

Chapter 3

Environmental Impact Assessment Methodology





ORIEL WIND FARM PROJECT

Environmental Impact Assessment Report Chapter 3: Environmental Impact Assessment Methodology

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3 CHAPTER 3 – ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

3.1 Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared to accompany an application for permission by Oriel Windfarm Limited for the development of the Oriel Wind Farm Project (hereafter referred to as “the Project”). The purpose of this EIAR is to document the baseline of the existing environment on and around the Project, to quantify the likely significant effects of the Project on the environment and where necessary recommend measures and monitoring to protect the environment from any potential negative effects arising from the Project.

This chapter of the EIAR outlines the key steps that have been completed in the EIA process (e.g. screening, scoping and consultation (see section 3.3) and how they have informed the EIAR. It also presents the methodology and key principles (see section 3.4.1) that have been used to assess and document the potential impacts of the Project including cumulative and transboundary impacts. The scope and content of the EIAR is also provided in section 3.3.3). The structure of the EIAR is provided in chapter 1: Introduction.

3.2 EIA legislation and guidance

3.2.1 Legislation

The requirement for an EIA of a project was initially set out in EU Directive (85/337/EEC) as amended by Directive 97/11/EC, 2003/35/EC and 2009/31/EC on the assessment of the effects of certain public and private projects on the environment. The amendments were codified by Directive 2011/92/EU of the European Parliament and the Council on the assessment of the effects of certain public and private projects on the environment (and as amended in turn by Directive 2014/52/EU) (the Directives as amended being herein referred to as the “EIA Directive”).

In Ireland, the requirements of the EIA Directive, as amended, in relation to planning consents have been transposed into Irish legislation in Part X of the Planning and Development Act 2000, as amended, and in Part 10 of the Planning and Development Regulations 2001, as amended.

The Maritime Area Planning Act (2021) is an act to regulate development in the maritime area. It provides a consenting process for various marine projects including offshore renewable energy infrastructure.

This EIAR has been prepared in accordance with the requirements of the EIA Directive, the Planning and Development Act, 2000, as amended, and the Maritime Area Planning Act (2021).

3.2.2 Guidance

The preparation of the EIAR has also been informed by relevant international and national EIA guidelines including the following:

- The EU Commission’s (2017) Environmental Impact Assessment of Projects – Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014 /52/EU);
- Environmental Protection Agency (EPA) Guidelines including: Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2002), Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2003), Draft Advice Notes on Current Practice in the Preparation of Environmental Impact Statements (EPA, 2015), and Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);
- Guidance on Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) Preparation for Offshore Renewable Energy Projects (DCCEA 2017);

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- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018 (DHPLG, 2018);
- Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects Part 1 and 2 (DCCAIE, 2018);
- UK Planning Inspectorate Advice Note Seventeen: Cumulative Effects Assessment (PINS, 2015); and
- Department of Housing, Planning and Local Government (2018) Circular PL 05/2018 – Transposition into Planning Law of Directive 2014/52/EU amending Directive 2011/92/EU on the effects of certain public and private projects on the environment (the EIA Directive) and Revised Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.

Other guidelines have also been considered and are detailed in chapters 7 to 32 of this EIAR (volume 2B and 2C). Each environmental factor assessed in this EIAR sets out the guidance relevant to that environmental factor.

3.3 EIA process

Environmental Impact Assessment (EIA) is defined by the EPA (2022) as:

“The process of examining the anticipated environmental effects of proposed project - from consideration of environmental aspects at design stage, through consultation and preparation of an Environmental Impact Assessment Report (EIAR), evaluation of the EIAR by a competent authority, the subsequent decision as to whether the project should be permitted to proceed, encompassing public response to that decision.”

Broadly speaking the EIA process involves a number of steps which include the production of an EIAR, although this is not the end in itself but rather an output to assist in a wider decision-making framework. This EIAR will be used by the planning authority to make a decision to consent or refuse the application or to seek further information if required.

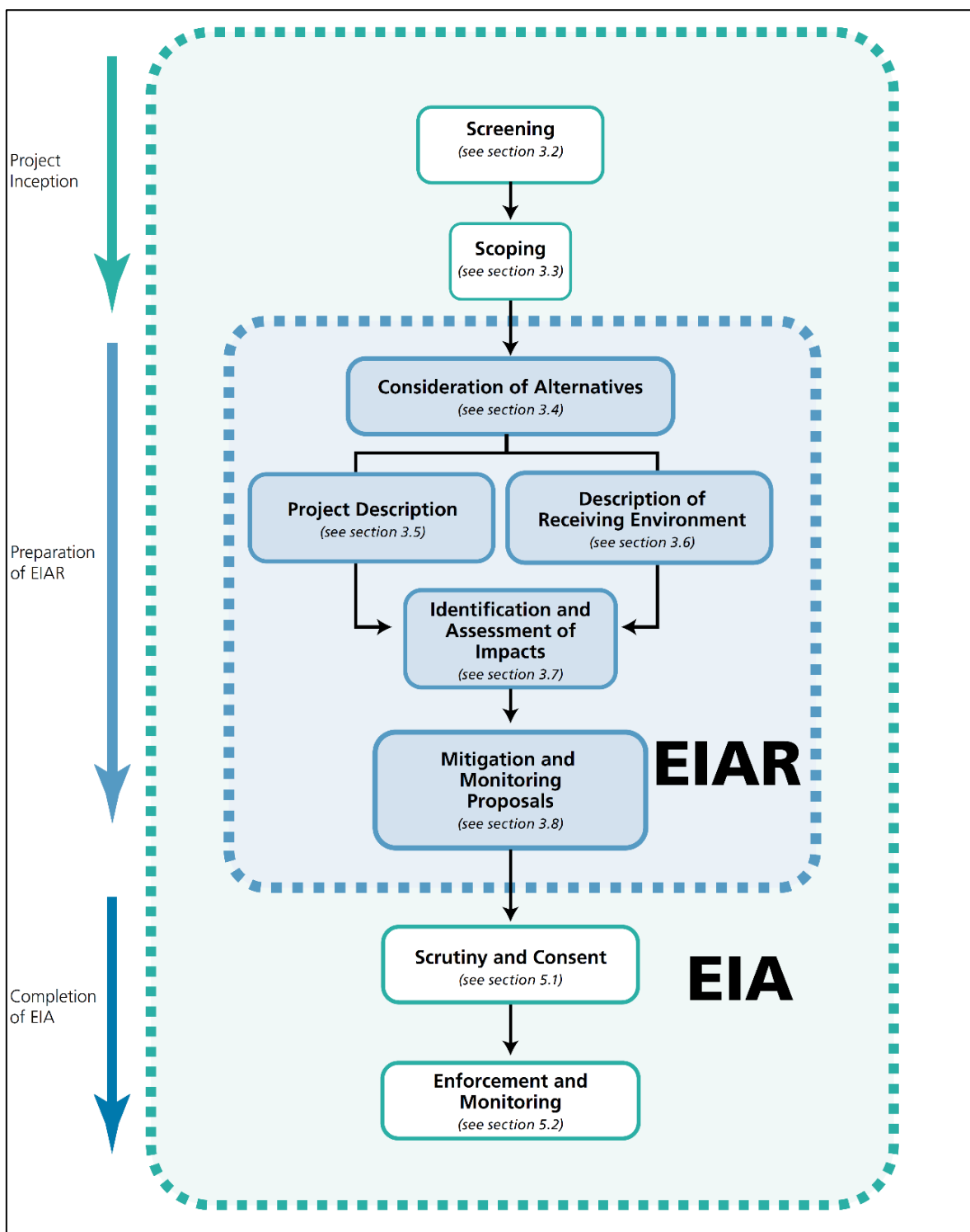
Several interacting steps typify the early stages in the EIA process and EIAR preparation as follows:

