



Arklow Bank Wind Park 2

Environmental Impact Assessment Report

Volume III, Appendix 3.3: Transboundary Impacts Screening

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Glossary

Term	Meaning
Arklow Bank Wind Park 1 (ABWP1)	Arklow Bank Wind Park 1 consists of seven wind turbines, offshore export cable and inter-array cables. Arklow Bank Wind Park 1 has a capacity of 25.2 MW. Arklow Bank Wind Park 1 was constructed in 2003/04 and is owned and operated by Arklow Energy Limited. It remains the first and only operational offshore windfarm in Ireland.
Arklow Bank Wind Park 2 – Offshore Infrastructure	“The Proposed Development”, Arklow Bank Wind Park 2 Offshore Infrastructure: This includes all elements under the existing Maritime Area Consent.
Arklow Bank Wind Park 2 (ABWP2) (The Project)	<p>Arklow Bank Wind Park 2 (ABWP2) (The Project) is the onshore and offshore infrastructure. This EIAR is being prepared for the Offshore Infrastructure. Consents for the Onshore Grid Infrastructure (Planning Reference 310090) and Operations Maintenance Facility (Planning Reference 211316) has been granted on 26th May 2022 and 20th July 2022, respectively.</p> <ul style="list-style-type: none"> • Arklow Bank Wind Park 2 Offshore Infrastructure: This includes all elements to be consented in accordance with the Maritime Area Consent. This is the subject of this EIAR and will be referred to as ‘the Proposed Development’ in the EIAR. • Arklow Bank Wind Park 2 Onshore Grid Infrastructure: This relates to the onshore grid infrastructure for which planning permission has been granted. • Arklow Bank Wind Park 2 Operations and Maintenance Facility (OMF): This includes the onshore and nearshore infrastructure at the OMF, for which planning permission has been granted. • Arklow Bank Wind Park 2 EirGrid Upgrade Works: any non-contestable grid upgrade works, consent to be sought and works to be completed by EirGrid.
Array Area	The Array Area is the area within which the Wind Turbine Generators (WTGs), the Offshore Substation Platforms (OSPs), and associated cables (export, inter- array and interconnector cabling) and foundations will be installed.
Benthic ecology	Benthic ecology encompasses the study of the organisms living in and on the sea floor, the interactions between them and impacts on the surrounding environment.
Cable Corridor and Working Area	The Cable Corridor and Working Area is the area within which export, inter-array and interconnector cabling will be installed This area will also facilitate vessel jacking operations associated with installation of WTG structures and associated foundations within the Array Area.
Competent Authority	The authority designated as responsible for performing the duties arising from the EIA Directive as amended. For this application, the Competent Authority is An Bord Pleanála.
Cumulative Impacts	‘The addition of many minor or insignificant effects, including effects of other Projects, to create larger, more significant effects’ (EPA, 2022).
EIA	An Environmental Impact Assessment (EIA) is a statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the Directive 2011/92/EU on the assessment of the effects of certain public and private Projects on the environment as amended by Directive

Term	Meaning
	2014/52/EU of the European Parliament and of the Council (EIA Directive) and the regulations transposing the EIA Directive (EIA Regulations).
Habitats Directive	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
Indirect Impact	'Impacts on the environment, which are not a direct result of the Project, often produced away from (the site) or as a result of a complex pathway' (EPA, 2022).
Maritime Area Consent (MAC)	A consent to occupy a specific part of the maritime area on a non-exclusive basis for the purpose of carrying out a Permitted Maritime Usage strictly in accordance with the conditions attached to the MAC granted on 22nd December 2022 with reference number 2022-MAC-002.
Magnitude	Size, extent and duration of an impact.
Mitigation Measure	Measure which would avoid, reduce, or offset an impact.
Permitted Maritime Usage	The construction and operation of an offshore windfarm and associated infrastructure (including decommissioning and other works required on foot of any permission for such offshore windfarm).
Sensitive Receptor	Physical or natural resource, special interest or viewer group that may experience an impact.
Sensitivity	Vulnerability of a sensitive receptor to change.
The Developer	Sure Partners Ltd.
Transboundary impacts	Impacts that may arise from an activity within one state, that significantly affect the environment or other interests of another state.

Acronyms

Term	Meaning
ABP	An Bord Pleanála
ALAN	Artificial Lighting at Night
CME	Coopératives Maritimes Étaloises
CRPMEM	Comité Régional des Pêches Maritimes & des Élevages Marins
Cefas	Centre for Environment, Fisheries and Aquaculture Science
DAERA	Department of Agriculture, Environment and Rural Affairs
EC	European Commission
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electromagnetic Field
EPA	Environmental Protection Agency
EU	European Union
GHG	Greenhouse Gas
IEF	Important Ecological Feature
IROPI	Imperative Reasons of Overriding Public Interest
MAC	Maritime Area Consent
NIS	Natura Impact Statement
OSP	Offshore Substation Platform
PINS	Planning Inspectorate
SAC	Special Area of Conservation
SCI	Site of Community Importance
SPA	Special Protection Area
UNECE	United Nations Economic Commission for Europe
UXO	Unexploded Ordnance
VHF	Very High Frequency
WTG	Wind Turbine Generator

