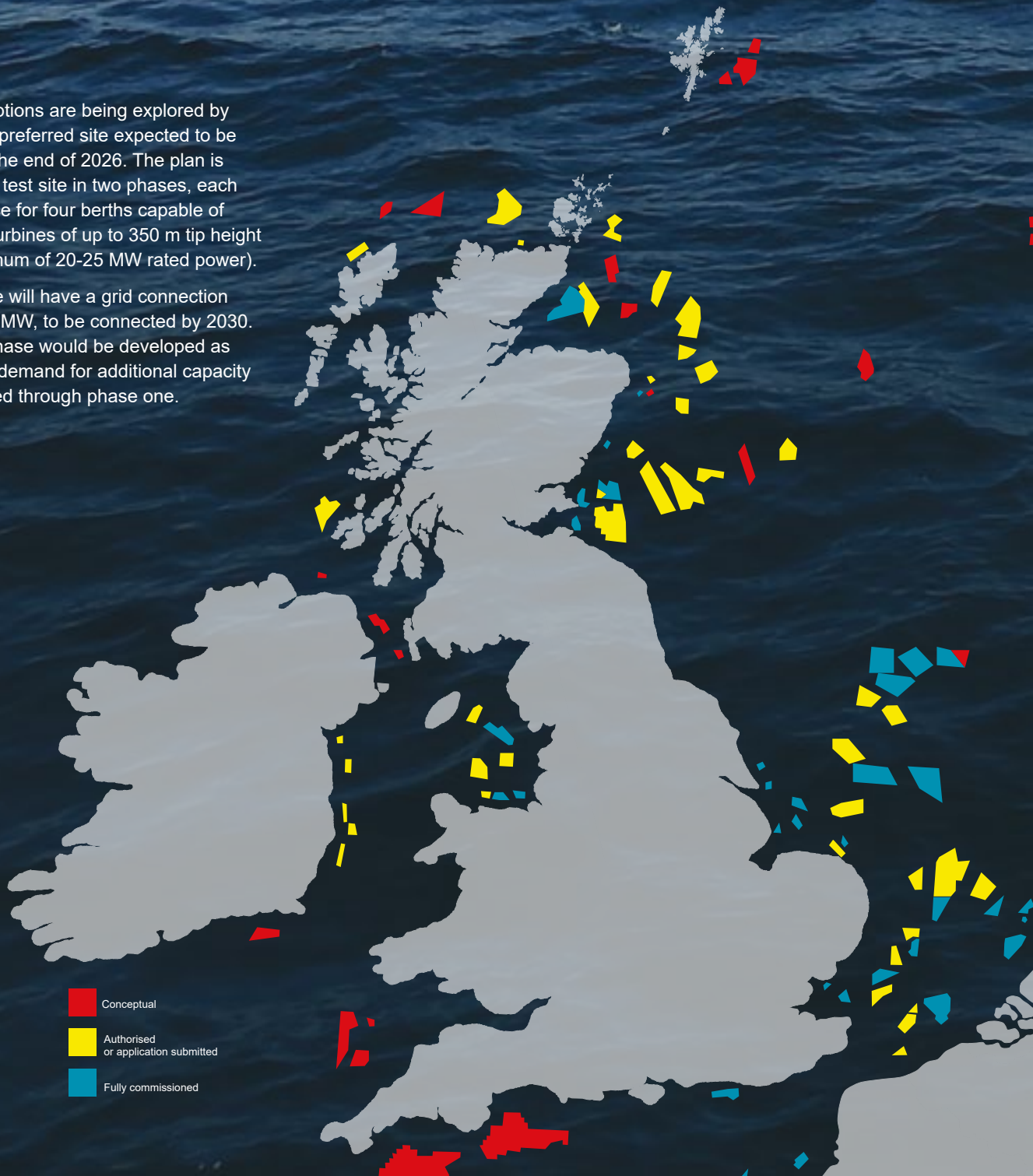
EMEC's aim is to establish a national test site for the UK to support the next generation of floating and deepwater offshore wind technologies.

