



Ireland's offshore wind at risk from port blind spot

Words: Captain Michael McCarthy, MMCC Port Marine Ltd

Ireland has the resources to become a major exporter of clean energy, but without urgent investment in specialised seaports, its offshore wind targets are slipping out of reach. Bantry Bay's Leahill Port could play a pivotal role in bridging this critical infrastructure gap and securing Ireland's place in Europe's renewable future.

Ireland's maritime zone extends to nearly ten times its land area, offering an abundance of offshore wind energy potential. This is particularly so in areas suitable for floating turbine deployment, with available resources estimated to be more than 70 GW. Perhaps more so than anywhere else within the EU, Ireland can become a significant energy exporter, either exporting electricity directly or creating new industrial clusters based on newly abundant power.

The Irish government was one of nine co-signatories of the Dublin Declaration in September 2022, which committed our country to generating 5 GW of offshore wind energy by 2030.

In March 2023, a government report on Offshore Renewable Energy (ORE) found that at least four specialised port facilities will be required, at strategic locations around Ireland, if our country is to maximise its offshore wind ambitions. The report concluded that these four port facilities must each have the capacity to marshal and deploy at least 500 MW of offshore wind turbines per annum, if Ireland is to meet its 2030 targets.

Floating Offshore Wind (FLOW) will be a critical enabler of Ireland's energy security and net zero ambitions. Grasping this FLOW opportunity will require a major ramp-up in the domestic supply chain, ports, vessels and workforce.

With the objective to drive down the cost, de-risking the journey to net zero, as well as delivering significant economic benefits, a blind spot for Ireland is its seaports. We do not have enough ports at the right size, in the right place, to meet basic requirements and key metrics. The need for quayside storage space to roll out an offshore wind project is paramount.

As an island nation on the periphery of Europe, our ports are a critical interface for Ireland's economy and a vital link in the country's supply

chain. Ireland's port companies are semi-state commercial entities and are mandated to take long-term infrastructure decisions in supporting the Irish government's industrial, leisure and tourism policy sustainably.

Ports are also a crucial part of the FLOW value chain, but Irish ports are currently experiencing serious difficulties in developing infrastructure due to uncertainty and a supply chain that still needs to materialise, similar to the UK and the Continent. Port capacity, capabilities and supply chain development urgently require significant investment to achieve FLOW ambitions.

In pursuing this opportunity and as part of its National Development Plan, the Irish government now targets offshore wind generation capacity of 7 GW, including 2 GW earmarked for green hydrogen, and 80% of domestic electrical generation from renewable sources, both by 2030.

However, Ireland is making slow progress on offshore wind, with 4.4 GW of fixed offshore wind farms proceeding through the planning process following the Offshore Renewable Electricity Support Scheme (ORESS) auction of 2023 and more expected following ORESS 2.1 later this year.

This government plan-led approach is currently targeting fixed-bottom deployments along the east coast, before shifting in focus to the deeper areas off the south coast to meet the 2030-2050 goals. Thereafter, it will target the vast energy resources located off the west coast to meet the ambitious 2050 energy production target of 37 GW.

Perhaps more so than anywhere else within the EU, this offers Ireland the potential to become a significant new energy exporter, either exporting electricity directly to the European grid or creating new industrial clusters based on newly abundant power.

Europe and Ireland have similar known negative infrastructural issues, including grid readiness/connections and electrification demand management, but also similar administrative issues such as permitting and planning. Floating offshore wind must be scaled now to meet future demand. Cross-border alignment on design, consenting and permitting can greatly accelerate deployment.

