

Volume 2: Introductory Chapters

# Chapter 2

## EIA and Methodology for the preparation of an EIAR

## Contents

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<b>2.</b>	<b>EIA and Methodology for the preparation of an EIAR</b>	<b>2-1</b>
2.1	Introduction	2-1
2.2	EIA Legislation and Guidance	2-1
2.3	EIA Process	2-2
2.4	Consideration of the EIAR Scope	2-4
2.5	Structure of EIAR	2-5
2.6	Assessment of Effects	2-9
2.7	Pre-Application Consultation with An Bord Pleanála and Design Flexibility	2-13
2.8	Approach to Design Flexibility in the EIAR	2-14
2.9	Mitigation and Monitoring Measures	2-16
2.10	Transboundary Effects	2-17
2.11	Cumulative and Inter-Related Effects	2-17
2.12	Appropriate Assessment	2-18
2.13	References	2-19

### Tables

Table 2.1: EIAR Structure	2-6
Table 2.2 Location within this EIAR of the information required as per Article 5 of the EIA Directive	2-8
Table 2.3: Description of Effects (Table 3.4 of EPA 2022 Guidelines)	2-10

## 2. EIA and Methodology for the preparation of an EIAR

### 2.1 Introduction

This chapter describes the methodology used in the preparation of this Environmental Impact Assessment Report (EIAR). The relevant legislation and guidance which has informed the preparation of the EIAR is listed in this chapter. The EIA process, EIAR structure, the methodology for assessment of likely significant effects and mitigation measures are also described. The methodology for incorporating design flexibility within the EIAR is also provided.

### 2.2 EIA Legislation and Guidance

#### 2.2.1 EIA Legislation

This EIAR has been prepared in compliance with Council Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU (the EIA Directive).

The EIA Directive requires that public and private projects that are likely to have significant effects on the environment are subject to an environmental impact assessment prior to development consent being given. The requirements of the EIA Directive have been transposed into Irish law with the enactment of a number of implementing legislative measures, including the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296/2018) (“the EIA Regulations”) with effect from 1 September 2018. The relevant provisions of the Planning and Development Act 2000, as amended (“the Planning Acts”) and the Planning and Development Regulations 2001, as amended (the “Planning Regulations”) have been amended by the EIA Regulations.

Article 5 and Annex IV of the EIA Directive and Schedule 6 of the Planning Regulations specify the information to be contained in an EIAR in relation to this proposed development.

Accordingly, this EIAR contains all of the information prescribed by the relevant provisions of Article 5 of and Annex IV to the EIA Directive, and Schedule 6 of the Planning Regulations. This EIAR has also been prepared with due regard to the guidance set out in Section 2.2.2 below.

#### 2.2.2 Statutory Requirement for EIA

The prescribed classes of development and thresholds that trigger a mandatory EIA and the provision of an EIAR are set out in Schedule 5 of the Planning Regulations.

The class under Schedule 5 that is relevant to the proposed development is:

Part 2 Class 3 Energy Projects

*(i) 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 offshore wind farm will have more than 5 Wind Turbine Generators (WTGs) and will have a total output greater than 5MW. Therefore, it exceeds the threshold and mandatory EIA is required.

As an EIA is mandatory, EIA Screening (process to determine whether an EIA is required for the proposed development) is not required.

### 2.2.3 Guidance

This EIAR has been prepared with due regard to the following overarching Environmental Protection Agency (EPA) and European Commission guidance on EIAR:

- Environmental Protection Agency (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (May 2022) (EPA 2022 Guidelines).
- Environmental Protection Agency (2003) Advice Notes for Preparing Environmental Impact Statements.
- European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EC 2017 Guidelines).

This EIAR has also been prepared with due regard to the following guidance:

- Department of Communications, Climate Action and Environment (DCCAE) (2017) Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. (prepared for the Environmental Working Group of the Offshore Renewable Energy Steering Group and the Department of Communications, Climate Action and Environment) (DCCAE 2017 guidance)
- Department of Housing, Planning, Community and Local Government (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018)
- Department of Housing, Planning, Community and Local Government (2017) Circular PL 1/2017 – Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition. (2017);
- Department of Housing, Planning, Community and Local Government (2017) Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licensing Systems
- Department of Housing, Planning, Community and Local Government (2017) Circular PL 1/2017 – Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition
- European Commission (1999) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.

In addition to the applicable EIA legislation and guidance, all relevant provisions of European Union (EU) Directives and national legislation relating to the topic specific areas have also been considered as part of the process and are addressed where necessary in the relevant topic-specific chapters (Chapters 10 – 35 of Volumes 2-5).

All effects are described in accordance with the recommended terminology from the EPA 2022 Guidelines as discussed in Section 2.6 unless otherwise indicated.

## 2.3 EIA Process

Article 1(2)(g) of the EIA Directive states that:

*“Environmental impact assessment” means a process consisting of:*

*(i) the preparation of an environmental impact assessment report by the developer, as referred to in Article 5(1) and (2);*

*(ii) the carrying out of consultations as referred to in Article 6 and, where relevant, Article 7;*

*(iii) the examination by the competent authority of the information presented in the environmental impact assessment report and any supplementary information provided, where necessary, by the developer in accordance with Article 5(3), and any relevant information received through the consultations under Articles 6 and 7;*

*(iv) the reasoned conclusion by the competent authority on the significant effects of the project on the environment, taking into account the results of the examination referred to in point (iii) and, where appropriate, its own supplementary examination; and*

*(v) the integration of the competent authority's reasoned conclusion into any of the decisions referred to in Article 8a.”*

North Irish Sea Array Windfarm Limited (Ltd) is the ‘Developer’ proposing the proposed development and An Bord Pleanála is the ‘competent authority’ that will undertake the EIA examination and decide whether to grant consent for the proposed development under the Planning Acts.

The EPA 2022 Guidelines note that “*EIA contributes to the environmental basis for the decision-making process. It is integrated into consent processes. This helps to ensure that the environmental consequences of the project are understood before a consent decision is reached*”. Figure 2.1 (page 10) of the EPA 2022 Guidelines (replicated in Image 2.1 below) illustrates how “*EIA is a systematic analysis of the proposed project in relation to the existing environment during a consent process.*”

EIA screening is usually carried out at the project design stage where it is decided whether EIA is required or not. In the case of the proposed development, EIA is mandatory, therefore EIA screening is not required (See Section 2.2.2 above). If EIA is required, then the scope of the EIAR is established (scoping), after which the EIAR is prepared as part of the consent application. Refer to Section 2.4 below in relation to scoping).

