

Volume 2: Introductory Chapters

Chapter 4

Need for the Proposed Development

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4. Need for Proposed Development

4.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) sets out the need for the North Irish Sea Array (NISA) Offshore Wind Farm (hereafter referred to as ‘the proposed development’).

The need for the proposed development is firmly established in the context of its essential contribution to Ireland’s committed offshore wind target, wider renewable energy targets, the need for an urgent response to the global climate emergency, whilst also providing an indigenous power source to ensure Ireland’s security of energy supply, at an affordable price to the consumer. The need for the proposed development is urgent and important and in the long-term public interest for the reasons set out in this document.

The proposed development is essential for Ireland to meet its committed target of 5GW of installed offshore wind capacity and a wider European target of 111GW installed offshore wind deployment across Europe by 2030. The proposed development is part of the Phase One offshore wind programme, has a grid connection agreement in place and has secured subsidy support. Without the proposed development, there is no other credible means of the 5GW commitment being met by 2030.

As outlined in the Intergovernmental Panel on Climate Change (IPCC) 2023 report, the impact of climate change is evident across all aspects of the planet’s environments. From the warming of the oceans to the disruption of weather patterns, the changes brought by climate change pose significant threats to Ireland and the world at large. The headline statement within the IPCC 2023 report notes; *‘The pace and scale of climate action are insufficient to tackle climate change’*. As a result, there is an indisputable understanding and appreciation of climate change, and the role anthropogenic interference has played in exacerbating the harmful effects of climate change. Therefore, international, EU and Irish Government policies, as summarised in Volume 2, Chapter 3: Legal and Policy Framework (hereafter referred to as the ‘Legal and Policy Chapter’), are responding to the climate change challenge with binding targets to reduce greenhouse gas (GHG) emissions and develop renewable sources of electricity which are essential to mainstreaming effective and equitable climate action for both nature and people. In this regard, Ireland is a global leader on climate change, being one of the first countries globally to declare a climate emergency in 2019.

The proposed development will provide a significant source of offshore renewable energy (ORE) off the east coast of Ireland. The proposed development, which can be fully operational before 2030, will deliver clean electricity to contribute to Ireland’s renewable electricity and GHG reduction targets which are clear in supporting the challenge of cutting emissions quickly to ensure a safer and sustainable world for all. The IPCC 2023 report is clear that the path forward for supporting GHG reductions is via the deployment of tried and tested technology options which are currently available. The proposed development will deploy fixed bottom offshore wind foundations, a tried and tested technology which can be deployed immediately to meet the requirements of Ireland’s offshore wind targets by the year 2030 providing a clean and indigenous supply of power at a low cost to the consumer.

4.2 Objectives of the Proposed Development

The key objectives of the proposed development are to develop an environmentally acceptable and feasible offshore wind farm, contribute to the delivery of the Irish Government’s legally binding renewable energy target of 5GW by 2030, deliver benefits on a local, regional and national level and to limit the effects of global climate change. The objectives include:

- To deliver a fixed bottom offshore wind farm to contribute towards the Irish Government’s target delivery of 5GW of offshore wind generation by 2030 and 80% of electricity to come from renewable sources by 2030.
- To support the European carbon reduction targets of reducing emissions by 95% by the year 2050 to support the European Union in becoming carbon neutral.

- To support the reduction in demand for imported energy from a volatile fossil fuel import market by improving Ireland’s domestic energy generation capabilities through the deployment of offshore wind.
- To deliver the proposed development in a safe, efficient and environmentally sustainable manner within the constraints of technical feasibility and economic viability.
- To deliver renewable electricity at low cost to the Irish consumer through the use of known, tried and tested technology (fixed foundation offshore wind).

This is a seminal moment in the delivery of offshore wind and achieving Ireland’s target of at least 80% renewable electricity by 2030 and reaching net zero no later than 2050. The need for the proposed development is driven by key climate change, energy infrastructure, energy security, emission reductions and economic development targets at Irish and European levels. The proposed development is a pivotal component of the Programme for Government and the Climate Action Plan 2024 and reflects ambitions outlined in Offshore Renewable Energy Development Plan (OREDPA) in 2014. In the absence of the proposed development, there is no plausible mechanism by which Ireland can meet binding climate and environmental targets for 2030 and beyond. With the urgency surrounding the climate crisis, it is imperative that these targets are achieved. As an essential contributor to achieving Ireland’s offshore wind commitments, the need for the proposed development is clear and demonstrable.

