MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Environmental Statement

Volume 1, Chapter 5: Environmental assessment methodology

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Glossary

Term	Meaning
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Cumulative effects	The combined effect of the Transmission Assets in combination with the effects from other proposed developments, on the same receptor or resource.
Cumulative effects assessment	Assessment of the likely effects arising from the Transmission Assets alongside the likely effects arising from other proposed developments on the same receptor or resource.
Development Consent Order	An order made under the Planning Act 2008, as amended, granting development consent.
Duration (of impact)	The time over which an impact occurs. An impact may be described as short, medium or long-term and permanent or temporary.
Effect	The term used to express the consequence of an impact. The significance of effect is determined by correlating magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
EIA Scoping Report	A report setting out the proposed scope of the Environmental Impact Assessment process. The Transmission Assets Scoping Report was submitted to the Planning Inspectorate (on behalf of the Secretary of State) for the Morgan and Morecambe Offshore Windfarms Transmission Assets in October 2022.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Evidence Plan process	A voluntary consultation process with specialist stakeholders to agree the approach to, and information to support, the EIA and Habitats Regulations Assessment processes for certain topics.
Expert Working Group	A forum for targeted engagement with regulators and interested stakeholders through the Evidence Plan process.
Frequency (of impact)	The number of times an impact occurs across the relevant phase/lifetime of a project.
Generation Assets	The generation assets associated with the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm include the offshore wind turbines, inter-array cables, offshore substation platforms and platform link (interconnector) cables to connect offshore substations.
Impact	Change that is caused by an action/proposed development, e.g., land clearing (action) during construction which results in habitat loss (impact).
Inter-related effects	Inter-related effects arise where an impact acts on a receptor repeatedly over time to produce a potential additive effect or where a

Term	Meaning
	number of separate impacts, such as noise and habitat loss, affect a single receptor.
Mitigation measures	This term is used interchangeably with Commitments. The purpose of such measures is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects.
Morecambe OWL	Morecambe Offshore Windfarm Limited is a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a Cobra group company) and Flotation Energy Ltd.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Morgan OWL	Morgan Offshore Wind Limited is a joint venture between bp Alternative Energy Investments and Energie Baden-Württemberg AG (EnBW).
National Policy Statement(s)	The current national policy statements published by the Department for Energy Security and Net Zero in 2023 and adopted in 2024.
Offshore export cables	The cables which would bring electricity from the Generation Assets to the landfall.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substations.
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.
Preliminary Environmental Information Report	A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of a project and which helps to inform consultation responses.
Receptor	The physical or biological resource or human user group that could be affected by the Transmission Assets impacts.
Reversibility	A reversible impact is one where recovery is possible naturally in a relatively short time period, or where mitigation measures can be effective at reversing the impact. An irreversible impact may occur when recovery is not possible within a reasonable timescale, or there is no reasonable chance of action being taken to reverse it.
Scoping Opinion	Sets out the Planning Inspectorate's response (on behalf of the Secretary of State) to the Scoping Report prepared by the Applicants. The Scoping Opinion contains the range of issues that the Planning

Term	Meaning
	Inspectorate, in consultation with statutory stakeholders, has identified should be considered within the Environmental Impact Assessment process.
Spatial extent	Geographical area over which the impact may occur.
The Secretary of State for Energy Security and Net Zero	The decision maker with regards to the application for development consent for the Transmission Assets.
Transboundary effects	Effects from a project within one state that affect the environment of another state(s).
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).

Acronyms

Acronym	Meaning
CEA	Cumulative effects assessment
CoCP	Code of Construction Practice
DMRB	Design Manual for Roads and Bridges
DESNZ	Department for Energy Security and Net Zero
EIA	Environmental Impact Assessment
EMF	Electromagnetic fields
EPP	Evidence Plan process
ES	Environmental Statement
EWG	Expert Working Group
IEMA	Institute of Environmental Management and Assessment
PDE	Project design envelope
PEIR	Preliminary Environmental Information Report
UK	United Kingdom

5 Environmental assessment methodology

5.1 Introduction

5.1.1.1 This chapter of the Environmental Statement (ES) sets out the approach taken to the Environmental Impact Assessment (EIA) process, to identify, evaluate and mitigate the potential likely significant effects associated with the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (referred to as 'the Transmission Assets'). Further details of topic-specific methodologies, such as survey methods, are provided in the relevant topic chapters in Volumes 2, 3 and 4 of this ES.

5.2 Legislative context

5.2.1.1 As set out in Volume 1, Chapter 1: Introduction, the legislative requirements for EIA for the Transmission Assets are set by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended (referred to in this report as 'the 2017 EIA Regulations'). The 2017 EIA Regulations set out the requirements for EIA under the Planning Act 2008, as amended (referred to in this chapter as 'the Planning Act 2008').