Following an extensive review of potential locations across the country, the objective is to secure a site in water depths of 60-100 m, with metocean conditions representative of future commercial developments. The site will support up to 60 MW of test and demonstration activity by 2030.



Multiple site options are being explored by EMEC, with a preferred site expected to be confirmed by the end of 2026. The plan is to develop the test site in two phases, each providing space for four berths capable of hosting wind turbines of up to 350 m tip height (up to a maximum of 20-25 MW rated power).

The first phase will have a grid connection capacity of 60 MW, to be connected by 2030. The second phase would be developed as and when the demand for additional capacity is demonstrated through phase one.

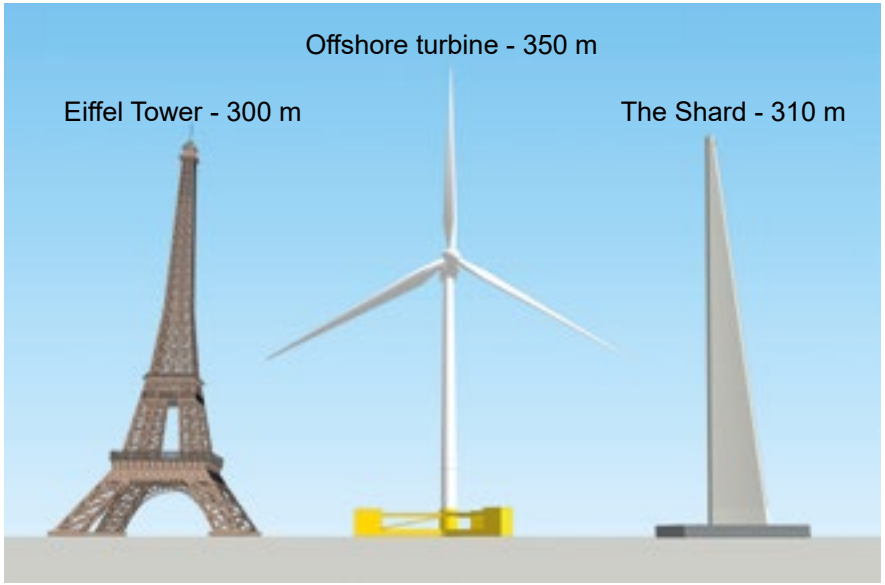


LAYOUT AND CONFIGURATION

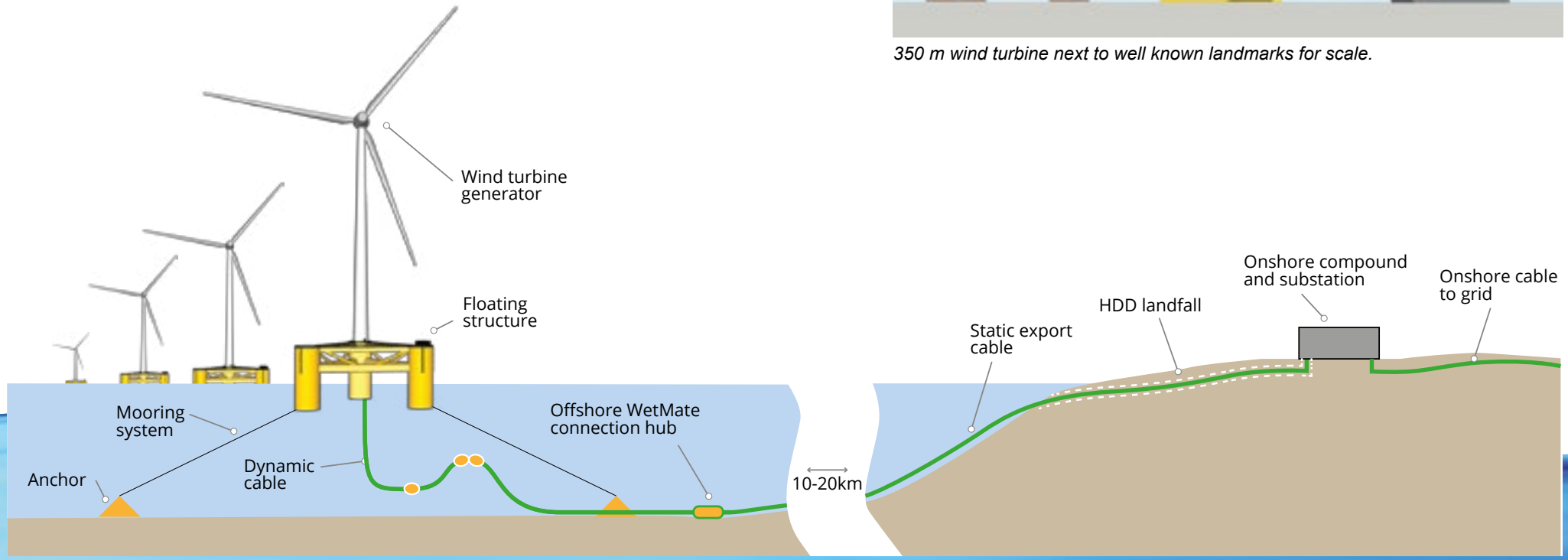
The location, layout and configuration of the DeepWind test site are being carefully tailored to the needs of the offshore wind market, based on industry engagement conducted by EMEC since 2020. This ensures the site is designed to meet industry technical needs and respond to anticipated demand for test berths.