- Screening – The term used to describe the process for determining whether a proposed development requires an EIA (see section 3.3.1);
- Engaging competent experts to carry out the relevant assessments and prepare the EIAR (details on competent experts are presented in chapter 1: Introduction);
- Scoping – This stage firstly identifies the extent of the Project and the areas which will require to be assessed as part of the EIA process. Secondly, it identifies the environmental issues likely to be important during the course of completing the EIA process. Issues are also identified through consultation with statutory and non-statutory stakeholders (see section 3.3.2);
- Consideration of Alternatives – This stage outlines the possible alternative approaches to the Project (see chapter 4: Consideration of Alternatives);
- Identification and Assessment of Impacts – The central steps of the EIA process include baseline assessment (desk study and field surveys) to determine the status of the receiving environment, compiling information on the site, design, size and other relevant features of the Project (as part of the Project Description), impact prediction and evaluation;
- Determining appropriate measures and monitoring where necessary. This step culminates in the preparation of the EIAR; and
- Scrutiny and Consent – Once the EIAR has been submitted as part of a consent application, it will be circulated to statutory stakeholders and made available to the public for consultation prior to any decision being made.

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It is acknowledged that the EIA process extends beyond direct consent and into implementation of monitoring and mitigation programmes with the end focus being the protection of the environment in the long-term.

Figure 3-1 outlines the overall EIA process and the position of the EIAR in the process (EPA, 2022). The following sections 3.3.1 - 3.3.3 outline the key activities undertaken for the Project during project inception and preparation of the EIAR. Section 3.4 provides further information on the assessment process.



Source: Guidelines on information to be contained in the Environmental Impact Assessment Report (EPA, 2022).

Figure 3-1: The EIA Process.

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3.3.1 EIA Screening – requirement for EIA

Section 172 of the Planning and Development Act, 2000, as amended sets out the requirement for an Environmental Impact Assessment Report (EIAR). The prescribed classes of development and thresholds that trigger a mandatory EIA and the provision of an EIAR are set out in Part 1 and 2 of Schedule 5 of the Planning and Development Regulations, 2001, as amended. The class under Schedule 5 that is relevant to the Project is listed below:

Part 2, Class 3 Energy Industry

Installations for the harnessing of wind power for energy production (wind farms) with more than 5 turbines or having a total output greater than 5 megawatts.

The Project will generate 375 megawatts from 25 wind turbines and therefore it exceeds the thresholds and is a class of development that screens in for EIA.

3.3.2 EIA scoping

Scoping is an integral part of the EIA process, the aim of which is to identify matters that should be covered in the EIAR. It is defined in the EPA Guidelines (2022) as:

“determining the content and extent of the matters which should be covered in the environmental information to be submitted in the EIAR”

EIA scoping seeks to identify the aspects of the environment where there is an interaction (either direct or indirect, positive or negative) with a proposal and the potential effects, which need to be assessed.

A scoping process to identify the issues that are likely to be most important during the EIA process was undertaken and informed the content of this EIAR. This scoping was recorded in an EIA Scoping Report (RPS, 2019), which was the subject of informal pre-application consultation with stakeholders and members of the public.

Consultation meetings were also held with a number of organisations and a summary of the key points raised are also listed under the sub heading titled ‘Consultation’ in each of the assessments presented in volumes 2B and 2C of the EIAR. Chapter 6: Consultation provides details on all the organisations consulted during the development of the Project and preparations to inform the EIAR.

The Applicant also actively engaged with the public on the Project. This included a non-statutory public consultation in January and February 2021 and again in January and February 2023 following the award of the Maritime Area Consent (MAC). The intention of the 2023 event was to update stakeholders on the Project design and environmental assessment, provide feedback from the previous 2021 consultation, outline how stakeholders could engage in the consent application process and to listen to further observations on the Project.

A summary of the matters raised during public consultation is outlined in chapter 6: Consultation. Where matters relevant to the environmental assessments were raised these are also summarised in chapters 7 to 31 and a response is provided to where the issue raised is addressed in that specific chapter (see sub section titled ‘Consultation’). Appendix 6-1: Public and Other Stakeholders Consultation Report provides further details on the public and stakeholder engagement that has been undertaken for the Project.

EIA scoping continued throughout the EIAR preparation as specialist assessments were completed and design details were refined.

3.3.3 EIAR preparation

Scope of the EIAR

The content of the EIAR has been prepared in accordance with the provisions of the EIA Directive. Taking into account the nature, size and location of the Project (see chapter 5: Project Description), the information

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provided from EIA scoping and other consultation responses, the topics outlined in Table 3-1 have been identified as requiring consideration within this EIAR. The topics have been aligned to refer to the factors outlined by Article 3(1&2) of the EIA Directive and also having consideration to the marine EIA topics outlined in the DCCA 'Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects' (2017).

Table 3-1: The environmental factors to be included in an EIAR and the corresponding location in the EIAR.

EIA Directive – Environmental Factors	Where addressed in the Project EIAR
1(a): Population and human health	<ul style="list-style-type: none"> Chapter 18: Population and Human Health (volume 2C)
1(b): Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC	<ul style="list-style-type: none"> Chapter 8: Benthic Subtidal and Intertidal Ecology (volume 2B) Chapter 9: Fish and Shellfish Ecology (volume 2B) Chapter 10: Marine Mammals and Megafauna (volume 2B) Chapter 11: Offshore Ornithology (volume 2B) Chapter 19: Onshore Biodiversity (volume 2C) Chapter 31: Bats in the Marine Environment (volume 2C)
1(c): Land, soil, water, air and climate	<ul style="list-style-type: none"> Chapter 7: Marine Processes (volume 2B) Chapter 17: Climate (volume 2C) Chapter 20: Land and Agriculture (volume 2C) Chapter 21: Soil, Geology and Hydrogeology Chapter 22: Hydrology and Flood Risk (volume 2C) Chapter 23: Air Quality (volume 2C) Chapter 25: Noise (Airborne) and Vibration (volume 2C)
1(d): Material assets, cultural heritage and the landscape	<ul style="list-style-type: none"> Chapter 12: Commercial Fisheries (volume 2B) Chapter 13: Shipping and Navigation (volume 2B) Chapter 14: Aviation, Military and Communications (volume 2B) Chapter 15: Marine Archaeology (volume 2B) Chapter 16: Infrastructure, Marine Recreation and Other Users (volume 2B) Chapter 26: Cultural Heritage (volume 2C) Chapter 27: Seascape, Landscape and Visual Amenity (volume 2C) Chapter 28: Traffic and Transport (volume 2C) Chapter 29: Material Assets (volume 2C) Chapter 30: Resource and Waste Management (volume 2C)
1(e): The interaction between the factors referred to in points (a) to (d)	<ul style="list-style-type: none"> Chapter 32: Interactions (volume 2C)
2: The effects referred to in paragraph 1 on the factors set out therein shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned	<ul style="list-style-type: none"> Chapter 24: Risk of Major Accidents and Hazards (volume 2C)

