Muir Mhòr Offshore Wind Farm

Environmental Impact Assessment Report

Volume 1, Chapter 6: Environmental Impact Assessment Methodology

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Glossary

Term	Definition
Array Area	The area in which the generation infrastructure (including Wind Turbine Generators and associated foundations and inter-array cables), Offshore Electrical Platform(s), and an interconnector cable will be located.
Commitments	The measures that the Developer will factor in through all stages of the Development.
Cumulative effects	The combined effect of the Proposed Development acting cumulatively with the effects of several different projects, on the same single receptor/resource.
Cumulative impacts	Impacts that result from changes caused by other past, present or reasonably foreseeable actions together with the Proposed Development
Design Envelope	A description of the range of possible elements that make up the Proposed Development's design options under construction, as set out in detail in the project description. This envelope is used to define the Proposed Development for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is often referred to as the "Rochdale Envelope" approach.
Developer	Muir Mhòr Offshore Wind Farm Limited
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of an impact with the sensitivity of a receptor, in accordance with defined significance criteria.
EIA Regulations	Collectively the term used to refer to The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
Floating Foundations	The floating structures on which the Wind Turbine Generators or Offshore Electrical Platform(s) are installed.
Habitat Regulations	The Conservation (Natural Habitats, &c..) Regulations 1994, the Conservation of Offshore Marine Habitats and Species Regulations 2017 and the Conservation of Habitats and Species Regulations 2017
Impact	An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial.
Inter-array cables	Cables which link the Wind Turbines Generators to each other and the Offshore Electrical Platform(s).
Interconnector cable	Cable which links the Offshore Electrical Platform(s) to one another, allowing for power to be transferred between the platforms.
Inter-related effects	Individual environmental topic effects resulting from the Proposed Development, which could combine with other environmental topic effects from the Proposed Development to create effects that are significant.
Landfall	The area between Mean High Water Springs (MLWS) and Meah Low Water Springs (MLWS) where the offshore export cables are brought onshore.
Mitigation	A term used interchangeably with Commitments(s) by the Proposed Development. Mitigation measures (commitments) are embedded within the assessment at the relevant point in the EIA (e.g. at Scoping, EIAR)
Offshore Export Cable Corridor (ECC)	The area within which the offshore export cables will be installed.
Offshore export cables	The subsea electricity cable circuits running from the Offshore Electrical Platform to the landfall which will transmit the electricity generated by the offshore wind farm to the onshore export cables for transmission onwards to the onshore substation and the national electrical transmission system along with auxiliary cables such as fibre optic cables.

Term	Definition
Offshore Electrical Platform (OEP)	Offshore platform consisting of High Voltage Alternative Current (HVAC) equipment, details depending on the final electrical set up of the Project.
Offshore transmission infrastructure	The proposed transmission infrastructure comprising: Offshore Electrical Platform(s) and associated foundations and substructures; the interconnector cable, the offshore export cables; and the landfall area up to Mean High Water Springs (MHWS).
Project	Muir Mhòr Offshore Wind Farm – comprises the wind farm and all associated offshore and onshore components.
Proposed Development	The offshore Muir Mhòr Offshore Wind Farm project elements to which this Offshore EIA Report relates.
Receptor	A distinct part of the environment on which effects could occur and be the subject of specific assessments. Examples of receptors include species (or groups) of animals, plants, people (often categorized further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Scoping	An early part of the EIA process by which the key Likely Significant Effects (LSE) of the Proposed Development are identified, and methodologies identified for how these should be assessed. This process gives the regulator and key consultees opportunity to comment and define the full extent of the final EIA – which can also then be tailored through the consultation process.
Transboundary impacts	Transboundary effects arise when impacts from a development within one European Economic Area (EEA) state affects the environment of another EEA state(s).
Wind Turbine Generator (WTG)	The wind turbines that generate electricity, consisting of tubular towers and blades attached to a nacelle housing mechanical and electrical generating equipment.
Worst Case Design Scenario	The maximum design parameters of each offshore asset of the Proposed Development considered to be a worst case for any given assessment.

Acronyms

Term	Definition
AA	Appropriate Assessment
BSI	British Standards Institute
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CEA	Cumulative Effects Assessment
CIEEM	Chartered Institute for Ecology and Environmental Management
COWRIE	Offshore Wind Research into the Environment
CPA	Coast Protection Act
DMRB	Design Manual for Roads and Bridges
EC	Export Cable
ECC	Export Cable Corridor
EEA	European Economic Area
EEC	European Economic Community
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ES	Environmental Statement
EU	European Union
FEPA	Food and Environmental Protection Act
HRA	Habitats Regulation Appraisal
IEMA	Institute of Environmental Management and Assessment
IROPI	Imperative Reasons of Overriding Public Interest
LSE	Likely Significant Effects
MCEU	Marine Consents and Environment Unit
MD-LOT	Marine Directorate-Licensing Operations Team
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
NPF	National Planning Framework
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic (The Oslo Paris Convention)
OWF	Offshore Wind Farm
PAC	Pre-Application Consultation
PAN	Planning Advice Note
PD	Project Description
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SPA	Scientific Protection Area
cSAC	Candidate Special Areas of Conservation
pSPA	Potential Special Protection Areas
SCI	Sites of Community Importance
SNH	Scottish National Heritage
UK	United Kingdom
WPA	Whole Project Assessment

Term	Definition
WSP	Wet Storage Plan
WTG	Wind Turbine Generator

6. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) METHODOLOGY

6.1. INTRODUCTION

6.1.1. Muir Mhòr Offshore Wind Farm Limited (hereafter referred to as 'the Developer') is proposing to develop the Muir Mhòr Offshore Wind Farm (hereafter 'the Project'). The Project is made up of both offshore and onshore components. The subject of this offshore Environmental Impact Assessment Report (EIAR) is the offshore infrastructure of the Project seaward of Mean High-Water Springs (MHWS) which is hereafter referred to as 'the Proposed Development'.

6.1.2. The Muir Mhòr Array Area covers an area of approximately 200 km^2 and is located approximately 63 km east of Peterhead on the east coast of Scotland. The offshore infrastructure of the Proposed Development includes Wind Turbine Generators (WTGs) and associated floating foundations, the Offshore Electrical Platform(s) (OEP(s)) and associated foundations, the inter-array cables, interconnector cable, offshore export cables and landfall.

6.1.3. Environmental Impact Assessment (EIA) is the process of systematically identifying potential impacts the Proposed Development could have on the environment. The process involves developing a detailed understanding of the construction, operation and maintenance, and decommissioning activities associated with the Proposed Development, and the environment within and surrounding where the Proposed Development will be located. The potential impacts are then evaluated to determine how the Proposed Development would affect the environment, both individually and cumulatively with other projects, and the likely significance of those effects. Inter-related effects as well as transboundary effects are also considered. Where potential impacts are likely to result in Likely Significant Effects (LSE), specific measures will need to be taken to reduce or remove such impacts (mitigation measures).