ZTV

Zone of Theoretical Visibility

Units

Unit	Description
km	Kilometre
km ²	Kilometre squared
MW	Megawatt

1 Transboundary Impacts Screening

1.1 Introduction

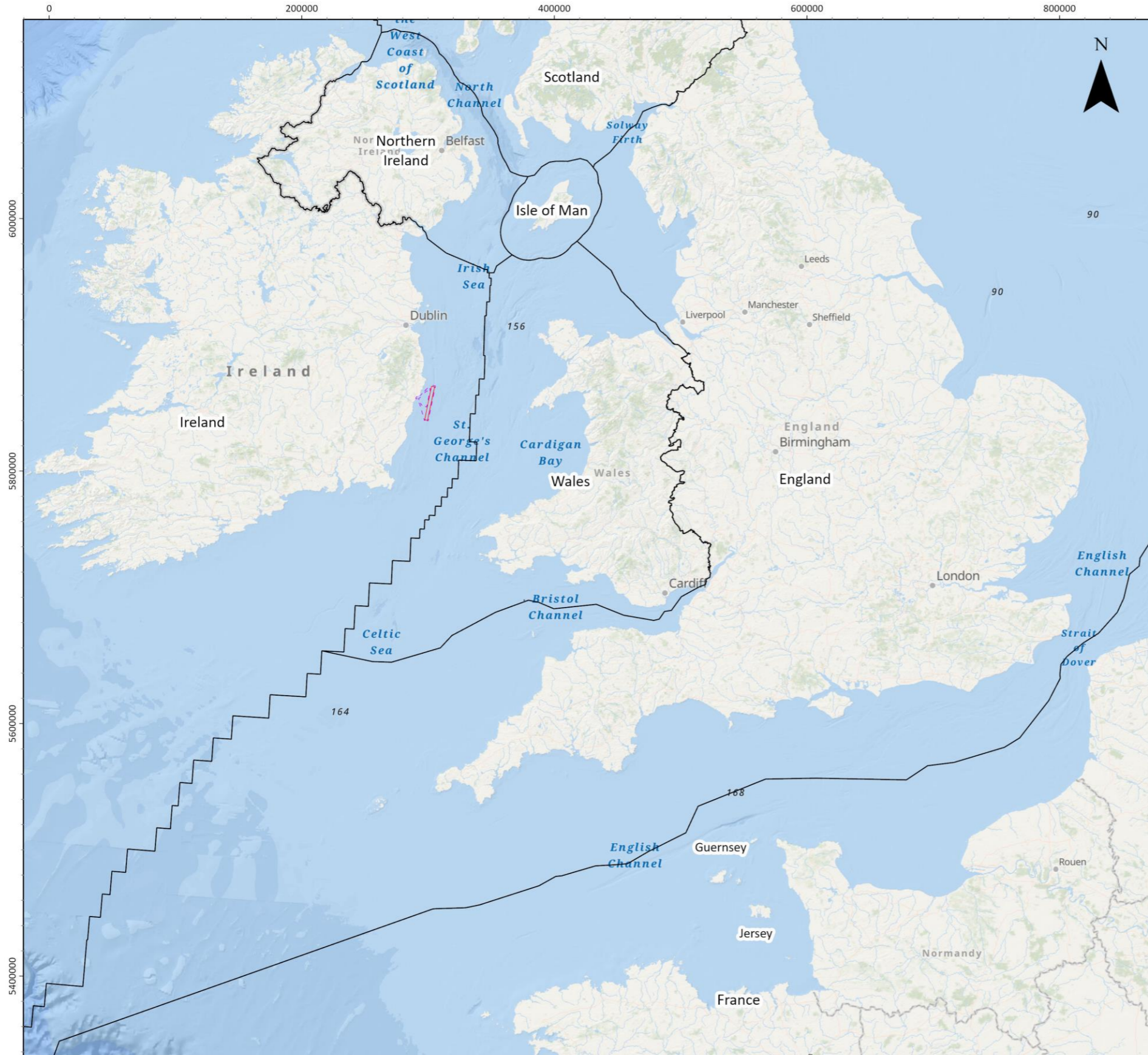
- 1.1.1.1 This appendix presents the potential transboundary effects that could arise from the Arklow Bank Wind Park 2 Offshore Infrastructure (the Proposed Development). The assessment of transboundary effects is addressed in the main Environmental Impact Assessment Report (EIAR) topic specific chapters.
- 1.1.1.2 Transboundary effects relate to those that may arise from an activity within one state, that significantly affect the environment or other interests of another state. This appendix sets out an assessment of the potential for such effects to occur on the environment or interests of other states as a result of the Proposed Development, based on what is currently known of the likely spatial scale of effects arising from the Proposed Development and the interests of other states in the vicinity.
- 1.1.1.3 This appendix is intended to provide information to An Bord Pleanála (ABP) to inform the evaluation of the likelihood of such effects occurring and the need, if any, for transboundary consultation with another state.
- 1.1.1.4 The Proposed Development is an offshore wind farm project situated on and around Arklow Bank in the Irish Sea, approximately 6 to 15 km from the shore.
- 1.1.1.5 The Proposed Development covers an area of 139.4 km². The Array Area is located 31 km from the median line between Irish and UK waters and 122 km from the median line between Irish and the Isle of Man waters (Figure 3.3.1).

Arklow Bank Wind Park 2

Location of the Proposed Development and Relevant Jurisdictional Boundaries

Legend

- ABWP2 Array Area
- ABWP2 Cable Corridor and Working Area
- Jurisdictional Boundary



Notes
 Esri, TomTom, FAO, NOAA, USGS, OceanWise, Esri, GEBCO, Garmin, NaturalVue, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri, GEBCO, Garmin, NaturalVue. Contains Ordnance Survey data © Crown copyright and database rights (2022). OS OpenData.

