



# Appendix 6.6: Transboundary Impacts Screening

Array EIA Report  
2024

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# CONTENTS

- 1. Introduction .....1
  - 1.1. Background .....1
    - 1.1.1. Legislative Context.....2
- 2. Consultation .....2
- 3. Screening of Transboundary Impacts .....4
  - 3.1. Physical and Biological Environment .....4
    - 3.1.1. Physical Processes .....4
    - 3.1.2. Benthic Subtidal Ecology .....4
    - 3.1.3. Fish and Shellfish Ecology .....4
    - 3.1.4. Marine Mammals.....4
    - 3.1.5. Offshore Ornithology .....5
    - 3.1.6. Climatic Effects .....5
  - 3.2. Human Environment.....7
    - 3.2.1. Commercial Fisheries .....7
    - 3.2.2. Shipping and Navigation .....7
    - 3.2.3. Aviation, Military and Communications .....7
    - 3.2.4. Infrastructure and Other Users .....7
    - 3.2.5. Socio-Economics .....7
- 4. Conclusions.....8
- 5. References.....9

## TABLES

Table 2.1: Summary of Key Transboundary Issues Raised During the Array Consultation Undertaken During Scoping (MD-LOT, 2023).....	3
Table 3.1: Summary of Approximate Distances to the Nearest EEA States (Median Line) .....	4
Table 3.2: Transboundary Matrix for the Array – Physical and Biological Environment.....	6
Table 3.3: Transboundary Matrix for the Array – Human Environment .....	8

## FIGURES

Figure 1.1: EEA States in the Vicinity of the Array .....	1
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# 1. INTRODUCTION

1. This technical report provides a description and assessment of the potential transboundary impacts for the Ossian Array (hereafter referred to as the “Array”) which may arise as a result of the construction, operation and maintenance and decommissioning phases.

## 1.1. BACKGROUND

2. Potential transboundary impacts are those impacts which may arise as a result of the Array and have the potential to significantly affect the environment of a European Economic Area (EEA) state(s). The location of the Array in relation to the Exclusive Economic Zones (EEZ) of EEA states and the United Kingdom (UK) is shown in Figure 1.1.

3. The Applicant completed a transboundary screening assessment as part of the Ossian Array Scoping Report (Ossian OWFL, 2023), to identify and assess the likely significant transboundary effects arising from the construction, operation and maintenance and decommissioning phases of the Array.

4. The likely spatial extent of potential impacts has been taken into account in this technical report and the outcomes of this transboundary screening exercise are presented in section 3. Section 3 also presents instances where no potential transboundary impacts have been identified via this transboundary screening process, and these are set out in Table 3.2 and Table 3.3.

5. As per the Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications (Scottish Government, 2018), transboundary impacts in relation to offshore renewable energy projects in Scotland will relate primarily to projects that may affect mobile species, and projects which are located close to national boundaries or to areas administered by other relevant authorities.

6. The Project Description for the Array is described in volume 1, chapter 3, and a summary is provided here as follows:

- the Array is located approximately 80 km off the coast of Aberdeenshire, and covers an area of approximately 859 km<sup>2</sup>;
- up to 265 wind turbines and their associated floating foundations with associated mooring and anchoring systems will be installed within the Array;
- either up to six large offshore substation platforms (OSPs), or up to three larger OSPs and 12 smaller OSPs will be installed within the Array; and
- construction will commence in 2031, with first wind turbine commissioning expected to be completed by 2038.

7. This technical report aims to provide Scottish Ministers with the required information to inform their evaluation of the likelihood of significant transboundary effects associated with the Array and the potential requirement for consultation with EEA states.