The EIAR is contained in two volumes as follows:

- Volume 1 – EIAR: Non-technical summary;
- Volume 2:
 - Volume 2A – EIAR: Introductory chapters 1 – 6 on the Project;
 - Volume 2B – EIAR: Assessment of marine receptors; and
 - Volume 2C – EIAR: Assessment of terrestrial receptors, climate and interaction of effects.

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A number of impacts have been scoped out based on the baseline information that has been collected and the description of the infrastructure and activities outlined in chapter 5: Project Description. Impacts which have been scoped out are outlined in each of the topic chapters in volumes 2B and 2C (see subsection titled 'Impacts scoped out of the assessment').

It should be noted that for the operation and maintenance of the Project, vessels to transfer crew and equipment will use an existing operating port (located in Co. Louth or Co. Down) and therefore only impacts arising during the operational and maintenance phase from activities at the port associated with the Project have been considered in the EIAR. Potential impacts from these activities can arise from increases in traffic on local road network and increases in vessels and resulting potential impacts from noise. These have been considered in the following chapters: chapter:13 Shipping and Navigation (volume 2B), chapter 18: Population and Human Health, chapter 28: Traffic and Transport, chapter 19: Onshore Biodiversity; chapter 25: Noise (Airborne) and Vibration (volume 2C);

Article 5(1) of the EIA Directive specifies that the developer must provide certain information in an EIAR and details on this information is provided in Annex IV. Table 3-2 lists the details from Annex IV and the corresponding location where the information is provided in the EIAR:

Table 3-2 Annex IV of the EIA Directive information and the corresponding location in the EIAR.

Information for the EIAR as per Article 5(1)	Chapter in this EIAR
<p>1. Description of the project, including in particular:</p> <p>(a) a description of the location of the project;</p> <p>(b) a description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;</p> <p>(c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;</p> <p>(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases.</p>	<p>Information on the project description including activities during all phases of the Project are provided in chapter 5: Project Description (volume 2A). This chapter also includes details on the lighting from the project.</p> <p>Information on emissions from the Project are included in chapter 23: Air Quality and chapter 25: Noise (Airborne) and Vibration.</p> <p>Information on waste is provided in chapter 30: Resource and Waste Management. Information on EMF (radiation) is included in chapter 18: Population and Human Health.</p>
<p>2. A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.</p>	<p>Chapter 4: Consideration of Alternatives provides a description of the reasonable alternatives.</p>
<p>3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.</p>	<p>Chapters 7 to 31 (volumes 2B and 2C) provide a description of the baseline environment. A subsection titled 'Future baseline scenario' describes the likely evolution without implementation of the Project.</p>
<p>4. A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.</p>	<p>See Table 3-1 above.</p>
<p>5. A description of the likely significant effects of the project on the environment resulting from, inter alia:</p> <p>(a) the construction and existence of the project, including, where relevant, demolition works;</p>	<p>Chapters 7 to 32 (volumes 2B and 2C) provide an assessment of all potential impacts during all phases of the Project (as relevant).</p> <p>Chapter 17: Climate describes the impact on climate and chapter 24: Major</p>

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Information for the EIAR as per Article 5(1)	Chapter in this EIAR
<p>(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;</p> <p>(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;</p> <p>(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</p> <p>(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;</p> <p>(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;</p> <p>(g) the technologies and the substances used.</p> <p>The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.</p>	<p>Accidents and Natural Disasters examines the vulnerability of the project to climate change.</p>
<p>6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.</p>	<p>Chapters 7-32 (volumes 2B and 2C) provide details on the methodologies used to collect baseline data and undertake the assessment.</p>
<p>7. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.</p>	<p>Chapters 7-32 (volumes 2B and 2C) provide a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment in subsections titled 'Measures included in the Project' and 'Mitigation and residual effects'.</p>
<p>8. A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies</p>	<p>This information is described in chapter 24: Major Accidents and Natural Disasters.</p>
<p>9. A non-technical summary of the information provided under points 1 to 8.</p>	<p>Volume 1</p>
<p>10. A reference list detailing the sources used for the descriptions and assessments included in the report.</p>	<p>A list of references is provided in Volume 1 and in each of the chapters in Volumes 2A, 2B and 2C.</p>

Overview of assessments

The assessment of each topic (e.g. biodiversity, material assets etc.) forms a separate chapter of this EIAR in volume 2B and 2C. For each topic, the following information is provided:

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- Identification of the study area(s) for the topic-specific assessments including that used for the purposes of cumulative impact assessment. The study area is defined by the topic e.g. Air Quality Study Area or Onshore Biodiversity Study Area and is referred to in this way throughout the assessment.
- Description of the planning policy and guidance context where relevant;
- Details on the consultation feedback received during the informal EIA scoping consultation and public consultation relevant to each topic and a response to any issues raised or where the issue is addressed in the assessment;
- Description of the environmental baseline conditions including the future baseline scenario. Information on the validity of the data to inform the assessments is also provided along with any limitations; and
- Presentation of the impact assessment, including:
 - Identification of the project design parameters, which informed the assessment of likely significant effects for each topic assessment. The project design parameters are presented in tabular format for each potential impact that is assessed. The phases of the Project (i.e. construction, operation and maintenance and decommissioning phases) where the impact has the potential to occur is also outlined (a '✓' is used to indicate the phase the potential impact can occur);
 - A description of the measures identified to prevent, minimise, reduce or offset the possible likely significant environmental effects identified in the impact assessment;
 - Identification of potential likely significant effects and assessment of the significance of identified effects and residual effects;
 - Identification of any future monitoring required;
 - Assessment of any cumulative effects arising from the Project alongside other developments, including existing and approved projects and, where possible, proposed projects (see also section 3.4.4); and
 - Assessment of any transboundary effects (i.e. effects on the UK or other European Economic Area (EEA) states).
- Summary tables of impacts, mitigation measures and residual effects is also provided at the end of each chapter in volume 2B and 2C.

