Bord na Móna

OW OCEAN WINDS

Spring 2023

Celtic Horizon Offshore Wind

Project Information Document: No. 2

Introduction

In November 2022, **Ocean Winds** and **Bord na Móna** announced a major new long-term, exclusive offshore wind partnership which will see both companies co-own, identify and develop offshore wind energy opportunities around the coast of Ireland.

The partnership brings together leading international offshore wind energy expert **Ocean Winds** with **Bord na Móna**, one of Ireland's oldest semi-states working at the forefront of energy technology, to combine their efforts in leveraging Ireland's offshore wind power resources.

The joint venture initially incorporates two projects which have the potential to generate up to 2.3 GW Gigawatts (GW) of clean and renewable electricity to power up to 2.1 million Irish homes by 2030. By reducing Ireland's reliance on gas and oil it will also help safeguard Irish communities from global energy price fluctuations.

The collaboration marks a significant step forward for **Bord Na Móna's** commitment to developing clean energy resources. This offshore wind joint venture will specifically support Ireland achieve its target of 7GW of installed offshore wind capacity by 2030.

Ocean Winds, energy leaders ENGIE and EDPR's joint venture dedicated to offshore wind energy, brings a track record of experience to help develop the offshore renewable industry in Ireland, with a current portfolio of 14 offshore wind farms in 7 countries, with 14.6 GW of gross capacity, including 1.5 GW already in operation.

Project Overview

Ocean Winds and Bord na Móna are proposing the development of Celtic Horizon, an offshore wind farm located in the Celtic Sea, off the coast of counties Waterford and Wexford (as shown in Figure 1 below). The proposed development will facilitate job creation, vastly reduce our reliance on imported oil and gas, and increase our security of electricity supply while helping Ireland become carbon neutral by 2050.