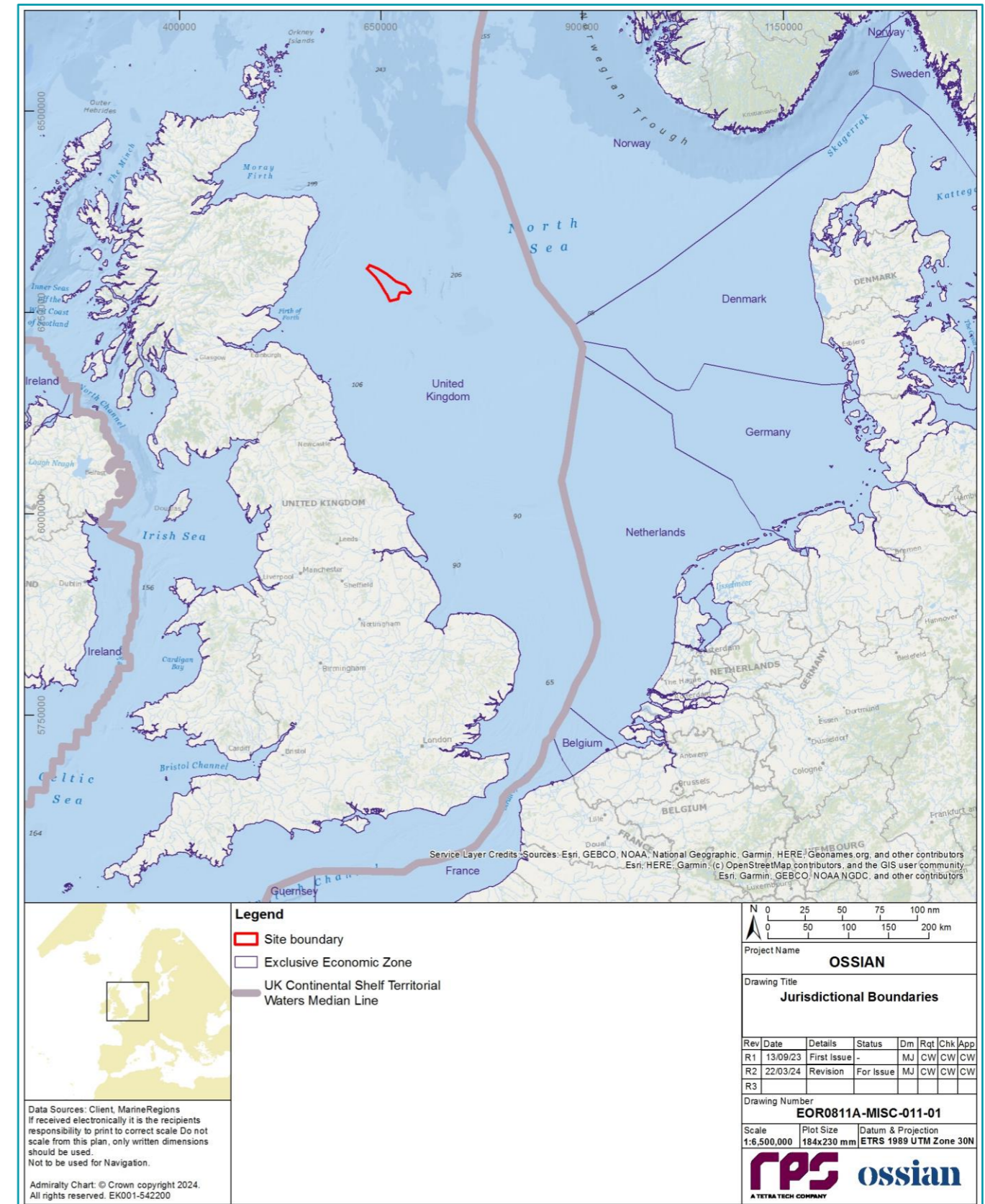


Figure 1.1: EEA States in the Vicinity of the Array

### 1.1.1. LEGISLATIVE CONTEXT

8. Guidance on assessment of transboundary impacts is presented in the United Nations Economic Commission for Europe (UNECE) Convention on Environmental Impact Assessment (EIA) in a Transboundary Context (the 'Espoo Convention') (as amended) which aims to promote “*environmentally sound and sustainable development*”, while enhancing “*international co-operation in assessing environmental impact in particular in a transboundary context*” (UNECE, 2017).
9. Where there is the potential for an activity occurring in one qualifying country to have the potential for significant effect in another qualifying country, EIAs are required to consider potential impacts across national borders as per the Espoo Convention. The Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (the 'Aarhus Convention') and its Protocol, of which the UK is a signatory, gives individuals the right to access information, public participation in decision-making and access to justice in environmental matters.
10. The Espoo and Aarhus Conventions are implemented via the European Union (EU) Directive 85/337/EEC (as amended) (the EIA Directive) in EU states. This Directive was transposed into UK law through The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (collectively referred to as the 'EIA Regulations' hereafter).
11. In addition, the UK Planning Inspectorate (PINS) Advice Note 12: Transboundary Impacts (PINS, 2020) details the procedures for consultation for developments which may have significant transboundary impacts. Based on Advice Note 12, developers are advised:
  - to undertake preparatory work to complete a transboundary screening matrix which will assist the competent authority in the determination of potential for likely significant effects on the environment in other states;
  - to submit the transboundary screening matrix at the EIA scoping stage; and
  - that when preparing documents for consultation and application, the competent authority may notify the relevant EEA state(s) to their particular project.
12. Advice Note 12 has been prepared by the UK PINS so it is therefore not directly applicable under Scottish consenting regimes, however it has been used to inform this transboundary screening appendix.
13. Further details of legislation and policy can be found in volume 1, chapter 2.  
Environmental Impact Assessment
14. There is a requirement for Scottish Ministers, under the EIA Regulations, to make a determination of whether a proposed development is likely to have significant impacts on the receiving environment of an EEA state – i.e. a “transboundary impact”. Regulation 18 (1)(a) of the Marine Works (Environmental Impact Assessment) Regulations 2007 states that where “*it comes to the attention of the appropriate authority that a proposed project is the subject of an environmental impact assessment and is likely to have significant effects on the environment in an EEA State*” (HM Government, 2007) Scottish Ministers are required to:
  - send to the EEA state, as soon as possible and no later than their date of publication in the relevant Gazette the particulars mentioned in paragraph (3) of the Regulation 18 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (and paragraph 5 if required);
  - publish, or direct that the Applicant publish, the information in a notice placed in the relevant Gazette, indicating the address where further information is available; and
  - give the EEA state a reasonable period of time in which to indicate whether it wishes to participate in the procedure for which these Regulations provide.

