Morven South Offshore Wind Array Project

Environmental Impact Assessment Report

Volume 3, Annex 6.2: Transboundary Effects Screening

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1 Transboundary Screening

1.1 Introduction

1.1.1.1 This chapter of the Morven North Offshore Wind Array Project (hereafter "Morven North") and the Morven South Offshore Wind Array Project (hereafter "Morven South") Environmental Impact Assessment (EIA) Report presents the screening assessment of the transboundary receptors that have the potential to be affected by the impacts from Morven North or Morven South during the construction, operations and maintenance (O&M) and decommissioning phases and assesses the potential of these impacts to have a significant effect on the environment of a European Economic Area (EEA) state.

1.1.2 Background

1.1.2.1 In the United Kingdom (UK), transboundary impacts are those which may arise as the result of a project in the UK which have the potential to significantly affect the environment of a EEA state. The location of Morven North and Morven South in relation to the Exclusive Economic Zones (EEZ) of EEA states and the UK is shown in Figure 1.1.

1.1.2.2 The Applicant completed a transboundary screening assessment of potential transboundary effects from the construction, O&M and decommissioning phases of Morven North and Morven South as part of the Scoping Report for the Morven Option Lease Agreement Site (referred to as the 'Morven Site Scoping Report') (Marine Directorate Licencing Operations Team (MD-LOT), 2023a). Following feedback provided in the Morven Option Lease Agreement Site Scoping Opinion (hereafter 'Morven Site Scoping Opinion') (MD-LOT, 2023b), an updated transboundary screening assessment has been provided for Morven North and Morven South as part of the Morven North EIA Report and Morven South EIA Report, the results of which are set out in Section 1.3.

1.1.2.3 The Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications (Scottish Government, 2018), whilst superseded provides a useful summary of the nature and type of transboundary impacts " the transboundary impacts relating to offshore renewable energy projects in Scotland are those which could have an impact on mobile species and are close to a national boundary or area governed by another relevant authority".

1.1.2.4 The Project Description for Morven North and Morven South is described in Volume 1, Chapter 3: Project Description of the respective EIA Reports, and a summary is provided here as follows:

- Morven North and Morven South will be located approximately 61km and 86km, respectively, from the Aberdeenshire coast and respectively cover an area of 511.1km^2 and 347.7km^2;
- up to 96 and 95 wind turbines, respectively for Morven North and Morven South, and associated support structures and foundations;
- up to five Offshore Substation Platforms (OSPs) and associated support structures and foundations to be installed each at Morven North and Morven South (a total of up to nine OSPs to be installed across both Morven North and Morven South);
- a network of inter-array cabling and interconnector cables.

1.1.2.5 The purpose of this transboundary screening assessment is to provide Scottish Ministers with the required information to inform their evaluation of the likelihood of transboundary impacts from Morven North and Morven South having significant effects on the environment in EEA states and the potential requirement for consultation with EEA states. The proximity of Morven North and Morven South to the EEZ's of EEA states is detailed in Section 1.3.

