



BERWICK BANK WIND FARM ENVIRONMENTAL IMPACT ASSESSMENT REPORT

Volume 1, Chapter 6: Environmental Impact
Assessment Methodology



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| Sarah Edwards |  | 14 October 2022 |
|---------------|---|-----------------|

Prepared by: **RPS**
 Prepared for: **SSE Renewables**

Checked by: **Ross Hodson (SSER)**
 Accepted by:
 Approved by: **Sarah Edwards (SSER)**

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6. ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

6.1. INTRODUCTION

1. This Offshore Environmental Impact Assessment (EIA) Report has been developed to support an application for consent for the Proposed Development (under Section 36 of the Electricity Act 1989) and relevant Marine Licences (under the provisions of Part 4 of the Marine (Scotland) Act 2010 and Part 4 of the Marine and Coastal Access Act 2009)¹, in accordance with the requirements of the following regulations (collectively referred to hereafter as the EIA Regulations):
 - in respect of a Section 36 consent application: The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017; and
 - in respect of a marine licence application: The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and The Marine Works (Environmental Impact Assessment) Regulations 2007.
2. Volume 1, chapter 2 provides further details on the EIA Regulations and a detailed description of the Proposed Development can be found in volume 1, chapter 3.
3. This chapter of the Offshore EIA Report presents the EIA methodology used for the assessment of likely significant environmental effects of the Berwick Bank Wind Farm Offshore infrastructure (hereafter the 'Proposed Development') seaward of Mean High Water Springs (MHWS), on physical, biological and human environment receptors.
4. The Applicant has prepared a separate Onshore EIA Report in respect of a planning application for the onshore elements of the Project under the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 which provides a description of the EIA methodology followed for the onshore elements of the Project (landward of Mean Low Water Springs (MLWS)).
5. The Applicant is also developing an additional export cable grid connection to Blyth, Northumberland (the Cambois connection). Applications for necessary consents (including marine licences) will be applied for separately. The Cambois connection has been included as a cumulative project for the purposes of this Offshore EIA Report and is based on information presented in the Cambois connection Scoping Report (SSER, 2022e), submitted in October 2022. A separate EIA and Habitats Regulation Appraisal (HRA) will be prepared to support the Cambois connection consent applications which will also consider cumulative effects with the Proposed Development.
6. This chapter presents:
 - the assessment methodology used to determine potential impact including the approach that has been used to assess magnitude, sensitivity of receptors and conclusion on the likely significance of effect;
 - the methodology used for assessing cumulative effects assessment (CEA);
 - the methodology for assessing inter-related effects; and
 - the methodology for assessing transboundary effects.

7. Each topic chapter also contains further topic specific methodologies where appropriate. These are explained further within the relevant Offshore EIA Report chapters (volume 2, chapters 7 - 21).

6.2. ENVIRONMENTAL IMPACT ASSESSMENT LEGISLATION AND GUIDANCE

8. In compliance with the European Union (EU) Directive on the assessment of the effects of certain public and private projects on the environment (EIA Directive) (2011/92/EU, as amended by Directive 2014/52/EU) and the EIA Regulations, when applying for Section 36 consent or a marine licence, an EIA Report is required to be prepared and submitted to support these applications if the Proposed Development is likely to have a significant effect on the environment due to factors such as its size, nature or location.
9. The assessment of effects methodology employed in this Offshore EIA Report draws upon relevant legislation, policy and guidance, including those listed below:
 - Council Directive 2011/92/EU of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, as amended by Council Directive 2014/52/EU (the EIA Directive);
 - The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017;
 - The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017, the Marine Works (Environmental Impact Assessment) Regulations 2007 and Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013;
 - The Conservation (Natural Habitats &c.) Regulations 1994 – applies in Scotland, extending to Scottish inshore waters (0 nm to 12 nm);
 - The Conservation of Habitats and Species Regulations 2017 – only applies in Scotland for specific activities (reserved matters) including consent applications under Sections 36 and 37 of the Electricity Act 1989;
 - The Conservation of Offshore Marine Habitats and Species Regulations 2017 - applies to the Scottish offshore region (beyond 12 nm);
 - The Wildlife and Countryside Act 1981;
 - Marine Scotland Consenting and Licensing Guidance: For Offshore Wind, Wave and Tidal Energy Applications (Marine Scotland, 2018);
 - The Design Manual for Roads and Bridges (DMRB) LA 104: Environmental assessment and monitoring (Highways Agency *et al.*, 2020);
 - Guidelines for Ecological Impact Assessment (EclA) in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2019);
 - A Handbook on Environmental Impact Assessment: Guidance for Competent Authorities, Consultees and Others Involved in the Environmental Impact Assessment Process in Scotland (NatureScot, 2018);
 - 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 (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);

¹ This applies between 12 and 200nm.

- UK Planning Inspectorate Advice Note Nine: Rochdale Envelope (PINS, 2012); Advice Note Twelve: Transboundary Impacts (PINS, 2015); and Advice Note Seventeen: Cumulative Effects Assessment (PINS, 2019);
 - The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (HM Government, 2019a); and
 - The Marine Environment (EU Exit) (Scotland) (Amendment) Regulations 2019 (HM Government, 2019b).
10. Where relevant topic specific guidance and legislation exists, this is discussed within the relevant Offshore EIA Report chapters (volume 2, chapters 7 to 21).
11. References to legislation in this Offshore EIA Report are to the relevant legislation as amended.

6.3. CONSULTATION

12. Consultation on the proposed offshore EIA methodology (including the CEA methodology and approach to assessing transboundary and inter-related effects) was undertaken at the offshore EIA scoping stage. The Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021a) presented these methodologies and requested feedback on the proposed approaches. A summary of the key issues raised during consultation relating to this chapter are outlined below in Table 6.1, together with how these issues have been considered in the production of this chapter.

Table 6.1: Summary of Key Consultation Issues Raised relevant to the EIA Methodology (MS-LOT, 2022)

| Consultee | Issue Raised | Response to Issue Raised/Where This has Been Considered in Chapter |
|--|---|---|
| Marine Scotland – Licensing Operations Team (MS-LOT) | MS-LOT states that Scottish Ministers advise that as more than one set of environmental impact assessment regulations apply, the most stringent requirements must be adhered to in terms of, for example, consultation timelines and public notice requirements. | The Applicant is submitting Offshore and Onshore EIA Reports for the Project adhering to consultation and public notice requirements. |
| | MS-LOT states that matters scoped out of the EIA Report should be documented and an appropriate justification should be provided. | Justification for scoping out impacts from the Offshore EIA Report is included within the relevant topic chapters (volume 2, chapters 7 – 21) and the Audit Document for Post-Scoping Discussions (volume 3, appendix 5.1). |
| | MS-LOT suggest 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. | The use of embedded mitigation (designed in measures) is explained in this chapter (section 6.4.4). The efficacy of the proposed mitigation and resulting residual effects are covered within the relevant topic chapters (volume 2, chapters 7 – 21). |
| | MS-LOT states that the EIA Report should clearly demonstrate how the Developer has had regard to the mitigation hierarchy, including giving consideration to the avoidance of key receptors. | Enhancement, Mitigation, and Monitoring Commitments are described in volume 3, appendix 6.3. The Applicant has included consideration of avoidance of key receptors as part of the Site Selection and Consideration of Alternatives chapter (volume 1, chapter 4). |