15. The following information is required to be shared with EEA states:
  - a description of the project, alongside any available information on its possible significant effect on the environment in an EEA state; and
  - information on the nature of the decision which may be taken.
16. The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 have similar provisions regarding transboundary consultation<sup>1</sup>.  
Habitats Regulations Appraisal (HRA)
17. The Habitats Regulations (as amended) state that an HRA must be carried out on all plans and projects which could potentially impact upon sites designated for supporting habitats or species of international importance (listed on the Annexes of the Habitats Directive and Birds Directive) and hereafter specified for protection within schedules to the Habitats Regulations (as amended).
18. Within EU member states, these designated sites are known as Natura 2000 Sites. The term “European site” has been used within this report to refer to the above sites protected in EU member states, Scotland and the rest of the UK. Within the UK, these designated sites are part of the National Site Network.
19. The Habitats Directive has been transposed into UK law for Scottish offshore waters through the Conservation of Offshore Marine Habitats and Species Regulations 2017 (which apply to marine licences and Section 36 applications within the Scottish Offshore region).
20. Where Scottish Ministers are required to undertake an appropriate assessment of a project in relation to Natura interest associated with a proposed projects' potential cumulative effect, including transboundary and cross border effects, it is required that the HRA for the proposed project will provide the required information in relation to potential transboundary impacts. Scottish Ministers are also required to consult with the relevant EEA states to discuss the potential transboundary impacts identified.

## 2. CONSULTATION

21. Where a development is likely to have transboundary effects, an EEA state must be consulted on the transboundary assessment of said development by the Scottish Ministers once the EEA state has confirmed that they wish to participate in discussion. It is proposed that the following EEA states should be consulted on whether they intend to participate, with the distance from the Array to the EEA states' maritime jurisdiction boundary presented in brackets:
  - Norway (151.8 km);
  - Denmark (205.7 km);
  - Germany (217.7 km); and
  - Netherlands (225.7 km).
22. The participation of these EEA states is recommended based on the potential for transboundary impacts on shipping and navigation (particularly regarding transits to/from other countries and effects on shipping routes to/from EEA state ports) as discussed in section 3 below. Potential for cross-border impacts in English territorial waters out to the UK EEZ is also considered.
23. Table 2.1 summarises the key issues raised during consultation for the Array in relation to transboundary impacts, including those raised in the Ossian Array Scoping Opinion (MD-LOT, 2023), and how these have been addressed in the Array EIA Report. Volume 1, chapter 5 details the consultation activities undertaken for the Array.

<sup>1</sup> Regulation 29

**Table 2.1: Summary of Key Transboundary Issues Raised During the Array Consultation Undertaken During Scoping (MD-LOT, 2023)**