Coordinate System:
 ETRS 1989 UTM Zone 30N

0 50 100 km

0 30 60 nm

Scale: 1:2,989,969 @ A3 Date: 30/01/2024 Drawn By: GB Checked By: EM Approved By: LK

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Figure Number 3.1

Figure Reference: ARK_001_JurisdictionalBoundariesFig3.1

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Figure 3.3.1: Location of the Proposed Development and Relevant Jurisdictional Boundaries

1.2 Legislative Context

1.2.1 Environmental Impact Assessment

1.2.1.1 The need to consider transboundary impacts has been embodied by the United Nations Economic Commission for Europe (UNECE) Convention on Environmental Impact Assessment 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 are 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 (EU), Ireland and the United Kingdom (on behalf of the United Kingdom of Great Britain and Northern Ireland, the Bailiwick of Jersey, the Bailiwick of Guernsey, the Isle of Man and Gibraltar). 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 activities listed in Appendix I of the Convention (which includes 'major installations for the harnessing of wind power for energy production (wind farms)') and likely to cause a significant adverse transboundary impact.

1.2.1.2 Article 7 of Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment ('the Environmental Impact Assessment (EIA) Directive') as amended by Directive 2014/52/EU introduces similar requirements concerning projects carried out in one state but likely to have significant effects on the environment of another. Article 7(4) of the amended EIA Directive states:

"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 timeframe for the duration of the consultation period".

1.2.1.3 European Commission (EC) guidance on the application of the environmental impact assessment procedure for large-scale transboundary projects (EC, 2013) outlines seven key steps in the EIA procedure:

- Notification and transmittal of information;
- Determination of the content and extent of the matters of the EIA information – scoping;
- Preparation of the EIAR by the Developer;
- Public participation, dissemination of information and consultation;
- Consultation between concerned Parties;
- Examination of the information gathered and final decision; and
- Dissemination of information on the final decision.

1.2.1.4 The Environmental Protection Agency (EPA) Guidelines (2022) also outline 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 states should be made. This will establish a consultation framework to consider and address these effects.

1.2.1.5 The UK Planning Inspectorate (PINS) Advice Note 12: Transboundary Impacts (PINS, 2020) sets out procedures for consultation where a development may have significant transboundary impacts. Whilst the Advice Note has been prepared by PINS, it has been used to inform this transboundary appendix. The Advice Note sets out the role of states and developers. Based on Advice Note 12, developers are advised to:

- Consider, when preparing documents for consultation and application, that the competent authority may notify the relevant state of their particular project;

- Carry out preparatory work to complete a transboundary screening matrix to assist the competent authority in determining the potential for likely significant effects on the environment in other states; and
- Submit the transboundary screening matrix at the EIA scoping stage.

1.2.1.6 A transboundary screening matrix was produced and submitted to relevant states (section 1.3) and ABP as part of the EIAR Scoping Report which was published for public consultation in July 2023.

1.2.1.7 This document provides an assessment of the potential for significant transboundary effects considering the criteria and relevant considerations set out in Annex 1 of PINS Advice Note 12. It provides information about the Proposed Development and sets out information relating to the likely significant effects of the Proposed Development on the interests of the other states in the vicinity, in order to assist ABP in forming a view on the likelihood of significant transboundary effects arising from the Proposed Development.

1.2.2 Appropriate Assessment

1.2.2.1 Article 6(3) of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive'), requires an 'appropriate assessment' to be prepared where a plan or project is likely to have a significant effect upon the network of European (Natura 2000) designated sites. These include Special Areas of Conservation (SAC), candidate SACs, Special Protection Areas (SPA), potential SPAs, Sites of Community Importance (SCI) and also Ramsar sites. These sites may be located within Ireland or in another state.

1.2.2.2 The Habitats Directive is transposed into Irish law inter alia by Part XAB of the Planning and Development Act 2000 as amended.

1.2.2.3 The EC methodological guidance on the assessment of plans and projects significantly affecting Natura 2000 (European) sites (EC, 2001) sets out a four-stage process:

- Stage 1: Screening – the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;
- Stage 2: Appropriate Assessment – the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;
- Stage 3: Assessment of alternative solutions – the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and
- Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain – an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

1.2.2.4 A Natura Impact Statement (NIS) is presented alongside the EIAR. The NIS considers all European sites that are potentially affected by activities associated with the Proposed Development and provides the information required for an Appropriate Assessment to be undertaken by the Board.

1.3 Consultation

1.3.1.1 The Developer carried out informal scoping consultation with ministries and industries in other states through the issue of the Scoping Report in both September 2020 and July 2023. The ministries and industries contacted as part of this consultation are presented in Table 3.3.1 below. Distances from ABWP2 to the nearest marine border of these countries is provided in Table 3.3.3.

Table 3.3.1: Ministries and Industries contacted during informal scoping consultation

Country	Ministry / representative
Northern Ireland	<ul style="list-style-type: none"> • Department of Agriculture, Environment and Rural Affairs (DAERA) • Northern Ireland Environmental Agency • Department for Infrastructure • Maritime and Coastguard Agency
England, Wales and Scotland	<ul style="list-style-type: none"> • Department for Business, Energy and Industrial Strategy • Marine Management Organisation • Marine Scotland • Natural Resources Wales • The Environment Agency • Scottish Environmental Protection Agency • Centre for Environment, Fisheries and Aquaculture Science (Cefas) • Maritime and Coastguard Agency • Joint Nature Conservation Committee • Natural England • Scottish Natural Heritage/NatureScot
Isle of Man	<ul style="list-style-type: none"> • Department of Environment, Food and Agriculture • Department of Infrastructure • Cefas
France	<ul style="list-style-type: none"> • Ministère des Affaires étrangères • Armateurs de France • Préfecture Maritime de la Manche et de la Mer du Nord • Secrétariat Général de la Mer • CRPMEM Nord • Fédération Nationale de la Pêche • FROM Nord • CME Organisation de Producteur

1.3.1.2 A summary of the key issues raised during consultation for the Proposed Development relating to transboundary matters and how these have been addressed in the production of this EIAR are set out in Table 3.3.2 below. Further information on the consultation activities undertaken for the Proposed Development can be found in the Consultation Report (Volume III, Appendix 3.1: Consultation Report).