| Consultee | Issue Raised | Response to Issue Raised/Where This has Been Considered in Chapter |
|-----------|---|--|
| | MS-LOT stated that Appendix 2 of the Scoping Report provides a 'commitments register' which summarises the mitigation and monitoring 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. Therefore, MS-LOT 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 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 on what they will contain is not considered to be suitable mitigation in itself. | Enhancement, Mitigation, and Monitoring Commitments are described in volume 3, appendix 6.3. Draft management plans (where these are a key step in reducing potential significance of impact have been provided in volume 4). This includes the following outline plans: <ul style="list-style-type: none"> • Environmental Management Plan (volume 4, appendix 22); • Marine Mammal Mitigation Protocol (volume 4, appendix 23); • Fisheries Management and Mitigation Strategy (volume 4, appendix 24); • Navigational Safety and Vessel Management Plan (volume 4, appendix 25); • Aid to Navigation Management Plan (volume 4, appendix 26); and • Lighting and Marking Plan (volume 4, appendix 27). |
| | MS-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. | A table of mitigation measures is included in the Enhancement, Mitigation, and Monitoring Commitments, which are described in volume 3, appendix 6.3. |
| | MS-LOT suggests 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 at Offshore EIA Scoping, this has been scoped out within the relevant topic chapters (volume 2, chapters 7 – 21) and agreed with MS-LOT. Remaining potential impacts are detailed fully within this Offshore EIA Report, including those assessed as of little or no significance. |
| | MS-LOT states that it is essential that the EIA Report concerning onshore transmission works will be available at the time that the EIA Report for the Proposed Development is being considered so that all the information relating to the project as a 'whole' is presented. The EIA Report for the Proposed Development must consider the cumulative impacts with the onshore works. | The Offshore and Onshore EIA Reports will be available for consultees' consideration concurrently. These will also be available in digital form. The Offshore EIA Report has considered the onshore works as part of the cumulative assessment (volume 2, chapters 7 – 21). |
| | MS-LOT suggests that the EIA Report should include the rationale in support of the assessment of potential significant effects during the decommissioning phase (Section 2.6 of the Scoping Report). Any uncertainty on the impacts upon receptors from activities during decommissioning should be clearly explained, along with the implications for the assessment of significant effects. | The assessment of potential significant effects arising during the decommissioning phase has been considered as part of the assessment of effects within the relevant topic chapters (volume 2, chapters 7 – 21). |
| | MS-LOT states that in examining the EIA Report, and any other environmental information, the Scottish Ministers will seek to reach an up to date reasoned | |

| Consultee | Issue Raised | Response to Issue Raised/Where This has Been Considered in Chapter |
|--------------------------|--|---|
| | conclusion on the significant effects on the environment from the Proposed Development. This reasoned conclusion will be considered as up to date if the Scottish Ministers are satisfied that current knowledge and methods of assessment have been taken account of. | |
| Natural England | Natural England note that in-combination effects are often excluded on the basis that the contribution of the Berwick Bank offshore wind farm project will be minimal or will only result in a minimal increase in baseline levels. We consider that this approach will require the Environmental Statement to clearly quantify the baseline and the predicted increase in pressures (spatially as well as temporally) where relevant (e.g. with respect to vessel movements and disturbance to birds and marine mammals). | This has been addressed as part of the CEA of all relevant chapters, including Shipping and Navigation (volume 2, chapter 13), Offshore and Intertidal Ornithology (volume 2, chapter 11) and Marine Mammals (volume 2, chapter 10). |
| NatureScot | NatureScot have some concerns about the approach taken with respect to 'designed in measures' as per section 2.7 and referred to as mitigation in Appendix 2. Much of these include the development and adherence to post consent plans, or adherence to international regulations which doesn't strictly constitute mitigation. The EIA Report must clearly articulate those mitigation measures which informed by the EIA (or HRA) are necessary to avoid or reduce predicted significant adverse environmental effects of the proposed development. | The use of embedded mitigation (designed in measures) is explained in this chapter (section 6.4.4). Proposed designed in measures have been included in the relevant topic chapters (volume 2, chapters 7 – 21). |
| Scottish Borders Council | It should be noted that the Council's Supplementary Guidance (SG) on Renewable Energy, has also now been approved and adopted as part of the Local Development Plan. Any S36 application at Berwick Bank will need to be supported by an EIA that references and assesses the scheme against the new SG. Impacts on the Berwickshire Coastline are likely to be of significant importance in this assessment against the SG. The proposed turbine height of 355m to blade tip is out with the scope of current guidance and is significantly higher than any offshore or onshore windfarms experienced in Scottish Borders to date. However NatureScot has produced design guidance relating to Marine Scotland's Draft Plan for Offshore Wind that is more relevant to the size of turbines within this proposal. | The Council's SG on Renewable Energy sets out detailed policy considerations against which all proposals for wind energy will be assessed, based on those considerations set out in para 169 of Scottish Planning Policy (SPP). The guidance on wind energy contains the onshore spatial framework, informed by the Wind Energy Landscape Capacity Study (SBC, 2016) identifying areas where wind farms will not be acceptable, areas of significant protection, areas with potential for wind farm development and indicating the minimum scale of onshore development that the framework applies to. This SG and Wind Energy Landscape Capacity Study consider the capacity of the Scottish Borders landscape to accommodate onshore wind energy development. However, they do not present findings in relation to offshore wind farms. Volume 2, chapter 15 of this Offshore EIA Report does, however, consider the effects of Berwick Bank Wind Farm offshore on the main features and character of the Scottish Borders Coastline (Development Management Consideration B); cumulative impacts (Development Management Consideration C); and visual impacts on communities (Development Management |

| Consultee | Issue Raised | Response to Issue Raised/Where This has Been Considered in Chapter |
|-----------|--------------|---|
| | | Consideration D). Onshore Wind Farms in the Scottish Borders are also considered as part of the landscape and visual baseline in volume 2, chapter 15 of this Offshore EIA Report; proposals for onshore wind farm proposals (consented applications or those pending determination) are considered as part of the CEA in volume 2, chapter 15; and all onshore wind farms in the Scottish Borders area of the Seascope, Landscape, Visual Resources (SLVIA) study area are shown in the wireline visualisations in volume 2, chapter 15 (Figures 15.21 – 15.48). |

13. In addition to this, the Applicant has carried out several public consultation events. A summary of these events can be found in Table 6.2.

Table 6.2: Public Consultation Events

| Date | Type of Consultation | Location |
|-----------------|---|--|
| November 2020 | Virtual Consultation | Virtual |
| 25 October 2021 | Community Roadshow | North Berwick High Street North Berwick Community Centre |
| 26 October 2021 | Community Roadshow | Tesco, Tantallon Road, North Berwick Dirleton Gullane North Berwick Sports Centre |
| 27 October 2021 | Community Roadshow | Dunbar High Street Skateraw Thontonloch Innerwick Village Hall |
| 28 October 2021 | Community Roadshow | Melbourne, Road, Outside Seabird Centre Aldi, Dunbar Road, North Berwick Whitekirk East Linton Community Hall |
| 29 October 2021 | Community Roadshow | Hallhill Sports Centre, Dunbar Broxburn, Main Street West Barns, Edinburgh Road |
| March 2022 | Formal Public Exhibition (including in person exhibition on 8 March virtual exhibitions 9 and 10 March, and in person Question and Answer session 28 March) | Innerwick Village Hall, Dunbar. |