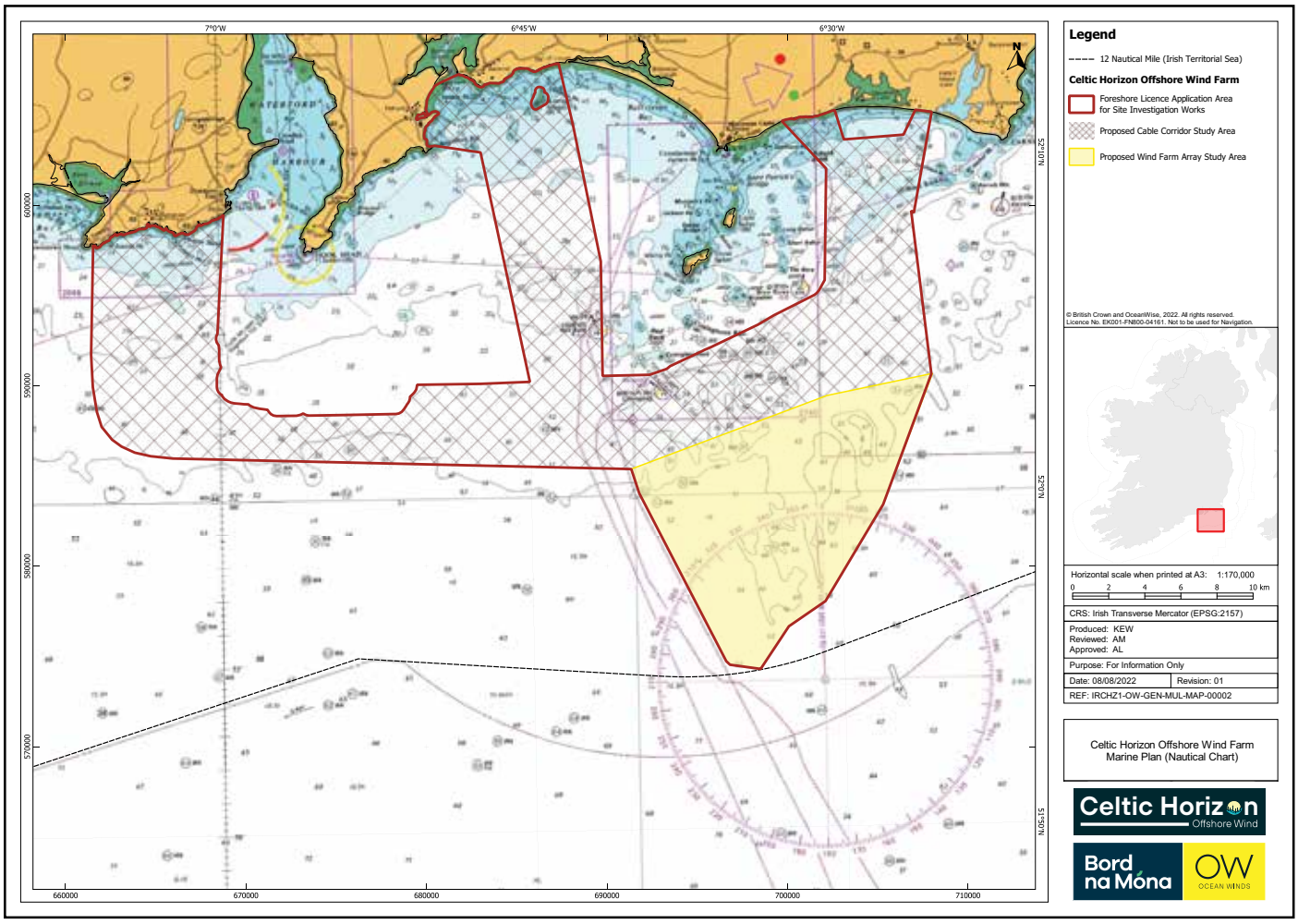


Figure 1. Celtic Horizon Offshore Wind Farm Nautical Chart

Up to 700 MW
Capacity

13.5 km
Off the coast of Wexford

657,000
Irish homes powered

2030
Expected commercial operation date

25 to 30 years
Operation

Government Policy on Offshore Wind Energy

Offshore wind farms produce renewable electricity and reduce carbon emissions. The proposed project will contribute to both Ireland's and the European Union's renewable energy targets. It will also increase the security of Ireland's energy supply and facilitate a higher level of energy generation and self-sufficiency.

The Climate Action Plan 2021 (CAP), published on 4 November 2021 by the Department of the Environment, Climate and Communications, set ambitious targets and actions to be delivered in the coming years to address the impact that climate change may have on Ireland's environment, society and economic, and natural resources.

This Plan clearly recognises that Ireland needs to deliver on its commitments to tackle climate disruption. The CAP identifies a need for 7GW of offshore wind generation by 2030 as a key component in decarbonising our energy generation mix.

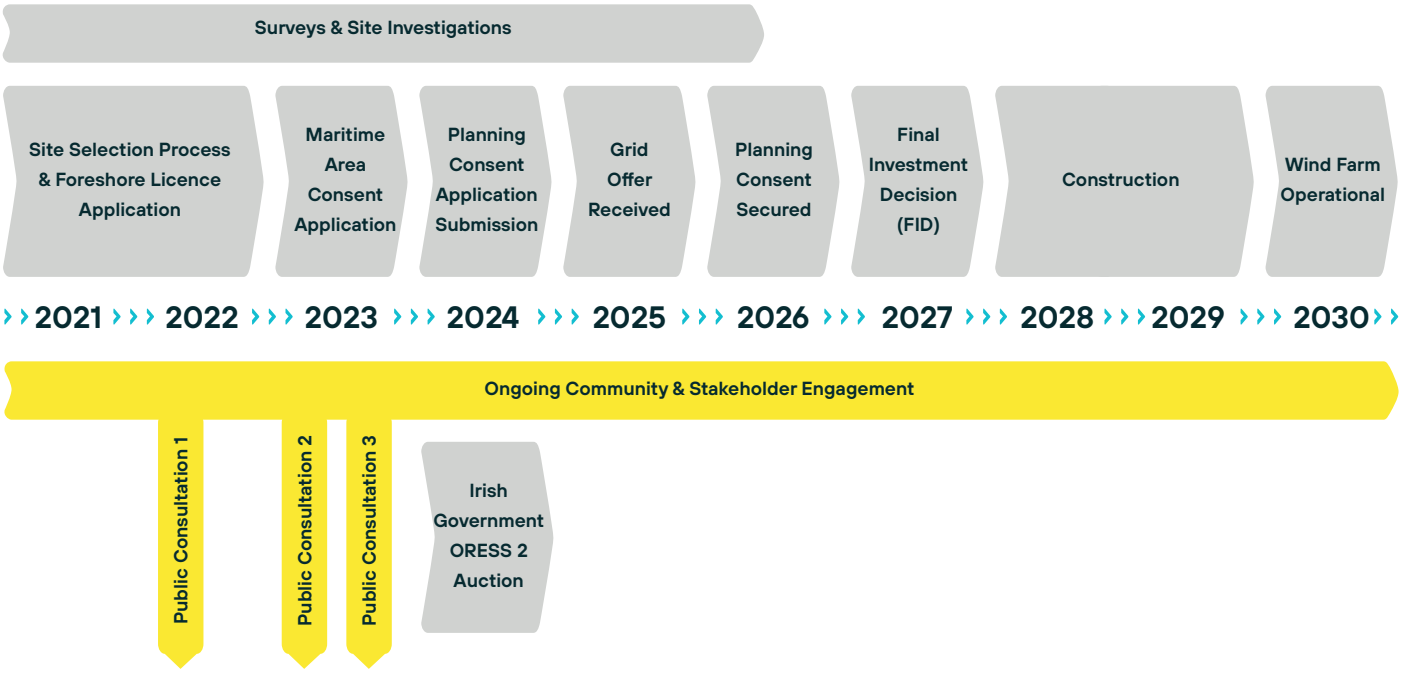
Climate

7 GW

Carbon Emissions

Renewable Energy

Project Timeline



How Wind Turbines Operate

- Almost all wind turbines producing electricity consist of vertical blades which rotate around a horizontal axis (see Figure 2. below).
- Most modern wind turbines have three blades which face into the wind.
- The blades are attached to a hub which in turn is connected to a generator.
- As the blades are turning, they spin the generator to create electricity.
- A generator is a machine that produces electrical energy from mechanical energy.

Wind turbines can operate continuously, unattended, and with low maintenance, with a design life of over 20 years.