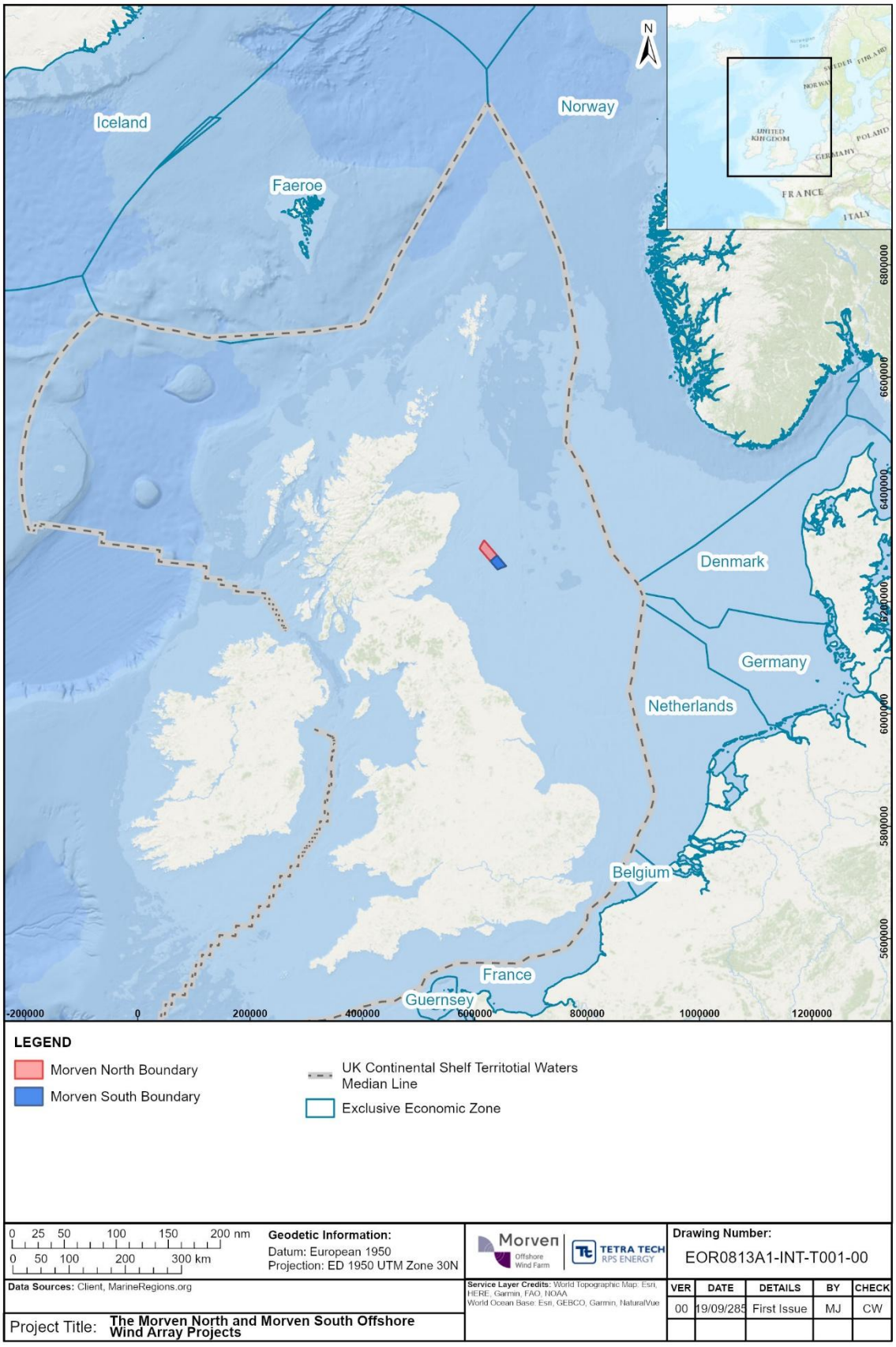

Figure 1.1: European Economic Area states in the vicinity of Morven North and Morven South

Legislative context

1.1.2.6 The United Nations Economic Commission for Europe (UNECE) Convention on EIA in a Transboundary Context (the Espoo Convention) (as amended) requires assessment of transboundary impacts to promote 'environmentally sound and sustainable development' and enhance international co-operation in assessing a project's environmental impact (UNECE, 2017).

1.1.2.7 When an activity occurring in one qualifying country may have a significant effect on another qualifying country, the Espoo Convention (named after the Finnish city of Espoo where it was adopted) requires that EIAs consider potential impacts across national borders.

1.1.2.8 The UK is also a signatory to the Convention on Access to Information, Public Participation in Decision Making, and Access to Justice in Environmental Matters (the "Aarhus Convention") and its Protocol, which guarantees access to information, public participation in decision making and access to justice in environmental matters.

1.1.2.9 Directive 85/337/EEC (as amended) (the EIA Directive) implements both the Espoo and Aarhus Conventions in European Union (EU) member states. This Directive was transposed into UK law via the Marine Works (Environmental Impact Assessment) Regulations 2007 and The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (collectively referred to as the "EIA Regulations" hereafter), as relevant to Morven North and Morven South.

1.1.2.10 In addition, Planning Inspectorate guidance on transboundary impacts (Planning Inspectorate, 2024) details the procedures for consultation for developments which may have significant transboundary effects. Based on this guidance, developers are advised to:

- consider, when preparing documents for consultation and application, that the Planning Inspectorate may notify the relevant state of their particular project;
- carry out preparatory work to complete a transboundary screening matrix to assist the Secretary of State in determining the potential for likely significant effects on the environment in other states;
- submit the transboundary screening matrix along with the Scoping request, if a Scoping Opinion is sought by the developer.