At the time of making the application, the Developer will issue a copy of the application to each of the consultees prescribed by An Bord Pleanála (“Prescribed Bodies”). The list of prescribed bodies for this proposed development is provided in Appendix 1.2 of Volume 8 of the EIAR. The application will also be made available for inspection free of charge, or for purchase, by the public. In addition to the prescribed bodies, An Bord Pleanála may invite certain bodies to make submissions or observations.

An Bord Pleanála can require the Developer to submit additional information.

In addition to its own consideration of the information presented in the EIAR, the application and any additional information, An Bord Pleanála must have regard to the submissions or observations of the prescribed bodies, any bodies it invites to make a submission or observation, the submissions, or observations the public, and any other matter which An Bord Pleanála is required to consider or which it regards as relevant. An Bord Pleanála will then make its decision. An Bord Pleanála may grant permission subject to such modifications (if any) it proposes, grant permission for part of the development, or refuse permission.

The permission would include “*any environmental conditions attached to the decision, a description of any features of the project and/or measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment as well as, where appropriate, monitoring measures*” (Article 8a(1)(b) of the EIA Directive).

As noted in EPA 2022 Guidelines, the consent decision is a key milestone which generally marks the end of the formal EIA process. The implementation of mitigation measures and any monitoring measures contained in the EIAR, and consent decision continues after the formal EIA process is complete. This can happen prior to or during the construction, operation and, where relevant, the decommissioning stages of a project.

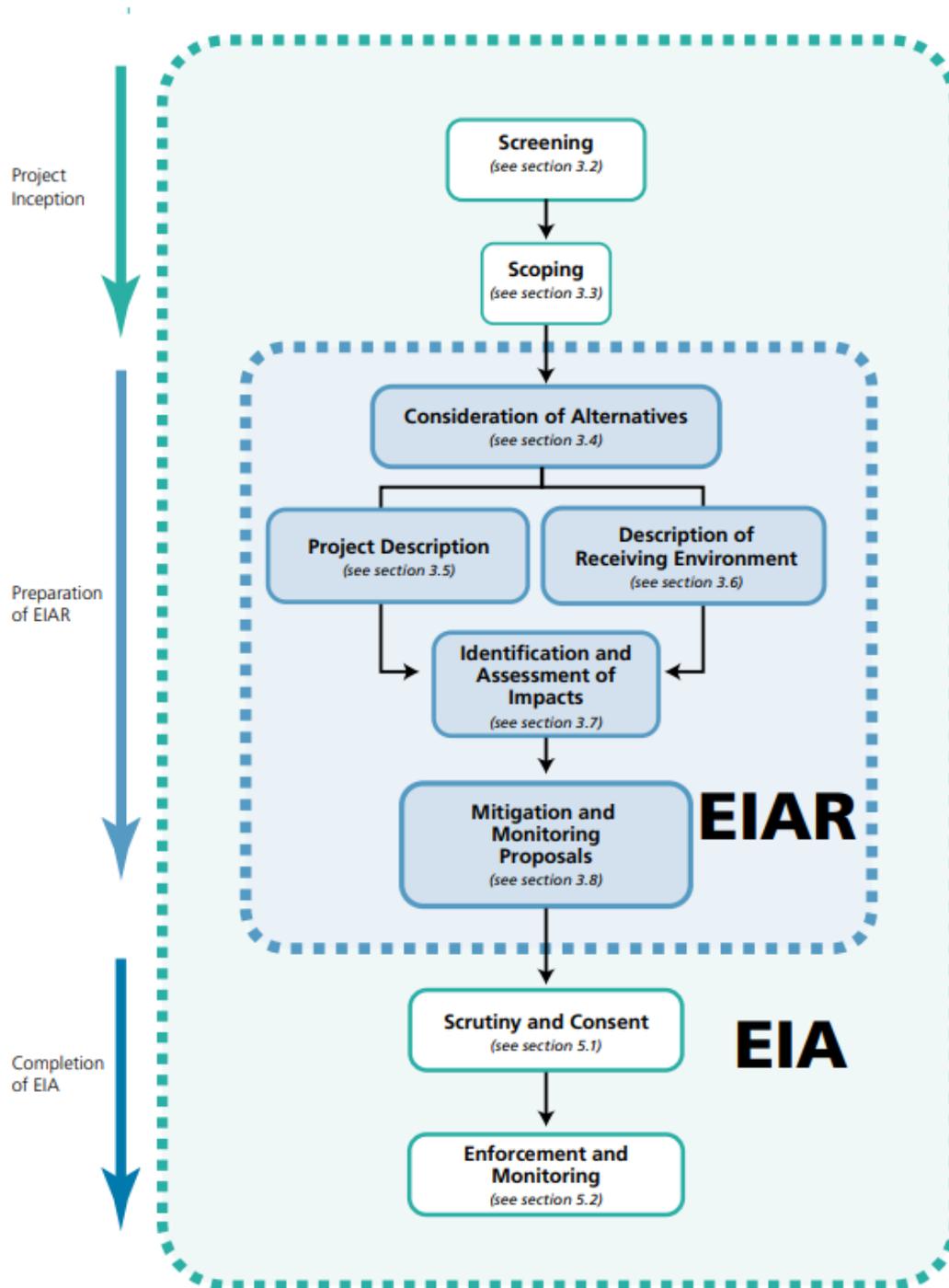


Image 2.1 The position of an EIAR within the EIAR Process (Figure 2.1, page 10 of EPA 2022 Guidelines)

## 2.4 Consideration of the EIAR Scope

“Scoping” is a process of deciding what information should be contained in an EIAR and what methods should be used to gather and assess that information. The EPA 2022 Guidelines state that the scoping process should focus effort and resources on key significant issues that are guided by the following criteria:

- Use of likelihood and significance as the principal criteria for determining what environmental aspects need to be considered and addressed in the EIAR.
- Consider precedence to ensure any EIARs for similar projects on similar sites are used to develop an appropriate technical scope and robust assessment; and

- Recognise potential direct and indirect interactions that may magnify effects and/or give rise to cumulative significant effects (from multiple non-significant effects).