4.3 The Role of Renewable Energy

4.3.1 The Role of Renewable Electricity in Energy Mix to Achieve GHG Emission Targets

The REPowerEU Plan introduced at EU level in May 2022 and Directive 2023/2413 establishes a framework to accelerate the deployment of renewable energy within the EU to respond to the disruption in the global energy market caused by Russia's invasion of Ukraine. The Regulation applies for 18-month period from 29 December 2022 to 24 June 2024. REPowerEU reiterates how time sensitive and urgent the need to deploy renewables to address the climate emergency is stating that renewables are considered as an overriding public interest.

As detailed within the Legal and Policy chapter, scaling-up and speeding-up renewable energy in power generation, industry, buildings, and transport has been emphasised in REPowerEU to accelerate Europe’s independence from fossil fuels, facilitate the green transition and reduce energy cost to the consumer over time. In relation to the acceleration of clean energy, REPowerEU facilitates the green transition and encourages investment in domestic renewable energy to reduce reliance on energy imports. The proposed development is a mechanism by which Ireland can advance the framework provided by REPowerEU.

The Climate Action Plan (CAP) 24¹ and its predecessors provide the roadmap to achieve Ireland’s legally binding targets of 51% GHG emissions reduction by 2030, relative to 2018 levels, and ‘net zero’ GHG emissions by no later than 2050. The Climate Acts provided for the setting of sectoral GHG emission ceilings to share the remaining GHG emissions equitably across the economy. Each sector of the economy such as electricity, industry, transport, built environment, agriculture, land use, land use change and forestry, was given GHG emission ceilings for 2025 and 2030.

For all sectors of the economy the sectoral GHG emission ceilings are largely dependent on decarbonisation and further electrification. Consequently, electricity generation was identified by the Government as the critical sector to achieve overall climate targets. In spite of this, at a time when the energy system is under severe pressure to ensure security of supply, and amid projections of rapid electricity demand growth over the coming decade, the electricity sector was set one of the smallest carbon budget allocations and the steepest emission reduction trajectory (75% reduction) of all sectors.

Considerable progress has been made in decarbonising the electricity sector, resulting in electricity emissions falling by 45% between 2001 and 2022². However, with the current measures (set out in CAP 24) in place,

¹ Department of the Environment, Climate and Communications, 2024, Climate Action Plan 2024, gov - Climate Action Plan 2024 (www.gov.ie) accessed February 2024

² Ibid page 156

emissions from the sector are not reducing quickly enough. The EPA's projections (in the National Inventory Report for 2022) are that the electricity sector will exceed the sector emission ceilings for 2025 and 2030.

The EPA forecasts that, without additional measures, the emissions from the electricity sector will exceed the sector emission ceiling by circa 13% in the period 2021 to 2025, and by circa 43% in the period 2026 to 2030.

The proposed development will deploy tried and tested offshore wind technology in the use of fixed foundations. In addition, having secured both a Maritime Area Consent (MAC)³ and Offshore Renewable Energy Support Scheme (ORESS) contract, the proposed development is at the forefront of Ireland's offshore wind energy industry. Once planning permission is secured, the project can commence construction in 2026 and operations by 2030 as outlined in Volume 2, Chapter 8: Construction Strategy – Offshore, ensuring the proposed development will provide renewable electricity to the national grid by 2030. The proposed development will make a significant contribution to the 5GW of offshore wind by 2030, which has been identified in CAP 2024 as essential to achieve the electricity GHG emissions sector ceiling.

4.3.2 Rising Demand of Electricity

As previously mentioned, the sustainable supply of renewable energy will be critical to decarbonise other sectors of society. As electrification of the transport, heat and industry sectors increases, the overall network demand for electricity will rise from the current levels of demand. Based on existing policies and strategies (See the Legal and Policy Chapter), of the total electricity demand forecasted for 2030, 80% renewable electricity, supplied by 22GW of wind and solar, will be needed to deliver abatement in the electricity sector.