Table 3.3.2: Summary of points raised during the 2020 and 2023 scoping report consultation relating to transboundary impacts

Date	Consultee and type of response	Points raised	Response to issue raised and/or where considered in this EIAR
July 2023	Department of Agriculture,	No comments to make	N/A

Date	Consultee and type of response	Points raised	Response to issue raised and/or where considered in this EIAR
	Environment and Rural Affairs (Northern Ireland) – Scoping response		
July 2023	Joint Nature Conservation Committee (UK) – Scoping response	No transboundary concerns	N/A
July 2023	Department for Infrastructure (Northern Ireland) – Scoping response	No comments to raise at this time	N/A
October 2020	Department of Agriculture, Environment and Rural Affairs (Northern Ireland) – Scoping response	<p>Advised that they are content with the key issues to be addressed in the EIAR; the proposed content of the EIAR and the potential impacts that have been scoped in/out; and the proposed assessment methodologies to assess the potential impacts.</p> <p>Advised that an indicative decommissioning plan should ideally be presented at the construction planning stage, to inform selection of scour protection methods that will be easy to remove.</p> <p>Potential for the introduction of plastic into the marine environment from use of Polypropylene in mattresses and fronds. Best practice would be to avoid its introduction to the marine environment. Ideally rock protection would be of a type similar to that already present.</p> <p>Noted that the project is located outside the mean maximum foraging range, as defined by Woodward <i>et al.</i> (2019), for most seabird species breeding at colonies in Northern Ireland. Significant collision mortality or displacement of birds nesting at these colonies from important foraging areas during the breeding season is therefore considered highly unlikely.</p> <p>Raised concerns in relation to risk of collision mortality during the non-breeding period, particularly during the migration periods, and potential for cumulative impacts with other projects in the Irish Sea,</p>	<p>Rehabilitation Schedule is included with the Application for the Proposed Development (Volume III, Appendix 4.1), in compliance with the MAC</p> <p>The type and design of scour protection to be installed will be confirmed pre-construction, all potential types are being assessed in the EIAR and will take into account factors such as seabed conditions, currents and water depth. Scour protection will include the use of either concrete mattresses, rock or artificial fronds. The preferred solution for cable protection (comprised of ducting, concrete mattresses, or rock) will depend on seabed conditions along the route (see Volume II, Chapter 4: Description of Development). The assessment presented in Volume II, Chapter 9: Benthic Subtidal and Intertidal Ecology has considered a conservative estimate for long term habitat loss to ensure a precautionary assessment.</p> <p>The potential impacts of the Proposed Development on seabirds, including collision mortality and displacement, is assessed in Volume II, Chapter 12: Offshore Ornithology.</p> <p>The potential impacts of the Proposed Development on seabirds, including collision mortality and displacement, is assessed in Volume II, Chapter 12: Offshore Ornithology.</p> <p>The desktop data and site-specific surveys used to inform the assessment on seabirds is</p>

Date	Consultee and type of response	Points raised	Response to issue raised and/or where considered in this EIA
		<p>particularly in relation to terns and kittiwake.</p> <p>Considered that background information on the distribution of seabirds at sea is derived from appropriate sources.</p> <p>Considered that the area covered by boat based and aerial surveys is appropriate in size and agreed with the methodology and frequency of the at-sea surveys carried out to date.</p> <p>Content that all key issues associated with the project relating to seabirds will be addressed in the EIA.</p> <p>Considered that the proposed content of the EIA appears comprehensive and that no potentially significant impact upon seabirds has been overlooked or scoped out.</p> <p>Advised that they are generally content with the methodologies proposed for analysis of the impacts identified.</p> <p>Recommended that estimates of collision risk are derived from both the stochastic version of the Band model (as per McGregor <i>et al.</i> 2018) and the standard Band model. Recommended avoidance rates follow Bowgen and Cook (2018). Advised that, where possible, estimates of collision mortality during the breeding season should be apportioned to source SPA populations and, outside the breeding season, to contributing biogeographical populations.</p>	<p>presented in Volume II, Chapter 12: Offshore Ornithology.</p> <p>The potential impacts scoped into the assessment on seabirds are presented in Volume II, Chapter 12: Offshore Ornithology</p> <p>The methodology for estimating collision risk impacts is set out in Volume II, Chapter 12: Offshore Ornithology and associated appendices.</p>

1.4 Identification of Transboundary Effects

- 1.4.1.1 The assessment of potential transboundary effects associated with the Proposed Development is presented in two main sections below, 'Physical and biological environment' and 'Human environment'.
- 1.4.1.2 Matrices for potential transboundary effects associated with the Proposed Development are presented in Table 3.3.4 for physical and biological receptors and Table 3.3.5 for human activities respectively. The information presented in these matrices is based upon the impacts assessed with the EIA, and follow the suggested format set out in Annex 1 to PINS Advice Note 12.
- 1.4.1.3 The matrices consider all potential transboundary effects that may occur from all phases of the Proposed Development (i.e. construction, operational and maintenance, and decommissioning).

The matrices also address the predicted spatial and temporal scale of potential transboundary effects for those interests that are assessed within the EIAR.

- 1.4.1.4 Potential effects upon European designated sites within other states (as well as those in Ireland) are considered separately within the NIS.
- 1.4.1.5 The distance of the Array Area from the boundary of the Exclusive Economic Zone (EEZ) or 'median line' of other states considered is presented in Table 3.3.3 and shown in Figure 3.3.1. The Array Area is the closest point of the Proposed Development to the nearest EEZ boundaries of nearby jurisdictions.