The legislation provides for developers to formally request the opinion of the competent authority on the scope of an EIAR. Formal scoping was not carried out for the proposed development. However informal EIAR scoping was carried out at an early stage of the EIAR preparation. An EIAR Scoping Report was prepared which described the key elements of the proposed development, the baseline conditions, and sensitivities of the receiving environment likely to be affected by the proposed development and the studies and assessments proposed. The EIAR Scoping Report provided an overview of the likely significant environmental effects that may arise from the proposed development and described the methods which would be used to evaluate them as part of the preparation of the EIAR. It included information on the following:

- Information and studies required to characterise the existing environment.
- Methods used to predict the magnitude of environmental impacts where applicable.
- Criteria against which the significance of effects will be evaluated.
- Consultations to be undertaken with input from stakeholders being considered in relation to the design, construction, operation, and decommissioning stages of the proposed development and in relation to the assessment undertaken as part of the EIAR.; and
- The envisaged structure and content of the EIAR.

The EIAR Scoping Report is provided in Appendix 2.1 of Volume 8 of this EIAR.

Upon finalisation of the EIAR Scoping Report, informal EIAR scoping consultation was carried out from 20 May 2021 to 30 June 2021 where feedback was sought from stakeholders to inform the content and scope of the EIAR (refer to Appendix 1.2 of Volume 8 of this EIAR for list of consultees). The concerns and queries raised during the EIAR scoping stage have been given due consideration by the EIAR authors and the design team and the results have been incorporated where relevant into Volumes 2, 3, 4 and 5 of this EIAR.

In addition, during the development of the EIAR, statutory bodies and relevant non-statutory consultees (refer to Appendix 1.2 for list) were consulted to apprise them of the proposed approach to the EIAR and they were afforded the opportunity to provide comment on the approach. Comments received during this pre-application consultation process with statutory bodies and non-statutory bodies were reviewed and considered in the preparation of this EIAR.

All of the statutory bodies prescribed by An Bord Pleanála (prescribed bodies) will be notified of the application of the proposed development.

Moreover, following extensive public consultation in respect of the proposed development, submissions, observations, and concerns received from the public were considered and, where appropriate, issues raised in those submissions and observations are addressed in the EIAR.

A summary of the concerns and queries which arose during entire pre-application consultation process are provided in Appendix 1.2 of this EIAR.

## **2.5 Structure of EIAR**

This EIAR contains all of the information prescribed by the relevant provisions of Article 5 and Annex IV of the EIA Directive, and Schedule 6 of the Planning Regulations.

This EIAR has been prepared in 12 volumes as follows:

- Volume 1 contains the non-technical summary which summarises the findings and conclusions of the EIAR in a clear, understandable manner in non-technical language with relevant figures. The non-technical summary is presented with an overview of the proposed development, the existing environment and any likely significant effects, mitigation measures and relevant aspects of the EIAR in a way which can be easily understood.

- Volume 2 contains the ‘introductory chapters’ (Chapters 1-9) which include the EIAR methodology, policy context, need for the development, a description of the reasonable alternatives and the project description and construction strategy for both offshore and onshore infrastructure of the proposed development. Details of the Competent Experts are provided in Appendix 1.1 of Volume 8 of the EIAR.
- Volume 3 contains the ‘offshore chapters’ (Chapters 10-20) which assess various aspects of the marine environment seaward of (below) the High-Water Mark (HWM). The likely significant effects of the proposed development on offshore material assets are addressed in a number of chapters including Chapter 20 Infrastructure and Other Users.
- Volume 4 contains the ‘onshore chapters’ (Chapters 21-26) which assess various aspects of the terrestrial environment landward of (above) the HWM.
- Volume 5 generally contains the ‘wider scheme chapters’ (Chapters 27-34) which assess elements of the proposed development which encompass both onshore and offshore infrastructure. Whilst strictly not “wider scheme”, Offshore Bats (Chapter 35) are also included within Volume 5.
- Volume 6 contains the ‘summary chapters’ (Chapters 36-38) which summarise the mitigation, monitoring and likely significant residual effects of the assessments described in Volumes 3-5, transboundary effects, and a summary of cumulative and inter-related effects.
- Volume 7A contains all figures prepared for the EIAR.
- Volume 7B1 contains all the offshore photomontages prepared for the EIAR.
- Volume 7B2 contains all the onshore photomontages prepared for the EIAR.
- Volumes 8-12 contain all technical appendices for introductory chapters, offshore chapters, onshore chapters, wider-scheme chapters and summary chapters, respectively. This includes modelling outputs, background reports and / or supporting documents.
- The Preface, which is provided at the beginning of Volumes 2, 3, 4 and 5 includes the overall EIAR table of contents (including full appendix list) and glossary.

The EIAR Chapter structure is presented in Table 2.1.

**Table 2.1: EIAR Structure**

EIAR Chapter	Description
<b>Volume 1: Non-Technical Summary</b>	
NTS	Summary of the EIAR in non-technical language.
<b>Volume 2: Introductory Chapters</b>	
Chapter 1	Introduction
Chapter 2	EIA and Methodology for the preparation of an EIAR
Chapter 3	Legal and Policy Framework
Chapter 4	Need for the Proposed Development
Chapter 5	Consideration of Alternatives
Chapter 6	Description of the Proposed Development - Offshore
Chapter 7	Description of the Proposed Development - Onshore
Chapter 8	Construction Strategy - Offshore
Chapter 9	Construction Strategy - Onshore

EIAR Chapter	Description
<b>Volume 3: Offshore Chapters</b>	
Chapter 10	Marine Geology, Oceanography and Physical Processes
Chapter 11	Marine Water and Sediment Quality
Chapter 12	Benthic Subtidal and Intertidal Ecology
Chapter 13	Fish and Shellfish Ecology
Chapter 14	Marine Mammal Ecology
Chapter 15	Offshore Ornithology
Chapter 16	Commercial Fisheries
Chapter 17	Shipping and Navigation
Chapter 18	Offshore Archaeology and Cultural Heritage
Chapter 19	Aviation and Radar
Chapter 20	Infrastructure and Other Users
<b>Volume 4: Onshore Chapters</b>	
Chapter 21	Land and Soils (includes soils, geology and hydrogeology)
Chapter 22	Water (includes hydrology, surface water quality and flooding)
Chapter 23	Biodiversity
Chapter 24	Traffic and Transportation
Chapter 25	Onshore Archaeology, Architectural and Cultural Heritage
Chapter 26	Material Assets
<b>Volume 5: Wider Scheme Aspects</b>	
Chapter 27	Air Quality
Chapter 28	Climate
Chapter 29	Seascape, Landscape and Visual
Chapter 30	Noise and Vibration
Chapter 31	Resource and Waste Management
Chapter 32	Population and Human Health
Chapter 33	Socio-Economic, Tourism and Recreation
Chapter 34	Major Accidents and/or Disasters
Chapter 35	Offshore Bats
<b>Volume 6: Summary Chapters</b>	
Chapter 36	Mitigation and Monitoring Measures and Likely Significant Residual Effects