However, CAP 2024 recognises that 22GW of wind and solar by 2030 will not be sufficient to achieve the emission reduction targets:

“Notwithstanding the above, the scale of projected electricity demand growth means that the delivery and integration of the renewables programme alone does not deliver required levels of emissions reduction. Net Zero demand growth and calibrating renewable energy with demand will need to be pursued as a matter of urgency as a part of a longer-term decarbonisation pathway for the sector including for the third carbon budget.”⁴

CAP 24 identifies measures to meet the challenge:

“Achieving further emissions reductions between now and 2030 requires a major step up across three key measures:

Accelerate and increase the deployment of renewable energy to replace fossil fuels;

Deliver a flexible system to support renewables and demand;

Manage demand⁵.”

With the capacity to provide renewable electricity for between 500,000 to 700,000 homes, the proposed development is strategically situated close to an area of high electricity demand and high population density. The proposed development will be essential in accelerating and increasing the deployment of renewable electricity to meet Ireland's binding emission reduction targets.

4.3.3 Security of Supply

As a consequence of transitioning towards a low carbon energy system, conventional generation methods will eventually be phased out. These are predominantly represented by natural gas-powered generators for electricity and oil use for residential and business heating.

³ the MAC is a State consent which allows the Developer the right to occupy a part of the maritime area and the ability to subsequently apply for development consent within that maritime area.

⁴ Ibid page 163

⁵ Ibid page 167

Meeting the needs of the evolving system will be complex with approximately 20% of Ireland's generation capacity being phased out with a simultaneous increase in demand.⁶

Energy security of supply is considered to be the uninterrupted availability of energy at an affordable price. The SEAI's Energy in Ireland Report 2023⁷ notes that Ireland imported 81.6% of its total primary energy requirement in 2022, whereas the average energy import dependency of all EU member states in 2020 was 57.5%. Ireland has a high energy import dependency because it imported all of its coal and oil products and 74% of its natural gas supplies. However, its import dependency on renewable energy is low, importing only 8.8% of renewable energy in 2022, most of which was biodiesel.

As the SEAI report also details. Ireland was highly dependent on fossil fuels in 2022. In that year, 85.8% of energy came from oil, natural gas, coal, and peat. In relation to renewables, 13% of Ireland's energy requirement in 2022 came from renewables. The remaining 1.2% of energy came from the use of non-renewable wastes and imported electricity across international interconnectors. Ireland's total energy demand in 2022 was 4.7% higher than in 2021, however, energy-related emissions were 1.7% lower.

In response to the Russian invasion of Ukraine in 2022, there was a renewed and revised urgency to the green transition and an increase in domestic energy sources across the EU. As a result, Ireland produced the Energy Security in Ireland to 2030 report⁸. Energy Security in Ireland to 2030 was published within the context of ensuring a stable transition to 2050. To achieve security of supply, Energy Security in Ireland to 2030 assumes that Ireland's 2030 offshore wind energy targets will be met. The proposed development will be critical to this, as it will make a significant contribution to the offshore wind energy target.

The objectives of the Energy in Security to 2030 plan are underpinned by a broad range of policy initiatives that are currently in implementation (as described in the Legal and Policy Chapter). The main conclusions detailed in the Energy Security in Ireland to 2030 report have been detailed as follows.:

Energy security in Ireland will be facilitated by moving from an oil, peat, coal, and gas-based energy system to an electricity-led system. Doing so, will maximise Ireland's renewable energy potential, flexibility, and integration into Europe's energy systems.

To secure electricity supply, Ireland's plans for an electricity-led system must focus on the addition of renewable generation, demand-side flexibility, new gas-fired generation as flexible back-up, interconnection, and storage.

The delivery of critical infrastructure is also vital to provide energy security and requires a strong legal framework and fully resourced State bodies. It is important that all opportunities to expedite energy infrastructure are pursued; and

Finally, the risks Ireland faces in securing its energy are ever evolving, and so, it is imperative to ensure energy security is prioritised, monitored, and reviewed regularly going forward.