6.1.4. The EIA process also requires consideration of whether it is appropriate to include proportionate measures to monitor the predicted impacts of the Proposed Development.

6.1.5. Requirements for EIA are defined in the EIA Directive (2011/92/EU, as amended by Directive 2014/52/EU) which has been transposed into Scottish law. The requirements of the EIA Directive are enacted through relevant Scottish legislation for electricity generation projects requiring consent under Section 36 of the Electricity Act 1989 by the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended).

6.1.6. In relation to marine licensing under the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009, the requirements of the EIA Directive are enacted by the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended). These EIA Regulations set out the statutory process and minimum requirements for EIA, to which the Proposed Development has adhered to.

6.1.7. The following Sections set out the approach to the EIA for the Proposed Development, which includes the way impacts and effects have been presented throughout the EIA process. The processes and general EIA approach are described. It is important to note the assessment approach for some topics may be different, to align with topic-specific best practice guidance and standards. These different approaches have been clearly highlighted in each technical Chapter of the Offshore Scoping Report (Volume 3, Appendix 5.1 (Offshore Scoping Report)) and associated EIAR Chapters. The assessment processes have been developed and refined thorough discussion with relevant stakeholders as required, informed by the Proposed

Development Scoping Opinion received from the Marine Directorate - Licensing Operations team (MD-LOT) in September 2023 (Volume 3, Appendix 5.2 (Offshore Scoping Opinion).

6.2. EIA PROCESS

6.2.1. The EIA process consists of the following:

- Scoping: The Developer produces an Offshore EIA Scoping Report and requests a formal Scoping Opinion from Scottish Ministers;
- Consultation: As part of the marine licence application for works within 12 nautical miles (nm), the Developer is required to undertake Pre-application Consultation (PAC) pursuant to the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013. Although the PAC process is not strictly a requirement of the EIA Regulations, it has informed the EIAR, and therefore within this Chapter the PAC is discussed alongside the EIA process;
- EIAR preparation: The Offshore EIAR is prepared, considering the responses to the consultation process and outcomes of the assessment of the LSE (as defined in EIA Regulations) of the development during the construction, operation and maintenance, and decommissioning stages;
- EIAR consultation: The Offshore EIAR (and the application to which it relates) will be publicised, and the consultation bodies and the public are given an opportunity to give their views about the development and the offshore EIAR;
- Determination: The competent authority will examine all the environmental information, including the offshore EIAR and any comments and representations received, and must reach their reasoned conclusion on the significant effects of the development on the environment. The environmental information, and the conclusions reached, must be considered by the competent authority in deciding whether to give consent for the development. The competent authority must also consider whether any proposed mitigation and monitoring measures are appropriate; and
- Decision notice: The competent authority must inform the public and the consultation bodies of the decision and must publish a 'decision notice' which incorporates the authority's reasoned conclusion on the significant effects of the development on the environment.

6.3. KEY CONSIDERATIONS WITHIN THE OFFSHORE EIAR

6.3.1. Within this offshore EIAR, the assessment of each topic is presented in a separate topic specific Chapter. Within each of the topic Chapters, the following matters have been presented:

- Identification of the study area(s) for the topic-specific assessments;
- Description of the planning policy and guidance context; and
- Summary of consultation activity, including comments received in the Scoping Opinion and PAC, and responses to those comments.

6.3.2. A description of the environmental baseline conditions within the defined study area(s) is presented for each topic.

6.3.3. Description of the impact assessment process and findings for each topic, including:

- Identification of potential impacts;
- Identification of the worst case design scenario for each impact;
- A description of the commitments adopted as part of the Proposed Development, including mitigation and design measures which seek to prevent, reduce, or offset environmental effects;
- Assessment of the likely significance of identified effects arising from the potential impacts, considering the commitments adopted as part of the Proposed Development;
- Identification of any further mitigation measures available in respect of LSE and in addition to those measures adopted as part of the Proposed Development, together with consideration of any residual effects;
- Consideration of whether it is appropriate to include proportionate measures to monitor the predicted impacts of the Proposed Development;
- Cumulative effects have been assessed by taking into consideration any other plans or projects proposed or existing, and where sufficient information is available, which, together with the Proposed Development have a likely significant effect on a receptor due to a common impact pathway and/or temporal or spatial overlap;
- Assessment of any transboundary effects (i.e., effects on other European Economic Area (EEA) states); and
- Inter-related effects (i.e., inter-relationships between environmental topic areas) have been assessed in a separate standalone section which considers the impacts of the Proposed Development on each of the identified receptor groups.

6.4. LEGISLATION AND POLICY CONTEXT

6.4.1. Overarching legislation, policy, and guidance in relation to the EIAR for the Proposed Development is provided in Volume 1, Chapter 2 (Legislation and Policy). Below is provided a summary of legislation, policy, and guidance directly relevant to the EIA Methodology.

6.4.2. As discussed within Volume 1, Chapter 2 (Legislation and Policy), in compliance with the EIA Regulations), an EIAR is required for the Application for Section 36 consent and marine licences for the Proposed Development. In addition to the legislative requirements, guidance and good practice documents have been developed to assist with the production of a robust and proportionate EIAR. These include:

- Marine Scotland Consenting and Licensing Guidance: For Offshore Wind, Wave and Tidal Energy Applications (Marine Scotland, 2018) (Note the Developer is aware the Marine Directorate is currently consulting on updates to this guidance);
- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine (Chartered Institute for Ecology and Environmental Management (CIEEM), 2018);
- Delivering Proportionate EIA. A Collaborative Strategy for Enhancing UK EIA Practice (Institute of Environmental Management and Assessment (IEMA), 2017);
- Environmental impact assessment for offshore renewable energy projects (British Standards Institute (BSI), 2015);

- Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects (Centre for Environment, Fisheries and Aquaculture Science (Cefas), 2012);
- A Review of Assessment Methodologies for Offshore Wind Farms (OWFs) (Collaborative Offshore Wind Research into The Environment (COWRIE) METH-08-08) (Maclean *et al.*, 2009);
- IEMA Environmental Impact Assessment Guide to Shaping Quality Development (IEMA, 2015);
- Planning Advice Note (PAN) 1/2013 Environmental Impact Assessment (Scottish Government, 2017);
- A Handbook on Environmental Impact Assessment (Scottish National Heritage (SNH), 2018);
- OWFs: Guidance Notes for EIA in Respect of Food and Environmental Protection Act (FEPA) and Coast Protection Act (CPA) Requirements: V2 (Cefas), 2004a);
- Guiding Principles for Cumulative Impacts Assessment in Offshore Windfarms (Renewable UK (2013));
- Assessment of the Environmental Cables (Convention for the Protection of the Marine Environment of the North-East Atlantic (The Oslo Paris Convention (OSPAR), 2009);
- EIA of Projects - Guidance of Projects - Guidance on the preparation of the EIAR (European Commission, 2017); and
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission, 1999).

6.5. HABITAT REGULATIONS APPRAISAL

6.5.1. Closely linked but distinct from the EIA process is the requirement to determine impacts on internationally important designated sites and species. This is known as Habitats Regulations Appraisal (HRA). This process is executed under specific legislation, as set out below, and does not form part of the EIAR.