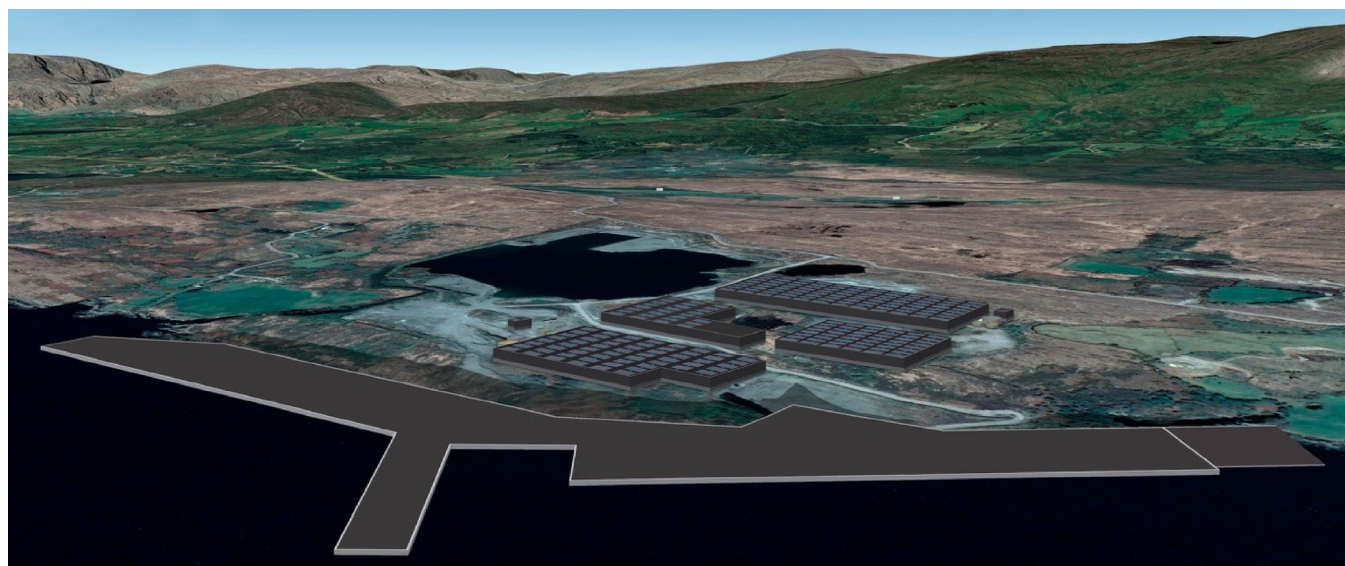
A cornerstone to Europe achieving energy security is offshore wind energy. However, Europe is not building enough capacity; it should be building 30 GW of new wind farms annually. Ireland is part of this equation yet our commitment to delivering 7 GW of offshore wind by 2030 is not achievable.

Irish port opportunity

Leahill Port, in Bantry Bay, a private operation on Ireland's southern coast, is developing port infrastructure, specifically to support Ireland in meeting the above 2030-2050 targets and beyond. Bantry Bay is a deep and wide inlet. Its unimpeded access, sheltered waters, and safe anchorage mean it is regularly used as a refuge for shipping in the Atlantic during adverse weather.

The bay is ideally suitable for the wet storage and safe anchorage of floating foundations and is proximate to a large number of pipeline ORE projects. The port project has been underway for some years, and much preparatory work has already been undertaken.

Negotiations continue with a lead investor, as the completion of the project will require further capital investment of approximately €300 million. Ireland's National Port Study, published by Wind Energy Ireland, concluded that the country's existing ports are unable to meet all of the industry's requirements, but highlighted Bantry Bay as 'strategically located' and 'an area of high potential to serve the floating wind sector'.



Leahill overall site



Leahill commercial zoned site Bantry Bay

It is part of Ireland's national and local development planning to reinvigorate underdeveloped rural and/or coastal economies by repurposing areas/facilities for use by new industry. This fundamental development is located away from our major cities and current busy intermodal ro-ro and lo-lo ports. The Leahill port facility is strategically located with deep water suitable for development for fixed and floating projects.