In order for Ireland to meet the Government's 80% renewable energy target by 2030⁹, a significant amount of indigenous generation must be connected to the national grid. The proposed development is located adjacent to an area of high electricity demand (wider Dublin area) and will provide an essential contribution towards establishing energy security from a regional and national perspective. Further information on the proposed development's alignment to National and European policy on energy security is provided in the Legal and Policy Chapter.

⁶ EirGrid Shaping our Electricity Future

⁷ SEAI (2023), *Energy in Ireland 2023* [Energy-in-Ireland-2023.pdf \(seai.ie\)](#) accessed February 2024

⁸ Department of the Environment, Climate and Communications, 2023, *Energy Security in Ireland to 2030*, [gov - Energy Security in Ireland to 2030 \(www.gov.ie\)](#) accessed February 2024

⁹ Department of the Environment, Climate and Communications, 2024, *Climate Action Plan 2024*, [gov - Climate Action Plan 2024 \(www.gov.ie\)](#) accessed February 2024

4.3.4 The Need for Affordable Energy

The need for affordable energy in Ireland is at an all-time high, with the cost of living increasing, energy continues to be a major cost for consumers and businesses. The levelised cost of energy (LCOE) of offshore wind development has been declining since its inception, driven by a number of factors including advances in technology and maturation of the industry, including manufacturing, construction and operations and maintenance supply chain (IRENA, 2023¹⁰).

Whilst offshore wind in Ireland is a relatively new industry, the cost of delivering energy from this technology compared to other technologies is already highly competitive. The recent ORESS 1, the first offshore wind auction in Ireland, awarded successful offshore wind farm developers contracts to provide electricity at the average weighted bid price of €86.05/MWh for a 20-year period. When compared to the average wholesale electricity price in Ireland over the 12 months prior which were over €200/MWh¹¹, the projects successful at ORESS 1 will contribute to lower cost of electricity to the consumers in Ireland. The proposed development was one of the four successful offshore wind farm developments awarded a contract through ORESS 1 and will subsequently deliver a large proportion of affordable renewable electricity to Irish consumers.

4.4 Additional Project Benefits

Whilst the principal and essential benefits of the proposed development are its significant contribution to Ireland's offshore wind, renewable and climate objectives and security of supply, there are a number of additional benefits which will be realised as the project progresses. These are outlined below.

4.4.1 Socio-Economic Overview

Alongside the need for renewable energy to reduce carbon emissions and improve climate resilience, there is also significant potential for socio-economic benefits. SEAI has estimated that onshore and offshore wind generation could create over 20,000 direct installation operation and maintenance jobs by 2040¹². With offshore wind in Ireland still emerging as an industry, there are added opportunities for scientific research alongside manufacturing, construction, and electrical generation. Additionally, wind developers will provide training to create the high-skilled workforce required for the installation and operational phases.

In the 2014 publication of the OREDP) two key goals were outlined to support the sustainable development of ORE resources across the economic spectrum: to harness the market opportunities presented by ORE to achieve economic development, growth and employment; and to increase awareness of values, opportunities and societal benefits of developing ORE.

In 2023, the draft OREDP II was opened for consultation from 24 February 2023 to 20 April 2023. The draft OREDP II expanded on the goals embedded within the first OREDP. From a socio-economic perspective, OREDP II notes that the development of ORE in Ireland is crucial to deliver balanced regional development to fully benefit coastal, marine and island communities. Further information on the OREDP and OREDP II is provided in the Legal and Policy Chapter.

In 2024, the Department of Enterprise, Trade and Employment published Powering Prosperity: Ireland's Offshore Wind Industrial Strategy. The Strategy seeks to capitalise on the economic opportunities inherent in the 2050 target of 37GW of offshore renewable energy. Powering Prosperity establishes a pathway to 2030 to develop a strong domestic supply chain of industries and skills to create a resilient offshore renewable energy industry.