6.5.2. An Offshore HRA Screening Report was submitted to MD-LOT in June 2023 (Muir Mhòr Offshore Wind Farm Limited, 2023). This details the outcome of LSE screening on the qualifying features of relevant European sites for the Proposed Development.

6.5.3. Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, known as the 'Habitats Directive', provides for the conservation of natural habitats and of wild flora and fauna including in offshore areas. Council Directive 2009/147/EC on the Conservation of Wild Birds, known as the 'Birds Directive', applies to the conservation of all species of naturally occurring wild birds including in offshore areas.

6.5.4. In the UK, sites designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), collectively referred to as European Sites, form part of the UK National Site Network, delivering the requirements of the Habitats and Birds Directives. The following legislation ('The Habitats Regulations') transposes the abovementioned Directives into Scottish law and outlines the requirement to consider the potential effects of plans and projects (i.e. developments) on European Sites under the following legislation:

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) – applicable to developments within the 12 nm limit;

- The Conservation of Offshore Marine Habitats and Species Regulations 2017 – applicable to developments between the 12 and 200 nm limits; and
- The Conservation of Habitats and Species Regulations 2017 (as amended) – applicable to Section 36 Consent applications.

6.5.5. The Habitats Regulations require for the consideration of potential effects from developments and plans on European Sites, including SACs, candidate SACs (cSACs), SPAs, potential SPAs (pSPAs), Sites of Community Importance (SCI) and Ramsar sites (under the Conservation on Wetlands of International Importance 'the Ramsar Convention', especially as Waterfowl Habitat)[1]. An HRA must be carried out to determine the potential for a development to result in LSE on European Sites, either individually or in-combination with other plans or developments. Sites of Special Scientific Interest (SSSIs) are not protected under the Habitats Regulations and do not form part of the HRA process. However, relevant SSSIs will be considered in the topic-specific EIAR Chapters, as associated with designated features.

6.5.6. The European Commission's (2021) guidance identifies a staged process for the assessment of plans or projects (developments). A precautionary approach must be taken when determining the outcome of each stage of the HRA process. The three stages are commonly categorised as the following:

- **Stage One:** HRA Screening - to determine whether a proposal is likely to have a significant effect on a European site, alone or in combination with another proposal. This stage does not take into account any embedded mitigation measures (other than the intrinsic project design);
- **Stage Two:** Appropriate Assessment (AA) carried out by the Competent Authority and informed by the Report to Inform the Appropriate Assessment (RIAA) - to ascertain whether the proposal will or will not adversely affect the integrity of a European site and its conservation objectives, this stage considers the embedded mitigation measures implemented for the offshore Project;
- Stage Three:
  - Assessment of Alternative Solutions - if it cannot be ascertained that a European site's integrity will not be adversely affected, alternative solutions will need to be considered; and
  - Assessment of 'Imperative Reasons of Overriding Public Interest' (IROPI) - if there are no alternative solutions which can be implemented to ensure no adverse effects on a European Site's integrity then an assessment of whether there are imperative reasons of over-riding public interest for the proposal will be undertaken.
  - Development of Compensatory Measures - If there are no feasible alternative solutions and imperative reasons of overriding public interest have been established, any necessary compensatory measures will need to be secured to offset the damage which will or could be caused to the site.

6.5.7. It is only once the three tests have been met that an HRA derogation will be permitted.

6.5.8. The Offshore HRA Screening Report submitted to MD-LOT in June 2023 (Muir Mhòr Offshore Wind Farm Limited, 2023) addressed Stage One of the HRA process. The RIAA addresses Stage Two of the HRA process and has been submitted alongside the EIAR as part of the consent application for the Proposed Development (Muir Mhòr Offshore Wind Farm Limited, 2024). The RIAA provides the Competent Authority, in this case the Scottish Ministers, with

[1] It is Scottish Policy for Ramsar sites to be considered as a European site, see Policy 4 of the National Planning Framework 4: https://www.gov.scot/publications/national-planning-framework-4/documents/

the information required to assist them in undertaking an AA and determine whether there is any 'adverse effect on site integrity' from the Proposed Development.

6.6. EIA SCOPING

6.6.1. A Scoping Report (Volume 3, Appendix 5.1 (Offshore Scoping Report) for the Proposed Development was submitted in June 2023 to request a formal scoping opinion from MD-LOT on behalf of the Scottish Ministers.

6.6.2. The scoping opinion was requested under Regulation 12 of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended), Regulation 13 and Schedule 4 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (for Scottish offshore waters) and Regulation 14 of the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended) (for Scottish inshore waters) (herein referred to as "the EIA Regulations").

6.6.3. The objective in requesting a scoping opinion is to engage with regulators and statutory and non-statutory consultees, inviting them to provide relevant information, comments and guidance on the proposed approach to the EIAR for the Proposed Development. The key aim is to ensure a robust and proportionate EIAR is submitted in support of the application for consent.

6.6.4. The Scoping Report for the Proposed Development provided information on:

- The Proposed Development, including the offshore array and offshore transmission infrastructure;
- The proposed approach to fully understand the baseline conditions and address potential environmental impacts through the EIA process;
- Those topics to be scoped *in to* the offshore EIA, where LSE may result from the Proposed Development on the physical, biological, and human environment; and
- Those topics to be scoped *out* of the offshore EIA, where significant impacts are not anticipated, with consideration of embedded and industry best practice mitigation.

6.6.5. The Scoping Opinion was received from MD-LOT in September 2023 (Volume 3, Appendix 5.2 (Offshore Scoping Opinion). This Offshore EIAR incorporates the feedback gained through that Scoping Opinion and subsequent additional regulatory and stakeholder consultation.

6.6.6. A summary of consultation is provided in Volume 1, Chapter 5 (Consultation). Each topic Chapter also includes a summary of the relevant responses to the Scoping Opinion and how they have been incorporated into the EIAR.

SCOPING OPINION

6.6.7. It is acknowledged that MD-LOT made the following comments regarding the duration of Scoping Opinion within the Scoping Opinion (Volume 3, Appendix 5.2 (Offshore Scoping Opinion)):

"In the event that the Developer does not submit applications for a s.36 consent under [The Electricity Act 1989] and marine licences under [The Marine (Scotland) Act 2010] and [The Marine and Coastal Access Act 2009] for the Proposed Development within 12 months of the date of this Scoping Opinion, the Scottish Ministers strongly recommend that the Developer seeks further advice from them regarding the validity of the Scoping Opinion".

6.6.8. The Scoping Opinion is dated September 2023 (issued on 29th September 2023) and the Developer is submitting the consent applications on 22nd November 2024, resulting in a duration of less than 14 months since the Scoping Opinion was issued.