The current deepwater jetty at Leahill was previously used to export 'construction rock' mined from its associated quarry and it remains capable of accommodating vessels of up to 300 m in length, drawing more than 12 m at all states of tide. The site offers 60 ha of brownfield industrial land, commercially zoned for immediate development with additional storage potentially available.

Briefly, the proposed development plan for Leahill Port, Phase 1 includes a 500 m quay and 30 ha storage with a minimum depth alongside of 18 m, a 150 m x 150 m dry dock facility, or Bardex type lift, uniquely providing for 'return to port' floating units for repair, plus a protection breakwater to provide for year-round activity. The site has 1200 m of shoreline for critical expansion, if required in the future.

A major resource of around 2 million tonnes of rock/material is available on site for the expansion of the quay and storage area and has been tested as suitable material for caissons, jetty and breakwater construction.

The depth of water at the proposed quay at Leahill ranges between 18 m and 20 m, meaning it will have adequate quayside depth for even the largest vessels, along with ample depth in Bantry Bay for semi-submersible ships.

Depths in excess of 30 metres occur throughout Bantry Bay, ideal for all of Tri-Floater, Tetra-Spar and Barge type foundations. It has the capacity to accommodate wet storage/safe anchorages for multiple FLOW units, which will be weather-dependent for deployment off Ireland's Atlantic coasts.

Turbine tower and nacelle components can be offloaded from delivery vessels using

quayside cranes or via a proposed ro-ro berth to accommodate vessels up to 250 m with a ramp width of at least 35 m. Steel or concrete bases can be assembled on site or pre-assembled for towage or delivered via 'semi-sub vessel' to Bantry Bay.

The storage area will add flexibility to the handling of ORE project supplies, including anchors, chains, spare parts, bolt and rigging, allowing the quayside to remain dedicated to turbine assembly.

In the development of a FLOW port facility, planning and consenting considerations include the expected lifespan of these units, which may require their return to port, decommissioning, removal from the water and disposal of associated material. This will require the manufacturing/assembly base to have the

capacity to also remove these units from the water as well as launch them into the water.

Leahill can provide an efficient storage, assembly and logistical supply chain link through specialisation and storage and a 'bringing together' of part units for efficient assembly.

Summary

The green transition is unstoppable through global cooperation. In an Irish context, studies have identified Bantry Bay as critical infrastructure for handling FLOW turbines, including wet storage. The ability to deliver on Ireland's ambition for ORE targets will be seriously restricted if a level of the work cannot be carried out in Ireland.

The consequences will be a significant loss to the economy and thousands of jobs. Ireland will no longer be the master of their own ORE development plans and job creation, with a significant risk that some of these projects will not proceed.

Focusing resources and future port development for FLOW at Bantry will help to address the current infrastructural gaps in a timely and efficient manner. This will be essential for Ireland to harness its full ORE potential in deeper waters, meeting its renewable energy security targets, and setting its position as a leader in Europe's renewable energy transition. Sharing risk between governments, investors, and developers is vital to scale FLOW with confidence, as predictability will build confidence for investment.

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About the author

Captain Michael McCarthy is a Class 1 Master Mariner and a University College Cork postgraduate in Management and Marketing.

Michael is CEO of a private consultancy company MMCC Port Marine Ltd, established in 2018 having built up an extensive knowledge of the port and shipping sector over the last 50 years.

This included 27 years in the Port of Cork Company running Port Operations, Terminal Management, International Port Safety and Environmental Management and EU Cruise Initiatives.

Michael has 13 years seagoing experience in the Merchant Navy and in the private sector as a former Director/ P&I Marine Surveyor with Sea Service, Marine Cargo Insurance Surveyors and DGSA, Dangerous Goods Safety Advisor.

Michael is very involved in EU Initiatives and with the development of Ireland's Offshore Wind and Port Infrastructure development.

He is the former Chairman of Cruise Europe, (2012-2024), former Commercial Manager of the Port of Cork Company and Director of Bantry Port Company, and Past President of the Irish Institute of Master Mariners.

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