6.4. KEY PRINCIPLES OF THE PROPOSED DEVELOPMENT ASSESSMENT

6.4.1. OVERVIEW

14. Within this Offshore EIA Report, the assessment of each topic (e.g. physical processes, marine mammals, infrastructure and other users, etc.) is presented in a separate topic specific chapter. Within each of the topic chapters, the following matters have been considered:
- identification of the study area for the topic specific assessments;
 - description of topic specific legislation, policy and guidance;
 - summary of consultation activity, including comments received as part of the Berwick Bank Wind Farm Scoping Opinion (MS-LOT, 2022);
 - description of the environmental baseline conditions, including future baseline; and
 - presentation of the assessment of likely significant effects, which includes:
 - identification of the maximum design scenario for each assessment of effects;
 - a description of the designed in measures adopted as part of the Proposed Development;
 - identification of likely impacts and assessment of the significance of their identified effects, taking into account any designed in measures adopted as part of the Proposed Development;
 - identification of any further mitigation measures required in respect of likely significant effects (in addition to those measures adopted as part of the Proposed Development), together with consideration of any residual effects;
 - identification of any future monitoring required;
 - assessment of any cumulative effects between the Proposed Development and other developments on a single receptor. These will include the Berwick Bank Wind Farm onshore, projects which have become operational since collection of baseline data, projects under construction, those with consent, projects for which an application for consent has been submitted but not yet determined, projects in scoping and where an Agreement for Lease (AfL) has been granted; and
 - assessment of any transboundary effects (i.e. effects on other European Economic Area (EEA) states).
15. Inter-related effects (i.e. inter-relationships between environmental topic areas) have been assessed in a separate standalone chapter (volume 2, chapter 20) which considers the impacts of the Proposed Development on each of the identified receptor groups and includes consideration of ecosystem assessment for relevant topics. In addition to this, each topic chapter of this Offshore EIA Report (volume 2, chapter 7 – 21) provides a summary of the inter-related effects for each specific topic.
16. In accordance with the EIA Regulations, the effects of climate change on future baseline conditions have been considered in the description of baseline conditions, as relevant, and therefore inherently considered in the assessment of LSEs on the receptors in the respective topic chapters (volume 2, chapters 7 - 21). The effects of the Project on the climate in form of a greenhouse gas (GHG) assessment, and the assessment of the Project's resilience or vulnerability to climate change are included in the Climate Assessments Report (volume 3, appendix 21).
17. An assessment of In-Combination Climate Change Impacts (ICCI Assessment) has also been completed. This presents the effects of the Project in-combination with anticipated future climate change on environmental receptors (i.e. it assesses the extent to which anticipated future climate change exacerbates

the effects of the Project on an identified environmental receptor) (IEMA, 2020). The ICCI Assessment is provided in the Climate Assessments Report (volume 3, appendix 21).

18. A number of key principles which have been applied to each topic chapter are detailed in sections 6.4.2 to 6.4.5 below.

6.4.2. EVIDENCE BASED APPROACH

19. The Proposed Development is located in the outer Firth of Forth, for which there exists significant data and knowledge regarding the baseline environment. This data/knowledge has been acquired through the former Firth of Forth zonal studies, from the surveys and assessments undertaken for Seagreen Alpha/Bravo (referred to as Seagreen 1 and Seagreen 1A Projects when considered as part of the CEA for the Proposed Development) and from the surveys and assessment undertaken for the Inch Cape and Neart na Gaoithe (NnG) offshore wind farms, as well as site-specific surveys carried out as part of the Berwick Bank baseline studies. Where possible in this Offshore EIA Report, the Applicant has made use of these data to:
- characterise the baseline environment to inform the EIA where data are sufficient and appropriate to do so;
 - identify data gaps;
 - support scoping out of impacts where there is clear evidence of lack of a receptor-impact pathway; and
 - where impacts are scoped in, to draw upon the pre-existing evidence base in addition to site specific and recent data where appropriate.
20. Each topic chapter of this Offshore EIA Report (volume 2, chapters 7 - 21) seeks to provide a description of:
- the data that have been obtained, including the role of the current Firth of Forth zonal datasets, as well as publicly available desktop data sources, in defining the baseline environment for the Proposed Development;
 - the role of the Firth of Forth zonal datasets, as well as publicly available desktop data sources (including an explanation as to whether this data is sufficient, appropriate and contemporaneous) in the Proposed Development assessments of effects; and
 - if necessary, a description of additional data that have been collected to inform the Proposed Development assessment of effects.

6.4.3. MAXIMUM DESIGN SCENARIO

21. The Project Design Envelope (PDE) approach (also known as the Rochdale Envelope approach) has been adopted for the assessment of the Proposed Development, in accordance with current best practice and the "Rochdale Envelope Principle"² (see volume 1, chapter 3). This requires the assessment of likely significant effects of the realistic 'worst case' parameters of the Proposed Development.
22. Volume 1, chapter 3 sets out the PDE parameters and identifies the range of potential project design values for relevant components of the Proposed Development. For each of the topic chapters (volume 2, chapters 7 - 21) within this Offshore EIA Report and for each of the effects assessed, the PDE considered will be the scenario which would give rise to the greatest potential effect (hereafter referred to as the maximum design scenario).

² Case law (i.e. R v Rochdale MBC ex parte Milne (No.1.) [1999] 5 WLUK 67 and R v Rochdale MBC ex parte Milne (No.2) [2000] 7 WLUK 955).

23. An example of the PDE 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 PDE for the foundation with the greatest seabed disturbance potential would be the foundation with the largest footprint (i.e. the maximum design scenario for benthic subtidal and intertidal ecology). It can be assumed that any project 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.
24. By identifying the maximum design scenario for any given impact, it can be concluded that the impact (and therefore the effect) will be no greater for any other design scenario than that assessed for the maximum design scenario. Employing the PDE approach allows the Applicant to retain necessary flexibility in design of the Proposed Development, within certain maximum scenarios, all of which are fully assessed in the Offshore EIA Report. Flexibility in design is required to ensure the best wind turbine technology for the site is procured and installed, which in the UK is a matter of years after EIA report production.

6.4.4. MEASURES ENVISAGED TO AVOID, PREVENT, REDUCE OR, IF POSSIBLE, OFFSET LIKELY SIGNIFICANT ADVERSE EFFECTS

Overview

25. Where likely significant effects are identified, the EIA Regulations require 'a description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements' to be included in the Offshore EIA Report (The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017: Schedule 4, Paragraph 7, The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017: Schedule 4, Paragraph 8 and The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2007: Schedule 3, Paragraph 8).
26. The iterative approach to the assessment process for the Proposed Development involves a feedback loop, as illustrated in Figure 6.1. A specific impact, and the significance of the resulting effect, is initially assessed, and if this is deemed to be a significant adverse effect in EIA terms, changes are made (where reasonably practicable) to relevant project parameters, design or specific mitigation measures are introduced to avoid, reduce or offset the magnitude of that impact. The assessment is then repeated, and the process continues, until the EIA practitioner is satisfied within the scope of the Project objectives that:
- the effect has been reduced to a level that is not significant in EIA terms; or
 - having regard to other constraints, no further changes may be made to project design parameters or no practicable mitigation measures are available to reduce the magnitude of impact (and hence significance of effect). In such cases, an overall effect that is still significant in EIA terms may be presented in the Offshore EIA Report.