6.6.9. The Developer discussed the relevant dates of the Scoping Opinion with MD-LOT on 5th June 2024 (given the confirmed submission date of 22nd November 2024) who confirmed there were no concerns with this two month exceedance of the 12 month period stated in the Scoping Opinion and provided advice stating that the application must ensure that:

- The cumulative projects considered in the EIAR are up to date at submission; and
- The EIAR should include a full and clear justification as to why the Scoping Opinion is still valid and to identify clearly where anything has changed moved on (e.g. guidance or methodologies).

6.6.10. Each of these elements are considered below. The Developer can also confirm that the technology being proposed remains within the original design envelope contained within the Scoping Report (Volume 3, Appendix 5.1 (Offshore Scoping Report)), with any changes being associated with the reduction of elements, such as a reduction in infrastructure (e.g., reduced offshore cabling requirements) or removal of certain foundation types or electrical systems, some of those removed with a potential for more significant environmental impact (for example the removal of gravity base foundations as an option for OEP(s). Further details on the refinement of the design envelope is provided in Volume 1, Chapter 4 (Site Selection and Consideration of Alternatives) and Volume 1, Chapter 3 (Project Description).

6.6.11. As such, the Developer concludes that the Scoping Opinion (Volume 3, Appendix 5.2 (Offshore Scoping Opinion)) issued by MD-LOT in September 2023 remains applicable for the Proposed Development and no additional requirements for the EIAR have been identified and are considered necessary.

PROJECTS CONSIDERED CUMULATIVELY WITH THE PROPOSED DEVELOPMENT IN THE EIAR

6.6.12. In relation to the projects considered cumulatively with the Proposed Development within the EIAR, the Developer can confirm that the list of these have been updated with a cut-off date of 22nd August 2024 to align with three months before submission to allow time for the assessment to be undertaken and finalised prior to submission.

GUIDANCE AND METHODOLOGY CHANGES

6.6.13. In relation to any assessment guidance and methodology changes, the Developer can confirm that any of these such changes that have arisen between the issue of the Scoping Report and application submission have been incorporated into assessments in instances where these have been issued with adequate time for the assessment to be undertaken and finalised prior to submission. Up to date topic-specific assessment guidance and methodology is discussed in the relevant topic Chapters of the EIA Report.

LEGISLATION AND POLICY CHANGES

6.6.14. The legislation and policy considerations detailed in the Offshore Scoping Report (Volume 3, Appendix 5.1 (Offshore Scoping Report)) remain valid at the time of application submission for the Proposed Development.

6.6.15. There have been some new proposals to policy such as progression of the National Marine Plan 2 which is underway but this document has not yet been published. This updated plan aims to deliver a framework for licensing/ consenting decisions that reflect changes since 2015 (including global climate, net zero and nature crisis). In addition, the iterative sectoral marine plan and Habitats Regulations Appraisal (HRA) process has been progressing

however no new documentation has been published. None of this documentation currently affect the applicability of the Scoping Opinion (Volume 3, Appendix 5.2 (Offshore Scoping Opinion)).

6.6.16. The most recent passing of the Energy Act 2023 (UK Parliament, 20235) in October 2023 does not directly alter the content of the Scoping Opinion.

6.6.17. Overarching legislation, policy, and guidance in relation to the EIAR for the Proposed Development is provided in Volume 1, Chapter 2 (Legislation and Policy). Volume 2, Chapters 7 to 21 of the EIAR, include summaries of the up to date legislation and policy applicable to that topic, and how each individual topic assessment has considered relevant legislation and policy.

6.7. CONSULTATION

6.7.1. Consultation on the Proposed Development's EIA methodology was undertaken during scoping with MD-LOT and other consultees. Table 6-1 provides a summary of the key issues discussed and how they have been addressed in the EIAR methodology.

6.7.2. In addition to this scoping consultation, the Developer has carried out several public consultation events in line with The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013. Further detail on these PAC events is provided in Volume 1 Chapter 5 (Consultation) and Volume 4 Appendix 1 (Pre-Application Consultation Report).

Table 6-1 Key issues on EIA Methodology raised during consultation and how they have been addressed

Consultee	Issue Raised	Response/How Issue has been addressed in Methodology
MD-LOT	MD-LOT states the EIAR must include a full and detailed description of all options considered within the design envelope.	The Developer has included a full and detailed description of all options considered within the design envelope in Volume 1, Chapter 4 (Site Selection and Consideration of Alternatives).
MD-LOT	MD-LOT states that matters are not scoped out unless specifically addressed and justified by the Developer and confirmed as being scoped out by the Scottish Ministers. The matters scoped out should be documented and an appropriate justification noted in the EIA Report.	The Developer has provided justification for the scoping out of impacts within each EIAR topic Chapter (Volume 2, Chapters 7 to 20). Further justification is provided in Volume 3, Appendix 5.1 (Offshore Scoping Report).
MD-LOT	MD-LOT states that any embedded mitigation relied upon for the purposes of the assessment should be clearly and accurately explained in detail within the EIA Report. The likely efficacy of the mitigation proposed should be explained with reference to residual effects. The EIA Report must identify and describe any proposed monitoring of significant adverse effects and how the results of such monitoring would be utilised to inform any necessary remedial actions	Embedded mitigation and monitoring commitments applicable to the Proposed Development are described in Volume 3, Appendix 6.1 (Commitments Register). The efficacy of the proposed mitigation with respect to residual effects, and any associated monitoring of significant adverse effects and their use in remedial action are discussed within each EIAR topic Chapter (Volume 2, Chapters 7 to 20).
MD-LOT	MD-LOT states the EIAR should clearly demonstrate how the Developer has had regard to the mitigation hierarchy, including giving consideration to the avoidance of key receptors	Consideration to the avoidance of key receptors is explained in Volume 1, Chapter 4 (Site Selection and Consideration of Alternatives).
MD-LOT	MD-LOT states Annex A of the Scoping Report provides a 'commitments register' which summarises the commitments referenced in the Scoping Report. Many of the commitments are to management or mitigation plans, however limited detail is provided regarding the content of these plans. The Scottish Ministers advise that where the mitigation is envisaged to form part of a management or mitigation plan, the EIA Report must set out these plans or the reliance on these in sufficient detail so the significance of the residual effect can be assessed and evaluated. This should also include	Embedded mitigation and monitoring commitments applicable to the Proposed Development are described in Volume 3, Appendix 6.1 (Commitments Register). The Developer has included outline management plans to actively avoid and/or reduce negative significant effects and promote positive effects, including monitoring where applicable. These include the following: • Volume 4, Appendix 2 (Outline Environmental Management Plan); • Volume 4, Appendix 3 (Outline Marine Mammal Mitigation