Date	Consultee and Type of Response	Topic	Stakeholder Comment Received	Response to Issue Raised and/or Where Considered in Ossian Array EIA / HRA
June 2023	Marine Directorate – Science Evidence, Data and Digital (MD-SEDD; formerly Marine Scotland Science (MSS)) Scoping Representation (May 2023)	Physical Processes	Physical processes, most notably potential changes to stratification, should be included in the transboundary screening, although the extent of current development is unlikely to change the conclusion.	Considered in the Physical Processes EIA Chapter (volume 2, chapter 7) and discussed in section 3.1.1 of this appendix.
June 2023	Marine Directorate – Licensing and Operations Team (MD-LOT)	Physical Processes	In addition, potential transboundary impacts should be reconsidered in light of the impacts advised to be scoped in by MD-SEDD.	Considered in the Physical Processes EIA Chapter (volume 2, chapter 7) and discussed in section 3.1.1 of this appendix.
		Marine Mammals	The Scottish Ministers state that “transboundary effects will need to be considered within the Array EIA Report for cetacean species but not for seal species. The Developer should seek further advice from NatureScot in regard to transboundary effects when initial impact assessments have been concluded.”	Considered in the Marine Mammals EIA Chapter (volume 2, chapter 10) and discussed in section 3.1.4 of this appendix.
			The Scottish Ministers state “in regard to the Habitat Regulations Assessment Screening, in line with the NatureScot representation, the Scottish Ministers advise the Moray Firth SAC should remain screened into the assessment in respect of bottlenose dolphin until noise modelling is completed, after which the Developer should engage with NatureScot to agree an approach to assessment. The Berwickshire and North Northumberland Coast SAC for grey seal and Southern North Sea SAC for harbour porpoise should also remain screened in for further assessment in line with the Natural England advice dated 05 June 2023 (unless later agreed with Natural England that these can be screened out). The remaining UK protected sites and associated marine mammal qualifying features should be scoped out of the assessment.”	Considered within the Ossian Array Report to Inform Appropriate Assessment (RIAA) (Ossian OWFL, 2024).
June 2023	NatureScot Scoping Representation (May 2023)	Offshore Ornithology	The Scottish Ministers acknowledge appendix 3 of the Scoping Report which states that “transboundary impacts may arise during the non-breeding season and advise that the Developer should engage further with NatureScot and MD-LOT on such impacts when the baseline report has been finalised.”	Considered in the Offshore Ornithology EIA Chapter (volume 2, chapter 11) and discussed in section 3.1.5 of this appendix.
		Benthic Subtidal Ecology	“We advise that there are no transboundary impacts.”	Noted and agreed. Transboundary impacts for Benthic Subtidal Ecology is scoped out of the transboundary impact assessment (see section 3.1.2).
		Fish and Shellfish Ecology	“We advise that there are unlikely to be any transboundary impacts.”	Noted. Justification provided in section 3.1.3 of this appendix.
		Underwater Noise	“We advise that there are unlikely to be any transboundary impacts.”	Noted. Justification provided in section 3.1.4 of this appendix.
		Marine Mammals	“Consideration may need to be given to transboundary effects for certain cetacean species, but not for seal species due to existing marine mammal management units. Once initial impact assessment has been carried out we can provide further advice on this aspect.”	Considered in the Marine Mammals EIA Chapter (volume 2, chapter 10) and discussed in section 3.1.4 of this appendix.
June 2023	Scottish Fishermen’s Federation (SFF) Scoping Representation (April 2023)	Commercial Fisheries	Do you agree with the potential transboundary impacts presented in section 7.1.10?  Answer: “No comment.”	Considered in the Commercial Fisheries EIA chapter (volume 2, chapter 12) and discussed in section 3.2.1 of this appendix.
		Shipping and Navigation	“The Chamber agrees that cumulative and transboundary impacts need to be considered and is satisfied with a 50 nm study area.”	Considered in the Shipping and Navigation EIA chapter (volume 2, chapter 13) and discussed in section 3.2.2 of this appendix.

### 3. SCREENING OF TRANSBOUNDARY IMPACTS

- 24. Transboundary impacts which have the potential to arise due to the Array are assessed and presented in sections 3.1 and 3.2, covering physical and biological environment and human environment, respectively.
- 25. This assessment has considered the distance of the Array from EEA states for which there may be potential for transboundary impacts. Proximity of the Array to the boundary of the EEZ or 'median line' (line connecting points which are located at equal distance from two coastal states) of EEA state is presented in Table 3.1. Figure 1.1 also shows the nearest EEA states in the vicinity of the Array.

**Table 3.1: Summary of Approximate Distances to the Nearest EEA States (Median Line)**

European Economic Zone	Distance from the Array to the Nearest Marine Border (km)	Distance from the Array to the Nearest Marine Border (nm)
Norway	151.8	82.0
Denmark	205.7	111.1
Germany	217.7	117.5
Netherlands	225.7	121.9
Belgium	547.1	295.4
France	575.1	310.5
Guernsey	714.4	385.7

- 26. Potential cross-border impacts with England have also been considered. Although Scotland and England have different regulatory systems, impacts on English receptors are considered cross-border rather than transboundary. It should be noted that the southernmost edge of the Array straddles the English maritime boundary.

#### 3.1. PHYSICAL AND BIOLOGICAL ENVIRONMENT

- 27. The Applicant has carried out a transboundary screening for all potential physical and biological receptors, the findings of which are presented in the sections below. Where impacts have proposed to be scoped out of the Array EIA Report, these have not been considered within this transboundary screening assessment (Scottish Ministers did not raise any objection in the Ossian Array Scoping Opinion (MD-LOT, 2023) to scoping out airborne noise and air quality from the transboundary screening assessment), as no significant effects are predicted and will therefore not result in a significant effect in an EEA state (see Table 3.2).
- 28. Potential impacts to physical processes, benthic subtidal, fish and shellfish, marine mammal and ornithology features of nature conservation designations outside of the UK EEZ due to the Array will be considered via the HRA process documented within the Ossian Array RIAA (Ossian OWFL, 2024) and relevant EIA Report chapters.