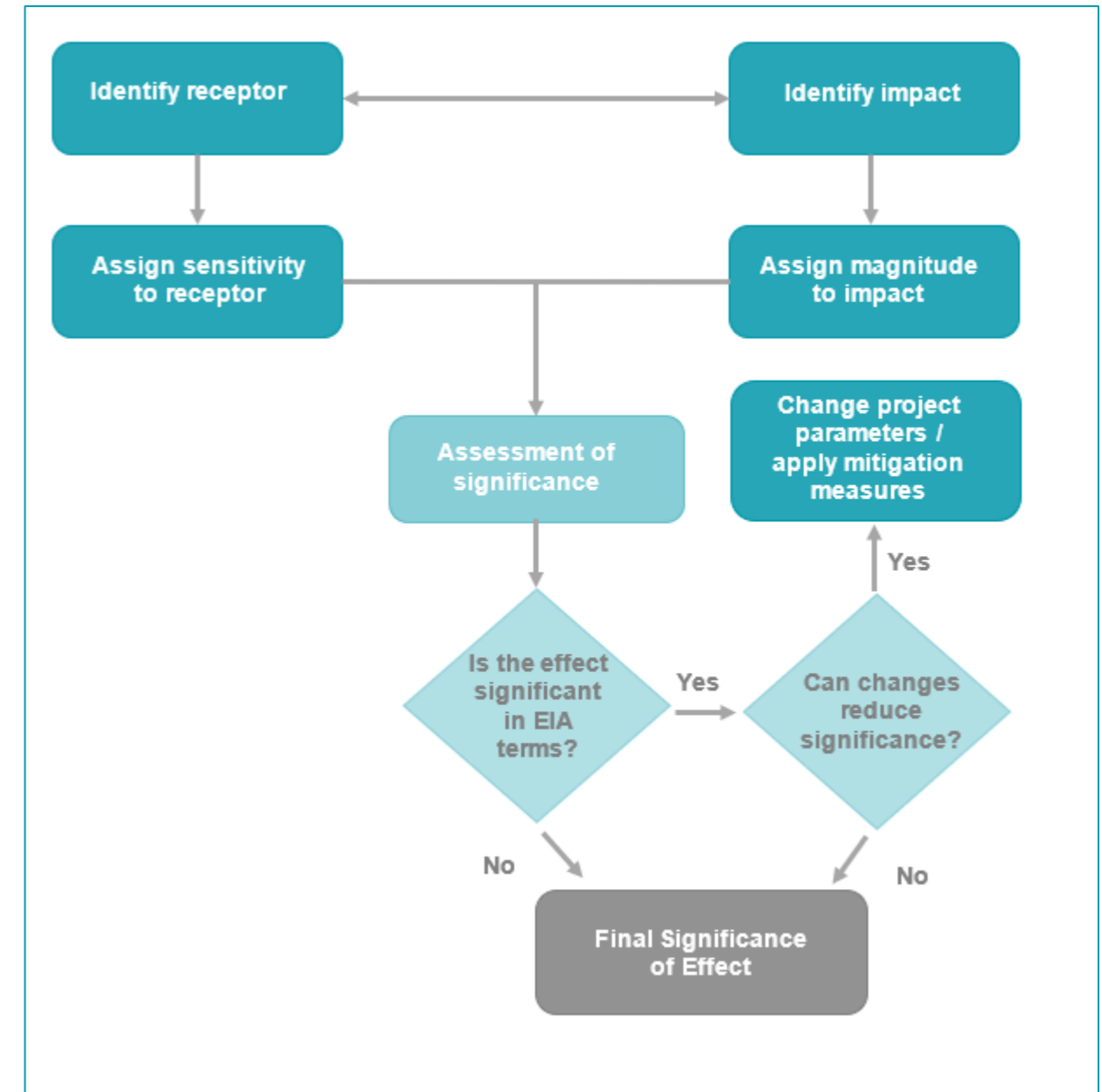


Figure 6.1: Proposed Iterative Approach to Mitigation Within the Proposed Development EIA

Designed in measures (Primary mitigation)³

27. IEMA (2016) describe Primary (inherent) mitigation as: *“Modification to the location or design of the development made during the pre-application phase that are an inherent part of the project, and do not require additional action to be taken”*.
28. Primary mitigation has been referred to as “designed in measures” within this Offshore EIA Report.
29. As described in paragraph 26, the iterative approach to the assessment process has been utilised to inform the design of the Proposed Development (through the identification of likely significant effects and development of designed in measures to address these). The incorporation of such measures within the design demonstrates commitment to implementing the identified measures. These measures have been referred to throughout the Offshore EIA Report as “designed in measures”.
30. By employing this approach, the significance of effect presented in the Offshore EIA Report is considered representative of the maximum residual effect that the Proposed Development will have, should the application for consent be approved and the Proposed Development be constructed and operated.

Secondary mitigation

31. IEMA (2016) describe 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”*.
32. Secondary mitigation is considered as additional measures which are applied after the assessment process has been completed to prevent, reduce and offset LSEs which could not be avoided through designed in measures.

Tertiary mitigation

33. IEMA (2016) describe Tertiary (inexorable) mitigation as: *“Actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirement, or actions that are considered to be standard practices used to manage commonly occurring environmental effects”*.
34. Primary mitigation is inherent with the Project Description and tertiary mitigation is inexorable as described above, both types of mitigation are considered as designed in measures. Secondary mitigation proposed to reduce significance of impact are detailed within the topic chapters of the Offshore EIA Report and summarised in volume 3, appendix 6.3.

6.4.5. IDENTIFICATION OF IMPACTS AND SIGNIFICANCE OF EFFECT

Impacts and effects

35. The Proposed Development has the potential to create a range of impacts and effects with regards to the physical, biological and human environment, for both coastal and marine receptors.

36. For the purposes of the Offshore EIA Report, 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). Impacts can be defined as direct, indirect, temporary, irreversible, secondary, cumulative and inter-related. They can also be either positive or negative, although the relationship between them is not always straightforward and relies on available evidence and professional judgement.

Table 6.3: Definition of Impact Terms Relevant to the Offshore EIA Report

| Term | Definition |
|----------------------------|--|
| Direct impact | Occurs as a straightforward consequence of activities undertaken in direct connection to the project (derived from Highways Agency <i>et al.</i> , 2008). |
| Indirect impact | Occurs as a consequence of a direct impact and may arise via a complex pathway and be experienced at a point in space or time that is removed from the direct impact (Highways Agency <i>et al.</i> , 2008). |
| Cumulative effect | Impacts that result from incremental changes caused by other present or reasonably foreseeable actions together with the project (based on Highways Agency <i>et al.</i> , 2020). |
| Inter-related impact | Consideration of how the accumulation of, and inter-relationship between effects might affect the environment, economy or community as a whole (DECC, 2011). |
| Positive or adverse impact | An impact can be either ‘positive’ or ‘adverse’. A positive impact is one that improves the quality of the environment and an adverse impact is one that reduces the quality of the environment (CIEEM, 2019). |

37. The term ‘effect’ is defined as the consequence of an impact. For example, following the inter-array cable laying example described in paragraph 36, the laying of an inter-array cable (action) results in seabed disturbance (impact), with the potential to disturb benthic habitats and species (effect).

38. The significance of effects is determined by consideration of the magnitude of impact alongside the sensitivity of each receptor/receptor group in accordance with the defined significance criteria.

Scope of the assessment

39. The scope of this Offshore EIA Report complies with the requirements set out by the EIA Regulations as discussed in volume 1, chapter 2.
40. In October 2021, the Applicant submitted the Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021a) to MS-LOT to support a request for a formal Scoping Opinion in relation to the Proposed Development from Scottish Ministers. The Scoping Opinion (Berwick Bank Wind Farm Scoping Opinion (MS-LOT, 2022)); was received in February 2022.
41. Based on the Berwick Bank Wind Farm Scoping Opinion (MS-LOT, 2022), the nature, size and location of the Proposed Development and other consultation responses provided throughout the EIA process (including consultation with Statutory Nature Conservation Bodies (SNCBs) and the Road Map process), the Offshore EIA Report focuses on the following topic areas (impacts of infrastructure and activities seaward of MHWS on receptors):
 - Physical Processes (volume 2, chapter 7);
 - Benthic Subtidal and Intertidal Ecology (volume 2, chapter 8);

³ As defined in IEMA (2016)

- Fish and Shellfish Ecology (volume 2, chapter 9);
- Marine Mammals (volume 2, chapter 10);
- Offshore and Intertidal Ornithology (volume 2, chapter 11);
- Commercial Fisheries (volume 2, chapter 12);
- Shipping and Navigation (volume 2, chapter 13);
- Aviation, Military and Communications (volume 2, chapter 14);
- Seascape, Landscape, Visual Resources (volume 2, chapter 15);
- Cultural Heritage (volume 2, chapter 16)
- Infrastructure and Other Users (volume 2, chapter 17);
- Offshore Socio-economics and Tourism (volume 2, chapter 18);
- Water Quality (volume 2, chapter 19)
- Inter-Related Effects (volume 2, chapter 20);
- Major Accidents and Disasters (volume 2, chapter 21) and
- Climate (volume 3, appendix 21).

