

SEAI National Energy Research, Development & Demonstration Funding Programme

Authors

Alan Henry, Rockall Research

Project Partners

Ben Kennedy, Wave Venture.
Michael McCarthy, MMCC
Port Marine.
Sarah Kandrot, Wind Energy
Ireland.

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Contact details

alan.henry@rockallsolutions.com
[linkedin.com/in/alan--henry](https://www.linkedin.com/in/alan--henry)

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Support Infrastructure for Marine Renewables in Ireland

Project Overview

Ireland has ambitious targets to install 37GW of offshore wind by 2050. As much of our waters are relatively deep it is expected that 30GW will be Floating Offshore Wind Turbines (FOWTs). At 3 times our current generation capacity there is no other technology which offers such a large energy generation capacity of homegrown and clean energy. This will be the largest infrastructural development in the state's history which will require the development of a supply chain and supporting infrastructure. The DIFOWT project focused on quantifying the requirements of this nascent industry in order to derisk its development.

Problem statement

Ireland currently lacks the port infrastructure and maritime industry to deliver Floating Offshore Wind (FLOW). The use of foreign ports and vessels will lead to increased project and energy costs, as well as a missed opportunity for Irish jobs in an industry that could be worth over €60 billion. Quantifying the requirements of the industry, and the possible constraints in Ireland, is a fundamental step in developing a plan to deliver this unique opportunity.

Research Methodology

DIFOWT used Wave Venture's Tempest software to simulate the lifecycle of FLOW farms in Ireland. The simulations included the assembly, wet storage, installation, maintenance and decommissioning of FOWTs, and used hindcast wind and wave data to implement real weather constraints. The time series analysis was then used to identify bottlenecks, and to determine the requirements of the industry in terms of port capacity, wet storage capacity and the number of vessels required.



Research Outcomes

Due to geographical constraints, there are only two locations suitable for the development of FLOW ports in Ireland, The Shannon Estuary and Bantry Bay. To build and operate 30GW of FLOW Ireland needs three ports, each with:

- Port capacity – 10 FOWT berths
- Wet storage – 25 FOWT berths
- Vessel fleets – 25 (~125 vessels)

Many other Irish ports and harbours will be busy providing ancillary services such as crew transfer, mooring and cable laying.

Policy Recommendations

Accelerate strategic port investment as port infrastructure development has lead times of ~10 years.

Revise National Ports Policy to enable State support to unlock investment in Offshore Renewable Energy infrastructure and reduce project delivery risk.

Provide certainty on the FLOW pipeline, including timelines for the National DMAP, to give ports and investors the confidence to commit capital.

Prioritise timely development of 3 Irish FLOW ports alongside wet storage and vessel infrastructure, to maximise economic benefits for Ireland.

Align port and offshore wind planning including DMAPs, auction schedules and port development plans to avoid infrastructure bottlenecks and ensure ports are available when FLOW projects are ready to proceed.