EIAR Chapter	Description
Chapter 37	Transboundary Effects
Chapter 38	Cumulative and Inter-Related Effects
<b>Volume 7A: Figures</b>	
Figures	Graphics and drawings supporting the EIAR Chapters, illustrating the proposed development and environmental information.
<b>Volume 7B: Photomontages</b>	
Photomontages	Photomontages (Offshore (7B1) and Onshore (7B2))
<b>Volume 8: Appendices (Introductory)</b>	
Appendices	Technical reference information supporting the Introductory Chapters, such as technical reports compiling calculation and detailed background data and A3 reproduced version of relevant planning drawings
<b>Volume 9: Appendices (Offshore)</b>	
Appendices	Technical reference information supporting the Offshore Chapters, such as technical reports compiling calculation and detailed background data.
<b>Volume 10: Appendices (Onshore)</b>	
Appendices	Technical reference information supporting the Onshore Chapters, such as technical reports compiling calculation and detailed background data.
<b>Volume 11: Appendices (Wider Scheme)</b>	
Appendices	Technical reference information supporting the Wider Scheme Chapters, such as technical reports compiling calculation and detailed background data.
<b>Volume 12: Appendices (Summary)</b>	
Appendices	Technical reference information supporting the Summary Chapters, such as long list for the cumulative impact assessment.

The location of the information required as per Article 5(1) of the EIA Directive is presented in Table 2.2 below.

**Table 2.2 Location within this EIAR of the information required as per Article 5 of the EIA Directive**

Information Required as per Article 5(1) of the Directive	Location within this EIAR
(a) a description of the project comprising information on the site, design, and size of the project;	Chapters 6-9
(b) a description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects;	Mitigation measures section contained within Chapters 10-36
(c) the data required to identify and assess the main effects which the project is likely to have on the environment;	Methodology and Baseline Environment sections contained within Chapters 10-35
(d) an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects;	Chapter 5
(e) a non-technical summary of the information referred to in points (a) to (d).	Volume 1

While the EIAR has been prepared in compliance with the EIA Directive, it has also been written to make it accessible to a wider, non-specialist audience.

Where technical terminology is used, an explanation is provided in the text, and/or in the glossary of terms which is provided at the beginning of Volume 2 of the EIAR.

Generally, the structure of the chapters in Volumes 3 to Volume 6 of this EIAR align with both the EC 2017 Guidance and EPA 2022 Guidelines. Volumes 3 to 6 include the following headings:

- **Introduction:** Provides an overview of the aims and objectives of the specific chapter in assessing the proposed development and outlines the scope of the assessment.
- **Methodology:** Describes the forecasting methods and evidence used to identify and assess the significant impacts on the environment.
- **Baseline Environment:** The baseline refers to the current state of environmental characteristics. It involves the collection and analysis of information on the condition, sensitivity and significance of relevant environmental topics which are likely to be significantly impacted by the proposed development.
- **Characteristics of the proposed development:** This section describes the key features/parameters of the proposed development which are of relevance to the environmental topic in terms of potential to cause likely significant effects.
- **Potential Effects:** This section provides a description of the likely significant effects in accordance with the EIA Directive and EPA 2022 Guidelines and other topic specific guidelines where appropriate. The Do-Nothing scenario is also described. Direct, indirect and inter-related effects are considered. Construction, operational and decommissioning phases are all addressed.
- **Mitigation and Monitoring Measures:** This section sets out measures envisaged to avoid, prevent, reduce or, if possible, offset any identified likely significant adverse effects on the environment and, where appropriate, identifies any proposed mitigation and monitoring arrangements.
- **Residual Effects:** Any likely significant effects that are predicted to remain after all mitigation measures have been implemented are referred to as ‘Residual Effects’. These are the remaining environmental effects of the proposed development that could not be reasonably avoided.
- **Transboundary Effects:** Describes the likely significant effects of the proposed development on the environment of another State.
- **Cumulative Effects:** Describes the likely significant effects of the proposed development in combination with other existing and/ or approved projects; and
- **Reference list:** Lists the sources used for the descriptions and assessments included in the report.

## 2.6 Assessment of Effects

The environmental topic assessment chapters evaluate the construction, operation, and decommissioning phases of the proposed development, with the likelihood, extent, magnitude, duration, and significance of effects described.

The ‘Potential Effects’ section of each assessment chapter considers the potential direct, indirect and interaction effects as well as the ‘do-nothing effect’ scenario for each project phase. For all environmental topics, any residual likely significant effects are assessed and presented.

The interactions of effects between different environmental aspects and the potential for cumulative impacts to arise are also presented as a summary in Volume 6, Chapter 38: Cumulative and Inter-related Effects (hereafter referred to as the ‘Cumulative and Interrelated Effects Chapter’). The likely significant transboundary effects (if any) are detailed within the assessment topic chapters of the EIAR and summarised in Volume 6, Chapter 37, Transboundary Effects.

The EIAR has used a receptor-based approach and considered the proposed development as a whole. For example, if the onshore infrastructure of the proposed development has impact pathways to offshore receptors, it is assessed in the relevant offshore chapter.

The assessment criteria used generally follow the EC 2017 Guidance and EPA 2022 Guidelines. As per the EPA 2022 guidance, the EIAR focuses on likely significant effects, i.e. those that are probable or likely to occur. As noted in Section 3.7.3 of the EPA guidance, the significance of effects is usually understood to mean “the importance of the outcome of the effects (the consequences of the change). Significance is determined by a combination of (objective) scientific and subjective (social) concerns”.

In addition, the EPA 2022 guidance notes that “while guidelines and standards help ensure consistency, the professional judgement of competent experts can play an important role in the determination of significance. These experts may place different emphases on the factors involved. As this can lead to differences of opinion, the EIAR sets out the basis of these judgements so that the varying degrees of significance attributed to different factors can be understood”.

Each of the assessment chapters sets out how significance is determined for that particular environmental topic, following topic-specific methodology and based on applicable standards and approaches, with consideration given the EPA 2022 Guidelines. The assessment chapters also highlight where alternative guidance to the EPA guidance and professional judgement have been used. The assessment chapters highlight where varying degrees of significance have been assigned for different factors. It is noted that the EPA 2022 guidance uses the terms effects and impacts interchangeably. Whereas the assessment chapters consider the magnitude of impacts and the sensitivity of the resources / receptors that could be affected, in order to classify the effect.