42. Table 6.4 outlines the requirements of the EIA Regulations and where these requirements have been considered within this Offshore EIA Report.

Table 6.4: EIA Regulations Requirements and Where in this Offshore EIA Report these are Addressed

| EIA Regulations - Requirement | Where Addressed within this Offshore EIA Report |
|---|---|
| 1(a): Population and human health | <ul style="list-style-type: none"> • volume 2, chapter 12 – Commercial Fisheries; • volume 2, chapter 13 – Shipping and Navigation; • volume 2, chapter 14 – Aviation, Military and Communications; • volume 2, chapter 15 – Seascape, Landscape, Visual Resources; • volume 2, chapter 16 – Cultural Heritage; • volume 2, chapter 17 – Infrastructure and Other Users; • volume 2, chapter 18 – Offshore Socio-Economics and Tourism; and • volume 2, chapter 21 – Major Accidents and Disasters. |
| 1(b): Biodiversity, with particular attention to species and habitats protected under the EIA Regulations | <ul style="list-style-type: none"> • volume 2, chapter 8 – Benthic Subtidal and Intertidal Ecology; • volume 2, chapter 9 – Fish and Shellfish Ecology; • volume 2, chapter 10 – Marine Mammals; and • volume 2, chapter 11 – Offshore and Intertidal Ornithology. |
| 1(c): land, soil, water, air and climate | <ul style="list-style-type: none"> • volume 2, chapter 7 – Physical Processes; • volume 2, chapter 19 – Water Quality; and • volume 3, appendix 21 – Climate Assessments Report. |
| 1(d): material assets, cultural heritage and the landscape | <ul style="list-style-type: none"> • volume 2, chapter 12 – Commercial Fisheries; • volume 2, chapter 13 – Shipping and Navigation; • volume 2, chapter 14 – Aviation, Military and Communications; • volume 2, chapter 15 – Seascape, Landscape, Visual Resources; • volume 2, chapter 16 – Cultural Heritage; • volume 2, chapter 17 – Infrastructure and Other Users; and • volume 2, chapter 18 – Offshore Socio-Economics and Tourism. |
| 1(e): the interaction between the factors referred to in points (a) to (d). | <ul style="list-style-type: none"> • volume 2, chapter 20 – Inter-Related Effects. |

| EIA Regulations - Requirement | Where Addressed within this Offshore EIA Report |
|---|---|
| 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 | Within the Offshore EIA Report, individual topic sections will contain an assessment of the likely significant effects arising from major accidental scenarios and disaster, and the associated control measures which will be employed to address these. |

Determining magnitude of impacts

43. The magnitude of an impact is the consideration of the spatial extent, duration, frequency and reversibility of an impact from the construction, operation and maintenance or decommissioning of the Proposed Development. The magnitude is assigned to each of the impacts assessed within the Offshore EIA Report.

Table 6.5: Definition of Terms Relevant to Defining the Magnitude of an Impact (Highways Agency *et al.*, (2008) and Chartered Institute of Ecology and Environmental Management (CIEEM) (2018))

| Term | Definition |
|------------------------------|---|
| Spatial extent of the impact | The spatial or geographical area over which the impact/effect may occur under a suitably representative range of conditions (e.g. noise transmission under water). |
| Duration of the impact | The time over which an impact occurs. Duration should be defined in relation to ecological characteristics (such as the lifecycle of a species) as well as human timeframes. An impact may be described as short, medium or long-term and permanent or temporary. |
| Frequency of the impact | The number of times or how often an activity occurs over the relevant phase of the Proposed Development and will influence the resulting effect. |
| Reversibility of the impact | An irreversible effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible effect is one from which recovery is possible or which may be counteracted by mitigation. In some cases, the same activity can cause both reversible and irreversible effects. |

44. The magnitude of the impact is defined within each topic chapter according to the following scale:

- negligible;
- low;
- medium; and
- high.

45. Framework definitions for each of these categories is set out in Table 6.6, which describes both positive and negative magnitudes of change (adapted from Highways Agency *et al.* (2020)). 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.

Table 6.6: Definition of Terms Relating to the Magnitude of an Impact (Highways Agency *et al.*, 2020)

| Magnitude of Impact | Definition |
|---------------------|--|
| High | Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse). Large scale or major improvement or resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial). |
| Medium | Loss of resource, but not adversely affecting integrity of resource; partial loss of/damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial). |
| Low | Some measurable change in attributes, quality or vulnerability, minor loss or, or alteration to, one (maybe more) key characteristics, features or elements (Adverse). Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial). |
| Negligible | Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to, or positive addition of one or more characteristics, features or elements (Beneficial). |

Determining sensitivity of receptors

46. Receptors can be defined as the physical or biological resource or human user group that could be affected by the potential Proposed Development impacts. These receptors are identified through available data and baseline studies compiled in the development of the Offshore EIA Report.
47. In defining the sensitivity for each receptor/receptor group, the vulnerability, recoverability and value/importance of that receptor will be taken into consideration. These terms are defined in Table 6.7 and are used on a basis appropriate to each topic chapter. In instances where these considerations are not included in the assessment, the reason for this is explained within the relevant topic chapter.

Table 6.7: Definition of Terms Relevant to Defining the Sensitivity of a Receptor

| Term | Definition |
|----------------------------------|---|
| Vulnerability of the receptor | The degree to which a receptor is susceptible to injury, damage, or harm from an activity (IPCC, 2007). |
| Recoverability of the receptor | The ability of a habitat, community or individual (or individual colony) of species to redress damage sustained as a result of an external factor (MarLIN, 2020). |
| Value/Importance of the receptor | Importance of the receptor in terms of ecological, social/community and/or economic value (CIEEM, 2019). |

48. Sensitivity is defined within each topic chapter according to the following scale:
- negligible;
 - low;
 - medium;
 - high; and
 - very high.
49. Framework definitions for each of these categories is set out in Table 6.8, based on the Highways Agency *et al.* (2020). 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, or specialist knowledge.

Table 6.8: Definition of Terms Relating to the Sensitivity of the Receptor (based on Highways Agency *et al.*, 2020)

| Value (Sensitivity of the Receptor) | Description |
|-------------------------------------|---|
| Very High | Very high importance and rarity, international receptor with no potential or very limited potential for recovery. |
| High | High importance and rarity, international and/or national receptor and limited potential for recovery. |
| Medium | High or medium importance and rarity, regional receptor, and potential for recovery. |
| Low | Low or medium importance and rarity, local receptor and high potential for recovery. |
| Negligible | Very low importance and rarity, local receptor and very high potential for recovery. |

50. The following topic chapters have followed specific EIA methodology which deviates from the one described in this chapter. These include:
- Commercial Fisheries;
 - Seascape, Landscape and Visual;
 - Socio-economics and Tourism; and
 - Shipping and Navigation.
51. The topic specific EIA methodology is included as part of the mentioned chapters.