1.1.2.11 It is noted that this guidance on transboundary impacts has been prepared by the UK Planning Inspectorate, therefore, it is not directly applicable under Scottish consenting regimes. Nonetheless, it has been used to inform this transboundary screening assessment.

Environmental Impact Assessment

1.1.2.12 Under the EIA Regulations, Scottish Ministers are required to determine whether the impacts of proposed developments are likely to have significant effects on the environment of an EEA state (a transboundary impact). Regulation 29(1)(a) and 29(2) of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, for example, states that when it comes to the attention of the Scottish Ministers that works proposed to be carried out in Scotland are the subject of an EIA application and are likely to have significant effects on the environment in an EEA state, or if the EEA state so requests, Scottish Ministers must:

- send certain project particulars (e.g. description of development and available information on its possible significant effect on the environment in that state and how a decision on the application may be taken) to the EEA state, as soon as possible and no later than the date of publication of the relevant notice in The Edinburgh Gazette;
- publish the information in a notice placed in The Edinburgh Gazette, indicating the address where further information is available;
- allow the EEA state a reasonable time period in which to indicate whether it wishes to participate in the procedure provided for in the Regulations (consultation).

1.1.2.13 Similar provisions are made in the Marine Works (Environmental Impact Assessment) Regulations 2007.

Habitats Regulations Appraisal

1.1.2.14 As relevant to Morven North and Morven South, the Habitats Directive has been transposed into UK law through:

- the Conservation (Natural Habitats, &c.) Regulations 1994;
- the Conservation of Habitats and Species Regulations 2017 (which apply to certain specific consent applications including Section 36 applications);
- the Conservation of Offshore Marine Habitats and Species Regulations 2017 (which apply to marine licences and Section 36 applications within the Scottish Offshore region).

1.1.2.15 The Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications states "Where Scottish Ministers are required to undertake an appropriate assessment of cumulative impacts in relation to Natura interests, including transboundary and cross border effects, the developer's Habitats Regulations Appraisal (HRA) will need to provide the required information" in relation to potential transboundary impacts (Scottish Government, 2018).

1.2 Consultation

Table 1.1 summarises the key issues raised during consultation for Morven North and Morven South in relation to transboundary impacts, including those raised in the Morven Site Scoping Opinion (MD-LOT, 2023b), and how these have been addressed in the respective Morven North and Morven South EIA Reports. NatureScot advice on potential Transboundary Effects is fully reflected in the Scoping Opinion issued by Scottish Ministers and is therefore captured under the MD-LOT: Scoping Opinion rows in Table 1.1.

Table 1.1: Summary of Key Transboundary Issues Raised During the Morven North Offshore Wind Array Project and Morven South Offshore Wind Array Project Consultation Undertaken During Scoping

Date	Consultee and type of consultation	Summary of issue(s) raised	Applicant's response to issue raised and, if applicable, where considered in this chapter
30 November 2023	MD-LOT: Scoping Opinion	The Scottish Ministers and NatureScot agreed that transboundary impacts in relation to physical processes can be scoped out of further consideration in the EIA Report.	Physical Processes has been scoped out of this transboundary screening assessment as discussed in Section 1.3.2, paragraph 1.3.2.1 below.
		The Scottish Ministers were content with the approach outlined where transboundary impacts for underwater sound are considered within the transboundary screening assessment for fish and shellfish ecology, marine mammals and commercial fisheries, and therefore a standalone assessment of potential transboundary effects from underwater sound was agreed to be scoped out.	Considered in the Fish and Shellfish Ecology EIA Chapter (Volume 2, Chapter 9), Marine Mammals EIA Chapter (Volume 2, Chapter 10) and Commercial Fisheries EIA Chapter (Volume 2, Chapter 12) of the respective Morven North and Morven South EIA Reports, and discussed in these topic receptor subsections in Sections 1.3.2 and 1.3.3 below.
		The Scottish Ministers were content with the Applicant's proposal to scope out a standalone assessment of potential transboundary effects from offshore water quality of the EIA Report due to the remote offshore location of the proposed development and considering that transboundary impacts for offshore water quality were proposed to be considered within the transboundary screening assessment for other receptors, such as benthic ecology, fish and shellfish ecology, marine mammals and offshore ornithology.	Considered in the Fish and Shellfish Ecology EIA Chapter (Volume 2, Chapter 9), Marine Mammals EIA Chapter (Volume 2, Chapter 10) and Offshore Ornithology EIA Chapter (Volume 2, Chapter 11) of the respective Morven North and Morven South EIA Reports, and discussed in these topic receptor subsections in Section 1.3.2 below. Note that Benthic Subtidal Ecology has been scoped out of this transboundary screening assessment as discussed in Section 1.3.2, paragraph 1.3.2.1 below.
		The Scottish Ministers and NatureScot agreed that transboundary impacts in relation to	Benthic Subtidal Ecology has been scoped out of this transboundary screening