They are highly reliable, with operating availabilities (the proportion of the time in which they could generate if wind conditions were suitable) of up to 98%. Few other electricity generating technologies offer a higher availability.

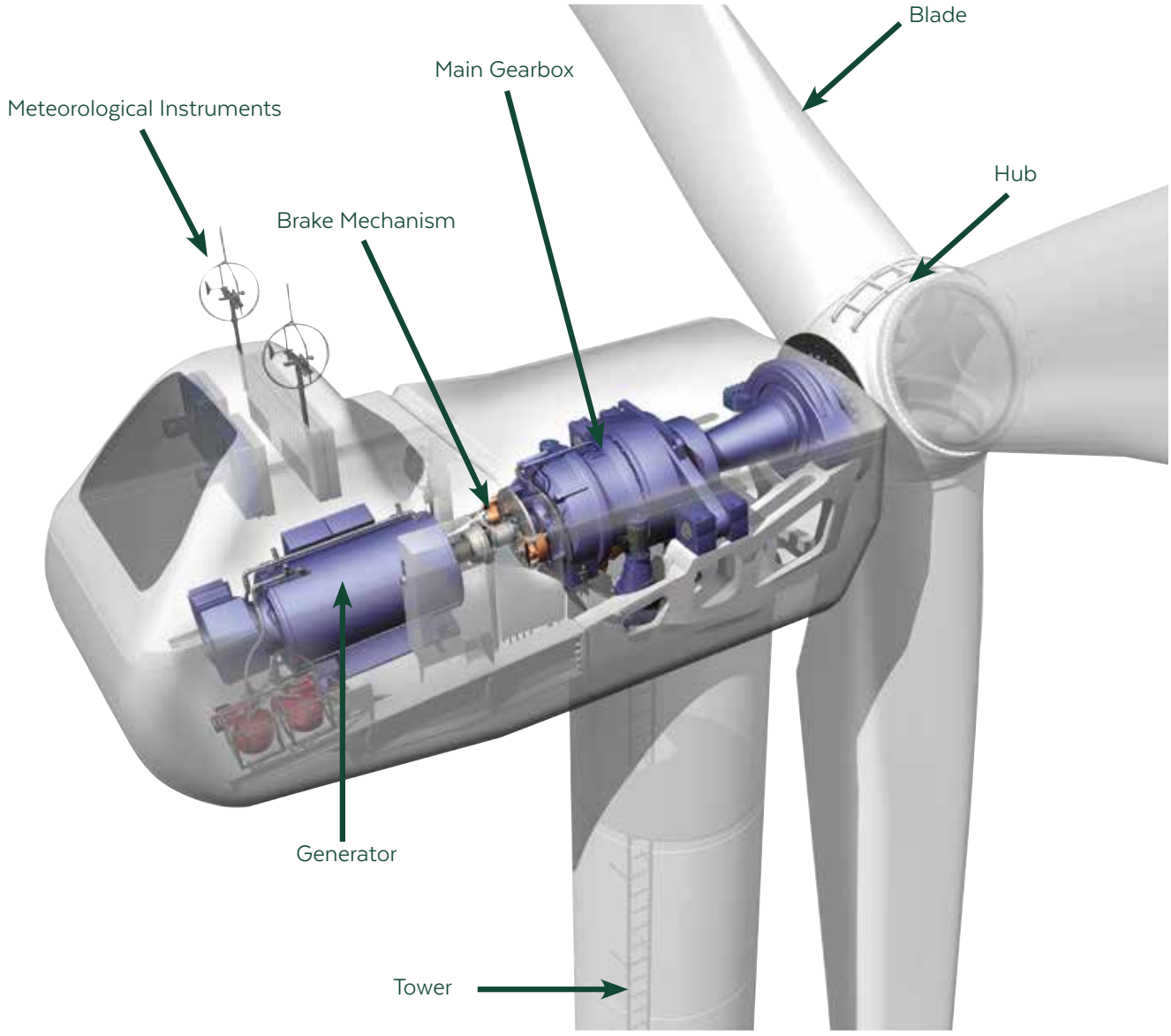


Figure 2. Schematic of a typical Wind Turbine nacelle

Offshore Wind Turbine Foundation Types

The project team is carefully considering the foundation type selection with respect to the site conditions, environmental impact, supply chain capability, project programme and levelised cost of energy.

Based on the available information, different foundation types have been assessed to determine their feasibility and to demonstrate the suitability of the proposed Celtic Horizon Offshore Wind study area for offshore wind development using bottom-fixed technology.

Once the offshore survey campaigns are undertaken and new site-specific geophysical and geotechnical information becomes available, closing the existing gaps in the site information, the most suitable wind turbine foundation type will be selected. See Figures 3, 4 & 5 below for various offshore wind turbine foundation types and some specific examples in use on other Ocean Winds' projects.