Determining significance of effect

52. The overall significance of an effect is determined through the correlation of the magnitude of impact alongside the sensitivity of the receptor. To ensure consistency in defining the significance of an effect, a matrix approach has been adopted, as presented in Table 6.9. In cases where a range is suggested for the significance of effect, there remains the possibility that this may span the significance threshold (i.e. the range is given as minor to moderate). In such cases the final significance is based upon the expert's professional judgement as to which outcome delineates the most likely effect, with an explanation as to why this is the case.
53. The matrix approach is consistent with the general approach described in the Design Manual for Roads and Bridges (DMRB) (Highways England *et al.*, 2020) and Environmental Impact Assessment for Offshore Renewable Energy Projects – Guide (BSI, 2015). A number of modifications have however been made in the interest of proportionality, including:
- an impact magnitude of 'no change' will always lead to a non-significant effect as per the matrix approach included in Table 6.9;
 - an impact of negligible magnitude will always lead to a non-significant effect as per the matrix approach included in Table 6.9; and
 - receptors of negligible importance, value or sensitivity will not be considered further because it will always lead to a non-significant effect as per the matrix approach included in Table 6.9.
54. Significant effects to be assessed as part of the Offshore EIA Report have been agreed with SNCBs and stakeholders as part of the scoping exercise and Road Map process.

Table 6.9: Matrix Used for the Assessment of the Significance of the Effect

| | | Magnitude of Impact | | | |
|-------------------------|------------|---------------------|---------------------|---------------------|-------------------|
| | | Negligible | Low | Medium | High |
| Sensitivity of Receptor | Negligible | Negligible | Negligible to Minor | Negligible to Minor | Minor |
| | Low | Negligible to Minor | Negligible to Minor | Minor | Minor to Moderate |
| | Medium | Negligible to Minor | Minor | Moderate | Moderate to Major |
| | High | Minor | Minor to Moderate | Moderate to Major | Major |
| | Very High | Minor | Moderate to Major | Major | Major |

55. For the purposes of this assessment:
- a level of significance of effect of moderate or more will be considered a 'significant' effect in terms of the EIA Regulations; and
 - a level of significance of effect of minor or less will be considered 'not significant' in terms of the EIA Regulations.
56. 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. The definition of each of the significance levels are presented in Table 6.9.
57. Significant effects (in terms of the EIA Regulations) identified during the assessment will be subject to secondary mitigation to reduce or offset the effect (paragraphs 58 and 59). Where resulting residual effects (taking into account mitigation) are still significant these will require further consideration as part of the decision making process to determine whether the effects are acceptable (paragraph 60).

Table 6.9: Definition of Significance Levels for the Proposed Development (based on Highways Agency et al., 2020)

| Significance Level | Definition |
|--------------------|--|
| Negligible | No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error. |
| Minor | These beneficial or adverse effects are generally, but not exclusively, raised as local factors. They are unlikely to be critical in the decision-making process, but are important in potentially enhancing the subsequent design of the project. |
| Moderate | These beneficial or adverse effects have the potential to be important and may influence the decision-making process. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse or beneficial effect on a particular resource or receptor. |
| Major | These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process. |

Secondary mitigation measures

58. If the effect of an impact presents a major significant adverse outcome, changes are typically made to the Proposed Development design (primary mitigation) to reduce or offset the magnitude of impact or secondary mitigation is proposed to reduce magnitude of impact. If the effect of an impact presents a moderately significant adverse outcome, mitigation such as engineering controls or construction methods

(secondary mitigation) are employed to reduce or offset the magnitude of the impact as outlined in section 6.4.4 paragraph 26.

59. Volume 3, appendix 6.3 provides a summary of the mitigation commitments, including the designed in mitigation (primary and tertiary) and secondary mitigation measures detailed within the topic chapters of the Offshore EIA Report. The means of implementation is also specified for each of the mitigation commitments.

Residual effects

60. Residual effects are defined as the effects remaining once all mitigation measures have been taken into consideration. Following the identification of secondary mitigation measures as described above, in addition to primary and tertiary mitigation, the assessment re-evaluates the significance of effect utilising the methodology outlined above. The assessment of likely significance of residual effects provides the following conclusions for the purposes of the assessment:
- a level of significance of residual effect of moderate or more will be considered a 'significant' effect in terms of the EIA Regulations; and
 - a level of significance of residual effect of minor or less will be considered 'not significant' in terms of the EIA Regulations.

6.5. CUMULATIVE EFFECT ASSESSMENT

6.5.1. OVERVIEW

61. Under the EIA Regulations, a CEA is required to provide consideration of the impacts arising from the Proposed Development alone and cumulatively with other relevant plans, projects and activities. Cumulative effects are therefore the combined effect of the Proposed Development with the effects from a number of different plans, projects and activities, on the same receptor group or resource.
62. The term cumulative assessment is used in this Offshore EIA Report to describe the assessment of incremental changes caused by other reasonably foreseeable actions alongside the Proposed Development. The term 'in-combination' is reserved for use in the context of the separate HRA requirements. Therefore, to avoid confusion the term 'in-combination' is not used in this Offshore EIA Report.
63. This section provides an overview of the legislation and guidance associated with the CEA and the approach to CEA.

6.5.2. CUMULATIVE EFFECT ASSESSMENT LEGISLATION AND GUIDANCE

64. An assessment of cumulative effects is required in accordance with the EIA Directive (2011/92/EU, as amended by Directive 2014/52/EU) and the EIA Regulations.
65. The EIA Directive (Annex IV, Article 5e) states: "A description of the likely significant effects of the project on the environment resulting from: ... the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources".
66. Article 5 of the EIA Directive (Annex IV) also states: "The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative

effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project”.

67. This is transposed directly into domestic law through the EIA Regulations.
68. There are several other relevant guidance documents which have been considered in the development of the CEA, including:
- A Handbook on Environmental Impact Assessment: Guidance for Competent Authorities, Consultees and Others Involved in the Environmental Impact Assessment Process in Scotland (NatureScot, 2018);
 - Environmental Impact Assessment for Offshore Renewable Energy Projects (BSI, 2015); and
 - Renewable UK Cumulative Impact Assessment Guidelines. Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farms (Renewable UK, 2013).

6.5.3. APPROACH TO THE CUMULATIVE EFFECT ASSESSMENT

69. This section describes the approach taken for the identification and screening of other projects, plans and activities, before outlining the approach to carrying out the cumulative effects assessment. Full description of how the CEA has been carried out is found in volume 3, appendix 6.4.
70. The methodology for the screening of potential projects, plans and activities to provide cumulative effects is also presented in Figure 6.2.

Screening stage

71. A fundamental requirement of undertaking the CEA is to identify those foreseeable developments or activities with which the Proposed Development may interact to result in cumulative effects. There is the potential for an interaction to occur at all phases (construction, operation and maintenance, and decommissioning) of the Proposed Development to lead to cumulative effects. The process of identifying those projects, plans or activities for which there is the potential for an interaction to occur is referred to as ‘screening’.
72. A specialised process has been developed to methodically and transparently screen the projects, plans and activities that may be considered cumulatively alongside the Proposed Development. This involved a staged process that considers the level of detail available for projects, plans and activities, as well as the potential for interactions on a conceptual, physical and temporal basis.