The description of the likely significant effects in each of the assessment chapters generally follows Table 3.4 of the EPA 2022 guidance unless otherwise stated and described. In general, “significant”, “very significant” and “profound” effects are interpreted as “likely significant effects” in EIA terms. “Moderate” effects may or may not be considered “likely significant effects” in EIA terms, it will be up to the competent expert to determine what is appropriate for that particular assessment. Table 3.4 of the EPA 2022 guidance has been as reproduced in Table 2.3 of this chapter below. The EPA 2022 guidance notes that all categories of terms do not need to be used for every effect.

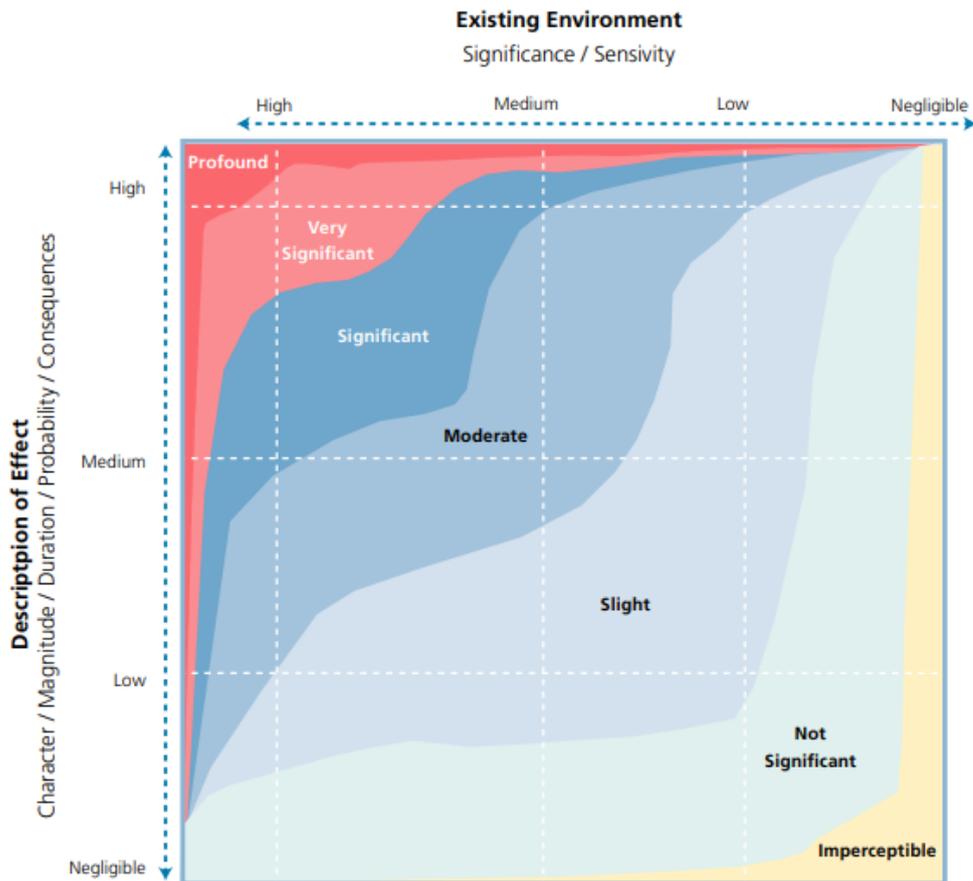
Figure 3.4 of the EPA 2022 guidance (replicated as Image 2.2 below) shows how combining the character of the predicted impact with the sensitivity of the receiving environment can determine the significance of the effect. The guidance notes that the depiction of significance classification is indicative and should not be relied on as being definitive. It is provided for general guidance purposes.

**Table 2.3: Description of Effects (Table 3.4 of EPA 2022 Guidelines)**

Assessment Criteria	
<b>Quality of Effects</b>	
It is important to inform the non-specialist reader whether the effect is positive, negative, or neutral.	<p><b>Positive Effects</b></p> <p>A change which improves the quality of the environment (for example, by increasing species diversity or improving the reproductive capacity of an ecosystem; or by removing nuisances; or improving amenities)</p>
	<p><b>Neutral Effects</b></p> <p>No effects or effects that are imperceptible, within normal bound of variation or within the margin of forecasting error.</p>
	<p><b>Negative/Adverse Effects</b></p> <p>A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing a nuisance)</p>
<b>Describing the Significance of Effects</b>	
	<b>Imperceptible</b>

Assessment Criteria	
<p>‘Significance’ is a concept that can have different meanings for different topics – in the absence of specific definitions for the different topics the following definitions may be useful.</p>	An effect capable of measurement but without noticeable consequences
	<p><b>Not Significant</b></p> <p>An effect which causes noticeable changes in the character of the environment but without significant consequences</p>
	<p><b>Slight Effects</b></p> <p>An effect which causes noticeable changes in the character of the environment without affecting its sensitivities</p>
	<p><b>Moderate Effects</b></p> <p>An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends</p>
	<p><b>Significant Effects</b></p> <p>An effect, which, by its character, magnitude, duration or intensity, alters a sensitive aspect of the environment</p>
	<p><b>Very Significant Effects</b></p> <p>An effect which, by its character, magnitude, duration or intensity, significantly alters most of a sensitive aspect of the environment</p>
	<p><b>Profound Effects</b></p> <p>An effect which obliterates sensitive characteristics</p>
Describing the Extent and Context of Effects	
<p>Context can affect the perception of significance. It is important to establish if the effect is unique or, perhaps, commonly or increasingly experienced.</p>	<p><b>Extent</b></p> <p>Describe the size of the area, the number of sites, and the proportion of a population affected by an effect</p>
	<p><b>Context</b></p> <p>Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)</p>
Describing the Probability of Effects	
<p>Descriptions of effects should establish how likely it is that the predicted effects will occur – so that the Competent Authority can take a view of the balance of risk over advantage when making a decision.</p>	<p><b>Likely Effects</b></p> <p>The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented</p>
	<p><b>Unlikely Effects</b></p> <p>The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented</p>
Describing the Duration and Frequency of Effects	
<p>‘Duration’ is a concept that can have different meanings for different topics – in the absence of specific definitions for different topics the following definitions may be useful.</p>	<p><b>Temporary Effects</b></p> <p>Effects lasting less than a year</p>
	<p><b>Short-term Effects</b></p> <p>Effects lasting one to seven years</p>
	<p><b>Medium-term Effects</b></p> <p>Effects lasting seven to fifteen years</p>
	<p><b>Long-term Effects</b></p>

Assessment Criteria	
	Effects lasting fifteen to sixty years
	<b>Permanent Effects</b> Effects lasting over sixty years
	<b>Reversible Effects</b> Effects that can be undone, for example through remediation or restoration
	<b>Frequency of Effects</b> Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Describing the Types of Effects	
	<b>Indirect Effects (a.k.a. Secondary or Off-site Effects)</b> Effects 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.
	<b>Cumulative Effects</b> The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	<b>“Do-Nothing Effects”</b> The environment as it would be in the future should the subject project not be carried out.
	<b>“Worst-case Effects”</b> The effects arising from a project in the case where mitigation measures substantially fail.
	<b>Indeterminable Effects</b> When the full consequences of a change in the environment cannot be described.
	<b>Irreversible Effects</b> When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	<b>Residual Effects</b> The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	<b>Synergistic Effects</b> Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of SOx and NOx to produce smog).