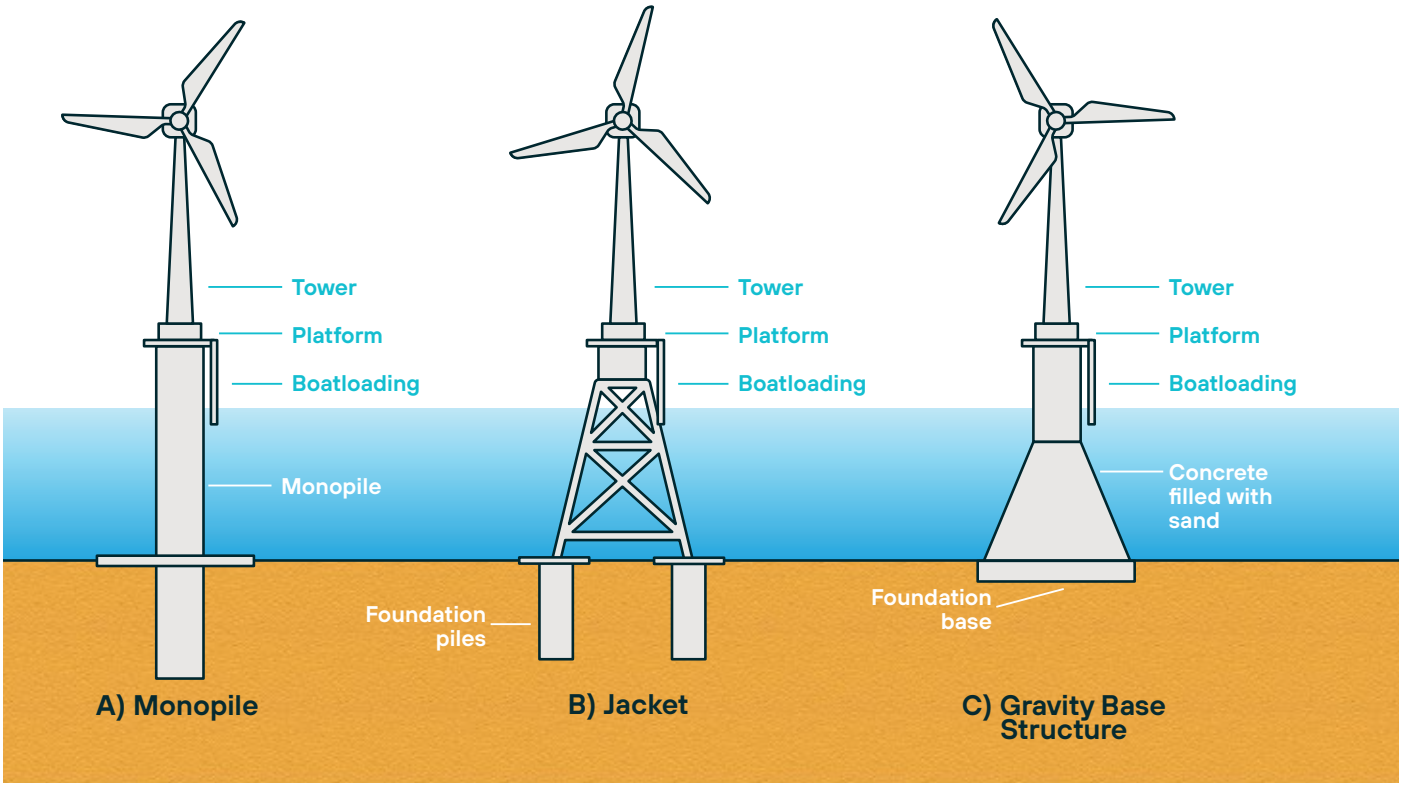


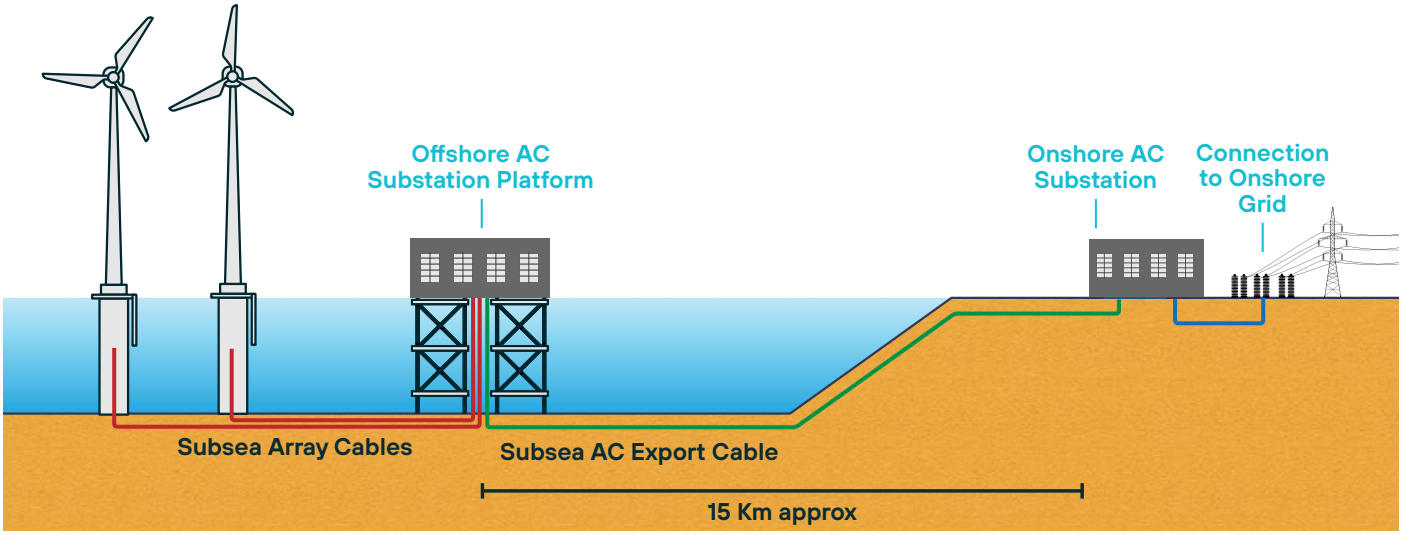
Figure 3. Various offshore wind farm foundation types