5.2.1.2 This ES presents the findings of the EIA process in accordance with Regulation 14 and Schedule 4 of the 2017 EIA Regulations. This ES builds on the Preliminary Environmental Information Report (PEIR), published in October 2023 in accordance with Regulation 12 of the 2017 EIA Regulations.

5.3 Scope of the assessment

5.3.1 Introduction

5.3.1.1 Scoping is an important early stage in the EIA process, which identifies the relevant topics to consider within the EIA process (establishing the scope of the assessment). Scoping is therefore an important preliminary procedure, which sets the context for the EIA process. Through the scoping process, the key environmental impacts are identified at an early stage, which permits subsequent work to concentrate on those topics for which likely significant effects may arise. This feeds into the assessment stage of the EIA process, described in **section 5.4.**

5.3.2 Topics scoped into the assessment

5.3.2.1 The scoping process is iterative, informed by increasing knowledge acquired throughout the EIA process. **Diagram 5.1** highlights some of the key inputs to the scoping process undertaken for the Transmission Assets.

Diagram 5.1: Overview of the scoping process

5.3.2.2 Whilst there is no formal requirement in the 2017 EIA Regulations to seek a Scoping Opinion prior to the submission of an application, it is best practice to do so.

5.3.2.3 In October 2022, Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL) (the Applicants) submitted an EIA Scoping Report to the Planning Inspectorate (Morgan OWL and Morecambe OWL, 2022). This described the scope and methodology for the technical studies proposed to provide an assessment of any likely significant effects for the Transmission Assets. It also described those topics or sub-topics proposed to be scoped out of the EIA process and provided justification as to why the Transmission Assets would not have the potential to give rise to likely significant effects in these topic areas.

5.3.2.4 Following consultation with the statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 8 December 2022 (document reference: J25).

5.3.2.5 The scope of the EIA process for the Transmission Assets, including the scope of this ES, has been informed by legislative requirements, the nature, size and location of the Transmission Assets, the Scoping Opinion and

stakeholder consultation undertaken to date. This has been further informed by the Evidence Plan process and Expert Working Groups (see **paragraphs 5.4.4.4 to 5.4.4.10**).

5.3.2.6 Details of the key points raised in the Scoping Opinion (including comments by all statutory consultees) and the way in which these have been addressed within this ES are provided in each respective topic chapter of this ES. Overarching points provided in the Scoping Opinion relating to EIA methodology are set out in **Table 5.1**.

Table 5.1: Summary of scoping responses in relation to EIA methodology

Summary of scoping response	Location within ES
The Scoping Report refers to 'realistic worst case' scenarios and parameters. It is not clear if these equate to the maximum design scenario for any given parameter. The Inspectorate advises that flexibility in design should only be sought where absolutely necessary. The ES should assess the worst case that could potentially be built out in accordance with the application for development consent.	The design of the Transmission Assets that is the subject of this ES is described in Volume 1, Chapter 3: Project description of the ES. Details of the approach to assessment of design parameters is set out in **section 5.4.5**. Each topic chapter of the ES sets out the maximum design scenario for each impact considered. This represents the worst case from within the parameters applied for.
The Inspectorate acknowledges that data and knowledge regarding the baseline environment exists from surveys, assessments and postconstruction modelling for other proposed and existing offshore wind projects. The Inspectorate understands the benefits of utilising this information to supplement site specific survey data but advises that suitable care should be taken to ensure that the information in the ES remains representative and fit for purpose truly comparable.	Baseline data from other assessments have been identified and presented within the topic chapters of this ES where used. However, it is noted that this comment applied primarily to data being used for the offshore substation platforms. These no longer form part of the application for the Transmission Assets.
The ES should establish what impacts are temporary, medium and long term. The ES should define what a 'reasonable timescale' or 'short time period' would be within which recovery could occur for an impact to be reversible/not permanent.	All topic chapters in this ES define whether an impact is temporary or permanent. For temporary impacts, the duration of the impact is defined as set out in **section 5.4.7** of this chapter, unless set out otherwise in the relevant topic chapter.
Offshore, the Scoping Report proposes to scope out accidental pollution for all phases. The Inspectorate agrees that such effects are capable of mitigation through standard management practices and can be scoped out of the assessment. The ES should provide details of the proposed mitigation measures to be included and how such measures will be secured.	All topic chapters in this ES set out the mitigation measures that are taken into account. Further details of such measures are provided in Volume 1, Annex 5.3: Commitments Register at of this ES, which includes details of the means by which these will be secured.
In light of the number of ongoing developments within the vicinity of the site, the ES should clearly state which developments will be assumed to be part of the baseline and those which are to be considered as other development for the purposes of the cumulative effects assessment.	The approach to cumulative assessment is set out in **section 5.4.9**. Further details of the specific developments scoped in and out are provided in each topic chapter of this ES, based on the methodology set out in Volume 1, Annex 5.5: Cumulative screening matrix and location plan of this ES.
Public bodies have a responsibility to avoid releasing environmental information that could bring about harm to sensitive or vulnerable features. Specific data relating to	Where necessary (in relation to onshore ecology and nature conservation) confidential annexes have been produced, with clear

Summary of scoping response	Location within ES
the presence and locations of features that could be subject to disturbance, damage, persecution, or commercial exploitation resulting from publication of the information, should be provided in the ES as a separate confidential annex.	signposting to these for those with a genuine requirement for the information.
The Inspectorate agrees that sunlight, daylight and microclimate can be scoped out of the ES on the basis of the information presented in the Scoping Report.	Noted.