Date	Consultee and type of consultation	Summary of issue(s) raised	Applicant's response to issue raised and, if applicable, where considered in this chapter
		benthic subtidal ecology can be scoped out from further assessment.	assessment as discussed in Section 1.3.2, paragraph 1.3.2.1 below.
		The Scottish Ministers and NatureScot agreed that transboundary impacts should be scoped in for fish and shellfish ecology.	Considered in the Fish and Shellfish Ecology EIA Chapter (Volume 2, Chapter 9) of the respective Morven North and Morven South EIA Reports and discussed in Section 1.3.2 below.
		The Scottish Ministers and NatureScot agreed that transboundary impacts should be considered in the EIA Report for marine mammals.	Considered in the Marine Mammals EIA Chapter (Volume 2, Chapter 10) of the respective Morven North and Morven South EIA Reports and discussed in Section 1.3.2 below.
		The Scottish Ministers and NatureScot agreed that transboundary impacts on offshore ornithology should be scoped in to the EIA Report.	Considered in the Offshore Ornithology EIA Chapter (Volume 2, Chapter 11) of the respective Morven North and Morven South EIA Reports and discussed in Section 1.3.2 below.

1.3 Screening of transboundary impacts

1.3.1.1 Figure 1.1 illustrates the proximity of Morven North and Morven South to other EEA states. The distance from Morven North and Morven South to other EEA states with which there may be transboundary impacts has been considered within these assessments (see Table 1.2).

Table 1.2: Summary of approximate distance to the Nearest European Economic Area states (median line)

European Economic Zone	Distance from Morven North to the nearest marine border (km)	Distance from Morven South to the nearest marine border (km)
Norway	195	185
Denmark	254	234
Germany	265	245
Netherlands	273	252
Faroe Islands	462	493
Belgium	570	550
France	595	576
Iceland	887	921

1.3.2 Physical and biological environment

1.3.2.1 The Applicant has carried out a transboundary screening assessment for all potential physical and biological receptors. The conclusion of the assessment undertaken for each topic is presented within the following sections. Where it has been proposed that receptor groups be screened out of the respective Morven North and Morven South EIA Reports, these have not been considered within this transboundary screening assessment. Scottish Ministers did not raise any objection in the Morven Site Scoping Opinion (MD-LOT, 2023b) to scoping out airborne sound and air quality, and agreed to scoping out offshore water quality, physical processes and benthic subtidal ecology from the transboundary screening assessment (see Table 1.1), on the basis that no significant effects to the marine environment are predicted and, therefore, no significant effects will occur to an EEA state.

1.3.2.2 The HRA process (HRA; Volume 2, Chapter 2: Report to Inform Appropriate Assessment (RIAA) Part 2: Special Area of Conservation (SAC) Assessments and Volume 2, Chapter 3: RIAA Part 3: Special Protection Area (SPA) and Ramsar Site Assessments)) has considered the potential for Morven North or Morven South to impact benthic subtidal, fish and shellfish, marine mammal or offshore ornithology features of nature conservation designations in EEA states.

Fish and shellfish ecology

1.3.2.3 Potential impacts on fish and shellfish ecology receptors include:

- temporary habitat loss and disturbance;
- underwater sound;
- increased Suspended Sediment Concentrations (SSCs) and associated deposition;
- long-term habitat loss;
- colonisation of hard structures and associated fish aggregation;
- Electromagnetic Field (EMF) from subsea electrical cables.

1.3.2.4 There is potential for transboundary impacts upon fish and shellfish ecology due to construction, O&M and decommissioning impacts of Morven North and Morven South. Fish species, including Annex II migratory fish species and fish of commercial importance for fishing fleets of other EEA states, may transit through Morven North and Morven South and have therefore, been considered as part of this EIA transboundary assessment.