Figure 4. Example of Jacket Foundation Type at Ocean Winds' Moray East Wind Farm in Scotland.

Figure 5. Example of a Monopile Foundation Type at Ocean Winds' Seamade Wind Farm in Belgium.

Project Development and Consenting Process

See below project design elements to be considered in the project development process:



Consenting Process

- **Maritime Area Regulatory Authority (MARA) & Maritime Area Consent (MAC)**
  The Maritime Area Regulatory Authority (MARA) will assume responsibility for issuing foreshore licences from the Minister for Housing, Local Government and Heritage in early 2023. Likewise, the authority will also be empowered to issue Maritime Area Consents (equivalent to foreshore leases). It is anticipated that we will submit a Maritime Area Consent (MAC) application to MARA in 2023.

- **An Bord Pleanála (ABP)**
  Anyone who wants to apply for planning permission for a development, like an offshore wind farm, will need to get a MAC first, thereby providing an estate leasing license in the sea bed. Ocean Winds and Bord na Móna intend to apply to An Bord Pleanála for full planning permission to build the proposed Celtic Horizon Offshore Wind project. Members of the public will have the right to be consulted about the proposal.

- **Foreshore Licence Application (FLA) - Current Status**
  The Foreshore Licence Application (FLA) for the proposed Celtic Horizon Offshore Wind project was validated by the Department of Housing, Local Government and Heritage in Q4 2022. The Department will now assess the application for the potential award of the licence. If successful, it will allow the Celtic Horizon project team to undertake surveys over the course of five years. Awarding of the Foreshore Licence is expected in 2023.

Survey Types

If successful in obtaining a Foreshore Licence, Ocean Winds and Bord na Móna will conduct geotechnical, metocean, ecological and archaeological studies at the proposed project site, details of these surveys are outlined in the table below:

Geotechnical surveys	Geotechnical surveys are used to evaluate the profile of seabed sediments and bedrock foundations. The surveys include borehole drilling, cone penetration tests (CPTs) and tests using vibrocore / gravity corers. The data gathered from these surveys will facilitate the engineering and construction design, and to provide additional information including archaeological and environmental data. This is vital information to identify potential geological constraints.
Metaocean surveys	Metaocean investigations are to be used to evaluate the wind, wave and current conditions across the proposed project locations. Floating LiDAR buoys will be deployed to measure the wind resource at the proposed location. Acoustic Doppler Current Profilers (ADCP) will be deployed to measure water current velocities over a depth range and wave scan buoys will be used to collect and measure oceanographic, meteorological and water quality data.
Ecological survey	Ecological studies will be used to collect baseline data, understand the project's impact on the receiving environment and identify any appropriate mitigation measures that may need to be deployed. The data gathered will primarily be used to feed into the Environmental Impact Assessment (EIA) process. Fisheries and bird surveys will be carried out on land and at sea (boat based or aerial surveys), and marine mammal surveys will be carried out using Marine Mammal Observers (MMOs) to identify species distribution and behaviour within the proposed site area. Continuous Porpoise Detectors (C-PODs) will be installed for the purpose of acoustic monitoring of marine mammal activity. Subtidal and intertidal benthic surveys will be carried out which will be used to identify the communities, habitats and sediment types within the site area.
Archaeological survey	Data collected during geophysical surveys will be used to create a map of the subsurface archaeological features within the project area. The baseline assessment will include documentary and cartographic searches to locate all known cultural heritage assets within the proposed site including shipwrecks. All archaeological surveys will be carried out by a suitably qualified archaeologist and in advance of any intrusive geotechnical or environmental studies being conducted.