There are seven generalised degrees of effect significance that are commonly used in EIA. Imperceptible, Not Significant, Slight, Moderate, Significant, Very Significant and Profound. Generalised definitions of each of these are provided in Table 3.4. When more specific definitions exist within a specialised factor or topic, e.g. biodiversity, these should be used in preference to these generalised definitions. (ref. Advice Notes<sup>68</sup>.)

Image 2.2: Chart showing typical classifications of the significance of effects (Figure 3.4 of EPA Guidance)

## 2.7 Pre-Application Consultation with An Bord Pleanála and Design Flexibility

### 2.7.1 Pre-application Consultation under Section 287

Pre-application consultation with An Bord Pleanála is required under section 287 of the Planning Acts before an application for consent for the proposed development can be made under section 291 of the Planning Acts.

On 5 January 2023, the Developer submitted a request to An Bord Pleanála to enter pre-application consultation under section 287(1) of the Planning Acts. Reference number ABP-315801-23 was allocated by An Bord Pleanála with respect to the Developer’s intended application under section 291 of the Planning Acts. Subsequently, on 13 March 2023, the Developer prepared a report in response to a request from An Bord Pleanála dated 20 February 2023 for the information in its letter to be submitted to An Bord Pleanála in accordance with section 288(1)(a) of the Planning Acts. A copy of this report is provided in Appendix 2.2 of Volume 8 of this EIAR. There were four meetings held during the Section 287 pre-application process (30<sup>th</sup> May 2023, 21<sup>st</sup> September 2023, 2<sup>nd</sup> November 2023, and 14<sup>th</sup> December 2023). An Bord Pleanála closed the Section 287 pre-application consultations on 2<sup>nd</sup> February 2024.

## 2.7.2 Pre-application Consultation under Section 287A

The offshore wind industry continues to evolve and develop at a rapid pace in all aspects such as wind farm design, wind turbine generator (WTG) and foundation technology and construction and installation techniques. To be able to take advantage of ongoing advances in technology and recognising the need to install the most efficient and effective project elements, it is necessary to make an application for permission before certain details of the proposed development have been confirmed.

Section 287A of the Planning Acts provides for a developer to enter pre-application consultation with An Bord Pleanála in relation to flexibility for certain details of a proposed development. The Developer, in its report dated 13 March 2023, stated that it would be requesting an opinion from An Bord Pleanála on flexibility under section 287A of the Planning Acts. Reference number ABP-316332-23 was allocated by An Bord Pleanála with respect to the Developer's intended application under section 287A.

Following Section 287 pre-application consultation meetings with An Bord Pleanála on 30 May 2023 and 21 September 2023, the Developer was invited to submit an application for a design flexibility opinion under section 287A of the Planning Acts. On 26 October 2023, the Developer submitted this application to An Bord Pleanála. A copy of the application by the Developer under section 287A is provided in Appendix 2.3 of Volume 8 of this EIAR.

On 2 February 2024, An Bord Pleanála issued its opinion on design flexibility, signed 30 January 2024 (the "DF Opinion"). This DF Opinion was subsequently clarified by way of letter dated 4 April 2024 and updated by way of decision pursuant to Section 146A of the Planning Acts on 16 April 2024. The DF Opinion is provided in Appendix 2.4 of Volume 8 of this EIAR.

The DF Opinion confirms the details of the proposed development for which design flexibility has been accepted by An Bord Pleanála. These details may therefore be confirmed after the Developer's proposed application under section 291 has been made. The DF Opinion includes flexibility for the following aspects of the proposed development:

1. Turbines – model, number and dimensions (tip height, rotor diameter, rotor swept areas, nacelle height and hub heights);
2. Turbine foundations – type and pile dimensions.
3. Offshore substation platform – foundation type and dimensions (height above sea level, length and width).
4. Siting of infrastructure – fixed location with limit of deviation (turbines, foundations, export cable and offshore substation platform location); and
5. Offshore cabling – subsea cable size and subsea cable length.

An Bord Pleanála determined that it was appropriate to allow for design flexibility in the Developer's proposed planning application because of "ongoing advances in technology and the recognition of the need to install the most efficient and effective project elements in relation to Items 1 to 5 above".

Following receipt of the DF Opinion and closure of the pre-application consultation process (also confirmed on 2 February 2024), the Developer was then in a position to submit its planning application under section 291 of the Planning Acts.

The DF Opinion is provided in Appendix 2.4 of Volume 8 of this EIAR.

## 2.8 Approach to Design Flexibility in the EIAR

### 2.8.1 Unconfirmed Details

The assessments in this EIAR are based on a design which incorporates some details which have not been confirmed and where design flexibility has been accepted. The unconfirmed design details are as set out in Section 2.7.2 above and further detailed in Chapter 6: Description of the Proposed Development – Offshore (Offshore Description Chapter), and Chapter 8: Construction Strategy – Offshore (Offshore Construction Strategy Chapter). Where the design details are unconfirmed, ranges of parameters (with minimum and maximum values identified) and discrete design options are provided in order to capture the design flexibility

awarded to the Developer by An Bord Pleanála through the DF Opinion. Refer to Appendix 2.3 and 2.4 for further details.

To accommodate the design flexibility required, two distinct project options are proposed for the offshore elements of the proposed development. The key differences between the two project options relate to Wind Turbine Generator (WTG) number, WTG dimensions, WTG layout, OSP foundation type and dimensions. A fixed WTG layout for each of the two project options is included in the application. A 500m limit of deviation for each WTG and the OSP is proposed. The precise location of WTGs and the OSP within the array area, and the export cable within the export cable corridor, will not be confirmed until detailed geotechnical site investigation surveys are undertaken.

## 2.8.2 Guidance on environmental assessment of a flexible design

The approach to completing an EIA where design parameters of a proposed development are not fixed are outlined below.