Table 3.3.3: Summary of approximate distances to nearest states (median line)

State	Distance from the Array Area to nearest border (km)
Wales	31
Northern Ireland	100
Isle of Man	122
England	161
Scotland	180
France	373

1.4.2 Physical and biological environment

- 1.4.2.1 The conclusions of the transboundary screening for each physical and biological environment topic are presented, together with justification, in the following sections. Where transboundary effects have been screened into the EIA process, the assessment is presented in the relevant EIAR topic Chapter. The screening matrix considering the potential for significant transboundary effects for the physical and biological environment is set out in Table 3.3.4.

Coastal processes

- 1.4.2.2 The coastal processes baseline for the Proposed Development is set out in Volume II, Chapter 6: Coastal Processes.
- 1.4.2.3 The Proposed Development is located wholly within Irish territorial waters. Based on an understanding of the baseline environment (e.g. tidal regime and sediment types), the assessment has predicted that impacts from sediment disturbance as a result of the installation and maintenance of foundations and cables are likely to be localised and temporary in nature. Any effects on coastal processes from the presence of the foundation structures, scour protection and cable protection will be localised to the immediate vicinity of the Proposed Development.
- 1.4.2.4 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to Coastal Processes from the Proposed Development upon the interests of other states.
- 1.4.2.5 Transboundary effects upon coastal processes are screened out of the EIAR.

Marine water and sediment quality

- 1.4.2.6 The Marine Water and Sediment Quality (MW&SQ) baseline for the Proposed Development is set out in Volume II, Chapter 7: Marine Water and Sediment Quality.
- 1.4.2.7 The Array Area and Cable Corridor and Working Area are located wholly within Irish territorial waters. It is anticipated, based on an understanding of the baseline environment (e.g. tidal regime

and sediment types), that impacts from sediment disturbance as a result of the installation and maintenance of foundations and cables are likely to be localised and temporary in nature. Any impacts on MW&SQ from the presence of the foundation structures will be confined to the localised area of the footprint of the Proposed Development.

1.4.2.8 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to MW&SQ from the Proposed Development upon the interests of other states.

1.4.2.9 Transboundary effects upon MW&SQ are screened out of the EIAR.

Airborne noise

1.4.2.10 The airborne noise baseline for the Proposed Development is set out in Volume II, Chapter 8: Airborne Noise.

1.4.2.11 Any airborne noise impacts arising from the construction, operational and maintenance and decommissioning phases of the Proposed Development will be localised to the vicinity of the Array Area, Cable Corridor and Working Area and/or immediate surrounding area. A screening of transboundary impacts has been carried out and is included in Volume II, Chapter 8: Airborne Noise. It has identified that due to distance offset, there was no potential for significant transboundary effects with regard to airborne noise from the Proposed Development upon the interests of other states.

1.4.2.12 Transboundary effects upon noise sensitive receptors due to airborne noise arising from the Proposed Development are screened out of the EIAR.

Benthic subtidal and intertidal ecology

1.4.2.13 The benthic subtidal and intertidal ecology baseline for the Proposed Development is set out in Volume II, Chapter 9: Benthic Subtidal and Intertidal Ecology.

1.4.2.14 It is considered that there is no pathway (direct or indirect) by which impacts arising from the Proposed Development could significantly affect benthic subtidal and intertidal ecology receptors of another state. The extent of any potential effects on benthic subtidal and intertidal ecology receptors is predicted to be limited in extent to:

- The footprint of the Array Area and Cable Corridor and Working Area for any subtidal habitat loss or disturbance; colonisation of hard structures or removal of hard substrates; increased risk of introduction and spread of invasive and non-native species; and alteration of seabed habitats arising from changes in physical processes; and

1.4.2.15 One tidal excursion for increased suspended sediment concentrations and associated deposition and accidental pollution.

1.4.2.16 As set out throughout sections 9.9 and 9.10 in Volume 2, Chapter 9: Benthic Subtidal and Intertidal Ecology, the majority of impacts on benthic subtidal and intertidal IEFs from the Proposed Development will be restricted to within the Proposed Development boundaries and the area immediately surrounding it. The only exception is the effect of underwater noise and vibration during the construction phase (particularly piling), which has the potential to result in injury and/or disturbance to benthic subtidal IEFs.

1.4.2.17 An assessment of potential transboundary effects is included in Volume II, Chapter 9, Benthic Subtidal and Intertidal Ecology.

Fish, shellfish and sea turtle ecology

1.4.2.18 The fish, shellfish and sea turtle ecology baseline for the Proposed Development is set out in Volume II, Chapter 10: Fish, Shellfish and Sea Turtle Ecology.

- 1.4.2.19 There is potential for transboundary effects on fish, shellfish and sea turtle ecology upon the interests of other states, due to potential impacts arising from the construction, operational and maintenance and decommissioning phases of the Proposed Development.
- 1.4.2.20 These effects include underwater noise from piling activities during the construction phase; injury/disturbance to basking shark and sea turtle from vessel activities; changes in Electromagnetic Fields (EMF) in the immediate vicinity of subsea electrical cabling during the operational and maintenance phase; habitat loss/disturbance (temporary and long term); increased suspended sediment concentrations and associated deposition; accidental pollution during all phases, and alteration of seabed habitats arising from changes in physical processes during the operational and maintenance phase.
- 1.4.2.21 The majority of impacts on fish, shellfish and sea turtle Important Ecological Features (IEFs) from the Proposed Development will be restricted to within the Proposed Development boundaries and the area immediately surrounding it. The exception is the effect of underwater noise during the construction phase (particularly piling), which has the potential to result in injury and/or disturbance to fish, shellfish and sea turtle IEFs which may migrate to and from other states.
- 1.4.2.22 These activities have the potential to affect Annex II migratory fish species that are listed as features of European sites in other states, species that are of commercial importance for fishing fleets of other states or species that are of international conservation importance (basking shark and sea turtles). Potential effects may include direct effects on individuals (e.g. mortality, injury or disturbance) or indirect effects due to loss/disturbance of important habitats (e.g. fish spawning and nursery habitats).
- 1.4.2.23 Transboundary effects on fish, shellfish and sea turtle receptors have therefore been screened in and a transboundary assessment has been completed and is included in Volume II, Chapter 10: Fish, Shellfish and Sea Turtle Ecology. Potential impacts upon European sites with Annex II fish species as a qualifying feature are assessed within the NIS.
- 1.4.2.24 As set out throughout sections 10.9 and 10.10 in Volume 2, Chapter 10: Fish, Shellfish and Sea Turtle Ecology, the majority of impacts on fish, shellfish and sea turtle IEFs from the Proposed Development will be restricted to within the Proposed Development boundaries and the area immediately surrounding it. The only exception is the effect of underwater noise during the construction phase (particularly piling), which has the potential to result in injury and/or disturbance to fish, shellfish and sea turtle IEFs within the Wales EEZ, as well as to fish which migrate to and from other states.
- 1.4.2.25 An assessment of potential transboundary effects is included in Volume II, Chapter 10 Fish, Shellfish and Sea Turtle Ecology.