The approach to the principal components of the EIA process are described in further detail in the following sections.

3.4 Assessment methodology

3.4.1 Key principles of the assessment

Project design parameters

A description of the Project is provided in chapter 5: Project Description. It provides information on the site, design, size and other relevant features and sets out the design parameters of the Project for the purposes of environmental assessment. To inform the assessment of likely significant impacts during the construction phase, details are also provided on construction requirements such as working areas, hours of work, principal construction methods, volumes of materials to be managed and removed offsite, traffic and vessel numbers and environmental controls.

For each of the impacts assessed within the assessment chapters (chapters 7 to 31), the project design parameters are identified in table format from the information provided in chapter 5: Project Description (see Tables titled 'Project design parameters considered for the assessment of potential impacts on ' – '). A justification is provided in the table for each impact to explain the design parameters that informed the

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assessment of that impact. For example, to assess the impact from temporary subtidal habitat loss/disturbance in the assessment on benthic subtidal and intertidal ecology (see volume 2B, chapter 8: Benthic Subtidal and Intertidal Ecology), the response under ‘justification’ outlines that the design parameters used to inform the assessment will result in the greatest area of loss/disturbance (e.g. the maximum length of cables including the maximum proportion requiring sand clearance in addition to the number of foundations). Each of the impacts tabulated is assessed under a separate heading in the chapter section titled ‘Assessment of significance’.

Design flexibility

The Applicant has sought to complete the design of the Project to as detailed a level as possible. The capacity of the wind farm, the number of turbines and turbine size, the type and number of inter-array cables, the offshore substation and a single offshore cable corridor have all been selected. The turbine and offshore substation dimensions are known and fixed. A monopile foundation has been selected for the turbines and the offshore substation and its main parameter requirements are known. The location of turbines and offshore substation have been identified (subject to 50 m radius of lateral deviation during construction). The route for the onshore cable route and the infrastructure requirements have been designed and all necessary landowner agreements have been obtained. The location of the onshore substation site to connect the wind farm to the existing transmission grid has been identified and the landowner agreements are in place. The design for the grid connection from the offshore substation through to the existing transmission grid has been completed in consultation with EirGrid and to the EirGrid function specification.

Under a Foreshore Licence, a phase 1 geotechnical drilling campaign was completed in April 2020 and geophysical surveys of the site in August 2019 and November 2022. These have enabled the layout and preliminary design for the offshore infrastructure to be determined. A phase 2 geotechnical campaign, which will drill each foundation location and at locations along all offshore cable corridor, is required to complete the detailed design of the cables and foundation locations. This is a substantial offshore campaign that cannot be completed until post consent.

As there are a few elements of the design that require refinement and finalisation which cannot be completed in advance of an application, the Applicant submitted an application for an opinion under Section 287B of the Planning & Development Act, 2000 as amended, for consideration of the design flexibility required for the Project.

The design flexibility opinion by An Bord Pleanála states that the following details of the Project may be confirmed after the proposed application has been decided:

1. The final exact location of each offshore wind turbine and the offshore substation;
2. The final height of offshore infrastructure;
3. The final route and length, of the offshore export cable and offshore inter-array cables;
4. The location and layout of the landfall transition joint bay; and
5. The final design for the type and siting of outdoor equipment within the proposed onshore substation compound.

Chapter 5: Project description provides further information on the above details and design flexibility. The consequences of not confirming the above details until post application on the impact assessments are addressed in the relevant assessment chapters in the sub-section titled ‘Project design parameters’ (in volume 2B and 2C). For example, due to the potential for unexpected ground conditions and obstructions, the final route and length of the offshore cable can only be confirmed during construction. Therefore, the assessments have considered a maximum length of 16 km, although in reality it is expected to be less than this. This method ensures that the greatest potential for effects on sensitive receptors are considered. By assessing these parameters, the EIAR contains adequate information to enable assessment of the potential impacts that are likely to give rise to the greatest environmental effects. It also allows the final design to vary within this parameter without rendering the EIAR inadequate.

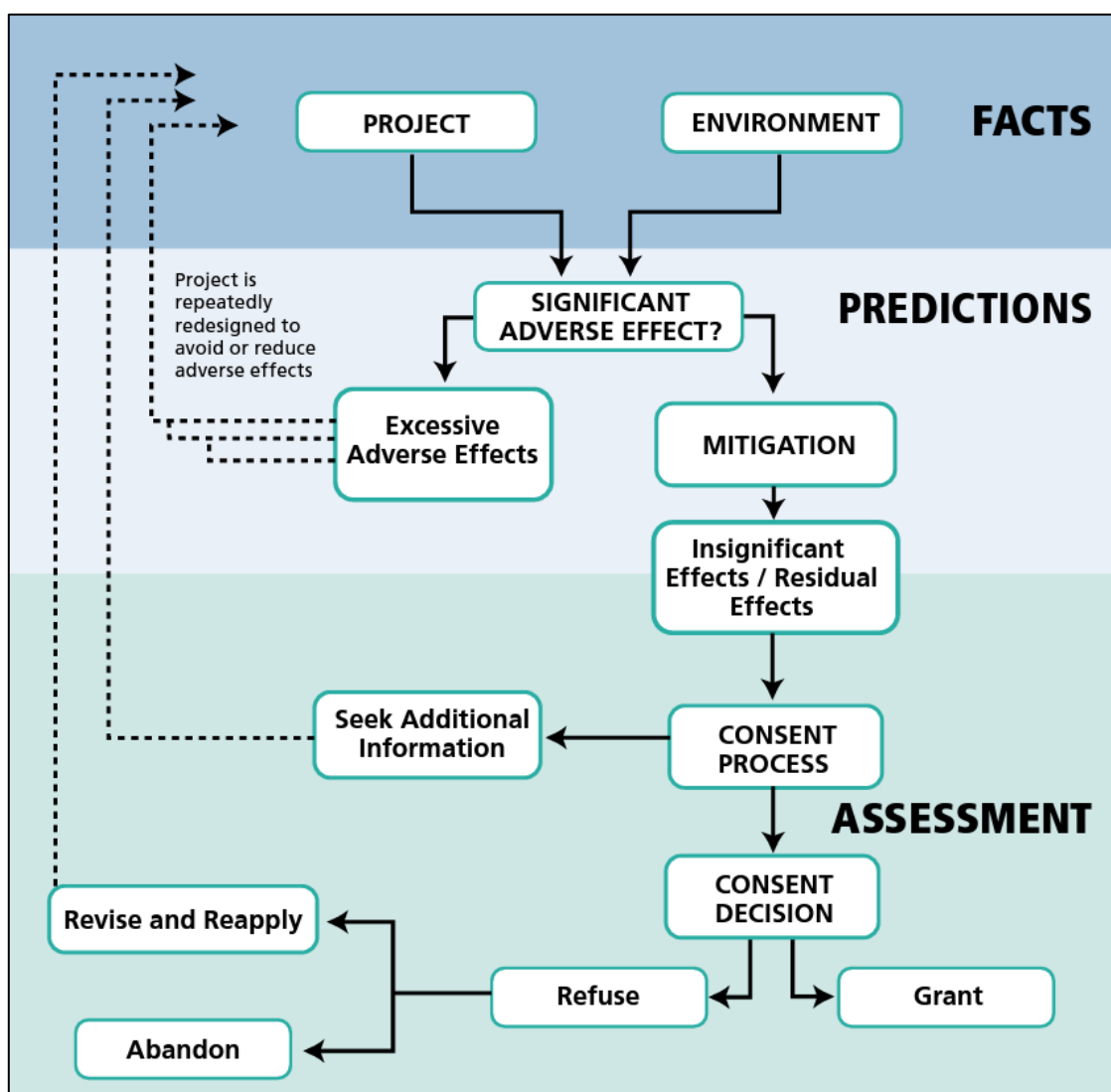
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Measures included in the Project