1.3.2.5 Increased underwater sound during the construction phase of Morven North and Morven South has the potential to injure and/or disturb fish receptors, including Annex II migratory fish species and fish that have commercial value. Impacts associated with indirect effects on fish and shellfish habitats, including habitat loss and suspended sediments are expected to be localised to within the Fish and Shellfish Study Area, which is entirely out with other EEA states. A direct impact may result from, for example, piling during construction of foundations, and an indirect impact may result from, for example, changes in prey availability during construction.

1.3.2.6 However, any impact resulting from the construction, O&M and decommissioning phases of Morven North and Morven South is not expected to have a transboundary effect on the environment of any EEA state due to the distance from Morven North and Morven South in relation to the potential scale over which effects could occur, and the temporary nature of impacts.

1.3.2.7 Therefore, there are no likely significant transboundary effects with regard to fish and shellfish ecology anticipated as a result of Morven North and Morven South upon the interests of any EEA state.

Marine mammals

1.3.2.8 Potential impacts on marine mammal receptors include:

- injury and disturbance from underwater sound generated from piling;
- injury and disturbance from underwater sound generation from unexploded ordnance (UXO) clearance;
- disturbance from site investigation surveys;
- disturbance from vessel use and other (non-piling) sound-producing activities;
- injury due to collision with vessels;
- changes in prey availability.

1.3.2.9 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 disturbance contours predicted for piling (see Volume 2, Chapter 10: Marine Mammals, Section 10.11, of the respective Morven North and Morven South EIA Reports) extended across the northern North Sea and therefore animals transiting between these waters could be behaviourally disturbed across different states. The assessment of Morven North alone and Morven South alone considered the effects on marine mammal populations within relevant Management Units (MUs) which covered, at a minimum, the population within the northern North Sea and therefore in this respect captures the effects at transboundary level (although, it is noted that these are not closed populations and there is likely to be mixing of individuals between other MUs).The assessment concluded that disturbance could occur intermittently during piling within the two year piling phase and the magnitude for the Morven North alone and Morven South alone was considered to be low. Sensitivity of marine mammal Important Ecological Features (IEFs) to disturbance was assessed as medium for both Morven North alone and Morven South alone. Therefore, the significance of disturbance from piling at a transboundary level is considered to be of **minor adverse** significance which is not significant in EIA terms.

1.3.2.10 UXO clearance could also lead to large ranges over which elevations in underwater sound occur where there is high order detonation of the largest charge size. The underwater sound disturbance contours predicted for UXO clearance (see Volume 2, Chapter 10: Marine Mammals, Section 10.11, of the respective Morven North and Morven South EIA Reports) could therefore affect individuals transiting between transboundary states. The predictions noted in Volume 2, Chapter 10: Marine

Mammals, Section 10.11 are, however, highly precautionary since the low order clearance techniques will be used in line with the Joint Position Statement (UK Government, 2025), which would considerably reduce the potential injury and/or disturbance ranges. For injury, tertiary mitigation measures will be applied to reduce the risk of permanent auditory injury which includes the use of low order clearance, and with these in place the assessment concluded the magnitude for Morven North alone and Morven South alone for all species would be negligible. For behavioural disturbance, the magnitude is considered to be low for all species for Morven North alone and Morven South alone. The sensitivity of all marine mammals to Permanent Threshold Shift is high and to disturbance (Temporary Threshold Shift) is low. Therefore, the significance of auditory injury for low order clearance at a transboundary level is minor adverse, which is not significant in EIA terms. For behavioural disturbance, the effect will be of negligible or minor adverse significance. Disturbance is expected to be temporary, with species showing tolerance and recoverability, and although there will be effects at the individual level this is not predicted to lead to population-level effects. Transboundary effects are therefore concluded to be of minor adverse significance, which is not significant in EIA terms.

1.3.2.11 For vessel use and other (non-piling) sound-producing activities the range of disturbance modelled could extend out to 39.7km and 45.3km for Morven North and Morven South, respectively. These predictions are, however, highly precautionary since the modelled ranges represent the distance beyond which no animals would be disturbed. Given that ranges for disturbance for non-impulsive sound sources are presented up to the 120 dB re 1 µPa (rms) threshold, and there is only a single available threshold (120 dB re 1 µPa (rms)), (the Level B harassment threshold) (NMFS, 2005), (no distinction between mild and strong disturbance), it can be assumed that not all animals found within those ranges would be disturbed at the same level. Moreover, for those animals disturbed, there is likely to be a proportional response (i.e. not all animals will be disturbed to the same extent). Furthermore, there is an indication of tolerance to vessel traffic in the scientific literature for marine mammals, particularly in the North Sea which has high baseline levels of vessel traffic. Empirical evidence suggest strong disturbance is more likely to occur over ranges not exceeding 7km. The assessment concluded the magnitude for Morven North alone and Morven South alone, with respect to the relevant MUs, would be low, the sensitivity is low and the significance of the effect to be of minor adverse significance. Therefore, the significance of disturbance from vessel use and other (non-piling) sound-producing activities at a transboundary level is considered to be of minor adverse significance which is not significant in EIA terms.