Marine mammals

- 1.4.2.26 The marine mammal baseline for the Proposed Development is set out in Volume II, Chapter 11: Marine Mammals.
- 1.4.2.27 There is the potential for transboundary effects upon marine mammals due to the mobile nature of marine mammal species and the proximity of the Proposed Development to the border of other states. Marine mammal species likely to be present in the vicinity of the Proposed Development include harbour porpoise, common dolphin, bottlenose dolphin, Risso's dolphin, minke whale, harbour seal and grey seal.
- 1.4.2.28 Direct impacts include injury/disturbance to marine mammals arising from elevations in underwater noise from piling activities during the construction phase. Increased disturbance and collision risk to marine mammals could arise as a result of vessel activities during all phases of the Proposed Development, whilst changes in EMFs in the immediate vicinity of subsea cabling may directly impact marine mammals during the operational and maintenance phase. Effects of accidental pollution could impact marine mammals directly during all phases of the Proposed

Development. Indirect impacts to marine mammals include changes in prey availability (fish and shellfish community) during all phases of the Proposed Development.

- 1.4.2.29 Transboundary effects on Marine Mammals have been screened in for the EIAR.
- 1.4.2.30 An assessment of potential transboundary effects is included in Volume II, Chapter 11 Marine Mammals.

Offshore ornithology

- 1.4.2.31 The offshore ornithology baseline for the Proposed Development is set Volume II, Chapter 12: Offshore Ornithology.
- 1.4.2.32 There is potential for transboundary effects upon offshore ornithological receptors due to the wide foraging and migratory ranges of typical bird species in the Irish Sea. A number of bird species known to occur in the vicinity of the Proposed Development include those which are listed as qualifying features of European sites in other states. The bird species likely to be present in the vicinity of the Proposed Development include a range of seabirds which may be present in one or more seasons and could be included as features of designated sites in other countries (e.g. at breeding colonies in the UK and elsewhere) which pass through the Irish Sea on migration. This may also include terrestrial migrants (e.g. wildfowl and waders) which winter in Ireland and breed in other countries.
- 1.4.2.33 The key direct impacts for ornithological receptors are likely to arise during the operational and maintenance phase. These impacts include direct mortality of individuals arising from potential collisions with rotating turbine blades and barrier effects caused by the physical presence of structures, which may inhibit clear transit of birds between breeding and foraging grounds, or on migration. Direct impacts may also arise as a result of temporary and/or long-term habitat loss/disturbance during the construction, operational and maintenance and decommissioning phases. Indirect impacts may include changes in prey availability (fish and shellfish communities) due to changes to physical processes and habitat as a result of the presence of operational infrastructure.
- 1.4.2.34 A screening of transboundary impacts has been carried out and is included in Volume II, Chapter 12: Offshore Ornithology. It has identified that there was no potential for significant transboundary effects with regard to offshore ornithology receptors from the Proposed Development upon the interests of other states. Potential impacts upon European sites with birds as a qualifying feature are assessed within the NIS.
- 1.4.2.35 An assessment of potential transboundary effects is included in Volume II, Chapter 12 Offshore Ornithology.

Offshore Bats

- 1.4.2.36 The offshore bat activity baseline for the Proposed Development is set Volume II, Chapter 13: Offshore Bat Activity.
- 1.4.2.37 The potential transboundary impacts assessed within section Volume II, Chapter 13: Offshore Bat Activity is summarised below:
- Direct disturbance and displacement due to anthropogenic noise during the construction, operational and maintenance and decommissioning phases. Overall bat species are less sensitive to temporary threshold shifts than other terrestrial mammals. Therefore, no significant transboundary effects would be expected to occur as a result of offshore noise associated with the Proposed Development.
 - Direct disturbance and displacement due to increased vessel activity and infrastructure presence during the construction, operational and maintenance and decommissioning phases. Overall bats' echolocation abilities and agility make it unlikely that the stationary objects or moving vessels would pose a collision risk to individuals in flight. Therefore, no

significant transboundary effects would be expected to occur as a result of disturbance and displacement due to increased vessel activity and infrastructure presence associated with the Proposed Development.

- Disturbance and displacement due to Artificial Lighting at Night (ALAN) during the construction, operational and maintenance and decommissioning phases. Overall, the two migratory species are likely to avoid the Proposed Development due to optimisation strategies. Therefore, no significant transboundary effects would be expected to occur as a result of disturbance and displacement due to ALAN.
- Indirect disturbance and displacement resulting from changes to prey during the construction, operational and maintenance and decommissioning phases. Overall, the two migratory species are likely to avoid the Proposed Development due to optimisation strategies. Therefore, no significant transboundary effects would be expected to occur as a result of disturbance and displacement resulting from changes to prey.
- Collision and Barotrauma during the operational and maintenance phase. Overall, no significant transboundary effects would be expected to occur as a result of collision and barotrauma on migrating species.