Article 5(1) of the EIA Directive requires that “a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment” should be included in the EIAR.

The iterative approach to EIA employed for the Project and reported in this EIAR involves a feedback loop during the impact assessment process as shown in Figure 3-2 below. A specific impact, and the significance of the resulting effect, is initially assessed and, if this is deemed to be a significant adverse effect in EIA terms, changes are made (where practicable) to relevant project parameters or design in order to avoid, reduce or offset the magnitude of that impact. The assessment is then repeated, and the process continues until the EIA practitioner is satisfied that:

- The effect has been reduced to a level that is not significant in EIA terms; or
- Having regard to other constraints, no further changes may be made to project design parameters in order to reduce the magnitude of impact (and hence significance of effect). In such cases an overall effect that is still significant in EIA terms may be presented in the EIAR.



Source: Guidelines on information to be contained in the Environmental Impact Assessment Report (EPA, 2022).

Figure 3-2: Key stages in the preparation of an EIAR and the EIA process (EPA Guidelines, 2022).

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As part of the project design process, a number of measures have been proposed to reduce the potential for impacts on the environment. These measures include designed-in and management measures (controls). As there is a commitment to implementing these measures, they are considered inherently part of the design of the Project and have therefore been considered in the assessments presented in chapters 7-32 (i.e. the determination of magnitude assumes implementation of these measures). This is in line with EPA guidance which states that *‘in an EIAR it may be useful to describe avoidance measures that have been integrated into the project proposal’* (EPA, 2022).

These measures are considered standard industry practice for offshore wind development, including, for example, lighting and marking of the wind farm or the use of ‘soft-starts’ for piling operations, to reduce the potential for impacts. A list of these measures are presented under the sub-heading ‘Measures included in the Project in the chapters in volumes 2B and 2C.

The measures also include the implementation of a number of management plans (e.g. the Lighting and Marking Plan to aid navigation). These management plans translate the commitments made in the EIAR into practical management plans relevant to the project design. These will form the basis for discussion with the consenting authority and appropriate stakeholders and final plans will be submitted for approval by the consenting authority and other key stakeholders prior to construction. These management plans are considered standard industry practice for this type of development. The following outline management plans are included as appendices to chapter 5: Project Description (volume 2A) :

- Appendix 5-1: Construction Environmental Management Plan – This relates to the construction of the onshore infrastructure;
- Appendix 5-2: Environmental Management Plan – This relates to the management of the construction, operation and maintenance and decommissioning of the offshore infrastructure;
- Appendix 5-3: Marine Invasive Non-native Species Management Plan – This relates to management marine invasive non-native species during construction of the offshore infrastructure;
- Appendix 5-4: Marine Mammal and Megafauna Mitigation Plan – This includes mitigation for marine mammals during the construction of the offshore infrastructure;
- Appendix 5-5: Marine Megafauna: Vessel Code of Conduct – This includes mitigation for marine mammals during the construction of the offshore infrastructure;
- Appendix 5-6: Fisheries Management and Mitigation Strategy– This sets out the approach to fisheries liaison and mitigation for the offshore infrastructure;
- Appendix 5-7: Emergency Response Co-operation Plan – This addresses emergency response and coordination arrangements for the construction and operational and maintenance of the offshore infrastructure of the Project;
- Appendix 5-8: Lighting and Marking Plan – This includes the lighting and marking scheme to be implemented for the offshore infrastructure of the Project. It has been issued for comment to the relevant stakeholders;
- Appendix 5-9: Construction Traffic Management Plan – This provides traffic management measures for the construction of the onshore infrastructure; and
- Appendix 5-10: Marine Archaeology Management Plan– This provides the procedure for the recording and reporting of any archaeological material discovered during the construction phase.

Where assessments predict that significant effects are likely even with the implementation of the measures included in the Project, additional measures are proposed if the effects can be reduced further. Where this is not possible, the significant effects of the Project are recorded as residual effects. Residual effects are defined as *“the degree of environmental change that will occur after the proposed mitigation measures have taken effect”* (EPA, 2022).

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3.4.2 Definitions of impact and effect

The Project has the potential to create a range of 'impacts' and 'effects' with regard to the physical, biological and human environment. The definitions of impact and effect used in this assessment are drawn from EPA (2022) and Highways Agency *et al.* (2008).

The EPA (2022) define impact / effect as a “*change resulting from the implementation of a project*”. For this assessment the term 'impact' is used to define a change that is caused by an action. For example, piling of wind turbine foundations (action) during construction which results in increased levels of subsea noise (impact). Impacts can be classified as direct, indirect, secondary, cumulative and interactive. They can be positive, neutral or negative, although the relationship between them is not always straightforward. Definitions for each of these terms are provided in Table 3-3 and are derived from EPA (2022), Highways Agency *et al.* (2008), CIEEM (2018) and Department for Energy and Climate Change (DECC) (2011).

The term 'effect' is used in this assessment to express the consequence of an impact. For example, in the offshore environment the piling of wind turbine foundations (activity) results in increased levels of subsea noise (impact), with the potential to disturb marine mammals (effect). Or in the onshore environment, the installation of onshore cables using horizontal directional drilling to cross under a road or stream (activity) can result in increased levels of airborne noise (impact), and potential disturbance to noise sensitive receptors (i.e. people or ecological receptors) (effect).

Table 3-3: Definition of direct, indirect, cumulative, interactive, positive, neutral or negative impacts.