##### 3.1.1. PHYSICAL PROCESSES

- 29. Potential impacts to physical processes receptors include:
  - increase in suspended sediment concentrations (SSCs) and associated deposition and sediment transport due to operation and maintenance activities;
  - impacts to the wind field due to the presence of infrastructure; and
  - impacts to seasonal stratification due to the presence of infrastructure.
- 30. Impacts are expected to be temporary in nature and localised within the physical processes study area. Therefore, no potential transboundary impacts are expected for physical processes.

##### 3.1.2. BENTHIC SUBTIDAL ECOLOGY

- 31. Potential impacts on benthic subtidal ecology receptors include:
  - temporary habitat loss and disturbance;
  - long term habitat loss and disturbance;
  - colonisation of hard structures;
  - effects to benthic subtidal ecology due to the removal of hard substrates;
  - increased risk of introduction or spread of Invasive Non-Native Species (INNS);
  - increased SSCs and associated deposition; and
  - effects to benthic subtidal ecology due to Electromagnetic Fields (EMF) from subsea electrical cabling.
- 32. Taking into account both the location of the Array and an initial assessment of the baseline characterisation, no potential for transboundary impacts is expected as any potential impacts on benthic subtidal ecology receptors will largely be focused within the footprint of the Array (in particular, for temporary and long term habitat loss and colonisation or removal of hard substrates). Impacts associated with increased SSC and associated deposition are expected to be restricted to one tidal excursion of the Array.
- 33. This position is supported by the representations made as part of the Ossian Array Scoping Opinion (MD-LOT, 2023).

##### 3.1.3. FISH AND SHELLFISH ECOLOGY

- 34. Potential impacts on fish and shellfish ecology receptors include:
  - underwater noise from piling and Unexploded Ordnance (UXO) clearance impacting fish and shellfish receptors;
  - underwater noise from the operation of floating wind turbines and anchor mooring lines impacting fish and shellfish receptors;
  - temporary habitat loss and disturbance, including during pre-construction works;
  - long term habitat loss and disturbance;
  - effects to fish and shellfish ecology due to increased SSCs and associated deposition;
  - effects to fish and shellfish ecology due to EMFs from subsea electrical cabling; and
  - colonisation of hard structures.
- 35. There is the potential for injury and/or disturbance to fish receptors, particularly Annex II migratory fish species, or species of commercial value, due to increased underwater noise during the construction phase of the Array. Direct impacts may occur due to piling during installation of anchoring and mooring systems, for example. Indirect effects may occur as a result of temporary and/or long term habitat loss and disturbance to fish spawning and nursery habitats in the vicinity of the Array, which are important for species of commercial value to EEA states. In addition, Annex II migratory fish species, such as Atlantic salmon *Salmo salar*, sea trout *Salmo trutta*, European eel *Anguilla anguilla*, sea lamprey *Petromyzon marinus*, allis *Alosa alosa* and twaite shad *Alosa fallax*, may be impacted by temporary or long term habitat loss within the fish and shellfish ecology study area (defined as the Array plus a 100 km buffer, including the Firth of Forth; see volume 2, chapter 9) during migration at key stages of their life cycles.
- 36. Any impact resulting from the construction, operation and maintenance or decommissioning phases of the Array is not expected to have a transboundary impact on the environment of any EEA state due to the distance from the Array in relation to the potential scale over which effects could occur, and temporary in nature. This position aligns with the representations made as part of the Ossian Array Scoping Opinion (MD-LOT, 2023).

##### 3.1.4. MARINE MAMMALS

- 37. Potential impacts on marine mammal receptors include:



- injury and disturbance from underwater noise generated during UXO clearance;
  - injury and disturbance from underwater noise generated during piling;
  - injury and disturbance due to site-investigation surveys (including geophysical surveys);
  - injury and disturbance from underwater noise generated during vessel use and other noise producing activities;
  - injury due to collision with vessels;
  - effects on marine mammals due to altered prey availability;
  - effects on marine mammals due to EMFs from subsea electrical cabling in the water column;
  - effects on marine mammals due to primary and secondary entanglement associated with the Array; and
  - injury and disturbance from underwater noise generated during the operation of floating wind turbines and anchor mooring lines.
38. The regional marine mammal study area, as shown in volume 3, appendix 10.1, extends beyond the limits of Scottish or UK territorial waters. As some marine mammals can travel large distances to forage, including between the waters of neighbouring EEA states, there may be direct impacts due to piling during installation of anchoring and mooring systems, for example. Indirect impacts may occur as a result of changes in prey availability.
39. Potential transboundary effects could occur where elevations in underwater sound, particularly during construction piling, could ensonify large areas causing wide-ranging disturbance of marine mammals. The underwater sound modelling is highly precautionary, and it is considered highly unlikely that sound propagating at tens of kilometres from the Array would be detected above background levels. Considering the National Marine Fisheries Service (NMFS) threshold of 160 dB re 1  $\mu$ Pa (rms) for strong disturbance, the disturbance range for all marine mammals is out to a maximum of ~11 km from the Array. For harbour porpoise, the most sensitive species, the 143 re 1 $\mu$ Pa<sub>2s</sub> SEL<sub>ss</sub> threshold for significant disturbance extends out to ~46.5 km from the Array and therefore does not reach the nearest EEA border, Norway, which is 151.8 km away. Whilst marine mammals are highly mobile and there is potential for individual animals to cross into EEA states, it is considered unlikely that piling would lead to significant transboundary effects.
40. For the assessment of injury and disturbance from UXO clearance a precautionary 100 km screening buffer area was used, whilst for site-investigation surveys, vessel use and other noise producing activities, collision, operational noise and entanglement a buffer of 50 km was used. For effects on marine mammals due to EMFs from subsea electrical cabling in the water column, given the localised effect and transient nature of marine mammals a 10 km buffer was used. Therefore, given the closest transboundary site screened into assessment is 151.8 km away, these effects are unlikely to have any interactions with transboundary sites.