EMEC's provision of physical infrastructure ends at the subsea connection hub. Developers will be required to supply their own 66 kV dynamic export cable, to be connected to EMEC's subsea hub using a work-class ROV.





350 m wind turbine next to well known landmarks for scale.



Schematic diagram indicating the anticipated electrical infrastructure.

DEEPWIND BENEFITS

The DeepWind test site offers significant benefits over testing prototype technologies at other project sites.

PRE-CONSENTED GRID-CONNECTED TEST INFRASTRUCTURE

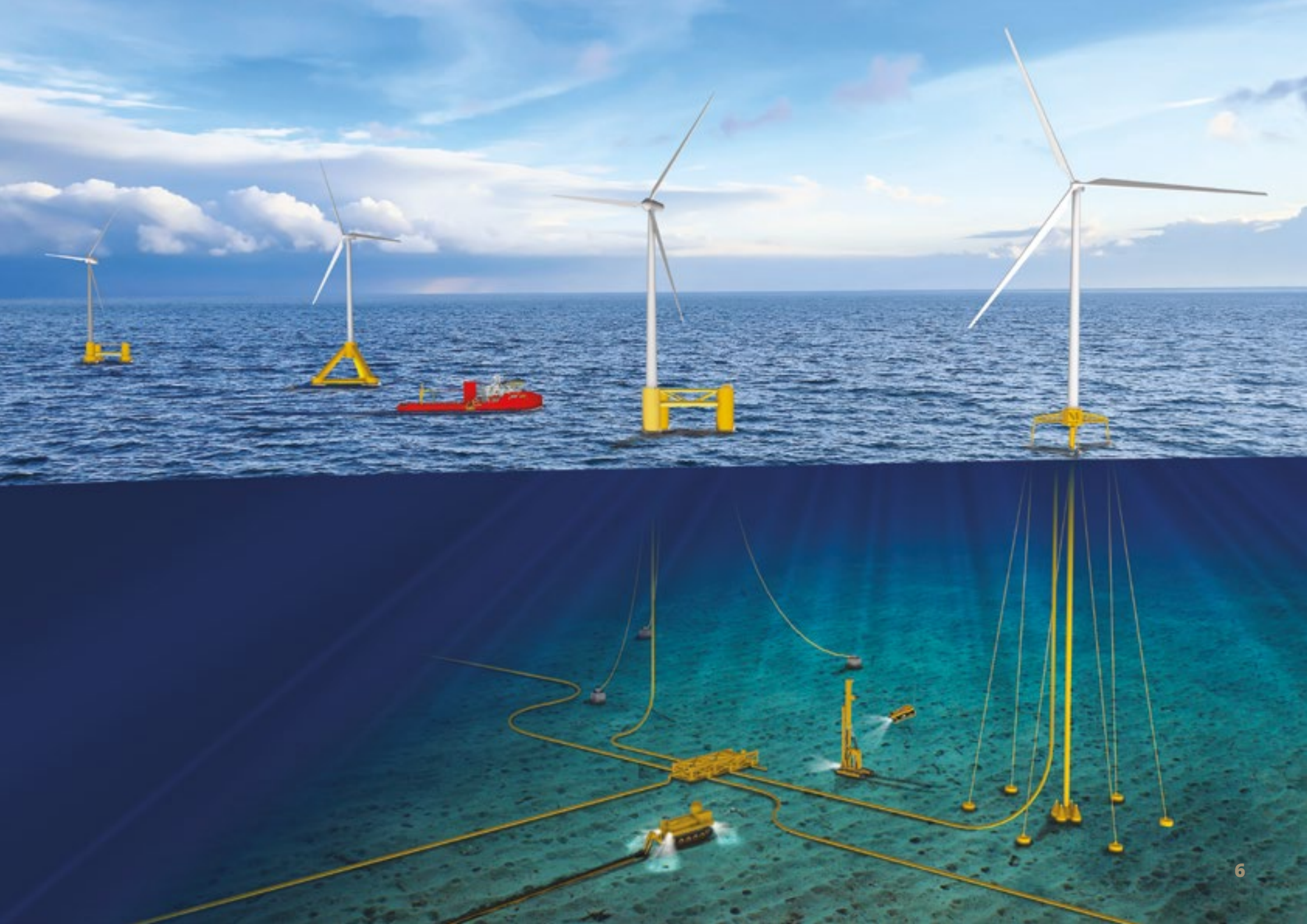
- Shared infrastructure significantly reduces costs compared to a standalone demonstration project
- Pre-consented, plug-and-play site removes primary consenting risk and associated lead times, significantly accelerating deployment
- Removal of grid connection risk and lead times
- Removal of bottlenecks and lead times in site survey data collection
- No need to complete complex cable routing and onshore connection activities
- Avoidance of bottlenecks in cable supply
- Potential for site-wide CFD to guarantee revenue-support during testing

VALUABLE BENEFITS OF REAL-WORLD TESTING AND PROVING

- Trialing of a range of concepts for downselection and optimisation
- Sufficient duration of testing (accumulation of operational hours) in relevant real sea conditions to satisfy certification and insurance requirements
- Facilitate project certification providing investor and lender confidence
- Enable building of more mature supply chain with direct experience of installation and operations and maintenance (O&M) including towing, ballasting, mooring connections and anchor handling
- Best practice for consenting and technology verification in real world conditions

OPPORTUNITY TO DEVELOP AND REFINE TECHNOLOGIES AND ESTABLISH INDUSTRY BEST PRACTICE

- Test bed for subsea robotics in offshore conditions
- Identification of serial defects requiring correction
- O&M strategy refinement, including tow to port strategies
- Substructure design optimisation
- Wind turbine generator integration and interfacing risks
- Cable hook-up complexities
- Challenging conditions for design, installation and O&M
- Predicting installation cost and schedule overruns by reducing uncertainty in activity durations
- Unforeseen challenges with equipment previously untested at full scale
- Addressing knowledge and experience gaps in O&M, installation, supply chain and procurement



INDUSTRY ENGAGEMENT

Securing customers for the berths from the outset is essential to maximise the return on investment and mitigate the investment risk for the test site's key stakeholders.

EMEC's active engagement with the floating and deepwater wind community over the past six years has developed a strong pipeline of potential clients.