### 2.8.2.1 Environmental Protection Agency guidance

Section 3.5.8 of the EPA 2022 Guidelines provides the following guidance for the preparation of an EIAR where the level of detail in a project description may be limited:

*“Where provision of full details of the construction and/or operation of a project is not practicable in an EIAR, the extent of environmental effects of the project should be set out so that the CA has sufficient information about the context, for their assessment and decision. To do this, a description of the project should be provided to enable the worst-case effects of the project to be described in an EIAR. The detailed design can then vary without rendering the EIA process inadequate.”*

Note: CA= Competent authority

### 2.8.2.2 Department of Communications, Climate Action and the Environment (DCCA) guidance

The DCCA 2017 published guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. In section 4.5.2, the guidance recognises that developers may limit the project description to ensure flexibility for future project design evolution. The guidance notes that *“The need for design flexibility in its evolution through EIA/EIS and consent application must be balanced with the need to define the development adequately to avoid delays and inconsistency in the assessment and consenting processes.”*

## 2.8.3 Assessment approach – greatest potential for likely significant effects

The design parameters and spatial extent of the proposed development are presented in the Offshore and Onshore Description Chapters and the Offshore and Onshore Construction Strategy Chapters.

An assessment approach has been developed by the Developer in order to present an assessment of the likely significant effects, whilst addressing the requirement for the proposed development to have flexibility for two project options.

In summary, this approach identifies the potential impacts from both project options and the magnitude of impact and significance of effects is identified for both project options. In relation to qualitative modelling undertaken to support the assessments in the EIAR, the project option with the greatest magnitude of impact was selected for use in each model. Given the similarities between the two project options it was considered unnecessary to complete the modelling exercise on the project option with a lesser magnitude of impact. The results of the models were therefore used for the assessment of likely significant effects for both project options as the results are representative of both project options.

The detailed steps taken to assess the likely significant environmental effects of the proposed development, were as follows:

- The environmental topic specialist for each environmental aspect examined Project Options 1 and 2, including having regard to the limit of deviation for each WTG and the OSP.
- Identification of the potential impacts in relation to Project Options 1 and 2 was undertaken through the understanding of the baseline and parameters for assessment.

- The magnitude of those impacts in relation to the size and scale of the proposed development parameters was then determined. This enabled the identification of the magnitude of impact for both project options to enable calculations and mapping to be undertaken. In relation to modelling, the project option with the greatest magnitude of impact was determined and modelled.
- For some environmental aspects and potential effects, both project options were modelled as it was not clear at the outset which option would lead to the greatest magnitude of impact and therefore result in the greatest likely significant effect. This includes the Collision Risk Model (CRM) for the ornithology assessment within Chapter 15: Offshore Ornithology, and for the photomontages prepared for the seascape and landscape assessment presented in Chapter 29: Seascape Landscape and Visual.
- The significance of effect assessment was then undertaken for both project options, through consideration of both receptor sensitivity and the magnitude of the impact. Given the similarity of the project options, in most instances the conclusions are the same. In some instances, the difference in magnitude of impact between project options results in a different categorisation of significance.

To ensure a realistic assessment of likely significant effects, the parameters assessed were not a combination of the design parameters from each project option. Each project option is distinct. For example, the largest WTG size (Project Option 2) was not assessed with the largest WTG number (Project Option 1), as this is not a realistic scenario.

In summary, this approach ensures that the EIAR appropriately considers the greatest potential likely significant effects of the proposed development on each relevant aspect of the environment, even though certain project details have not been finalised at the point of planning submission.

## 2.9 Mitigation and Monitoring Measures

The magnitude of impact and significance of the likely environmental effects are evaluated and where required appropriate measures to mitigate potential adverse effects are proposed. This involves an iterative approach in which a feedback loop is used to initially assess a significant adverse effect, followed by incorporation of mitigation measures to avoid impacts or to reduce impacts to acceptable levels in order to reduce the magnitude of the impact. This process is repeated until the effect is no longer significant. This iterative approach to the impact assessment process has been used as a means of informing the design of the proposed development.

Embedded mitigation measures are those that are identified and adopted as part of the evolution of the proposed development's design and operation of the project. Such measures are considered in the significance of effect assessment (i.e. they are assumed to form part of the design of the proposed development prior to any assessment). Embedded measures also include industry best practice that would be incorporated into most offshore wind farm developments.

Additional mitigation measures are those that are identified during the impact assessment process specifically to reduce or eliminate any predicted significant adverse effects. Additional mitigation measures are therefore subsequently adopted for the proposed development as a project commitment. The assessment of residual effects includes incorporation of additional mitigation measures.

If it is not possible to reduce the magnitude of the impact via mitigation measures such that the effect remains significant, it is reported as a residual significant effect in the EIAR.

The significance of the effects presented in this EIAR is representative of the greatest magnitude of impact upon receptors, the maximum effect that the proposed development will have, should the application be approved.

In certain circumstances, it may be pertinent to implement monitoring of any identified residual effects. Details of any post-consent management and monitoring proposed for the proposed development are set out within the relevant technical assessment chapters (Chapters 10-35). This includes, where appropriate, proposals to measure the effectiveness of identified mitigation measures.

A summary of the mitigation measures and potential monitoring options detailed within the topic chapters of the EIAR is provided in Chapter 36, Mitigation, Monitoring and Residual Effects.

## 2.10 Transboundary Effects

In accordance with the EIA Directive the competent authority (in this case An Bord Pleanála) is tasked with determining whether a proposed development is likely to have significant effects on the environment of other States. As such this EIAR has considered and assessed transboundary effects on Member States of the European Union and other states that are party to the Transboundary Convention (the Convention on Environmental Impact Assessment in a Transboundary Context, the “Espoo Convention”) arising from the construction, operation and decommissioning of the proposed development. The 2006 guidance on the practical application of the Espoo Convention has been complied with in the preparation of the EIAR.

The Espoo Convention sets out the obligations of parties to assess the environmental impact of certain activities at an early stage of planning and lays down general obligations of States to notify and consult each other on all major projects under consideration that are likely to have a significant environmental effect across boundaries.

Part 5 of Annex IV of the EIA Directive states the following.

*“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.”*

Additionally, Section 174 of the Planning Acts and Article 124 of the Planning Regulations set out the procedures to be followed in relation to applications for development where the development is likely to have significant effects on the environment in another Member State of the European Communities or a state which is a party to the Transboundary Convention.