5.3.2.7 **Table 5.2** summarises the scope of the EIA process for the Transmission Assets in the context of the requirements of Regulation 14(2) and Schedule 4 of the 2017 EIA Regulations.

Table 5.2: Summary of ES requirements

Regulation 14(2) and Schedule 4 requirements	Location within ES
Project description	
A description of the proposed development comprising information on the site, design, size and other relevant features of the development (Regulation 14(2)).	Volume 1, Chapter 3: Project description (and its annexes) provides a description of the Transmission Assets and the parameters used for assessment within this ES. This includes details of the construction, operation and maintenance and decommissioning phases.
A description of the development (Schedule 4, paragraph 1).	
Consideration of alternatives	
A description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment (Regulation 14(2)).	Volume 1, Chapter 4: Site selection and consideration of alternatives (and its annexes) sets out details of the site selection process undertaken. This includes a description of the alternatives considered by the Applicants, and the environmental aspects taken into account.
A description of the reasonable alternatives studied by the developer (Schedule 4, paragraph 2).	
Baseline conditions and assessment of effects	
A description of the likely significant effects of the proposed development on the environment (Regulation 14(2)).	Details of the baseline environmental conditions, methodologies used, commitments and mitigation measures and likely significant effects are provided in each of the topic chapters set out within Volumes 2, 3 and 4. Volume 2: • Chapter 1: Physical processes • Chapter 2: Benthic subtidal and intertidal ecology • Chapter 3: Fish and shellfish ecology • Chapter 4: Marine mammals • Chapter 5: Offshore ornithology
A description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment (Regulation 14(2)).	
A description of the relevant aspects of the current state of the environment (baseline scenario) (Schedule 4, paragraph 3).	

Regulation 14(2) and Schedule 4 requirements	Location within ES
A description of the factors likely to be significantly affected by the development (Schedule 4, paragraph 4). A description of the likely significant effects of the development on the environment (Schedule 4, paragraph 5). A description of the forecasting methods or evidence used to identify and assess the significant effects on the environment (Schedule 4, paragraph 6). A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment (Schedule 4, paragraph 7). A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters (Schedule 4, paragraph 8).	• Chapter 6: Commercial fisheries • Chapter 7: Shipping and navigation • Chapter 8: Marine archaeology • Chapter 9: Other sea users Volume 3: • Chapter 1: Geology, hydrogeology and ground conditions • Chapter 2: Hydrology and flood risk • Chapter 3: Onshore ecology and nature conservation • Chapter 4: Onshore and intertidal ornithology • Chapter 5: Historic environment • Chapter 6: Land use and recreation • Chapter 7: Traffic and transport • Chapter 8: Noise and vibration • Chapter 9: Air quality • Chapter 10: Landscape and visual resources • Chapter 11: Aviation and radar Volume 4: • Chapter 1: Climate change • Chapter 2: Socio-economics • Chapter 3: Inter-relationships. In addition, effects in relation to the following are considered within the above chapters and supporting annexes as set out in **Table 5.3** below: • human health – see Volume 1, Annex 5.1: Human health; • underwater noise – see Volume 1, Annex 5.2: Underwater sound technical report; • other residues and emissions – see **Table 5.3** below; • material assets – see **Table 5.3** below; and • major accidents and disasters – see **Table 5.3** below. In addition to the topic chapters and annexes, a full list of all measures proposed to avoid, prevent, reduce or, if possible, offset the identified significant adverse effects is provided in Volume 1, Annex 5.3: Commitments Register of the ES.
Non-technical summary	
A non-technical summary of the information referred to in sub-paragraphs (a) to (d) (Regulation 14(2)). A non-technical summary of the information provided under requirements 1-8 (Schedule 4, paragraph 9).	A Non-technical Summary is provided as a standalone document (document reference F1), summarising the findings of the EIA process in non-technical language.
Additional information	
Any additional information specified in Schedule 4 relevant to the specific characteristics of the particular	See above for details of how Schedule 4 requirements have been addressed.