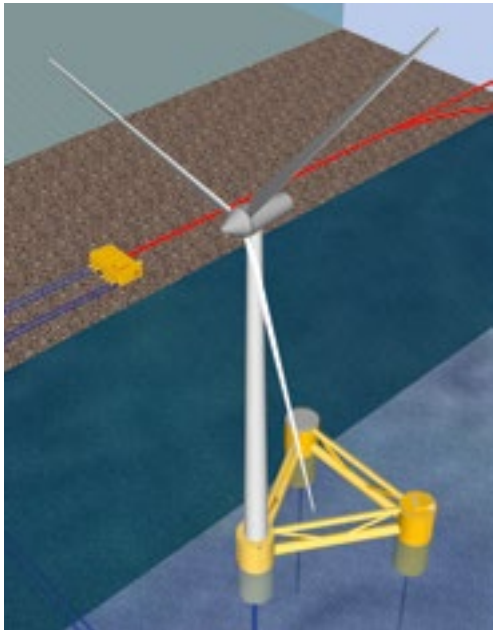


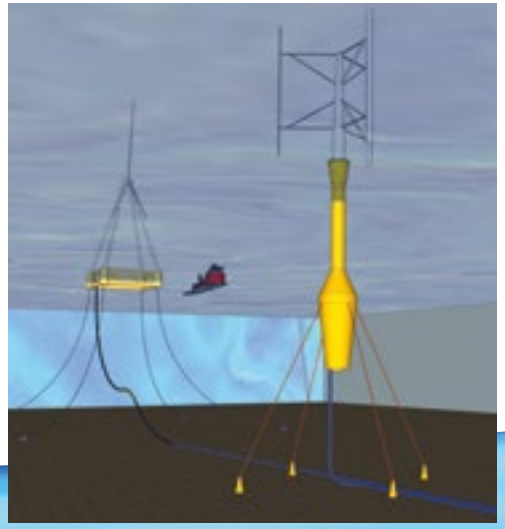




Letters of support have been secured from more than 15 developers and potential partners, with several of these progressing to more advanced negotiations.







ALIGNED WITH MARKET DEMAND

EMEC has undertaken extensive engagement with site developers to explore the potential for a multi-technology test site, ensuring DeepWind is delivered in step with the UK's deepwater wind market.

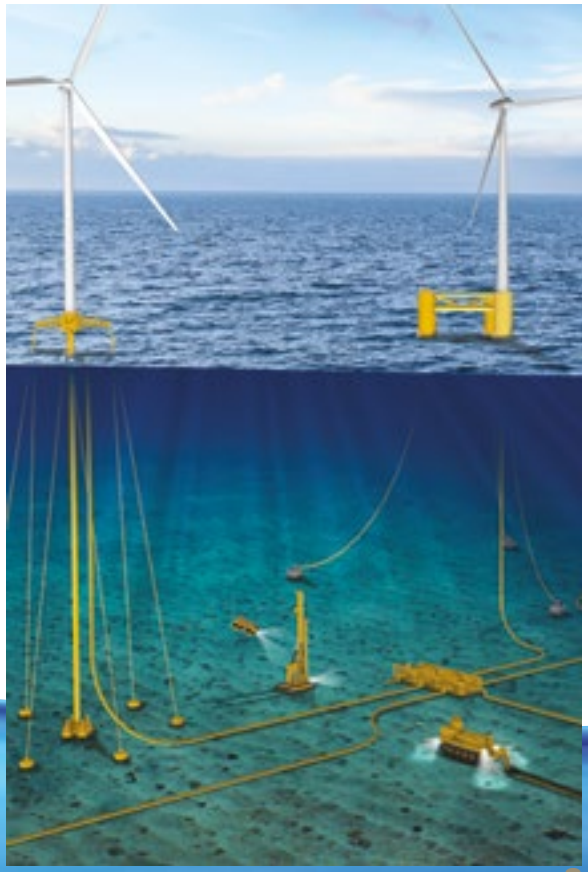
The leading commercial-scale deepwater wind projects have grid connection agreements earmarked for 2031, with the greater majority coming online at least several years after this, and possibly not until the late 2030s.

EMEC is targeting grid connection by 2030, providing a meaningful period for testing activities to inform the detail design and delivery of the main tranche of commercial scale projects from 2035 through to 2050 and beyond. These later deepwater projects are likely to be based on more efficient and optimised technologies than earlier projects, and so will be more reliant on first class testing and proving to ensure certification, insurability and bankability.