1.3.2.12 For other potential impacts, including elevated underwater sound from geophysical and geotechnical surveys, increased likelihood of injury due to collision with vessels, changes in prey availability and operation related sound emissions, the effects on marine mammals were predicted to be very localised and are therefore considered unlikely to result in significant transboundary effects on marine mammal IEFs.

1.3.2.13 Therefore, there are no likely significant transboundary effects with regard to marine mammals anticipated as a result of Morven North and Morven South upon the interests of any EEA state.

Offshore ornithology

1.3.2.14 Potential impacts on offshore ornithology receptors include:

- direct temporary habitat loss/disturbance;
- changes in prey availability due to temporary habitat loss/disturbance;
- collision with rotating blades;
- displacement;
- barrier effects;
- attraction to light.

1.3.2.15 There is potential for seabird populations located outside of UK territorial waters, including those that are qualifying features of designated sites, to interact with Morven North and Morven South,

primarily in the non-breeding season. Such impacts could occur during the construction, O&M or decommissioning phases of Morven North and Morven South.

1.3.2.16 Existing published information on seabird foraging behaviour, based on foraging range (e.g. Woodward *et al*., 2019), has been used to determine transboundary connectivity in the breeding season. In the non-breeding season, it is possible that birds from non-UK seabird colonies may occur within the Morven North and Morven South Boundaries and, therefore, there may be impacts on birds originating from non-UK colonies.

1.3.2.17 A wide variety of published material has been used to determine transboundary connectivity for migratory species, including: Wright *et al.* (2012), WWT Consulting and MacArthur Green (2014), Furness (2015) and species-specific tracking information.

1.3.2.18 There is potential for displacement impacts, collision risk and combined collision and displacement risk (including impacts on species which may have connectivity to UK SPAs) during the operations and maintenance phase. Overall, the effect will be of **negligible adverse** significance, which is not significant in EIA terms.

1.3.2.19 Therefore, there are no likely significant transboundary effects with regard to offshore ornithology ecology anticipated as a result of Morven North and Morven South upon the interests of any EEA state.

Table 1.3: Transboundary matrix for Morven North and Morven South – physical and biological environment

Screening criteria	Fish and shellfish ecology	Marine mammals	Offshore ornithology
Characteristics of Morven North and Morven South	Volume 1, Chapter 3: Project Description presents a detailed description of Morven North and Morven South. Morven North and Morven South comprises up to 96 and 95 wind turbines, respectively, with maximum rotor blade diameter of up to 320m, maximum blade tip height of up to 363m above Lowest Astronomical Tide (LAT) and a minimum blade clearance of 34m above LAT. Up to five OSPs may be installed in Morven North and Morven South (up to nine in total across both Morven North and Morven South), comprising up to four High Voltage Alternating Current (HVAC) collector substation platforms, and either up to one High Voltage Direct Current (HVDC) converter substation platform, or up to one bridge-linked HVDC converter substation, which consists of two HVDC converter substation platforms (including foundations) linked via a steel bridge to accommodate cabling between the platforms. Wind turbines and OSPs will have fixed foundations; options include monopile foundations, piled jacket foundations, and suction bucket jacket foundations. Gravity base foundations may also be considered for OSPs only. Scour protection may comprise concrete mattresses, rock placement/rock bags, or frond mattresses. Up to 424km and 420km of inter-array cables will be installed in Morven North and Morven South, respectively, to connect the turbines to the OSPs. Up to 484km and 264km of interconnector cables will connect the OSPs to each other in Morven North and Morven South, respectively. Installation of external cable protection may also be required, with options including concrete mattresses, rock placement, rock bags, cast iron shells, and frond mats.		
Location of Morven North and Morven South	Morven North and Morven South will be located approximately 61km and 86km from the Aberdeenshire coast, respectively		