Consultee	Issue Raised	Response/How Issue has been addressed in Methodology
	identification of any monitoring and remedial actions (if relevant) in the event that predicted residual effects differ to actual monitored outcomes. Commitment to develop plans without sufficient detail is not considered to be suitable mitigation in itself	Protocol); • Volume 4, Appendix 4 (Outline Fisheries Management and Mitigation Strategy); • Volume 4, Appendix 5 (Outline Vessel Management and Navigational Safety Plan); • Volume 4, Appendix 6 (Outline Aid to Navigation Management Plan); • Volume 4, Appendix 7 (Outline Lighting and Marking Plan); • Volume 4, Appendix 8 (Written Scheme of Investigation); and • Volume 4, Appendix 10 (In Principle Fish Mitigation Plan).
MD-LOT	MD-LOT states that the EIA Report must include a table of mitigation which corresponds with the mitigation identified and discussed within the various Chapters of the EIA Report and accounts for the representations and advice attached in Appendix I.	Embedded mitigation and monitoring commitments applicable to the Proposed Development are described in Volume 3, Appendix 6.1 (Commitments Register).
MD-LOT	MD-LOT states that where potential impacts on the environment have been fully investigated but found to be of little or no significance, it is sufficient to validate that part of the assessment by detailing in the EIA Report, the work that has been undertaken, the results, what impact, if any, has been identified and why it is not significant.	When an impact has been found to be of little or no significance during offshore scoping and through subsequent discussions, and agreed with MD-LOT, the Developer has provided justification for the scoping out of impacts within each EIAR topic Chapter (Volume 2, Chapters 7 to 20). Further justification and discussion is provided in Volume 3, Appendix 5.1 (Offshore Scoping Report). All remaining scoped in impacts are assessed fully within this EIAR, including those assessed as of little or no significance
MD-LOT	MD-LOT state the EIAR must include a description and assessment of the likely significant effects deriving from the vulnerability of the Proposed Development to major accidents and disasters. The Developer should make use of appropriate guidance, including the recent IEMA 'Major Accidents and Disasters in EIA: A Primer', to better understand the likelihood of an occurrence and the Proposed Development susceptibility to potential major accidents and hazards.	The Developer has included a description and assessment of the likely significant effects deriving from the vulnerability of the Proposed Development to major accidents and disasters in Volume 2, Chapter 20 (Major Accidents and Disasters). This assessment makes use of appropriate guidance, including the recent IEMA 'Major Accidents and Disasters in EIA: A Primer' (IEMA 2020),

Consultee	Issue Raised	Response/How Issue has been addressed in Methodology
MD-LOT	The Scottish Ministers advise that existing sources of risk assessment or other relevant studies should be used to establish the baseline rather than collecting survey data and note the IEMA Primer provides further advice on this. This should include the review of the identified hazards from your baseline assessment, the level of risk attributed to the identified hazards and the relevant receptors to be considered.	In Volume 2, Chapter 20 (Major Accidents and Disasters), the Developer has reviewed existing sources of risk assessment and other relevant studies to develop the baseline identified hazards, rather than collecting survey data. This assessment makes use of appropriate guidance, including the recent IEMA 'Major Accidents and Disasters in EIA: A Primer'
MD-LOT	MD-LOT states the assessment must detail how significance has been defined and detail the inclusions and exclusions within the assessment. Any mitigation measures that will be employed to prevent, reduce or control significant effects should be included in the EIA Report.	Volume 1, Chapter 6 (EIA Methodology) explains the approach to defining significance within the EIAR. Key inclusions and exclusions, and specific magnitude and sensitivity definitions specific to each topic are provided within each EIAR topic Chapter (Volume 2, Chapters 7 to 20). Embedded mitigation and monitoring commitments applicable to the Proposed Development are described in Volume 3, Appendix 6.1 (Commitments Register). The efficacy of the proposed mitigation with respect to residual effects, and any associated monitoring of significant adverse effects and their use in remedial action are discussed within each EIAR topic Chapter (Volume 2, Chapters 7 to 20).
NatureScot	NS states the EIA Report should consider the impact of all phases of the proposed development on the receiving environment, including effects from pre-construction activities as well as the construction, operation and maintenance and decommissioning phases.	The EIAR assessment approach considers all phases of the proposed development on the receiving environment, including effects from pre-construction activities as well as the construction, operation and maintenance and decommissioning phases. Embedded mitigation and monitoring commitments, and where they are applicable to each phase of the Proposed Development are described in Volume 3, Appendix 6.1 (Commitments Register)

Consultee	Issue Raised	Response/How Issue has been addressed in Methodology
NatureScot	NS states increasingly, there is a need to understand potential impacts holistically at a wider ecosystem scale in addition to the standard set of discrete individual receptor assessments. This assessment should focus on potential impacts across key trophic levels particularly in relation to the availability of prey species. This will enable a better understanding of the consequences (positive	In addition to the standard set of discrete individual receptor assessments, this EIAR includes an overarching assessment of impacts and effects across key trophic levels Volume 3, Appendix 6.4 (Ecosystem Level Effects).
NatureScot	NS states the impact of climate change effects should be considered, both in futureproofing the project design and how certain climate stressors may work in combination with potential effects from the proposed wind farm. The EIA Report should also consider the carbon cost of the wind farm (including supply chain) and to what extent this is offset through the production of green energy. We recognise that some aspects of this are addressed in Section 18 (Climate).	Volume 2, Chapter 18 (Climate) includes a detailed assessment of climate change effects associated with the Proposed Development. This includes climate change risks to the Proposed Development, and how certain climate stressors may work in combination with potential effects. Volume 2, Chapter 18 (Climate) also includes a Greenhouse Gas assessment to assess the carbon cost of the Proposed Development) and to what extent this is offset through the production of green energy
NatureScot	NS states wet storage could represent a significant impact. Consideration of the potential impacts on all receptors needs to be addressed with the EIA Report and HRA.	The Proposed Development's scoping opinion referred to inclusion of assessment of Wet Storage within the EIAR. Following discussion with NatureScot on 24th October 2024, and MD-LOT on 31st October 2024, it was confirmed that as the Developer is not applying for the consent and/or licensing of wet storage facilities for the Proposed Development, the EIAR is not required to include Wet Storage assessment. A Wet Storage Plan (WSP) will be developed to provide details on requirements (if applicable) for assembled WTGs and cabling.

6.8. EIA METHODOLOGY

ASSESSMENT SCOPE

6.8.1. The scope of this EIAR complies with the EIA Regulations as discussed in Section 6.4, and detailed in Volume 1, Chapter 2 (Legislation and Policy Context).

6.8.2. The specific requirements of the EIA Regulations are listed in Table 6-2. Where these requirements have been considered within this Offshore EIAR is explained.