EMEC is well positioned to support the surge in deepwater wind deployment in the UK.

In parallel with grid connection activities, EMEC is advancing a programme of feasibility and development work, including environmental studies, site option assessment, technical design development, stakeholder engagement and consenting strategy.





THE VALUE OF COST AND RISK REDUCTION IN DEEPWATER WIND

Full scale testing will greatly reduce costs for developers when it comes to insuring and certifying their projects. This will be critical in helping the deepwater wind sector achieve the cost reduction needed for large scale commercial deployment.

The industry's own cost trajectory

£100.00 / MWh Cost reduction target by the 2030s *Source: Floating Wind: Anchoring the next generation offshore*

← -36% →

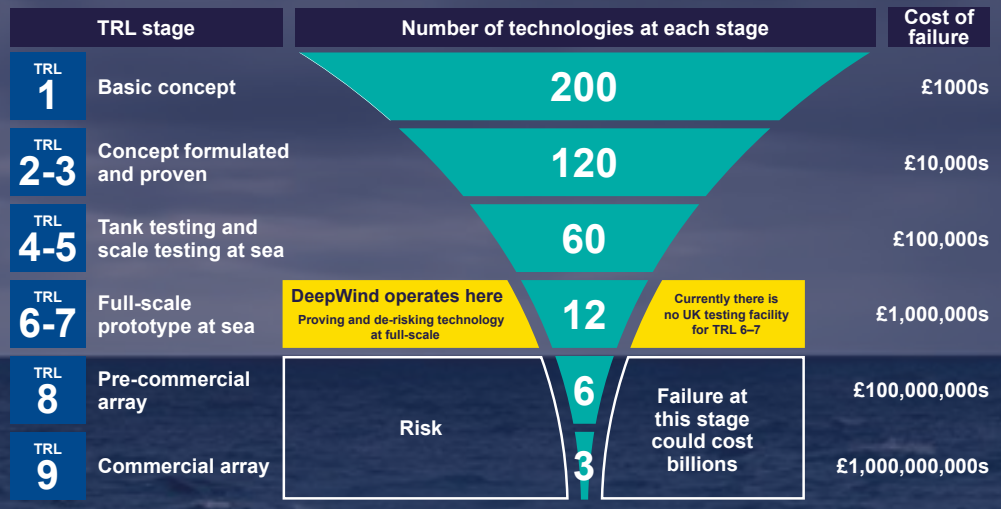
£139.93 / MWh Floating Wind CfD Strike Price, Allocation Round 6

£155.37 / MWh Floating Wind CfD Strike Price, Allocation Round 7

All in 2012 prices, as published.

An independent cost assessment conducted by Offshore Wind Consultants Ltd determined that, for a 1 GW floating wind farm, a 1% reduction in the cost of capital had an 11.3% reduction in LCOE. This will improve competitiveness of CfD bids, leading to potential savings of hundreds of millions of pounds per year for the UK government and the general public.

Deepwater wind technology readiness levels (TRL) funnel



Full scale testing at TRL 6-7 narrows the funnel, filtering technologies while the cost of failure remains relatively low

What is at stake for the UK?

Hundreds of billions

If the target levels of cost reduction are achieved through high TRL testing at DeepWind, this will save hundreds of billions on eventual commercial projects.