An Bord Pleanála, upon conclusion of the pre-application consultation stage with the Developer, directed that the United Kingdom, Northern Ireland, Wales, Scotland and Isle of Man should be notified of the application for the proposed development:.

The likely significant transboundary effects (if any) are detailed within the assessment topic chapters of the EIAR and summarised in Chapter 37, Transboundary Effects.

## 2.11 Cumulative and Inter-Related Effects

### 2.11.1 Cumulative Effects

The consideration of potential cumulative effects is an important stage in the EIA process. Although the proposed development may not result in significant residual effects in isolation, when the proposed development is considered cumulatively with other existing and/or approved projects, significant residual effects may occur.

Annex IV of the EIA Directive (2011/92/EU as amended by 2014/52/EU) requires that an EIAR provides a ‘description of the likely significant effects of the project on the environment 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.’ Further, the EPA 2022 Guidelines define cumulative effects as: ‘The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.’

As required by Article 3 of the EIA Directive, an assessment of environmental interactions, which are reactions between impacts, whether between the impacts of the proposed development or between the impacts of other projects, is to be undertaken.

A long list of “other existing and/or approved projects” which were deemed to be potentially relevant to be included in the cumulative impact assessment was compiled (see Volume 6, Chapter 38: Cumulative and Inter-related Effects (hereafter referred to as the ‘Cumulative and Interrelated Effects Chapter’)). This includes consideration of other offshore and onshore projects, such as offshore wind projects in Ireland designated as “the Phase One projects) and the onshore Operation and Maintenance Facility for the proposed development, which does not form part of this planning application.

A screening exercise of the “long list” was carried out in order to determine whether each of those other projects have the potential to give rise to likely significant cumulative effects for each of the environmental topics in combination with the proposed development.

Many of the other projects were screened out for a number of reasons including the location, scale and nature of the project as described in Appendix 38.1 and 38.2 of Volume 11 of the EIAR. Those projects which were “screened in” were carried forward and assessed in the cumulative assessment.

The results of the cumulative effect assessment are presented in the following chapters:

- In Volume 3 (Offshore chapters), the cumulative effects between the proposed development and other “screened in” projects are described within each topic chapter (Chapters 10 to 20).
- In Volume 4 (Onshore chapters), (Chapters 21 to 26) and in Volume 5 (Wider Scheme chapters), (Chapters 27-28, 30-34) the cumulative effects between the proposed development and other “screened in” projects are described in Section 38.3 of the Cumulative and Interrelated Effects chapter.
- In Volume 5, Chapter 29 SLVIA, the cumulative effects between the offshore elements of the proposed development and other “screened in” projects (including other Phase One projects) are described within the chapter. The cumulative effects between the onshore elements of the proposed development and other “screened in” projects are described in Section 38.3 of the Cumulative and Interrelated Effects chapter.
- In Volume 5, Chapter 35 Offshore Bats, the cumulative effects between the proposed development and other existing and/or approved projects are described in Section 35.9.
- The overall cumulative effects between the proposed development together with all “screened-in” projects is considered in Section 38.5 of the Cumulative and Interrelated Effects Chapter for completeness.

### 2.11.2 Inter-related Effects

The inter-related (or interactions ) between different environmental effects have been considered throughout the individual assessment chapters, refer to the section titled ‘Potential Effects’ in the chapter. The ‘Potential Effects’ section describes all direct, indirect and inter-related effects for the construction, operation and decommissioning phase as relevant throughout the EIAR as per Section 3.7.6 of the EPA 2022 guidelines EPA EIA guidance (2022), which states:

*“The interactions between effects on different environmental factors should be addressed as relevant throughout the EIAR. For example, where it is established in the Hydrology section that there will be an increase in suspended solids in discharged surface waters during construction, then the Biodiversity section should assess the effect of that on sensitive aquatic receptors. Close coordination and management within the EIA team is needed to ensure that interactions are adequately addressed throughout an EIAR”.*

The interactive effects were identified by each EIA competent expert based on their knowledge of the topic and after extensive communication and information sharing between all EIA competent experts and the EIA management team to ensure the interactions have been adequately addressed throughout the EIAR.

The interactions of effects between different environmental aspects are also presented as a summary in Volume 6, Chapter 38: Cumulative and Inter-related Effects (hereafter referred to as the ‘Cumulative and Interrelated Effects Chapter’).

## 2.12 Appropriate Assessment

Whilst not part of the EIA process, an Appropriate Assessment shall be carried out by the competent authority (in this case An Bord Pleanála) for the proposed development pursuant to Article 6 of the Habitats Directive (council directive 92/43/EEC). The AA process is carried out to allow the competent authority to assess whether a proposed development, plan or programme is likely to have significant effects on European Sites which are designated for their nature conservation objectives,

A Supporting Information for Screening for Appropriate Assessment and a Natura Impact Statement (NIS) has been prepared by the Developer to accompany this application to An Bord Pleanála. These documents contain the necessary information required for An Bord Pleanála to undertake the AA of the proposed

development. Whilst there is the potential for some repetition between these two documents and the EIAR, they do not form part of the EIA process. Both the EIA process and AA process are independent of each other and are therefore these two documents are only mentioned or discussed in the EIAR where additional context is required to be provided. Designated sites are considered within each of the relevant EIAR technical chapters where necessary (refer to Chapters 12, Benthic and Intertidal Ecology, 14 Marine Mammal and Megafauna Ecology, 15 Offshore Ornithology in Volume 3 of the EIAR and Chapter 23 Biodiversity in Volume 4 of the EIAR).

## 2.13 References

Department of Communications, Climate Action, and Environment (DCCAE) and (2017) Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects. (Prepared for the Environmental Working Group of the Offshore Renewable Energy Steering Group and the Department of Communications, Climate Action and Environment).

Department of Housing, Planning, Community and Local Government (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.

Department of Housing, Planning, Community and Local Government (2017) Transposition of 2014 EIA Directive (2014/52/EU) in the Land Use Planning and EPA Licensing Systems; and

Department of Housing, Planning, Community and Local Government (2017) Circular PL 1/2017 – Implementation of Directive 2014/52/EU on the effects of certain public and private projects on the environment (EIA Directive): Advice on the Administrative Provisions in Advance of Transposition.

Environmental Protection Agency (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (May 2022) (EPA 2022 Guidelines).

Environmental Protection Agency (2003) Advice Notes for Preparing Environmental Impact Statements.

Espoo Convention (2004) Decision III/4: Guidance on the Practical Application of the Espoo Convention (2006) <https://unece.org/DAM/env/documents/2006/eia/ece.mp.eia.8.pdf>

European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report.

European Commission (1999) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.