Compiling the CEA long list

73. To ensure a thorough and comprehensive approach to identification of potential plans, projects and activities considered in the CEA, an initial ‘long list’ of projects within a defined Zone of Influence (ZOI) was developed based on the below listed criteria (paragraph 75). The ZOI for the Proposed Development has been based on the Ornithology study area, which is the largest topic specific study areas.
74. The Marine Scotland (2018) Consenting and Licensing Guidance: For Offshore Wind, Wave and Tidal Energy Applications states that “*Engagement with MS-LOT is required to identify which plans/projects/ongoing activities should be included in the in-combination element of the cumulative effects assessment (CEA)*”.
75. The offshore wind projects in the Firth of Forth and Tay region have been considered in the long list, alongside other developments including those which:
- projects which have become operational since baseline data was collected
 - are under construction;

- have consent;
- are the subject of an application for consent that has been submitted but not yet determined;
- are in scoping or have a Scoping Opinion; and
- are plans and projects which are “reasonably foreseeable” (i.e. developments that are being planned, such as in the case of offshore renewable energy developments, projects which have a Crown Estate Afl).

76. The CEA has considered all other relevant plans, projects and activities that are publicly available three months prior to the Proposed Development application.
77. The Applicant is also developing an additional export cable and grid connection to Blyth, Northumberland (hereafter the “Cambois connection”). Applications for the necessary consents (including marine licences) will be applied for separately once further development work has been undertaken on this offshore export corridor. The Cambois connection has been included as a cumulative project (under Tier 3) for the purposes of the offshore EIA and assessed based on the information presented in the Cambois connection Scoping Report submitted in October 2022 (SSER, 2022e). Where publicly available, information such as project name, information source, confidence in project data, scale/capacity, status of the development, known planned construction programme, and distance to the Proposed Development was recorded for each of the projects, plans or activities included on the long list.
78. The CEA long list for the Proposed Development is provided in volume 3, appendix 6.3. This long list has been developed using datasets from MS-LOT, The Crown Estate (TCE) and the Crown Estate Scotland (CES) (amongst others), to identify projects and plans in the vicinity of the Proposed Development relating to certain topics such as commercial fisheries, cables and pipelines, energy and oil and gas.
79. As explained in volume 1, chapter 1, Seagreen was consented with permission to install 150 turbines. These 150 turbines are allocated to two subprojects to facilitate connections to the grid at different locations: ‘Seagreen 1’ refers to the installation of 114 turbines that will connect to the grid at Tealing (via the cable route to Carnoustie); ‘Seagreen 1A Project’ refers to the other 36 turbines that will connect to the grid at Cockenzie via a new cable route (the ‘Seagreen 1A Export Cable Corridor’).

Screening of the CEA long list

80. For a cumulative effect to occur, it must be established that a cumulative effect has the potential to directly or indirectly affect the receptor(s) in question (i.e. there must be an impact-receptor-pathway). The plans, projects and activities listed on the CEA long list were considered on a topic by topic basis to ensure the potential for a relevant receptor-impact pathway in screening each of the plans, activities or projects was identified.
81. The initial CEA long list was reduced following consideration of potential for cumulative effects for each potential impact-receptor pathway staged process as set out below:
- conceptual overlap – in instances where an impact has the potential to directly or indirectly affect the receptor(s) in question. In EIA terms this is described as an impact-receptor pathway and is defined here as a conceptual overlap;
 - physical overlap – ability for impacts arising from the Proposed Development to overlap with those from other projects/plans on a receptor basis. This means that an overlap of the physical extents of the impacts arising from the two (or more) projects/plans must be established for a cumulative effect to arise. Exceptions to this exist for certain mobile receptors that may move between, and subject to, two or more separate physical extents of impact from two or more projects; and
 - temporal overlap – for a cumulative effect to arise from two or more projects, a temporal overlap of impacts arising from each must be established. It should be noted that some impacts are active only during certain phases of development, such as piling noise during construction. The absence of a strict overlap however may not necessarily preclude a cumulative effect, as receptors may become further affected by additional,



non-temporally overlapping projects. This will be considered for each topic with projects being screened in for cumulative assessment if required.

82. This screening stage was based on the experience and knowledge of technical specialists, and the current guidance and regulations. The plans, projects and activities that remain after review of the long list are taken forwards to the assessment stage.

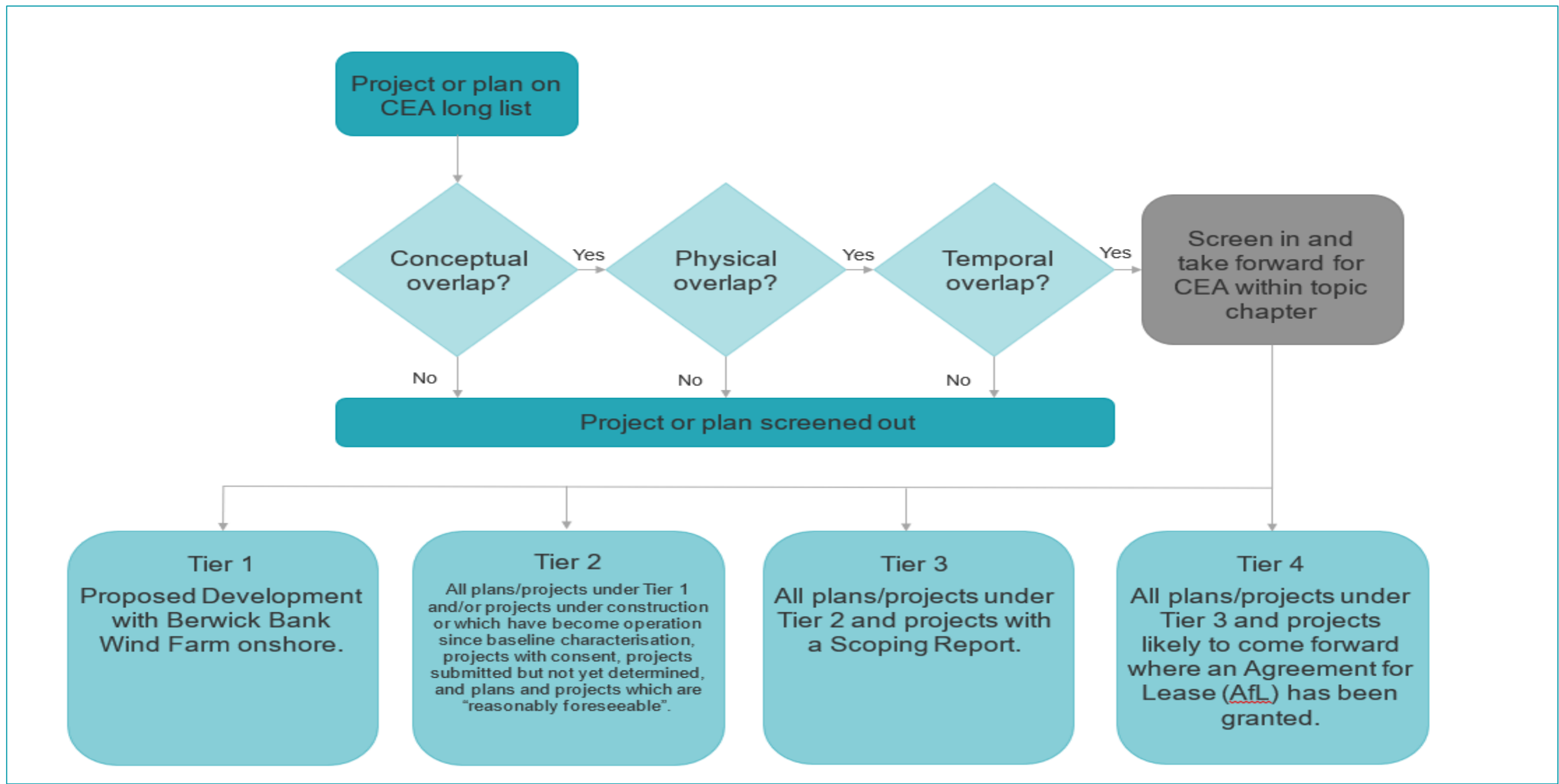


Figure 6.2: Cumulative Effects Assessment Methodology for the Screening of Potential Projects, Plans and Activities