### 3.1.5. OFFSHORE ORNITHOLOGY

41. Potential impacts on offshore ornithology receptors include:
- temporary habitat loss and disturbance;
  - indirect impacts from construction/decommissioning noise;
  - indirect impacts from UXO clearance;
  - disturbance and displacement from the physical presence of wind turbines and maintenance activities;
  - barrier to movement;
  - collision with wind turbines;
  - changes in prey availability; and
  - entanglement of diving seabirds during operation and maintenance, associated with the floating foundations.
42. Volume 2, chapter 11 assesses significance of impacts upon a number of bird species including:
- kittiwake *Rissa tridactyla*;
  - guillemot *Uria aalge*;
  - razorbill *Alca torda*;
  - puffin *Fratercula arctica*;

- fulmar *Fulmarus glacialis*;
- gannet *Morus bassanus*;
- herring gull *Larus argentatus*;
- lesser black-backed gull *Larus fuscus*; and
- migratory birds.

43. It was determined in volume 2, chapter 11 that no significant impacts from disturbance and displacement from the physical presence of wind turbines and maintenance activities were expected for any species assessed. Therefore, transboundary impacts, which encompass wider populations and those more distant from the Array, are not expected to occur.
44. It was determined in volume 2, chapter 11 that no significant impacts from collision with wind turbines were expected for any species assessed. As such, transboundary impacts, which encompass wider populations and those more distant from the Array, are not expected to occur.
45. For kittiwake, a potentially significant effect was identified as a result of the combined impact of displacement and collision. This potentially significant effect occurred during the breeding season, when most birds found within the Array would be expected to be UK-breeding birds associated with colonies on the Scottish coast and Scottish islands. On that basis, this potentially significant impact has no potential to lead to a significant transboundary effect. For gannet, the combined impact was deemed to be minor. Therefore, transboundary impacts from combined impacts from displacement and collision with wind turbines are not expected to be significant.

### 3.1.6. CLIMATIC EFFECTS

46. Potential impacts on and from climatic effects receptors include:
- greenhouse gas (GHG) emissions arising from disturbance to blue carbon stocks during the construction, operation and maintenance and decommissioning of the Array;
  - GHG emissions arising from the manufacturing and installation of the Array;
  - GHG emissions arising from the consumption of materials and activities required to facilitate the operation and maintenance of the Array and estimated abatement of UK Grid emissions;
  - GHG emissions arising from decommissioning works of the Array;
  - effects of climate change on the Array; and
  - net GHG impacts of the Array.
47. All developments which emit GHGs have the potential to impact the atmospheric mass of GHGs as a receptor (including manufacturing of materials in other territories), and so may have a transboundary impact on climate change. Consequently, transboundary effects due to other specific international development projects are not individually identified but would be taken into account when considering the impact of the Array by defining the atmospheric mass of GHGs as a high sensitivity receptor. Each country has its own policy and targets concerning carbon and climate change which are intended to limit GHG emissions to acceptable levels within that country's defined budget and international commitments.
48. The climatic effects assessment in volume 2, chapter 17 concludes that impacts for the Array alone and cumulatively with other projects will not be significant in EIA terms or will be beneficial. Secondary mitigation has also been applied to reduce impacts to not significant in EIA terms where appropriate. Therefore, any impact resulting from the construction, operation and maintenance or decommissioning phases of the Array is not expected to have a transboundary impact on the environment of any EEA state.