1.4.2.38 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to migrating offshore bats from the Proposed Development upon the interests of other states. Foraging bat species have been ruled out for transboundary effects due to the distance between Ireland and the UK being beyond the foraging distance for the resident bat species.

1.4.2.39 An assessment of potential transboundary effects is included in Volume II, Chapter 13 Offshore Bats.

Air quality and climate

1.4.2.40 The air quality and climate baseline for the Proposed Development is set out in Volume II, Chapter 20: Air Quality and Climate.

1.4.2.41 There is the potential for transboundary effects on air quality and climate to occur from changes in national greenhouse gas emissions resulting from the Proposed Development, and cumulatively with other projects. During the construction and decommissioning phases, changes in national greenhouse gas emissions may arise from emissions released from vessels, machinery and equipment required in these phases. During the operational and maintenance phase, a long-term reduction in greenhouse gas emissions will arise from renewable electricity generation.

1.4.2.42 A screening of transboundary impacts has been carried out and has identified that there was potential for significant transboundary effects with regard to air quality and climate from the Proposed Development upon the interests of other states.

1.4.2.43 The changes in national greenhouse gas (GHG) emissions predicted for the Proposed Development and cumulatively with the other offshore renewable projects, will lead to a net reduction in global GHG emissions from electricity generation. This is considered a slight beneficial transboundary impact.

1.4.2.44 Transboundary effects upon air quality and climate are screened into the EIAR.

Table 3.3.4 Transboundary matrix for the Proposed Development – physical and biological environment

Criteria	Coastal Processes	Marine Water and Sediment Quality	Airborne Noise	Benthic Subtidal and Intertidal Ecology	Fish, Shellfish and Sea turtle Ecology	Marine Mammals	Offshore Ornithology	Offshore Bats	Air Quality and Climate
Characteristics of the Proposed Development	For a detailed description of the characteristics of the Proposed Development, see Volume II, Chapter 4: Description of Development.								
Geographical area	The Array Area is located 6 to 15 km from the shore (Figure 3.3.1). The closest state (median line) border is 31 km east of the Array Area (Wales).								
Potential impacts and pathways	Screened out: no potential for significant transboundary effects are predicted.	Screened out: no potential for significant transboundary effects are predicted.	Screened out: no potential for significant transboundary effects are predicted	Screened in: Assessed in Volume II, Chapter 9	Screened in: Assessed in Volume II, Chapter 10: Fish, Shellfish, and Sea Turtle Ecology	Screened in: Assessed in Volume II Chapter 11: Marine Mammals	Screened in: Assessed in Volume II Chapter 12: Offshore Ornithology	Screened in: Assessed in Volume II, Chapter 13 Offshore Bats	Screened in: Assessed in Volume II, Chapter 20: Air Quality and Climate
Environmental importance				Benthic, Subtidal and Intertidal Ecology.					
Extent									
Magnitude									
Probability									
Duration									
Frequency									
Reversibility									
Cumulative impacts									

1.4.3 Human Environment

1.4.3.1 The conclusions of the transboundary screening for each human environment topic are presented, together with justification, in the following sections. Where transboundary effects have been screened into the EIA process, the assessment is presented in the relevant EIAR topic Chapter. The screening matrix considering the potential for significant transboundary effects on the human environment is set out in Table 3.3.5.

Commercial fisheries

1.4.3.2 The commercial fisheries likely to be operating in the vicinity of the Proposed Development are outlined in Volume II, Chapter 14: Commercial Fisheries.

1.4.3.3 Due to the highly mobile nature of both commercial fish species and fishing fleets, there is the potential for transboundary effects upon commercial fisheries receptors of other states. In addition to Irish vessels, vessels from France and the UK have access to fishing between the 6 and 12 nm limit as a result of historic fishing rights. In addition, in the case of UK vessels owned and operated from Northern Ireland, under the Sea-Fisheries (Amendment) Act 2019, access to fishing is also permitted to the area within the Irish 6 nm limit. Fishing vessels from these nations could therefore potentially target areas in the immediate vicinity of the Proposed Development.

1.4.3.4 The potential for transboundary effects upon commercial fisheries may arise from two sources:

- Effects on commercial fishing fleets from other states as a result of impacts from the Proposed Development on commercial fish stocks in the waters of other States; and
- Effects on commercial fishing fleets from all States as a result of constraints on foreign commercial fishing activities operating in the Proposed Development. These effects may include reduction in access to fishing grounds and potential displacement of fishing effort from the Proposed Development to alternative fishing grounds in other States, which will have direct implications to that fishing ground.

1.4.3.5 An assessment of transboundary impacts has been carried out and is included in Volume II, Chapter 14: Commercial Fisheries.

1.4.3.6 An assessment of potential transboundary effects is included in Volume II, Chapter 14 Commercial Fisheries.

Shipping and navigation

1.4.3.7 The shipping and navigation baseline, including navigational features and vessel traffic, is outlined in Volume II, Chapter 15: Shipping and Navigation.

1.4.3.8 An assessment of transboundary impacts has been carried out and is included in Volume II, Chapter 15: Shipping and Navigation. Displacement of vessel traffic (including impacts on vessel routing to and from international ports) have been assessed and considered as part of the project alone and cumulative impact assessment.

1.4.3.9 An assessment of potential transboundary effects is included in Volume II, Chapter 15 Shipping and Navigation.

Civil and military aviation and radar

1.4.3.10 The civil and military aviation and radar baseline for the Proposed Development is outlined in Volume II, Chapter 16: Civil and Military Aviation.