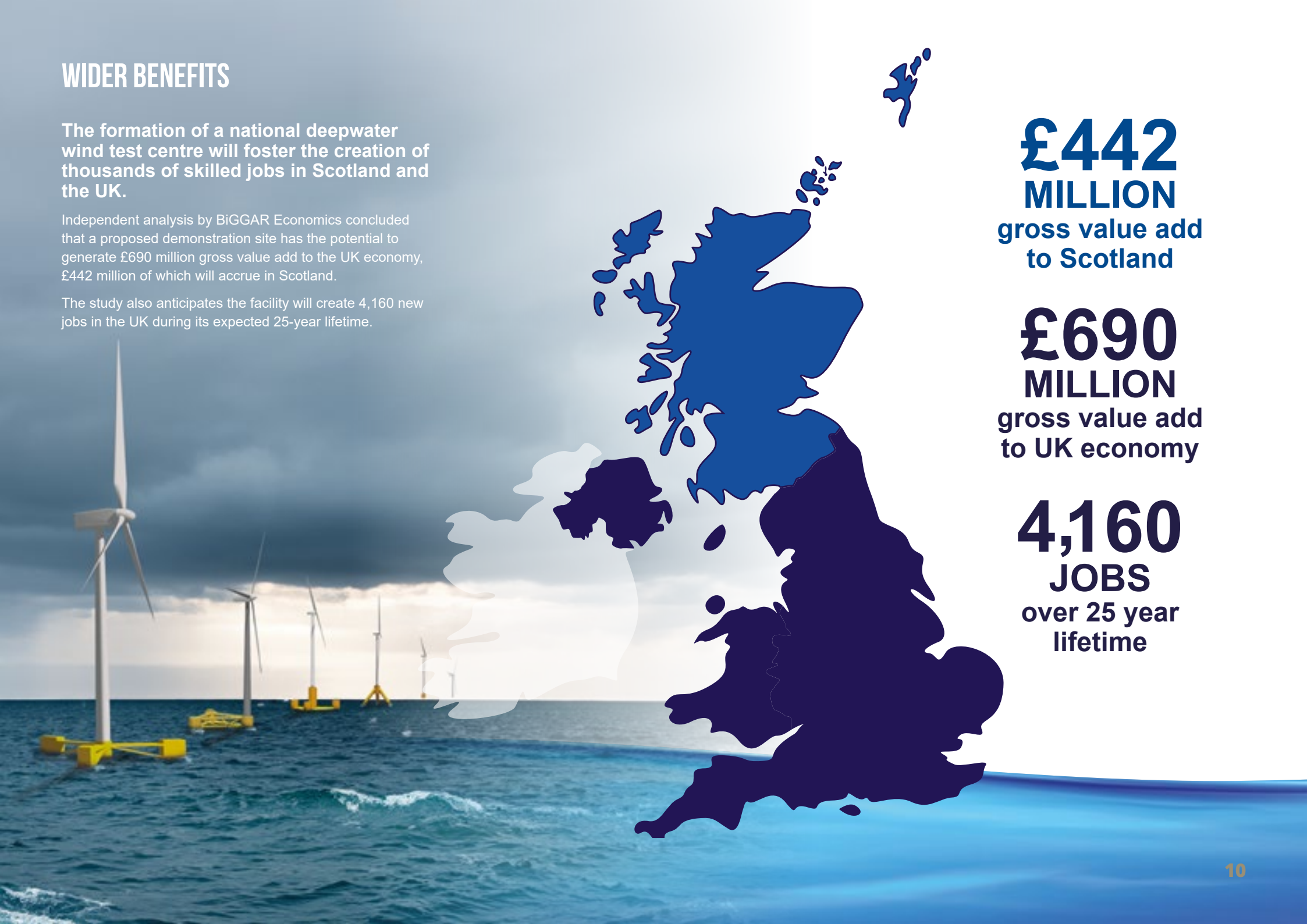
Sources: ORE Catapult, FOW Cost Reduction Pathways, 24 September 2024; LCCC AR6 & 7 results; RenewableUK EnergyPulse, July 2026

WIDER BENEFITS

The formation of a national deepwater wind test centre will foster the creation of thousands of skilled jobs in Scotland and the UK.

Independent analysis by BiGGAR Economics concluded that a proposed demonstration site has the potential to generate £690 million gross value add to the UK economy, £442 million of which will accrue in Scotland.

The study also anticipates the facility will create 4,160 new jobs in the UK during its expected 25-year lifetime.



£442
MILLION
gross value add to Scotland

£690
MILLION
gross value add to UK economy

4,160
JOBS
over 25 year lifetime



EMEC

+44 (0)1856 852060
info@emec.org.uk

emec.org.uk

The Charles Clouston Building, ORIC, Back Road,
Stromness, Orkney, KW16 3AW

September 2026