The proposed development directly aligns with the objectives of Powering Prosperity: Ireland's Offshore Wind Industrial Strategy and is a crucial development for the realisation of a successful, vibrant and impactful offshore wind energy industry in Ireland.

¹⁰ <https://www.irena.org/Publications/2023/Mar/Renewable-capacity-statistics-2023>

¹¹ <https://www.gov.ie/en/press-release/f2ac5-minister-ryan-welcomes-hugely-positive-provisional-results-of-first-offshore-wind-auction/>

¹² SEAI (2011) *Wind Energy Roadmap 2011-2050*

Powering Prosperity includes 40 actions which aim to build a strong and resilient offshore wind supply chain in Ireland, as well as exploring opportunities for Irish companies to play a major role in the development of offshore wind projects in Ireland and abroad.

The proposed development will support a large number of employment opportunities across its lifecycle both offshore and onshore. In addition, there will be opportunities for local, regional and national supply chains to strengthen domestic economies. Further information on the socio-economic assessment conducted for this EIAR is provided in Volume 5, Chapter 33: Socioeconomic, Tourism and Recreation.

Locally, the project will establish multi-million investments on an annual basis to align with future Renewable Energy Support Schemes in which developers establish a fund of €2/MWh generated for community benefit projects. In the case of the proposed development, this is expected to amount to €4 million per annum for 20 years from the commencement of construction and will reach approximately €80 million. From a regional perspective, the proposed development will deliver clean renewable energy to between 500,000 and 700,000 homes.

Therefore, the proposed development will provide a critical opportunity for the local coastal communities to develop supply chains and skills networks to create a thriving, sustainable economy along the east coast of Ireland.

4.5 Fulfilling Regional Demand

The offshore infrastructure of the proposed development is situated off the east coast of Counties Dublin, Meath and Louth. This location was chosen as it is located within close proximity to areas of high population density and adjacent to the Dublin-Belfast economic corridor. This section examines strategies put forward by Ireland's Transmission System Operator (TSO) EirGrid, to guide the development of the electrical infrastructure required to meet Ireland's renewable energy targets.

4.5.1 Shaping Our Electricity Future

In response to Ireland's energy transition, EirGrid published the Shaping Our Electricity Future Roadmap in August 2021. This report delivers an outline of a whole system approach for key electrical grid developments to ensure a secure transition to at least 70% renewables by 2030 (which was the target at that time). The study includes the target of 5GW of offshore wind generation which was included in CAP 2021.

Consultation in Ireland for this roadmap indicated a preference for a generation-led approach which puts clean electricity generation close to areas of high demand. In this approach, new renewable energy generation is situated where the grid is already developed which provides an efficient use of existing infrastructure and reduces network constraints. The same approach was favoured in Northern Ireland to complete an all-island approach delivered by a government policy to facilitate a generation-led strategy. A positive effect of this approach is that government expenditure is minimised with a reduced need for new transmission infrastructure. Under the generation-led approach, approximately 38 grid reinforcements will be required compared to 77, 46 and 41 reinforcements for the developer, technology, and demand-led approaches respectively.

The generation led approach was carried forward in the 2023 publication of Eirgrid's Shaping Our Electricity Future. The key objective of Shaping Our Electricity Future 2023 is to outline the steps required to ensure the electrical grid is ready for the increased target from 70% to 80% of renewable energy generation by 2030. To achieve this, Shaping Our Electricity Future 2023 recognises the need to focus development on the Dublin and Mid-East region of Ireland which is forecasted to see disproportionate demand growth compared to other regions in Ireland. The initial focus of the 2023 publication of Shaping Our Electricity future is on grid developments on the east coast to accommodate the introduction of large-scale offshore wind energy development. The grid developments required here are projected in line with the assumed renewable generation capacities in 2030 of 5GW of offshore wind, plus 2GW of offshore wind energy assigned to hydrogen production.

The proposed development is situated close to one of Ireland's major electricity demand and growth centres in the Greater Dublin Area and as such is essential in supporting Eirgrid's strategic delivery of grid upgrades to enhance the national electricity network.