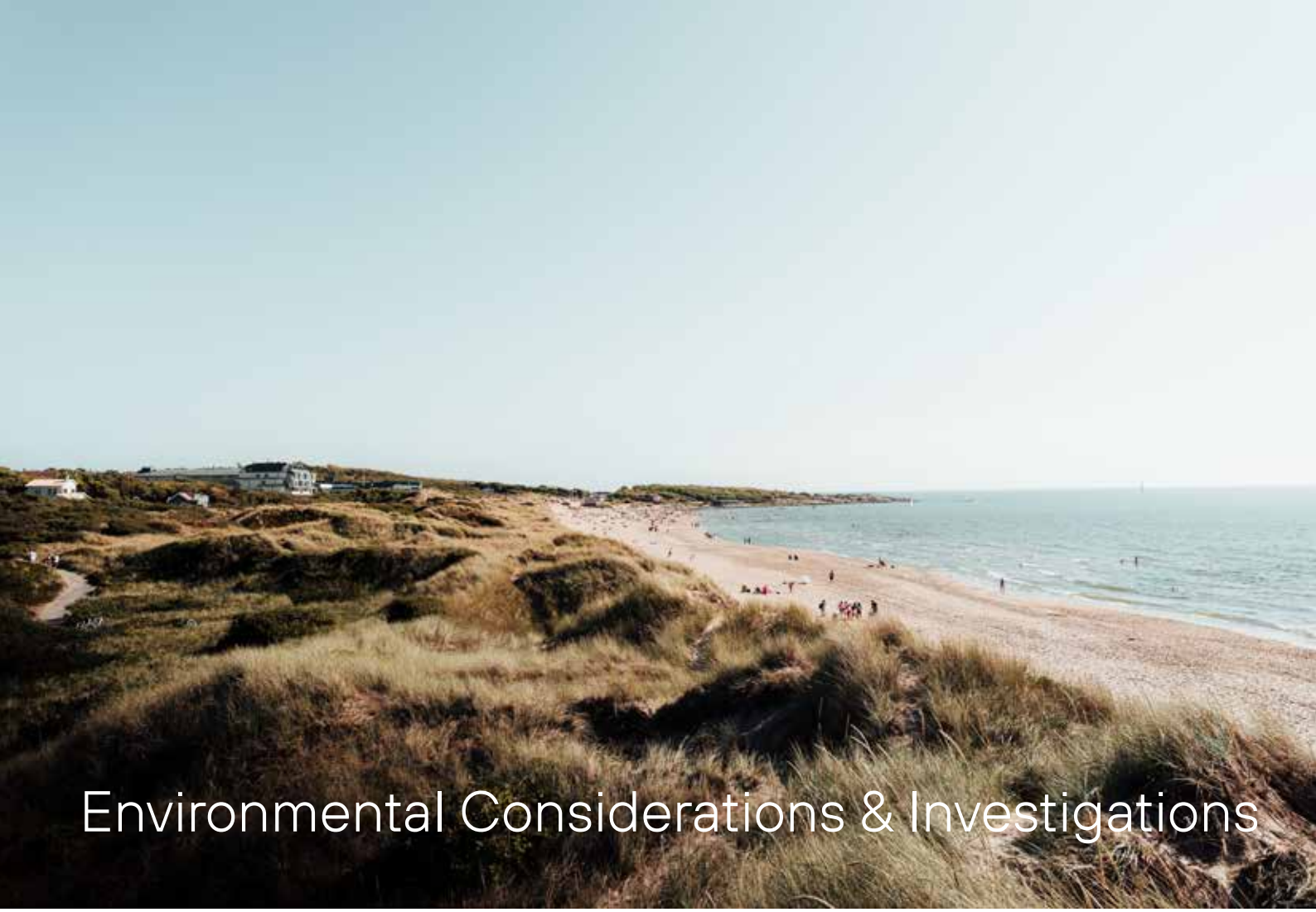
Geophysical Surveys – Consent Application

These surveys are now rescheduled to the end of 2023 following the granting of the Foreshore License Application.

Non-intrusive surveys cannot be undertaken within the 12 nautical mile limit without a granted Foreshore Licence, but if required can be undertaken outside of the 12 nautical mile limit.

It should also be noted that the non-intrusive survey application consents to National Parks and Wildlife (NPWS) and Heritage Ireland will still be required as additional consent notwithstanding the need for the Foreshore Licence Application. Awarding of the Foreshore Licence is expected end of 2023.

Geophysical surveys are not physically intrusive, and the equipment used does not make contact with the seabed. These surveys are carried out using multi-beam echo sounders, side-scan sonars, 3D array.



Environmental Considerations & Investigations

The project is aiming to be progressed under the new Maritime Area Planning Act 2021 which involves a single consent principle: one State consent (Maritime Area Consent) to enable occupation of the Maritime Area and one development consent (planning permission), with a single environmental assessment covering the onshore and offshore aspects of the project under the Planning and Development Act 2000.

These permissions will be required for the construction of the proposed Celtic Horizon Offshore Wind project. As part of this consenting process an Environmental Impact Assessment (EIA) is being undertaken, and an Environmental Impact Assessment Report (EIAR) will be prepared to assess impacts and propose mitigation where appropriate to minimise impacts to the receiving environment.

EIA Scoping

The EIA Scoping phase of the project is currently underway. Scoping enables the content and extent of environmental information that will be included in the future EIAR of the project to be determined. Our EIA Scoping involves a number of activities, including:

- Consultation with stakeholders to help inform the EIA;
- Desktop review of existing information to develop understanding of the baseline environment;
- Understanding characteristics of the construction, operation and decommissioning phases of the project with the potential to impact the environment;
- Identifying likely significant effects of the project that require further detailed assessment;
- Delineating baseline surveys required to inform further detailed assessment;
- Defining methods and criteria to be used for prediction and evaluation of the likely significant effects.

Offshore and onshore environmental considerations during our EIA Scoping include:

Environmental Constraints

The process of selecting the right location for the array, cable and onshore elements of the project involves a rigorous evaluation process. We are currently undertaking an assessment of environmental and consenting constraints. This assessment will include the detailed mapping of constraints to inform the development of cable corridor options.