Screening criteria	Fish and shellfish ecology	Marine mammals	Offshore ornithology
Potential Impacts and Pathways	Screened out: no significant transboundary effects predicted.	Screened out: no significant transboundary effects predicted.	Screened out: no significant transboundary effects predicted.
Environmental Importance			
Extent			
Magnitude			
Probability			
Duration			
Frequency			
Reversibility			
Cumulative Effects			

1.3.3 Human environment

1.3.3.1 The Applicant has carried out transboundary screening for all potential human environment receptors. The conclusion of the assessment undertaken for each receptor group is presented within the following sections. Where it has been proposed that receptor groups be screened out of the respective Morven North and Morven South EIA Reports, these have not been considered within this transboundary screening assessment. Scottish Ministers did not raise any objection in the Morven Site Scoping Opinion (MD-LOT, 2023b) to scoping out Seascape, Landscape And Visual Impact (SLVIA) and onshore heritage assets, other sea users, marine infrastructure and communications, marine archaeology, aviation (military and civil), major accidents and disasters, and human health from the transboundary screening assessment, on the basis that no significant effects to the marine environment are predicted and, therefore, no significant effects will occur to an EEA state.

Socio-economics

1.3.3.2 Potential impacts on socio-economic receptors include:

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

1.3.3.3 The screening exercise of the respective Morven North and Morven South EIA Reports identified that there is potential for transboundary impacts upon socio-economics due to construction, O&M and decommissioning of Morven North and Morven South.

1.3.3.4 In addition to expenditure in Scotland and the UK during the construction phase, there is expected to be £1.6 billion in expenditure in the EU and £456 million elsewhere in the world during the construction phase. The largest category of expenditure is expected to be wind turbine engines. This will generate economic activity and support employment in the EU and elsewhere. While there are likely to be beneficial transboundary socio-economic effects associated with Morven North and Morven South, given the scale of the EU and global economies, it is considered likely that, at most, there will be a negligible beneficial transboundary effect.

1.3.3.5 In addition to annual expenditure in Scotland and the UK during the O&M phase, there is expected to be an annual expenditure of £9 million in the EU. This is expected to lead to beneficial socio-economic effects, generating economic activity and supporting employment in the EU and elsewhere. Given the scale of the EU and global economies, it is considered likely that there will be a negligible beneficial effect.

1.3.3.6 Therefore, there are no likely significant transboundary effects with regard to socio-economics anticipated as a result of Morven North and Morven South upon the interests of any EEA state.

Shipping and navigation

1.3.3.7 Potential impacts on shipping and navigation receptors include:

- increased vessel to vessel collision risk resulting from displacement (third party to third party);
- increased vessel to vessel collision risk resulting from displacement (third party to Morven North and Morven South vessels);
- vessel to structure allision risk;
- reduced access to local ports and harbours;
- reduction of under-keel clearance as a result of subsea infrastructure;
- anchor and fishing gear interactions with subsea cables;
- interference with navigation, communications, and position-fixing equipment;
- reduction of Search and Rescue (SAR) capability.

1.3.3.8 Given the international nature of vessel routeing (including to international ports), all impacts listed above are relevant in the context of transboundary effects. Individual transits may have the potential to be associated with vessels that are internationally owned or located, however, any such transits have been captured within the baseline assessment of vessel traffic as detailed in Volume 2, Chapter 13: Shipping and Navigation, and Volume 3, Annex 13.1: Shipping and Navigation Shared Navigational Risk Assessment of the respective Morven North and Morven South EIA Reports. In particular, Automatic Identification System (AIS) is an internationally recognised and implemented means of broadcasting vessel information. The impact assessment presented in Volume 2, Chapter 13: Shipping and Navigation of the respective Morven North and Morven South EIA Reports determined that there were no significant effects on shipping and navigation receptors in the respective Morven North and Morven South Shipping and Navigation Study Areas or the Morven North and Morven South Regional Shipping and Navigation Study Area as a result of Morven North and Morven South.

1.3.3.9 Therefore, there are no likely significant transboundary effects with regard to shipping and navigation anticipated as a result of Morven North and Morven South upon the interests of any EEA state.