Table 6-2 Requirements of EIA regulations and where they have been addressed in the EIAR

Requirement EIA Regulations	Response/How Issue has been addressed in Methodology
1(a): Population and human health	• Volume 2 Chapter 13 (Commercial Fisheries) • Volume 2 Chapter 14 (Shipping and Navigation) • Volume 2 Chapter 15 (Marine Archaeology and Cultural Heritage) • Volume 2 Chapter 16 (Military and Civil Aviation) • Volume 2 Chapter 17 (Socio-Economics, Tourism and Recreation) • Volume 2 Chapter 19 (Infrastructure and Other Users) • Volume 2 Chapter 20 (Major Accidents and Disasters)
1(b): Biodiversity, with particular attention to species and habitats protected under the EIA Regulations	• Volume 2 Chapter 9 (Benthic Subtidal and Intertidal Ecology) • Volume 2 Chapter 10 (Fish and Shellfish Ecology) • Volume 2 Chapter 11 (Offshore and Intertidal Ornithology) • Volume 2 Chapter 12 (Marine Mammals)
1(c): Land, soil, water, air and climate	• Volume 2 Chapter 7 (Marine and Coastal Processes) • Volume 2 Chapter 8 (Marine Water and Sediment Quality) • Volume 2 Chapter 18 (Climate)
1(d): Material assets, cultural heritage and the landscape	• Volume 2 Chapter 13 (Commercial Fisheries) • Volume 2 Chapter 14 (Shipping and Navigation) • Volume 2 Chapter 16 (Military and Civil Aviation) • Volume 2 Chapter 15 (Marine Archaeology and Cultural Heritage) • Volume 2 Chapter 17 (Socio-Economics, Tourism and Recreation • Volume 2 Chapter 19 (Infrastructure and Other Users)
1(e): The interaction between the factors referred to in points (a) to (d).	• Where relevant, inter-relationships with other topic assessment Chapters are identified upfront within each topic impact assessment Chapter. • Volume 3 Appendix 6.4 (Ecosystem Level Effects)
2) The effects referred to in paragraph 1 on the factors set out there in shall include the expected effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned	• Volume 2 Chapter 20 (Major Accidents and Disasters)

BASELINE CHARACTERISATION

6.8.3. The characterisation of the existing baseline environment has been undertaken to determine the baseline conditions (and the future baseline assuming that the Proposed Development is not progressed) in the region covered by the Muir Mhòr array area, the offshore Export Cable Corridor (ECC) and the relevant surrounding technical study areas for those issues scoped into the EIAR. A stepwise approach has been carried out as followed:

- Study area definition based on the relevant characteristics of the receptor (e.g., mobility/range);
- Review of all publicly available information, including data from other OWF projects within the baseline study area;
- Review of likely or potential impacts that might be expected to arise from the Proposed Development based on a worst case scenario following assessment of that scenario;
- Determination of whether there is sufficient data to make the EIA judgements with sufficient confidence;
- If further data is required, ensure that data gathered is targeted and directed at answering the key question and filling key data and knowledge gaps; and
- Review of information gathered to ensure the environmental baseline can be sufficiently characterised in appropriate detail.

THE DESIGN ENVELOPE APPROACH AND ESTABLISHING THE WORST CASE SCENARIO

6.8.4. The design envelope approach (also known as the Rochdale Envelope approach) has been adopted for the assessment of the Proposed Development, in accordance with current good practice and the "Rochdale Envelope Principle[2] ". The Design Envelope concept allows for a degree of flexibility in design options, particularly for foundations and wind turbine types, where the full details of a project are not necessarily known at the time of application submission.

6.8.5. Volume 1, Chapter 3 (Project Description) sets out the design envelope parameters and identifies the range of potential design values for relevant components of the Proposed Development. For each of the topic Sections within the offshore EIAR and for each of the impacts assessed, the design envelope considers the scenario which would give rise to the greatest potential impact (hereafter referred to as the worst case design scenario).

6.8.6. An example of the worst case design scenario approach would be where several types of wind turbine foundation are being considered. The assessment in this case would be based on the foundation known to have the greatest potential for impact on a given receptor. In this instance, the worst case design scenario for the foundation with the greatest seabed disturbance potential would be the foundation with the largest footprint (i.e. the worst case design scenario for benthic subtidal and intertidal ecology). It can be assumed that any parameters equal to or less than those assessed will have environmental effects of the same level or less upon the receptors for the topic under consideration.

[2] Case law (i.e. R v Rochdale MBC ex parte Tew (1999) and R v Rochdale MBC ex parte Milne (2000)). In respect of S36 consent, whichever scheme is ultimately built must have been covered by the scope of the EIA.

CONSIDERATION OF EMBEDDED COMMITMENTS

6.8.7. Embedded commitments are primary or tertiary mitigation measures, identified and adopted as part of the Proposed Development's design, that reduce the Magnitude of impacts to the environment. These are detailed in Volume 3, Appendix 6.1 Commitments Register. Such embedded commitments are considered in the assessment of effect significance (i.e. they are assumed to form part of the design of the Proposed Development prior to any assessment).

6.9. ASSESSING EFFECT SIGNIFICANCE

IMPACTS AND EFFECTS

6.9.1. The Proposed Development has the potential to create a range of impacts and effects regarding the physical, biological, and human environment.

6.9.2. For the purposes of this EIAR, the term 'impact' is defined as a change that is caused by an action. For example, the laying of an inter-array cable (action) is likely to result in seabed disturbance (impact). They can also be either positive or negative, although the relationship between them is not always straightforward.

6.9.3. The term 'effect' is defined as the consequence of an impact. Using the inter-array cable laying example, the laying of an inter-array cable (action) results in seabed disturbance (impact), with the potential to disturb benthic habitats and species (effect).

6.9.4. The significance of an effect is determined by consideration of the magnitude of impact alongside the sensitivity of each receptor/receptor group.

ASSESSMENT OF EFFECTS

6.9.5. The assessment of effect significance considers the potential magnitude of the change to the baseline conditions (impact) arising from the Proposed Development. Then the sensitivity of the receptor is considered.

6.9.6. For each topic, the most relevant and latest guidance and/or best practice has been used. Definitions of magnitude and sensitivity have been tailored to each topic and receptor. These definitions are detailed fully in each technical chapter.

6.9.7. The EIA considers the potential for impacts and effects covering all phases of the Proposed Development, construction, operation and maintenance and decommissioning.

DETERMINING IMPACT MAGNITUDE

6.9.8. The magnitude of an impact is the severity in the level of change to pathways and receptor baseline conditions, considering the extent, duration, frequency and reversibility of that change. This magnitude may vary depending on the pathway, receptor, or the technical assessment being implemented, but will broadly follow:

- High: total change or major alteration to key elements/features of the baseline conditions;
- Medium: Partial change or alteration to one or more key elements/features of the baseline conditions;
- Low: Minor shift away from baseline conditions; or
- Negligible: Very slight change from baseline conditions.

6.9.9. Each of the topic chapters contains topic-specific definitions for each of these categories which are based upon topic-relevant external policy, guidance, standards and other material, including specialist knowledge.

6.9.10. In some cases, the Proposed Development may result in both adverse and positive impacts on the environment. In this case, magnitude will be defined for both.

6.9.11. Impacts can be classified as follows:

- Direct impacts: occurring at the same time and place as the action or activity;
- Indirect impacts: experienced by a receptor that is removed (e.g., in space or time) from the direct impact (e.g., noise impacts upon fish which are a prey resource for fish or mammals);
- Inter-relationships between impacts (where different impacts interact to affect a single receptor, which may need to be brought together from assessments presented in separate Chapters) and interactions between impacts (where impacts assessed in each Chapter have the potential to interact with one another); and
- Cumulative impacts: these may occur as a result of the Proposed Development in conjunction with other existing or planned projects within the study area for each receptor, including other offshore wind farms.