Term	Definition
Direct impact	Occurs as a straightforward consequence of activities undertaken in direct connection to the project (derived from Highways Agency <i>et al.</i> , 2008).
Indirect impact (also known as 'secondary' impacts (EPA, 2022))	“Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway” (EPA, 2022). Occurs as a consequence of a direct impact and may arise via a complex pathway and be experienced at a point in space or time that is removed from the direct impact (Highways Agency <i>et al.</i> , 2008).
Cumulative impact	“The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects” (EPA, 2022). Impacts that result from incremental changes caused by other reasonably foreseeable actions alongside the project in question. This includes the impact of all other developments that were not present at the time of data collection (surveys, etc.) (derived from Highways Agency <i>et al.</i> , 2008).
Interactions	“The interactions between impacts on different environmental factors” (EPA, 2022). Consideration of how the accumulation of, and inter-relationship between effects might affect the environment, economy or community as a whole (DECC, 2011).
Positive	A change which improves the quality of the environment (EPA, 2022).
Neutral	No effects, or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error (EPA, 2022).
Negative	A change which reduces the quality of the environment (EPA, 2022).

The 'significance' of each effect is determined by considering the magnitude of the impact alongside the importance, or sensitivity, of the receptor or resource, in accordance with defined significance criteria.

3.4.3 Defining magnitude of impact and sensitivity of receptor

Magnitude of impact

For each of the impacts assessed in this EIAR, a magnitude has been assigned. In doing so the spatial extent, duration, frequency and reversibility of the impact from the construction, operation and maintenance, or decommissioning phases of the Project have been considered, where applicable. Each of these terms is defined in Table 3-4 below and is based on the EPA (2022), Highways Agency *et al.* (2008) or CIEEM (2018).

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Table 3-4: Definition of the spatial extent, duration, frequency and reversibility when defining the magnitude of an impact.

Term	Definition
Spatial extent of the impact	Geographical area over which the impact may occur under a suitable representative range of conditions (CIEEM, 2018).
Duration of the impact	The time over which an impact occurs. An impact may be described as short, medium or long-term and permanent or temporary (EPA, 2022).
Reversible/irreversible effect	Reversible effects are “effects that can be undone, for example through remediation or restoration” (EPA, 2022). Irreversible effects are “when the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost” (EPA, 2022).
Frequency of the impact	The number of times/how often an impact occurs across the relevant phase/lifetime of a project (EPA, 2022; Highways Agency <i>et al.</i> , 2008).

The scale used to define the magnitude of the impact is defined within each topic chapter (e.g. negligible, low, medium and high). Topic-specific definitions for each of these categories are provided in each of the topic chapters (chapters 7 to 31 in volume 2B and 2C). The design of these topic-specific scales draws upon relevant policy, guidance, standards and other material, including specialist knowledge, which is relevant to that topic.

Sensitivity of receptor

For the purpose of this EIAR, receptors are defined as the physical or biological resource or human user group that would be affected by the Project impacts. Identification of receptors was informed by available data and baseline studies that have been completed in the preparation of this EIAR.

Sensitivity refers to the potential of a receptor to be significantly affected (EPA, 2022). In defining the sensitivity for each receptor, the vulnerability, recoverability and value/importance has been taken into consideration where relevant. Each of these terms is defined in Table 3-5 and is used on a basis appropriate to each topic chapter. Where these considerations are not included in the assessment the reason for this is explained within the relevant topic chapter.

Table 3-5: Definition of the vulnerability, recoverability and value/importance when defining the sensitivity of a receptor.

Term	Definition
Vulnerability of the receptor	The degree to which a receptor is susceptible to injury, damage, or harm from an activity (IPCC, 2007).
Recoverability of the receptor	The ability of a receptor to be able to return to a state close to that which existed before an activity or event caused damage (Tyler-Walters <i>et al.</i> , 2018).
Value/importance of the receptor	The importance of the receptor in terms of ecological, social/community and/or economic value (CIEEM, 2010).

The scale used to define the sensitivity of the receptor is defined within each topic chapter (e.g. negligible, low, medium and high). Topic-specific definitions for each of these categories are provided in each of the topic chapters (chapters 7 to 30). The value of a receptor for each topic draws upon relevant guidance and other material, including specialist knowledge, which is relevant to that topic.

Evaluation of significance of effect

The overall significance of an effect is determined by correlating the magnitude of the impact alongside the sensitivity of receptor.

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In order to ensure a transparent and consistent approach throughout the EIAR, a matrix approach has been adopted as a guide. There is, however, latitude for professional judgement where deemed appropriate in the application of the matrix. Where the matrix offers a choice of significance levels, professional judgement has been used to determine the most likely outcome. An example of the matrix used to inform some of the topic-specific methodologies is set out in Table 3-6. This matrix has been adapted from EPA (2022) and Highways Agency *et al.* (2008). Each topic chapter provides a matrix used to inform the corresponding assessment.

Table 3-6: Example matrix used for the assessment of the significance of the effect.

		Magnitude of impact			
		Negligible	Low	Medium	High
Sensitivity of receptor	Negligible	Imperceptible	Imperceptible or slight	Imperceptible or slight	Slight
	Low	Imperceptible or slight	Imperceptible or slight	Slight	Slight or moderate
	Medium	Imperceptible or slight	Slight	Moderate	Moderate or major
	High	Slight	Slight or moderate	Moderate or major	Major or Profound

By cross-referring the magnitude of impact, with the sensitivity of receptor, a significance of effect may be assigned for all project impacts. The significance may be one, or a range of, imperceptible, slight, moderate, major or profound. In general, a significance of effect of moderate or greater is considered 'significant' in EIA terms. For each topic chapter, what is considered 'significant' will be clearly defined. Where mitigation is not possible, a residual significant effect may remain.

In cases where a range is suggested for the significance of effect, there remains the possibility that this may span the significance threshold (i.e. the range is given as minor to moderate). In such cases the final significance is based upon the expert's professional judgement as to which outcome delineates the most likely effect, with an explanation as to why this is the case.

The Guidelines on the Information to be Contained in Environmental Impact Assessment (EPA, 2022) provide useful guidance on the typical classifications for significance of effect levels, although recognises that more specific definitions will exist for some topics. The definitions for each of the significance levels used in this EIAR are shown in Table 3-7, based on EPA (2022).

Table 3-7: EPA definition of levels when describing significance (EPA, 2022).

Significance level	Definition (EPA, 2022)
Imperceptible	An effect capable of measurement but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
Significant ¹	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment.
Very significant ²	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

1. Where a four point scale (i.e. negligible, low, medium, high) is used in the topic assessment chapters in volumes 2B and 2C, the significance 'moderate' uses this definition.

2. Where a four point scale (i.e. negligible, low, medium, high) is used in the topic assessment chapters in volumes 2B and 2C, the significance 'major' uses this definition.

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3.4.4 Cumulative Impact Assessment (CIA)

Cumulative effects are defined in the EPA (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports as “the addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects”. This includes the impact of other relevant developments that were not present at the time of data collection or survey.

Cumulative impacts are assessed in accordance with the EIA Directive. Paragraph 5(3) of Annex IV the EIA Directive requires that

“A description of the likely significant effects on the environment of the proposed development resulting from...the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.

Paragraph 5 of Annex IV also states that:

“The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project”.