Our environmental and engineering teams are working closely together to develop export cable corridors which avoid impacts on sensitive habitats and species including protected sites. We consider it critical to identify environmental constraints at this stage in the project, this is to ensure the project is designed with minimal impact on the surrounding environment.

Landfall Assessment - Environmental Methodology

Ocean Winds and Bord na Móna are currently undertaking a landfall assessment to identify potential sites to bring the submarine cables onshore and continue onward routing inland to a connection with the existing electricity grid. The assessment is an exercise that identifies potential sites which are considered to best balance impacts on the environment and the local community with technical and engineering feasibility. For the environmental and consenting elements of the project, the following criteria is considered as part of the landfall assessment:

- Nature Conservation
- Proximity to Sensitive Stakeholders
- Proximity to Residential Area
- Amenity & Recreation

Following the identification of potential landfall sites, these sites will be presented for discussion as part of the community consultation process with the community, decision maker, statutory bodies and relevant stakeholders. Future preferred landfall sites, corridor/s and routes will be presented as part of the consultation process for comments and input.

Aerial Surveys

Since September 2021, Ocean Winds and Bord na Móna have been receiving data from Digital Aerial Surveys (DAS) which is looking at the presence of birds, marine mammals and other large marine animals present in the proposed offshore wind farm location. The purpose of these surveys is to provide the baseline characteristics of the area including the proposed wind farm site and surrounding area to inform the future Environmental Impact Assessment (EIA) and Appropriate Assessment (AA).

The survey design chosen, comprised a grid-based design which gives the best possible precision when estimating species abundance and density and this in turn gives added confidence to regulators and stakeholders on the conclusions based on this data.

The camera system captures images at 1.5cm Ground Sampling Distance (GSD), this ultra-high resolution allows for most accurate species identification. See below image of a Gannet (Marine Bird), taken from a high resolution camera during our recent aerial survey work. From these high resolution digital still images we are able to provide information on:

- The species of birds, marine mammals and other large marine animals
- Behaviour characteristics, for example is the bird sitting on the water, diving or flying
- Bird age, gender and moult status (where possible)
- The flight height and orientation of the birds

All this data is used to provide monthly, 6-monthly and annual reports which will feed into the future EIA and AA.

Terrestrial & Intertidal Ornithology Surveys

We have already begun collecting ecological data in order to inform the project design and location. This includes surveys of overwintering birds in intertidal habitats. This is important to inform the location of cable landfall site(s) and selection of appropriate construction methodologies to limit potential impact to birds or the habitat they use for feeding over winter.

We have also begun a series of Preliminary Ecological Appraisals of potential cable routes to identify any sensitivities and to inform future surveys and cable routes.

Fisheries & Mariners

Ocean Winds and Bord na Móna actively encourages the practice of co-existence with the mobile and static gear fishing sector through ongoing communication and information sharing.

For example, Ocean Winds' fixed bottom Moray East offshore wind project (950MW) in Northern Scotland saw fishing activities occurring during the construction phase, these activities continue to occur now in and around our operational wind farm. Cabling is buried during the installation process and trials are undertaken with the fishing industry to demonstrate that trawling can take place.

We would envisage a similar approach being taken in Ireland albeit we will ultimately be guided by the conditions outlined in the Maritime Area Consent. The Celtic Horizon Offshore Wind project is a fixed bottom project.

Ocean Winds and Bord na Móna understands the importance of engagement at every stage of the proposed Celtic Horizon Offshore Wind development process. In 2022, the project team met with a number of fish producers organisations and carried out pier & quay visits to ensure local Fishers were kept informed of the project.

These visits, facilitated by our dedicated Fisheries Liaison Officer will continue into 2023 as we seek to consult on the proposed Celtic Horizon Offshore Wind project.

For any specific fisheries queries please see below contact details:

Fisheries Liaison Officer, Mark: +353 85 139 9000

Benefits of the Development

The proposed development will give rise to a range of benefits at different levels:

At a Local Level, benefits arising from the construction and operation of the proposed offshore wind project will include:

- Employment;
- Potential upgrading of some Harbour infrastructure (as required);
- The provision of a Community Benefit Fund;
- Supply chain opportunities for local businesses.

Employment

A large offshore wind development of this scale would typically support a significant number of jobs at peak construction. There will also be indirect employment created through the sub-supply of a wide range of products and services. Once complete the project will also support a number of long term, high quality technical jobs in operations and maintenance.

Employment and job opportunities generated from the project will also be investigated as part of an Economic & Social Impact Assessment Study that will support the economic and social chapters of the Environmental Impact Assessment Report (EIAR) that will be submitted as part of the planning application to An Bord Pleanála.

Ports & Harbour Infrastructure

The offshore renewable energy sector in Ireland is heavily reliant upon existing port and harbour infrastructure to support development of offshore wind farms. The existing ports and harbours along the east coast of Ireland have not been developed specifically for such purposes, and therefore some upgrading works may be required.

For any operational offshore wind farm development an operations & maintenance facility (OMF) would need to be constructed in a suitable port location. This OMF would be used as a base for operations and maintenance wind farm staff.