DETERMINING RECEPTOR SENSITIVITY

6.9.12. Receptors can be defined as the physical or biological resource or user group that could be affected by a potential impact.

6.9.13. The ability for a receptor to adapt to change, tolerate and/or recover from potential impacts is pertinent in assessing its sensitivity to the impact under consideration. In defining the sensitivity of each receptor/receptor group, the vulnerability, recoverability, and value/importance of that receptor is taken into consideration.

6.9.14. The scale of sensitivity is classed as either Negligible, Low, Medium, or High. Topic specific assessments will provide specific definitions of these receptor sensitivity categories when appropriate, based upon topic-relevant external policy, guidance, standards and other material, including specialist knowledge. Where applicable, the value/importance of a receptor will be informed by designation and/or protections under law.

6.9.15. Guide definitions for receptor sensitivity are given in Table 6-3.

Table 6-3 Receptor Sensitivity Definitions for the Proposed Development

Sensitivity*	Definition
Negligible	Very low importance and rarity, local scale, very high potential for recovery.
Low	Low or medium importance and rarity, local scale, high potential for recovery
Medium	Medium or high importance and rarity, regional scale, limited potential for recovery.
High	High importance and rarity, national and/or international scale, limited potential for recovery.

** Informed by Highways Agency et al., (2020)*

DETERMINING EFFECT SIGNIFICANCE

6.9.16. To provide a consistent framework and system of common tools and terms, a matrix approach has been used to frame and present the judgements made on magnitude of impact, sensitivity of receptor, and final effect significance (Table 6-4). As required by the EIA Regulations, only effects that are likely to be significant require detailed assessment.

Table 6-4 Significance of Effect.

		Magnitude of Impact			
		Negligible	**Low**	**Medium**	**High**
Sensitivity of Receptor	**Negligible**	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Negligible	Minor	Minor
	Medium	Negligible	Minor	Moderate	Moderate
	High	Negligible	Minor	Moderate	Major

6.9.17. A level of effect significance of Moderate or Major is considered a 'significant' effect for the purposes of the EIAR. A level of effect of Minor or less is considered 'not significant'. Effects of Moderate significance or above are therefore considered important in the decision-making process, whilst effects of Minor significance or less warrant little, if any, weight in the decision-making process.

6.9.18. Definitions of effect significance categories for the Proposed Development are given in Table 6-5.

Table 6-5 Definitions of Effect Significance for the Proposed Development

Effect Significance*	Definition
Negligible	Very low importance and rarity, local scale, very high potential for recovery.
Low	Low or medium importance and rarity, local scale, high potential for recovery
Medium	Medium or high importance and rarity, regional scale, limited potential for recovery.
High	High importance and rarity, national and/or international scale, limited potential for recovery.

** Informed by Highways Agency et al., (2020)*

6.9.19. The matrix approach is consistent with the general approach described in the Design Manual for Roads and Bridges (DMRB) (Highways England *et al.*, 2019) and Environmental Impact Assessment for Offshore Renewable Energy Projects - Guide (BSI, 2015). Several modifications have however been made in the interest of proportionality, including:

- A negligible magnitude impact is not considered further because it will always lead to a non-significant effect; and
- Receptors of negligible importance, value or sensitivity are not considered further because it will always lead to a non-significant effect.

6.9.20. Where significant effects are initially identified, the EIAR follows a "feedback loop" methodology. Through this process, an impact is initially assessed to determine the LSE. If the effect of an impact presents a major or moderate significant adverse outcome, mitigation measures, above and beyond any embedded commitments or design changes will be incorporated into the assessment process to avoid or reduce significant effects to acceptable (non-significant) levels.

6.9.21. This process is repeated until the EIA practitioner is satisfied that:

- The effect is reduced to a level that is not significant in EIA terms; and
- No further changes can be made to the Proposed Development design to reduce the magnitude of impact and therefore the significance of the effect. In these cases, an overall effect that is still significant in EIA terms may be presented.

6.9.22. Following this iterative approach ensures that effect significance presented for each identified impact is presumed to be representative of the maximum residual adverse effect the Proposed Development may have on the receiving environment.

6.9.23. The Commitments Register is provided in Volume 3, Appendix 6.1. It details all commitments or mitigation adopted by the Proposed Development. Whilst the Commitments Register is submitted with the application as part of the EIA process, it will be re-visited and updated post-consent, subject to consultation with stakeholders.

6.10. MITIGATION

6.10.1. In accordance with the Institute of Environmental Management and Assessment Guide to Delivering Quality Development (IEMA 2016), mitigation measures are described using the following classifications:

- Primary mitigation – embedded commitments built into the design of the Proposed Development which reduce or avoid the likelihood or magnitude of an adverse environmental effect, including location or design;
- Secondary mitigation – additional measures implemented to further reduce environmental effects to 'not significant' levels (where appropriate) and do not form part of the fundamental design of the Proposed Development; and
- Tertiary mitigation – commitments that are required through standard practice or to meet legislative requirements and are independent of the EIA process (i.e. they would be implemented regardless of the findings of the EIA).

CONSIDERATION OF SECONDARY MITIGATION

6.10.2. IEMA (2016) describes secondary (foreseeable) mitigation as: "*Actions that will require further activity in order to achieve the anticipated outcome. These may be imposed as part of the planning consent, or through inclusion in the Environmental Statement (ES).*"

6.10.3. If the initial assessment concludes there is LSE to occur after the application of embedded mitigation measures, then secondary mitigation measures are implemented. The objective is to further reduce environmental effects to 'not significant' levels.

ASSESSING RESIDUAL EFFECTS

6.10.4. Following initial assessment, if the effect does not require additional mitigation (or where none is possible) the residual effects will remain the same.

6.10.5. If additional mitigation measures are found to be required, impacts are re-assessed, and all residual effects clearly stated in the EIAR.

6.11. CUMULATIVE EFFECTS ASSESSMENT

6.11.1. As well as considering the impacts from the Proposed Development alone, the EIA Regulations require consideration of the potential impacts that could occur cumulatively with other relevant plans, projects, and activities. Cumulative impacts will be assessed by taking into consideration any other plans or projects proposed or existing, (where sufficient information is available) which together with the Proposed Development will have a likely significant effect on a receptor, due to a common impact pathway and/or temporal or spatial overlap.

6.11.2. Each technical Chapter of the EIAR will provide a Cumulative Effects Assessment (CEA) with regards to their respective receptors.

6.11.3. A list of plans, projects and activities that may act cumulatively with the Proposed Development has been identified as part of the EIAR (Volume 3, Appendix 6.2 (Offshore Cumulative Effects)). For each of these relevant plans, projects or activities, the most up-to-date publicly available project parameters has been used to inform the CEA. Detailed methodology for the CEA is set out within Volume 3, Appendix 6.2 (Offshore Cumulative Effects).

6.11.4. The CEA considers the temporal and spatial extent of impacts associated with each phase of the Proposed Development to present an understanding of how these overlap with relevant other plans, projects, and activities.