**Table 3.2: Transboundary Matrix for the Array – Physical and Biological Environment**

Screening Criteria	Physical Processes	Benthic Subtidal Ecology	Fish and Shellfish Ecology	Marine Mammals	Offshore Ornithology	Climatic Effects
Characteristics of the Array	<p>Volume 1, chapter 3 presents a detailed description of the Array.</p> <p>The Array comprises up to 265 wind turbines, with maximum rotor blade diameter of up to 350 m, maximum blade tip height of up to 399 m above Lowest Astronomical Tide (LAT) and a minimum blade clearance of 36 m above LAT. OSP options comprise either up to 6 large OSPs, or up to 3 large OSPs and up to 12 smaller satellite OSPs. Wind turbines will have floating foundations with associated mooring and anchoring systems. Options for mooring systems comprise catenary, semi-taut, taut and Tension Leg Platform (TLP) systems, and ancillary elements such as clump weights, anchors and buoyancy modules may be required as part of the design. Anchoring options include driven piles, Drag Embedment Anchors (DEAs) and suction anchors. OSPs will be fixed to the seabed with piled jacket foundations. Scour protection may comprise concrete mattresses and rock. Inter-array cables will be installed to connect the turbines to the OSPs, and will comprise a section of dynamic cable in a 'lazy-S' configuration, running from the floating foundation to the touchdown point on the seabed. Movement of cables will be reduced through use of buoyancy modules and clump weights (subject to final engineering design). Where there is no movement in the cable this is the point where it becomes static and it will be buried, or protected with rock protection where burial to target burial depths cannot be reached. Interconnector cables will connect the OSPs to each other. Installation of external cable protection may also be required.</p>					
Location of the Array	The Array is located off the east coast of Scotland, approximately 80 km south-east of the Aberdeenshire coast and 153 km from the Norwegian EEZ.					
Potential Impacts and Pathways	Screened out: no significant transboundary impacts predicted.	Screened out: no significant transboundary impacts predicted.	Screened out: no significant transboundary impacts predicted.	Screened out: no significant transboundary impacts predicted.	Screened out: no significant transboundary impacts predicted.	Screened out: no significant transboundary impacts predicted.
Environmental Importance						
Extent						
Magnitude						
Probability						
Duration						
Frequency						
Reversibility						
Cumulative Effects						

## 3.2. HUMAN ENVIRONMENT

49. The Applicant has carried out a transboundary screening for all potential human environment receptors, the findings of which are presented in the sections below. Where impacts have proposed to be scoped out of the Array EIA Report, these have not been considered within this transboundary screening assessment, as no significant effects are predicted and will therefore not result in a significant effect in an EEA state (see Table 3.3).

### 3.2.1. COMMERCIAL FISHERIES

50. There is potential for transboundary impacts upon commercial fisheries associated with the proposed activities during all phases as the Array is located beyond the 12 nm limit, where EU member states currently have access to fishing. Potential impacts include:

- temporary loss or restricted access to fishing grounds;
- long term loss or restricted access to fishing grounds;
- displacement of fishing activity into other areas;
- interference with fishing activity;
- increased snagging risk, which could result in loss or damage to fishing gear;
- increased steaming/vessel transit times; and
- impacts to commercially exploited species populations.

51. Fishing activity for non-UK fleets within the commercial fisheries local study area and commercial fisheries regional study area has been identified in volume 2, chapter 12 and notes there is low fishing activity by non-UK fleets in the vicinity of the Array.

52. Effects on commercial fish stocks could occur over a range of tens of kilometres from the Array and could therefore interact with the environment of EEA States, particularly Norway. Volume 2, chapter 12 identified no significant disruption to stocks of commercial fish species during all phases of the project, therefore, it is expected that the impact on stocks in the Norwegian EEZ will be negligible.

53. Effects on commercial fishing fleets could occur over a range of hundreds of kilometres from the Array (i.e. affecting fleets from other states that operate in the vicinity of the Array) and could therefore interact with the environment of EEA states, including the Netherlands, Germany, Belgium, Denmark, Norway, France and Ireland. Effects on these foreign commercial fishing fleets from EEA states, in terms of reduction in access to fishing grounds and displacement into alternative grounds including other EEZs, have been considered throughout the commercial fisheries EIA process (see volume 2, chapter 12). Impacts associated with long term loss or restricted access to fishing grounds were considered to be not significant for all fleets, except for demersal otter trawl and seine gears, however, after application of secondary mitigation, the residual significance of effect was considered to be not significant. Impacts associated with displacement of fishing activity into other areas were considered to be not significant for all fleets.

54. Therefore, significant transboundary impacts are not anticipated.

### 3.2.2. SHIPPING AND NAVIGATION

55. Potential impacts on shipping and navigation receptors include:

- increased vessel to vessel collision risk resulting from displacement (third party to third party);
- displacement from adverse weather routing;
- increased vessel to vessel collision risk resulting from displacement (third party to project vessel);
- vessel to structure collision risk;
- reduced access to local ports and harbours;
- loss of station;
- reduction of underkeel clearance as a result of subsea infrastructure;
- anchor and fishing gear interaction with subsea cables (including dynamic cabling);

- anchor interaction with anchoring and mooring systems; and
- reduction of Search and Rescue (SAR) capability.