The Project is being developed within a period of rapid growth in the offshore wind sector. As such, the approach to CIA has, over recent years, become an issue of increasing importance for offshore wind developers. There is limited guidance in Ireland in relation to CIA for offshore projects. In response, the approach to the CIA for this EIAR has considered the following guidance:

- The EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Guidance on Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) Preparation for Offshore Renewable Energy Projects (Department of Communications, Climate Action and Environment, 2017);
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018);
- Environmental Impact Assessment of Projects – Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2022);
- Guidelines on the Assessment of Indirect and Cumulative Impacts as well as Impact interactions (European Commission, 1999);
- Guiding Principles for Cumulative Impact Assessment in Offshore Wind Farms (RenewableUK, 2013); and
- Planning Inspectorate (PINS) (2019) Advice Note 17: cumulative effects assessment relevant to nationally significant infrastructure projects.

The PINS guidance is an established methodology from the UK, utilised for a number of UK offshore wind farm projects.

Approach to CIA

A fundamental requirement of undertaking CIA is to identify those projects with which the Project may interact to produce a cumulative impact. These interactions may arise during any phase of the Project (i.e. construction, operational and maintenance and decommissioning phase). This process is referred to as “screening”.

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A staged approach as outlined in the PINS Advice Note 17 (as outlined above) has been followed in order to methodically and transparently screen the projects and activities that may be considered cumulatively alongside the Project. This involves a stepwise process that considers the level of detail available for projects and activities, as well as the potential for interactions on a conceptual, physical and temporal basis. A complete description of the approach used is provided in appendix 3-1: CIA Screening Annex. The following sections provide a summary of the approach.

Screening of projects and activities (stages 1 – 3)

Screening was undertaken using a three-staged approach to gather information on other projects and activities (e.g. site investigations) within the defined cumulative Zone of Influence (Zol) for each topic considered in the EIAR.

As the Project requires both onshore and offshore infrastructure in the terrestrial and marine environments, two lists of projects and activities were prepared to examine the potential for cumulative effects:

- The offshore list – This includes projects that had potential to impact on marine receptors. The list informed the CIA for chapters 7-17, chapter 25: Noise (Airborne) and Vibration and chapter 27: Seascape, Landscape and Visual Amenity:
 - In order to undertake a comprehensive CIA, a long list of relevant projects occurring within the largest Zol, which was for offshore ornithology, was produced through a desktop study. This included searching for projects along the western coasts of Scotland, England, Wales and Northern Ireland as well as the east, north and parts of the south coast of Ireland. Therefore, for certain Zol's that extended outside of the ROI (e.g. chapter 11: Offshore Ornithology, chapter 10: Marine Mammals and Megafauna), the cumulative impact assessment considered projects in other jurisdictions.
- The onshore list – this includes projects that have potential to impact on onshore receptors. The list informed the CIA for chapters 18-30 (volume 2C).
 - In order to undertake a comprehensive CIA, a long list of relevant projects occurring within a 5 km Zol from the substation and a 2 km Zol from the onshore cable route was produced through desktop research. These incorporated the largest Zol for onshore biodiversity, population and human health and seascape, landscape and visual amenity. It should be noted that a further search for onshore wind farms within the Zone of Theoretical Visibility was also undertaken to inform the Seascape, Landscape and Visual Amenity CIA (see further details in chapter 27).

For Seascape, Landscape and Visual Amenity (chapter 27) and Noise (Airborne) and Vibration (chapter 25) both lists were required to assess potential for cumulative effects.

The CIA long lists collate the details of operational or proposed projects and includes those within both Ireland and adjoining jurisdictions. The process for compiling the CIA long list and for screening the projects into or out of each assessment in the EIAR is summarised below. Further details on the process along with the long lists are provided in appendix 3-1: CIA Screening Annex.

Stage 1 required that the cumulative Zol was defined by each topic specialist. A desk study was then undertaken to search consent applications and any other available sources to identify projects falling within the largest defined Zol (ornithology), which may have the potential to give rise to cumulative effects with the Project. This list of projects included other existing or approved developments, including those which are under construction, permitted but not yet implemented, submitted but not yet determined.

The list of projects also included the following projects which fall within the Zol:

- Projects, which satisfy the definition of 'relevant maritime usage' under the Maritime Area Planning Act (2021) (i.e. wind farm projects designated as 'Relevant Projects' or 'Phase 1 Projects') including Arklow Bank II, Bray Bank and Kish Bank; North Irish Sea Array, Codling Wind Park (I and II), Sceirde Rock Wind Farm.

Projects that did not fall within the largest defined Zol were not considered further.

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Stage 2 provided a reduced list of projects following the application of the of a number of assumptions including (see appendix 3-1: CIA Screening Annex for further details):

- The earliest possible construction commencement date of Q3 2025 has been assumed for the Project with construction taking place through to Q1 2028. Offshore construction is assumed to commence in Q1 2027 for 15 months. Therefore offshore projects with a licence/lease that expires before the end of 2026, were excluded on the basis of no temporal overlap with the Project (see columns titled 'Temporal overlap' on stage 1 offshore list);

Further information on the projects listed in Stage 2 was then gathered to inform the cumulative assessment by topic specialists. This involved a desk study to source publicly available information on projects using planning databases and internet searches. The relevant project parameters for the projects considered cumulatively have been drawn from EIARs or other similarly detailed planning documents (i.e. licence applications) or EIA Scoping Reports (although this information is limited). Approximate distances to the Project were also provided for each project to better understand any spatial overlap.

Stage 3 involved tailoring the list of projects from Stage 2 to the cumulative ZOI identified for each of the topics. Each of the topic authors then further screened the list of projects in accordance with the following set of defined screening criteria to identify which projects should be considered in the assessment of cumulative effects:

- Included as part of the topic baseline and hence not considered within the cumulative impact assessment: Screened out of assessment;
- Part of the baseline but has an ongoing impact and is therefore considered relevant to the cumulative impact assessment: Screened into assessment;
- Potential cumulative impact exists: Screened into assessment;
- No conceptual or physical effect-receptor pathway: Screened out of assessment;
- Low data confidence (where there is little publicly available information to provide a meaningful assessment): Screened out of assessment;
- No temporal overlap: Screened out of assessment; and
- Project has been withdrawn from development or operation.

Further explanation of these criteria and the results of the CIA screening exercise are presented in appendix 3-1: CIA Screening.

Assessment stage (stage 4)

Those projects screened into the assessment have been carried forward for assessment in the CIA of the relevant topic chapters of the EIAR (see subsection titled 'Cumulative Impact Assessment'). A list of all projects screened in for assessment is tabulated in the relevant topic chapters. The list also includes a summary of relevant details for each of the projects and activities relevant to the CIA.

The CIA is presented within each topic chapters in a separate section titled 'Cumulative Impact Assessment'. Further detail on the methodologies implemented for the CIA may be found in the relevant sections of the EIAR topic chapters.