6.11.5. The CEA for each technical chapter takes projects such as these (to the extent information is made available), as well as projects from other industries, into consideration when assessing the potential cumulative impacts of the Proposed Development on the surrounding environment.

6.11.6. When completing the CEA, it is important to consider that some proposed projects may not be taken forward and built out as currently described. Therefore, there is a level of uncertainty with respect to the potential impacts which may arise. To address this uncertainty, a Tiering system is applied when considering the relative importance of each proposed project. The process and associated Tiers are described in Volume 3, Appendix 6.2 (Offshore Cumulative Effects).

6.11.7. The ‘phase’ of a project, in relation to the certainty or uncertainty over whether the Proposed Development will be brought forward as described, will be considered when drawing conclusions on cumulative effects. It will be assumed that projects that are built and already operational, along with active licensed activities, at the time that baseline data is collected will constitute part of the existing baseline conditions as receptors would already be adapted to them. Any effect they might have had will be reflected in the baseline characterisation undertaken to inform the impact assessment, although it is noted that some built/operational projects will have ongoing effects which will need to be incorporated within the CEA (e.g., collision risk).

6.11.8. The potential in-combination effects on European sites have been considered through a separate HRA process and are detailed in the RIAA (Muir Mhòr Offshore Wind Farm Limited,

2024). A list of in-combination projects has been determined from those of which are in planning, consented or in construction.

6.12. WHOLE PROJECT ASSESSMENT

BACKGROUND

6.12.1. A separate application for the Project's onshore elements (infrastructure landward of Mean Low Water Springs) is being made under the Town and Country Planning (Scotland) Act 1997 (noting there is an overlap in the spatial extent of the onshore elements and the Proposed Development within the intertidal area at Landfall).

6.12.2. A separate onshore EIAR is being prepared which will provide a description of the onshore elements of the Project landward of MLWS, and an assessment of the associated likely significant effects.

6.12.3. The Proposed Development's infrastructure and activities are the focus of this offshore EIAR. However, where a pathway exists for onshore elements of the Project to impact offshore receptors, this also needs to be identified and assessed in the offshore EIAR.

6.12.4. Each topic-specific chapter has therefore included a Whole Project Assessment (WPA) section. The objective is to provide an assessment of any combined effects of the offshore and onshore elements of the Project. This ensures neither the Proposed Development, nor onshore Project infrastructure are considered in isolation.

WHOLE PROJECT ASSESSMENT METHODOLOGY

6.12.5. The WPA has followed several stages. The results of the offshore impact assessment findings for each topic have been reviewed. Any pathways from onshore to offshore receptors are identified, based on the available data. Note: the WPA is based upon the worst case development scenarios as described in each offshore impact assessment chapter.

6.12.6. Where a pathway may occur, assessment of combined impacts/effects is undertaken. Consideration of additive effects (i.e. the combined effect is equal to the sum of the individual effects) or synergistic effects (i.e. the combined effect is greater than the sum of the individual effects) is included.

6.12.7. Any significant effects have then been discussed on a Whole Project basis, applying the same assessment criteria and terminology used in the individual offshore assessment.

6.13. INTER-RELATED EFFECTS

6.13.1. The EIA Regulations require consideration of the inter-relationships between EIA topics that may lead to environmental effects. Inter-related effects are defined as the interaction between the impacts assessed within different topic assessment Chapters. For example, impacts on fish and shellfish may indirectly impact commercial fisheries.

6.13.2. The EIAR has considered these inter-related effects when they may occur, during all phases of the Proposed Development. This process has considered two levels of potential effect:

- **Project lifetime effects:** effects that occur throughout more than one phase of the project (construction, operation and maintenance, and decommissioning) interacting to potentially create a more significant effect upon a receptor than if just assessed in isolation in a single phase; and
- **Receptor led effects**: effects that interact spatially and/or temporally resulting in inter-related effects upon a single receptor. For example, the effect of subsea noise on marine

mammals may be greater when multiple sources of impact interact or combine to produce a different or greater effect upon this receptor than when single sources of impact are considered in isolation. Receptor led effects might be short term, temporary or transient effects, or incorporate longer term effects.

6.13.3. Where relevant, inter-relationships with other topic assessment chapters are identified upfront within each topic impact assessment Chapter.

6.13.4. Where the significance of an effect within the topic-specific assessment has been identified as 'negligible across all stages of the Proposed Development', the assumption has been made that these effects can not contribute to any inter-related effects. These effects will therefore not be included in the inter-related effects assessment as any effect is predicted to be negligible for the Proposed Development over the project lifetime.

6.13.5. In relation to project lifetime effects, those that only occur over one phase (e.g. just the construction phase) have no potential to interact with impacts of the same nature over multiple phases and can have been scoped out of assessment. Effects that may be seen in the construction and decommissioning phases (but not the operational phase) are considered to be isolated and therefore recovery between these two phases is expected. It is not considered that there is the potential for inter-related effects where this situation arises, however expert judgement is applied on a case-by-case basis.

6.13.6. It should be noted that some elements of the impact assessment inherently consider inter-related effects. For example: the effects on fish and shellfish ecology have knock-on effects for both marine mammals and offshore ornithology in terms of potential loss of prey resource. Where these potential inter-related effects are identified as being inherently considered in the impact assessment, this is described within the individual topic chapters.

6.13.7. Inter-relationships consider only those effects from the Proposed Development and not those from other projects, which are considered in the CIA.

ECOSYSTEM APPROACH

6.13.8. The Proposed Development Scoping Opinion included requirements for the EIAR to comment on LSE holistically at a wider ecosystem scale, in addition to the standard set of discrete individual receptor assessments. This EIAR therefore includes an assessment of impacts and effects across key trophic levels (Volume 3, Appendix 6.4 (Ecosystem Level Effects)).

6.13.9. A key aim is to better understand the consequences (positive or negative) of any changes in marine water stratification and fronts with respect to primary productivity and higher trophic levels. Potential ecosystem level effects on prey distribution and abundance and interactions with seabird and marine mammal (and other top predator) interests are also discussed, and where this may result in population level impacts.

6.14. TRANSBOUNDARY EFFECTS

6.14.1. Transboundary effects arise when impacts from a development within one EEA state's territory significantly affects the environment or interests of another EEA state(s). The EIA Directive, and thus the relevant EIA Regulations, requires the assessment of transboundary effects.

6.14.2. If an EIA project is considered to have significant effects on the environment of another EEA state, then the Scottish Ministers must engage with that EEA state to allow consultation if that state wishes to participate (Marine Scotland, 2018).

6.14.3. To assist with this process, a screening exercise for potential transboundary impacts has been undertaken and presented in Volume 3, Appendix 6.3 (Offshore Transboundary Effects).

6.14.4. Potential transboundary impacts are identified and assessed within each of the above topic Chapters within this EIAR. Where no transboundary effects have been identified this is also stated. Further information on the transboundary effect screening process is provided in Volume 3, Appendix 6.3 (Offshore Transboundary Effects).

6.15. REFERENCES

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