4.5.2 Tomorrow's Energy Scenario

EirGrid's Tomorrow's Energy Scenario study outlines the long-term needs of the electricity grid to 2040. The study uses three scenarios (Centralised Energy, Delayed Transition, and Coordinated Action) to demonstrate how Ireland's energy transition may impact the electricity grid over time. The study identified that the regional distribution of offshore wind in all three scenarios is led by Dublin and the Mid-East in 2025 and 2030 with the two regions accounting for 100% of the offshore wind generation in 2025 and approximately 86% in 2030.

The three scenarios are intended to guide the development of the electrical grid infrastructure to meet the demand of energy users whilst fully decarbonising the generation of electricity. These scenarios were also aligned with regional distribution of large energy users which showed 100% of users in 2025 and 91% of users in 2030 situated in the Dublin and Mid-East region.

In each scenario outlined in Tomorrow's Energy Scenario, meeting the climate objectives will not be possible without offshore renewable generation in the Dublin and Mid-East regions. Therefore, the proposed development provides a critical source of renewable energy generation in an area of high demand and projected growth and supports the delivery of Eirgrid's strategic planning and as such supports Irish Government in the delivery of 80% renewables by 2030.

4.6 Conclusion

Climate change and the climate emergency are indisputable at a global, national and local scale. International treaties, and EU and Irish Government policy are responding to the climate change challenge with binding targets to reduce greenhouse gas (GHG) emissions and develop renewable sources of electricity. It is essential that the proposed development proceeds in order to ensure these targets are achieved. The proposed development will deliver a significant portion of the 5GW target for offshore renewable generation which is imperative for meeting the 2030 targets whilst improving energy security and reducing reliance on the costly import of energy. Without the proposed development, there is a real risk Ireland's committed target of 5GW installed offshore wind capacity will not be met.

Furthermore, the proposed development will generate significant opportunities by contributing to local employment, regional delivery of renewable electricity generation, and a secure indigenous source of electricity. The community benefit fund will also provide local communities with approximately €4 million per annum for 20 years. The fund is expected to give residents a significant opportunity to bring about transformative and positive change to their local community through investment in local amenities and clubs, develop environmental and energy efficiency schemes and improve local industries throughout the region. Additionally, the proposed development will deliver clean renewable energy to between 500,000 and 700,000 homes.

By aligning new generation with existing infrastructure located within an area of high demand, the proposed development directly conforms with existing policies, plans and strategies of the Irish and European governments whilst directly addressing the climate emergency and enhancing Ireland's energy security of supply.

4.7 References

Baringa (2023) Cutting Carbon, Cutting Bills: Analysis of savings in gas consumption delivered by wind farms in 2022.

Department of Enterprise, Trade and Employment (2024) Powering Prosperity: Ireland's Offshore Wind Industrial Strategy

Department of the Environment, Climate and Communications (2022) Review of the security of energy supply of Ireland's electricity and natural gas systems

Department of Housing, Planning and Local Government (2018) Project Ireland 2040: National Planning Framework

Department of Housing, Planning and Local Government (2021) National Marine Planning Framework

Department of the Environment, Climate and Communications (2021) The Climate Action Plan

Department of the Environment, Climate and Communications (2023) Energy Security in Ireland to 2030
Department of the Environment, Climate and Communications (2024) Climate Action Plan 2024
Eastern and Midland Regional Assembly (2019) Regional Spatial and Economic Strategy 2019-2031
EirGrid (2019) East Coast Generation Opportunity Assessment
EirGrid (2019) Tomorrow's Energy Scenarios: Planning our Energy Future
EirGrid (2021) Shaping our Electricity Future
EirGrid (2023) Shaping our Electricity Future
Government of Ireland (2022) Ireland's Second National Implementation Plan for the Sustainable Development Goals 2022-2024
International Renewable Energy Agency (2023) Renewable Capacity Statistics 2023
Sustainable Energy Authority of Ireland (SEAI) (2011) Wind Energy Roadmap 2011-2050
SEAI (2020) Energy Related CO2 Emissions in Ireland 2005-2018: 2020 Report
SEAI (2023) Energy in Ireland 2023 Report
SEAI (2023) National Energy Balance