Assessment stage

83. Following the screening stage, a list of all projects, plans and activities screened in for assessment was produced. This list is specific to each topic (although several plans, projects and/or activities will be relevant to multiple topics) and presents all plans, projects and activities considered in each topic chapter's CEA.
84. In the undertaking of the CEA for the Proposed Development, a tiered approach was adopted. This provides a framework for placing relative weight on the potential for each project/plan to be included in the CEA to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the project's parameters.
85. The approach utilised within the Proposed Development CEA employed follows a tiered approach, as described in Figure 6.2.
86. All projects/plans that have been screened in via the previously described screening process were allocated into one of the above Tiers and assessed in the CEA. It is worth noting that the data collection is assessed against the source of this data (i.e. data confidence) to verify its accuracy and reliability.
87. The CEA presented in this Offshore EIA Report has been undertaken on the basis of information presented in the EIA Reports (or other similar planning documents) for the other projects, plans and activities. Projects, plans and activities often seek consent for a maximum design scenario, which may be refined during the determination/examination period of the application and during the post consent phases of the development. For example, a project may seek consent for 300 turbines and assess this within their EIA Report, gain consent for 250 turbines and the ultimate 'as built' project may consist of 180 turbines. Changes made to a project's design since the publication of the EIA Report for that project have not generally been included in the CEA long list or assessed within the topic chapters due to the uncertainty surrounding whether these are ultimately implemented or not. Where topic or project specific advice has been received in relation to the project design, this will be identified in the topic assessment. In addition, Neart Na Goithe (NnG) and Seagreen 1 and Seagreen 1A Project, both original 2014 consents and subsequent 2019 consents have been considered in the CEA to ensure the maximum adverse scenario has been assessed. For Inch Cape the 2019 consent will be used as part of the CEA.
88. Where practicable, the CEA methodology follows the Proposed Development assessment of effects methodology as described in section 6.4.5. By following this approach, a level of consistency is maintained throughout the topic chapters and relevant comparisons can be made. This approach however differs between topic chapters according to several factors, such as the nature of the topic, the cumulative projects, plans and activities included for that topic, the data available for each project, plan and activity, and the specific practicalities around undertaking CEA for that discipline. Therefore, although all topics have aimed to undertake a quantitative cumulative assessment, where this has not been possible the assessment presented comprises a mix of qualitative and quantitative, or wholly qualitative assessment.
89. Where the potential significant effect for the Proposed Development alone is assessed as negligible, or where an impact is predicted to be highly localised, these will not generally be considered within the Proposed Development CEA, as there is not considered to be a potential for cumulative effects with other plans, projects or activities. This will be confirmed at a topic specific assessment level. Furthermore, any projects which are operational at the time of baseline characterisation have been screened out of the CEA.
90. It may not be possible to discount the potential for Adverse Effects on [site] Integrity (AEoI) of Special Protected Areas (SPAs) and their designated features (i.e. seabirds) from the Proposed Development. In such an event, the Applicant would need to access the 'derogation provisions' of the Habitats Regulations to proceed to consent. A 'without prejudice' derogations case for the Proposed Development is therefore provided alongside the Application, which includes potential compensatory measures. At the request of MS-LOT, the Applicant has considered the environmental impacts associated with the implementation of

the proposed compensation measures under the EIA process (reported in the 'Derogation Case – Compensation Measures EIA') and HRA process (the 'Derogation Case – Compensation Measures HRA').

6.6. TRANSBOUNDARY EFFECTS

91. The potential for transboundary effects to arise is a result of an impact from the Proposed Development which has the potential to significantly affect the environment of an EEA state(s). Full description of how the transboundary effects assessment has been carried out is found in volume 3, appendix 6.6.
92. To assist with this process, a screening exercise for potential transboundary impacts was undertaken at the scoping stage and presented in the Berwick Bank Wind Farm Offshore Scoping Report (SSER, 2021a).
93. Volume 3, appendix 6.6 presents the update to the transboundary screening work undertaken at the scoping stage, considering the more recent project information.
94. This exercise identified that the following receptors may experience transboundary impacts from the Proposed Development:
 - fish and shellfish ecology (volume 2, chapter 9);
 - marine mammals (volume 2, chapter 10);
 - offshore and intertidal ornithology (volume 2, chapter 11);
 - commercial fisheries (volume 2, chapter 12);
 - shipping and navigation (volume 2, chapter 13); and
 - offshore socio-economic and tourism (volume 2, chapter 18).
95. Each of the above topic chapters provides an assessment of transboundary effects for each receptor group, which also considers the inter-relationships between effects. The inter-related effects identified within each topic chapter have been summarised in a standalone inter-related effects chapter (volume 2, chapter 20). Assessments within the topic chapters are based on the screening undertaken by the Applicant and also consider the instances where project information has developed or matured in the meantime, or consultation responses have provided further detail or direction.

6.7. INTER-RELATED EFFECTS

96. The EIA Regulations require consideration of the inter-relationships between EIA topics that may lead to environmental effects. For example, the separate impacts of noise and habitat loss may have an effect upon a single receptor group such as fish and shellfish or marine mammals.
97. The assessment of potential inter-related effects has been carried out concurrently considering 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, or where potential impacts on a key prey resource (e.g. sandeels from multiple impact pathways such as habitat disturbance and underwater noise impacts), results in a greater impact on the receptor species than one impact pathway alone. Receptor led effects might be short term, temporary or transient effects, or incorporate longer term effects.
98. Within the Offshore EIA Report, assessment of inter-related effects has been undertaken with specific reference to the potential for such effects to arise in relation to receptor groups. The term 'receptor group'

is used to highlight the fact that the proposed approach to the inter-relationships assessment will, in the main, not assess every individual receptor assessed at the EIA stage, but rather, potentially sensitive groups of receptors. Receptor groups considered and assessed in the Offshore EIA Report include:

- physical processes;
 - benthic subtidal and intertidal ecology;
 - fish and shellfish ecology;
 - marine mammals;
 - offshore and intertidal ornithology; and
 - commercial fisheries;
 - shipping and navigation;
 - aviation, military and communications;
 - seascape, landscape, visual resources and cultural heritage;
 - infrastructure and other users; and
 - offshore socio-economics and tourism.
99. Inter-related effects are identified and assessed in volume 2, chapter 20. This chapter provides a descriptive assessment outlining the potential for individual effects to combine, incorporating qualitative and, where reasonably practicable, quantitative assessments, to potentially create additional effects that may be of greater significance than the individual effects acting in isolation.
100. The approach for assessing the potential inter-related effects on each receptor or receptor group follows the key steps below:
- review of the topic chapters of the Offshore EIA Report to identify receptors or receptor groups requiring assessment and the likely effects on each receptor or receptor group; and
 - assessment of how individual effects may combine to create inter-related effects on each receptor or receptor group for project lifetime effects and receptor-led effects and conclusion on likely significant inter-related effects.
101. Where the significance of an effect within the topic-specific assessment has been identified as 'negligible across all stages of the project', 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 lifetime of the project.
102. The inter-related assessment considers only effects from the Proposed Development and not those from other projects, which will be considered in the CEA.
103. Additional detail on the approach and methodology followed for the assessment of inter-related effects relating to the Proposed Development are provided in volume 2, chapter 20.

6.8. REFERENCES

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