Climate change

1.3.3.10 Potential impacts on climate change receptors include:

- Greenhouse Gas (GHG) emissions arising from seabed change;
- GHG emissions arising from the manufacturing and installation of Morven North and Morven South, including vessel movements;
- GHG emissions arising from the consumption of materials and activities required to facilitate the O&M phase and the impact of estimated abatement of UK Grid emissions during the operation and maintenance phase;
- GHG emissions arising from decommissioning works (e.g. plant, fuel and vessel use) and the recovery (or disposal) of materials);
- net whole lifetime GHG impacts of Morven North and Morven South;
- the vulnerability of Morven North and Morven South to climate change during the O&M phase.

1.3.3.11 All developments that emit GHG have the potential to impact the atmospheric mass of GHGs as a receptor (including manufacturing of components and materials in other territories or EEA states)

and so may have a transboundary impact on climate change. Consequently, transboundary impacts of Morven North and Morven South are considered 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.

1.3.3.12 It was concluded in Volume 2, Chapter 18: Climate Change of the respective Morven North and Morven South EIA Reports that most of the impacts resulting from Morven North and Morven South alone and cumulatively with other projects will not result in significant adverse effects in EIA terms. Impacts which were found to have a beneficial significant effect were 'GHG emissions arising from the consumption of materials and activities required to facilitate the O&M phase' and the impact of 'estimated abatement of UK Grid emissions during the operation and maintenance phase' and 'net whole lifetime GHG impacts of Morven North and Morven South'. The climate change assessment includes a commitment to the provision of GHG Reduction Strategy as a designed-in measure, which will manage GHG emissions throughout the construction phase.

1.3.3.13 Therefore, there are no likely significant transboundary effects with regard to climate change anticipated as a result of Morven North and Morven South upon the interests of any EEA state.

Commercial fisheries

1.3.3.14 Potential impacts on commercial fisheries receptors include:

- reduction in access to, or exclusion from established fishing grounds;
- displacement leading to gear conflict and increased fishing pressure on adjacent grounds;
- disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity;
- increased vessel traffic associated with Morven North and Morven South within fishing grounds leading to interference with fishing activity;
- additional steaming to alternative fishing grounds for vessels that would otherwise fish within Morven North and Morven South;
- increased snagging risk, which could result in loss or damage to fishing gear.

1.3.3.15 The screening exercise of the respective Morven North and Morven South EIA Reports identified that there is potential for transboundary impacts on commercial fishing fleets from all EEA countries as a result of constraints on foreign commercial fishing activities operating in and around Morven North and Morven South, namely non-UK pelagic trawlers. These effects may include reduction in access to fishing grounds and potential displacement of fishing effort from Morven North and Morven South to alternative fishing grounds in EEA states.

1.3.3.16 Effects on foreign commercial fishing fleets from EEA states, in terms of reduction in access to fishing grounds and displacement into alternative grounds including other EEAs, have already been intrinsically considered throughout the commercial fisheries EIA process. All impacts on pelagic trawl fisheries were found to be not significant (see Volume 2, Chapter 12: Commercial Fisheries). Cumulative effects associated with restricted access to, or exclusion from established fishing grounds, and displacement were considered to be significant for dredge and demersal otter trawl and seine gears, however, after application of secondary mitigation, the residual significance of effect was considered to be not significant.

1.3.3.17 Therefore, there are no likely significant transboundary effects with regard to commercial fisheries anticipated as a result of Morven North and Morven South upon the interests of any EEA state.

Table 1.4: Transboundary matrix for Morven North and Morven South – human environment

Screening criteria	Socio-economics	Shipping and navigation	Climate change	Commercial fisheries
Characteristics of Morven North and Morven South	See Table 1.3			
Location of Morven North and Morven South	See Table 1.3			
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.
Environmental Importance				
Extent				
Magnitude				
Probability				
Duration				
Frequency				
Reversibility				
Cumulative Effects				

1.4 Conclusions

1.4.1.1 This transboundary screening has been carried out taking in to consideration both the location of Morven North and Morven South and the respective Project Description chapters (Volume 1, Chapter 3: Project Description of the Morven North EIA Report and Volume 1, Chapter 3: Project Description of the Morven South EIA Report). It is considered that there is no potential for transboundary impacts on EEA states associated with the Morven North and Morven South activities and infrastructure.

1.4.1.2 It is proposed that the following EEA states should be consulted by the Scottish Ministers on whether they intend to participate:

- Norway;
- Denmark;
- Germany;
- Faroe Islands;
- The Netherlands;
- Belgium;
- France;
- Iceland.

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