Engagement with Phase 1 Project developers

To inform the CIA, the Applicant has engaged with the other Phase 1 developers on the east coast of Ireland as these projects fall within the ZOI for the following offshore topic assessments:

- Chapter 9: Fish and Shellfish Ecology;
- Chapter 10: Marine Mammals and Megafauna;

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- Chapter 11: Offshore Ornithology;
- Chapter 13: Shipping and Navigation;
- Chapter 27: Seascape, Landscape and Visual Assessment; and
- Chapter 32: Bats in the Marine Environment.

These Phase 1 projects are expected to lodge an application for consent before end of June 2024. Therefore, should the Project receive consent, there is potential for all phases of the Project to occur at the same time as the other consented Phase 1 projects.

Engagement with the other Phase 1 developers commenced in August 2022. This involved regular discussions and workshops with the project teams including the relevant specialists involved in the assessments of the above topics. Project information was shared amongst teams and this was used to inform the assessments. Engagement continued into early 2024 and the teams will continue to engage as the application processes progress.

As a result of the engagement, the following aspects of the assessments were aligned (where possible) to inform the CIA:

- Approach and methodology used to identify other projects for CIA (i.e. discussion on the Zol used and the reasoning for screening in/out projects);
- Approach and methodologies used to inform the above topic assessments including alignment on sensitivities and magnitudes where possible;
- Seascape, landscape and visual assessment: Sharing of project parameters to allow preparation of cumulative wirelines and photomontages for projects that exist within each other Project's ZTV; and
- Ornithology: Sharing of data and outputs from collisions risk modelling, displacement and Population Viability Analysis (PVA) to inform the assessment of potential cumulative impacts on offshore ornithology.

It should be noted that approaches to assessments across projects may vary, however, overall the collaboration on the above has provided more robust inputs and understanding of the nature and type of potential cumulative impacts.

It should also be noted that where information is not publicly available or provided through the above engagement, a number of assumptions have been used to inform the CIA. For example, where construction or operation programmes are not known, it is assumed that there is potential for projects to overlap.

Further details on the above are provided in the individual topic chapters in volume 2B and 2C.

3.4.5 Transboundary effects

The need to consider transboundary effects has been embodied by the United Nations Economic Commission for Europe (UNECE) Convention on EIA in a Transboundary Context, adopted in 1991 in the Finnish city of Espoo and commonly referred to as the 'Espoo Convention'. The Convention requires that assessments be extended across borders between Parties of the Convention when a planned activity may cause significant adverse transboundary impacts. The Espoo Convention has been ratified by the European Union, Ireland and the United Kingdom. It is aimed at preventing, mitigating and monitoring environmental damage by ensuring that explicit consideration is given to transboundary environmental factors before a final decision is made as to whether to approve a project. The Espoo Convention requires that the Party of origin notifies affected Parties about projects listed in Appendix I and likely to cause a significant adverse transboundary impact.

Article 7 of the EIA Directive introduces similar requirements concerning projects carried out in one Member State but likely to have significant effects on the environment of another. While the EIA Directive provides a definition of the term 'project' the 1991 Espoo Convention uses the term 'proposed activity'. The principal

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obligation is in respect of information and consultation and is imposed by Article 7(4) of the amended EIA Directive:

“The Member States concerned shall enter into consultations regarding, inter alia, the potential transboundary effects of the project and the measures envisaged to reduce or eliminate such effects and shall agree on a reasonable time-frame for the duration of the consultation period.”

This corresponds to the EPA Guidelines (2022), which outlines that in the case of an EIAR, for any project that is likely to cause significant transboundary effects, contact with the relevant authorities in other Member States should be made. This will establish a consultation framework to consider and address these effects.

As part of EIA scoping, consultation was undertaken with the departments and ministries in Northern Ireland, Great Britain (Scotland, England and Wales) and the Isle of Man regarding the potential for the transboundary impacts from the Project. Details on the consultation is provided in chapter 6: Consultation.

In each of the assessments in volumes 2B and 2C, potential for transboundary effects is listed under the heading titled ‘Transboundary effects’.

3.4.6 Interactions

Article 3(1) of the EIA Directive requires that the interaction between the environmental factors (population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape) is identified, described and assessed in the EIAR. The interactions assessment has been carried out with regard to the following guidelines:

- The Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (EC, 1999); and
- EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022).

It is important to note that the interactions assessment considers only effects produced by the Project, and not those from other projects (which are considered within the CIA). Further detail on the approach and methodology for the assessment of interactions is available in chapter 32: Interactions.

3.5 Other relevant requirements to inform the application

3.5.1 Appropriate Assessment

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (‘the Habitats Directive’) provides legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of Community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. Natura 2000 is a European ecological network of Special Areas of Conservation (SAC), composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, to enable the natural habitat types and the species’ habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range.

In Ireland, these sites are designated as European Sites and include Special Protection Areas (SPA), established under the EU Birds Directive (79/409/EEC, as codified by 2009/147/EC) for birds; and SACs, established under the Habitats Directive 92/43/EEC for habitats and species.

The Habitats Directive has been transposed into Irish law by Part XAB of the Planning and Development Act, 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011) as amended (‘the Habitats Regulations’).

An Appropriate Assessment (AA) is a separate but inter-related process to EIA, required under the Habitats Directive for any plan or project likely to have a significant effect on a European Site. The AA will be

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undertaken by the 'competent authority' as defined by the Habitat Regulations, informed by a Natura Impact Statement (NIS). While the NIS does not form part of the EIAR, the baseline presented within the EIAR informs the NIS.

3.5.2 Flood Risk Assessment (FRA)

In accordance with the requirements of The Planning System and Flood Risk Management, Guidelines for Planning Authorities and associated Technical Appendices (2009), a separate Flood Risk Assessment (FRA) has been carried out for the proposed onshore substation (see appendix 22-1: Flood Risk Assessment Report in volume 2C). Chapter 22: Hydrology and Flood Risk contains the flood risk review for the landfall location and onshore cable route.

3.5.3 Water Framework Directive

The Water Framework Directive (WFD) (2000/60/EC) of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy came into force in December 2000 and establishes a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater. The directive has been transposed into Irish Law principally by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003), as amended. Ireland is required to comply with four main obligations under the environmental objectives of the WFD, namely to:

- Prevent deterioration of the status of all bodies of surface water and groundwater;
- Protect, enhance and restore all bodies of surface water and groundwater with the aim of achieving good status by the end of 2027;
- Protect and enhance all artificial and heavily modified bodies of water, with the aim of achieving good ecological potential and good surface water chemical status; and
- Achieve compliance with the requirements for designated protected areas.

The EIAR includes a WFD Assessment in appendix 7-2 (volume 2B), which has been undertaken to assess the potential impacts of the Project in the context of the environmental objectives of any affected WFD surface water and groundwater bodies.

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