Community Benefit Fund

As the project is at an early stage of its development, the exact nature and structure of a proposed Community Benefit Fund is not known at this time albeit it is envisaged that an annual Multi Million Euro Community Benefit Fund will be set up for the proposed Celtic Horizon Offshore Wind project during the construction phase. We will be in a position to provide more information on this as the project progresses.

Supply Chain Opportunities

Ocean Winds and Bord na Móna are reliable, long-term, responsible investors in all markets in which we operate. We recognise the great potential of the Irish economy, which can play a significant role in European offshore wind supply chains. Ocean Winds and Bord na Móna will work with developing the local supply chain.

At a National Level, the new development will play a significant role in contributing to the country's national renewable electricity production and carbon emissions reduction targets by 2030, while also supporting a growing economy and population.

During operation, the offshore wind farm will eliminate the need to generate the equivalent amount of electricity from fossil fuels, and it will therefore help to reduce total national greenhouse gas emissions.

In doing so, it will reduce our dependence on external energy sources, help improve our energy security of supply and make a major contribution to Ireland's Climate Action Plan, which has set a target of 7GW of offshore wind capacity by 2030.

Public Consultation

Our Second Phase of Public Consultation will commence on March 20th 2023 and will run until May 1st 2023. With that in mind, we have planned Community Engagement Sessions for relevant local communities, please see below for further details:

Location	Date	Time	Venue
Fethard-on sea	March 28th	3-9pm	St Mary's Hall, Fethard on Sea, Y34 HH58
Kilmore Quay	March 29th	3-9pm	Stella Maris Centre, Kilmore Quay, Y35 TH9W

We are constantly updating and adapting our communications channels to ensure the public are informed about the proposed development. This means using our traditional methods of communication in addition to a number of interactive online tools to ensure we engage on an ongoing basis through:

- Fisheries Liaison Officer
- Project Mailing List
- Community Liaison Officer
- Community & Stakeholder Engagement Sessions
- Dedicated project website
- Virtual Consultation Room
- Online Feedback Questionnaire
- Project Newsletter

www.celtichorizonoffshorewind.ie

How you can Get in Touch

Call Us:
If you wish to make a comment or require further information about the proposed offshore wind farm, please call:

Community Liaison Officer,
Stephen +353 87 192 0891*

Fisheries Liaison Officer,
Mark: +353 85 139 9000*

*9 a.m. to 5 p.m. Monday to Friday excluding bank holidays

Email:
Email us any comments or queries via:
contact@celtichorizonoffshorewind.ie

Join our Mailing List:
Keep informed of all project updates by signing up to our project mailing list. Please visit the project website to complete the sign-up form:
www.celtichorizonoffshorewind.ie

Online Feedback Questionnaire:
We welcome your feedback at all stages of the project. Please visit the project website to complete our online feedback questionnaire:
www.celtichorizonoffshorewind.ie

By Post:
Celtic Horizon Offshore Wind Communications Team,
Bord na Móna,
Main Street,
Newbridge,
Co. Kildare

About Ocean Winds

Ocean Winds, international leader in offshore wind energy.

Ocean Winds (OW) is an international company dedicated to offshore wind energy and created as a 50-50 joint venture, owned by EDP Renewables and ENGIE. Driven by its belief that offshore wind energy is an essential part of the global energy transition, OW develops, finances, builds and operates offshore wind farm projects all around the world. OW, headquartered in Madrid, is primarily targeting markets in Europe, the United-States, and selected geographies in Asia, where most of the growth is expected to come from. OW currently has projects in 7 countries (Belgium, France, Poland, Portugal, South Korea, UK and USA).

With a strong international portfolio, we have an excellent track record of developing and operating projects. This includes operations such as Windfloat Atlantic (Portugal) floating project which stands as a cornerstone for the Industry and Seamade (Belgium), as well as Moray East (becoming Scotland's largest offshore wind farm), which has celebrated the installation of the last of its 100 turbines and its full output to the UK national grid (900 MW) in 2022. OW has a track record of using its strength as global leaders in the emerging offshore wind sector to create opportunities in the local communities in which they have presence.

About Bord na Móna

Bord na Móna is a renewable energy and environmental services company, focused on delivering climate solutions and sustainable energy security for Ireland. We do this through renewable power generation, recycling, waste management, peatland restoration and biodiversity conservation.

Bord na Móna, a semi-state company, was established in 1934, in response to a national energy emergency, to develop the peatlands of Ireland, provide economic benefit for midland communities, and achieve security of energy supply. Transformed for the climate crisis today, Bord na Móna has transitioned its operations and diversified its services, through its Brown-to-Green strategy, to become Ireland's leading climate solutions company.

Bord na Móna employs approximately 1,500 people and manages a land holding of over 80,000 hectares across the midlands of Ireland. With expertise and experience across a variety of climate solutions, including renewables, energy, carbon storage and sequestration and waste management, through various initiatives, including the Accelerate Green Programme, Bord na Móna is supporting local communities and businesses with Ireland's transition to a green economy.

With a strategic ten-year ambition to invest over €1.6bn in renewable energy infrastructure and generating assets, including wind, solar, hydrogen, biomass and biogas, Bord na Móna is developing sustainable solutions that will lead Ireland towards a climate neutral future and help ensure the State delivers on its commitment to becoming carbon neutral by 2050.