1.4.3.11 The Proposed Development is located entirely within Irish airspace and therefore no transboundary effects are predicted in relation to aviation airspace. The potential for transboundary impacts may arise from the presence of wind turbines during the operational and maintenance phase disrupting civil and military radar coverage from the UK however this is considered to be very unlikely.

- 1.4.3.12 A screening of transboundary impacts has identified that there was no potential for significant transboundary effects with regard to civil and military aviation from the Proposed Development upon the interests of other states.
- 1.4.3.13 It is therefore considered that there is no pathway (direct or indirect) by which effects arising from the Proposed Development could significantly affect civil and military aviation receptors of another state. As such, proposed transboundary impacts upon civil and military aviation have been screened out of the EIAR.

Seascape, landscape and visual amenity

- 1.4.3.14 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to seascape, landscape and visual receptors from the Proposed Development upon the interests of other states.
- 1.4.3.15 The Proposed Development is located approximately 76 km from the coastline of the nearest state (United Kingdom). Although theoretical visibility is indicated in the ZTV (Figure 17.6.2) from the Gwynedd coast in Wales, this is located approximately 80 km from the Proposed Development, with no likely significant effects predicted due to the very long distance, prevailing visibility conditions across the Irish Sea and the visual acuity of the eye to perceive WTGs at such range. The ZTV in Figure 17.6.2 shows that there is no theoretical visibility of the Proposed Development from seascape beyond approximately 70 km due to the effects of earth curvature, which would effectively 'hide' the wind turbines behind the horizon at this distance.

Marine archaeology

- 1.4.3.16 The marine archaeology and cultural heritage baseline for the Proposed Development is set out in Volume II, Chapter 18: Marine Archaeology.
- 1.4.3.17 A screening of transboundary impacts has been carried out and is included in Volume II, Chapter 18: Marine Archaeology. It has identified that there was no potential for significant transboundary effects with regard to Marine Archaeology and Cultural Heritage from the Proposed Development upon the interests of other states.
- 1.4.3.18 Transboundary effects upon marine archaeology and cultural heritage have been screened out of the EIAR.

Infrastructure and other users

- 1.4.3.19 The infrastructure and other users baseline for the Proposed Development is set out in Volume II, Chapter 19: Infrastructure and Other Users.
- 1.4.3.20 Potential effects upon infrastructure and other users of other states would be limited to potential effects on communications infrastructure, such as offshore microwave fixed links and television signals, during the operational and maintenance phase of the Proposed Development. Following a desktop review and consultation with relevant communications receptors, potentially significant transboundary effects are not predicted.
- 1.4.3.21 A screening of transboundary impacts has been carried out and is included in Volume II, Chapter 19: Infrastructure and Other Users. It has identified that there is no potential for significant transboundary effects with regard to Infrastructure and Other Users from the Proposed Development upon the interests of other states.
- 1.4.3.22 This is due to the potential impacts on Infrastructure and Other Users receptors being limited to the immediate vicinity of the Proposed Development and up to one tidal excursion from the Proposed Development. Any impacts will not extend into other states.
- 1.4.3.23 Transboundary effects upon infrastructure and other users have been screened out of the EIAR.

Population and human health

- 1.4.3.24 The population and human health baseline for the Proposed Development is set out in Volume II, Chapter 21: Population and Human Health.
- 1.4.3.25 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to Population and Human Health from the Proposed Development upon the interests of other states.
- 1.4.3.26 Transboundary effects on Population and Human Health have been screened out of the EIAR.

Major accidents and natural disasters

- 1.4.3.27 The major accidents and natural disasters baseline for the Proposed Development is set out in Volume II, Chapter 22: Major Accidents and Natural Disasters.
- 1.4.3.28 There are no potentially predicted significant transboundary effects associated with major accidents and natural disasters and as such, transboundary effects have been screened out of the EIAR.

Table 3.3.5 Transboundary matrix for the Proposed Development – human environment

Criteria	Commercial fisheries	Shipping and navigation	Civil and military aviation	Seascape, landscape and visual amenity	Marine archaeology	Infrastructure and other users	Population and human health	Major accidents and natural disasters
Characteristics of the Proposed Development	For a detailed description of the characteristics of the Proposed Development, see Volume II, Chapter 4: Description of Development.							
Geographical area	The Array Area is located 6 to 15 km from the shore (see Figure 3.3.1). The closest state (median line) border is 31 km east of the Array Area (Wales).							
Potential impacts and pathways	Screened in: Assessed in Volume II, Chapter 14: Commercial Fisheries and Aquaculture.	Screened in: Assessed in Volume II, Chapter 15: Shipping and Navigation.	Screened out: no potential for significant transboundary effects are predicted.	Screened out: no potential for significant transboundary effects are predicted.	Screened out: no potential for significant transboundary effects are predicted.	Screened out: no potential for significant transboundary effects are predicted.	Screened out: no significant transboundary effects are predicted.	Screened out: no potential for significant transboundary effects are predicted.
Environmental importance								
Extent								
Magnitude								
Probability								
Duration								
Frequency								
Reversibility								
Cumulative impacts								

1.5 Conclusions

- 1.5.1.1 This appendix has been prepared to provide a screening assessment of potential transboundary effects which have the potential to affect other states.
- 1.5.1.2 Transboundary effects have been screened into the EIAR based on current information available, where the Proposed Development has the potential to have significant effects on the environment in other states, including Northern Ireland, England, Wales and Scotland, the Isle of Man and France. The following topics have been screened into the transboundary assessment:
- Air quality and climate
 - Fish, shellfish and sea turtle ecology;
 - Marine mammals;
 - Offshore ornithology;
 - Offshore Bats
 - Commercial fisheries; and
 - Shipping and navigation.

1.6 References

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