56. There is the potential for transboundary impacts resulting from the construction, operation and maintenance or decommissioning phases of the Array, particularly regarding transits to/from other countries including effects on shipping routes to/from EEA state ports. The presence of the Array itself may present a risk to navigation of vessels on shipping routes to/from EEA states which may transit through or in close proximity to the Array, or lead to deviation of vessels on shipping routes to/from EEA state ports, leading to economic impacts upon shipping operators due to increased vessel transit times. In addition, increased vessel activity within the vicinity of the Array due to the construction, operation and maintenance and decommissioning of the Array may also present navigation risks or lead to deviation of vessels.

### 3.2.3. AVIATION, MILITARY AND COMMUNICATIONS

57. Potential impacts associated with the Array identified for aviation, military and communication receptors include:

- creation of a physical obstacle to aircraft operations (including Airborne SAR operations and Low Flying aircraft); and
- wind turbines causing interference to aviation Radar systems (including Primary Surveillance Radar (PSR) and Air Defence Radar (ADR)).

58. The Array is fully within the Scottish Flight Information Region (FIR<sup>2</sup>) which covers Scotland and Northern Ireland. Each FIR is managed by a controlling authority that has responsibility for ensuring that air traffic services are provided to the aircraft flying within it. The UK Civil Aviation Authority (CAA) is the controlling authority for the UK. Due to the localised nature, in aviation terms, of any potential impacts, no transboundary impacts associated with aviation, military and communications are predicted to arise.

### 3.2.4. INFRASTRUCTURE AND OTHER USERS

59. Potential impacts associated with the Array identified for infrastructure and other users receptors include:

- displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities due to safety zones and advisory safety distances in the Array which may result in a loss of recreational resource; and
- installation and presence of the wind turbines, OSPs and inter-array/interconnector cabling within the Array, including associated safety zones and advisory safe passing distances, may affect or restrict access to active hydrocarbon licence blocks by oil and gas operators either temporarily or long term.

60. There are no potential infrastructure and other users receptors associated with EEA states within the vicinity of the Array. Therefore, there are no potential transboundary impacts upon infrastructure and other users due to the construction, operation and maintenance, and decommissioning phases associated with the Array. Therefore, significant transboundary effects are not anticipated.

### 3.2.5. SOCIO-ECONOMICS

61. Potential impacts associated with the Array identified for socio-economics receptors include:

- employment and Gross Value Added (GVA) impacts associated with the construction, operation and maintenance, and decommissioning of the Array;
- demographic changes and demand for housing and other services;
- changes to visitor behaviour;
- changes to commercial fisheries; and
- changes to shipping and marine recreation.

- 62. As noted in the shipping and navigation and commercial fisheries sections above, there is the potential for transboundary impacts to occur if there is a potential impact on commercial fishing vessels or shipping and navigation receptors associated with EEA states. Therefore, as these have been considered within their respective sections, these are not considered within the socio-economic screening.
- 63. Volume 2, chapter 18 has considered the economic impact in Scotland and the UK associated with the construction, operation and maintenance, and decommissioning phases. However, a significant proportion of expenditure is also expected to take place in the EU and elsewhere in the world, which will generate beneficial economic impacts. While there are likely to be beneficial transboundary socio-economic effects associated with the Array, given the scale of the EU and global economies, it is considered unlikely that there will be a significant transboundary effect.

- 66. The participation of these EEA states is recommended based on potential for impact on shipping and navigation (particularly regarding transits to/from other countries and effects on shipping routes to/from EEA state ports).

**Table 3.3: Transboundary Matrix for the Array – Human Environment**

Screening Criteria	Commercial Fisheries	Shipping and Navigation	Aviation, Military and Communications	Infrastructure and Other Users	Socio-Economics
Characteristics of the Array	See Table 3.2.				
Location of the Array	See Table 3.2.				
Potential Impacts and Pathways	Screened out: no significant transboundary impacts predicted.	Screened in for potential transboundary impacts on vessels transiting to/from EEA ports, including risks to navigation and potential deviations leading to increased vessel times (see volume 2, chapter 13).	Screened out: no significant transboundary impacts predicted.	Screened out: no significant transboundary impacts predicted.	Screened out: no significant transboundary impacts predicted.
Environmental Importance					
Extent					
Magnitude					
Probability					
Duration					
Frequency					
Reversibility					
Cumulative Effects					

## 4. CONCLUSIONS

- 64. This transboundary screening has been carried out considering both the location of the Array and the Project Description (volume 1, chapter 3). There is the potential for transboundary impacts associated with the Array activities and infrastructure for the following topics:
  - shipping and navigation.
- 65. It is proposed that the following EEA states should be consulted on whether they intend to participate:
  - Norway;
  - Denmark;
  - Germany; and
  - Netherlands.

## 5. REFERENCES

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