Regulation 14(2) and Schedule 4 requirements	Location within ES
development or type of development and to the environmental features likely to be significantly affected (Regulation 14(2)).	
A reference list detailing the sources used for the descriptions and assessments included in the Environmental Statement (Schedule 4, paragraph 10).	References are provided at the end of each chapter in this ES. Volume 2: • Chapter 1: Physical processes • Chapter 2: Benthic subtidal and intertidal ecology • Chapter 3: Fish and shellfish ecology • Chapter 4: Marine mammals • Chapter 5: Offshore ornithology • Chapter 6: Commercial fisheries • Chapter 7: Shipping and navigation • Chapter 8: Marine archaeology • Chapter 9: Other sea users Volume 3: • Chapter 1: Geology, hydrogeology and ground conditions • Chapter 2: Hydrology and flood risk • Chapter 3: Onshore ecology and nature conservation • Chapter 4: Onshore and intertidal ornithology • Chapter 5: Historic environment • Chapter 6: Land use and recreation • Chapter 7: Traffic and transport • Chapter 8: Noise and vibration • Chapter 9: Air quality • Chapter 10: Landscape and visual resources • Chapter 11: Aviation and radar Volume 4: • Chapter 1: Climate change • Chapter 2: Socio-economics • Chapter 3: Inter-relationships

5.3.3 Other EIA matters

5.3.3.1 **Table 5.3** sets out details of topics that are included within the EIA process for the Transmission Assets but are presented outside of the main topic chapters of this ES.

Table 5.3: Other EIA matters

Topic	Location
Topics covered by annexes and supporting reports	
Human health	The impacts on human health arising from the construction, operation and maintenance and decommissioning phases of the Transmission Assets are considered in topic chapters of this ES where relevant. Volume 1, Annex 5.1: Human health of the ES draws this information together, concluding on the potential for significant effects on human health, and signposts where further details can be found.
Waste	An Outline Site Waste Management Plan (document reference: J1.6) is provided as an annex to the Outline Code of Construction Practice (document reference J1). The Outline Site Waste Management Plan identifies the likely waste arisings from the construction of the Transmission Assets and sets out appropriate measures for managing the waste in accordance with the waste hierarchy principle, where these may be relevant. These measures include those to reduce waste; to use less harmful alternative materials; opportunities to use materials with recycled content; to provide appropriate waste storage; and the utilisation of licensed/registered waste carriers.
Underwater noise	Information on underwater noise resulting from the construction, operation and maintenance and decommissioning phases of the Transmission Assets is included as an annex of this ES (Volume 1, Annex 5.2: Underwater sound technical report of the ES). Underwater sound is not, in itself, a receptor on which an assessment can be undertaken. An increase in underwater sound is a potential impact that may affect other ecological receptors. Therefore, underwater sound does not have a separate ES chapter and impacts resulting from an increase in underwater sound are assessed in Volume 2, Chapter 3: Fish and shellfish ecology and Volume 2, Chapter 4: Marine mammals of this ES.
Topics covered in topic chapters of the ES	
Other residues and emissions	The potential impacts of residues and emissions (e.g., dust, pollutants, light, noise or vibration) arising from the construction, operation and maintenance and decommissioning phases of the Transmission Assets have been considered in the following topic chapters of this ES where relevant: • Volume 2, Chapters 2, 3, 4 and 5: Benthic subtidal and intertidal ecology; fish and shellfish ecology; marine mammals and offshore ornithology (impacts of emissions to water and noise emissions on ecological receptors); • Volume 3, Chapter 1: Geology, hydrogeology and ground conditions (impacts of emissions/residues to land on soil quality); • Volume 3, Chapter 2: Hydrology and flood risk (impacts of surface water runoff on water quality and flood risk); • Volume 3: Chapter 3: Onshore ecology and nature conservation (impacts of emissions to water, land or air and noise emissions on ecological receptors); • Volume 3: Chapter 4: Onshore and intertidal ornithology (impacts of emissions to water, land or air and noise emissions on ecological receptors); • Volume 3, Chapter 8: Noise and vibration (impacts of noise emissions and vibration); and • Volume 3, Chapter 9: Air quality (impacts of emissions to air, including dust and other pollutants).
Material assets	The potential impacts on material assets arising from the construction, operation and maintenance and decommissioning phases of the Transmission Assets have been considered in the following topic chapters of this ES: • Volume 2, Chapter 6: Commercial fisheries;

Topic	Location
	• Volume 2, Chapter 7: Shipping and navigation; • Volume 2, Chapter 8: Marine archaeology; • Volume 2, Chapter 9: Other sea users; • Volume 3, Chapter 5: Historic environment; • Volume 3, Chapter 6: Land use and recreation; • Volume 3, Chapter 11: Aviation and radar; and • Volume 4, Chapter 2: Socio-economics.
Major accidents and disasters	The potential for major accidents and disasters arising from the construction, operation and maintenance and decommissioning phases of the Transmission Assets has been considered in the topic chapters of this ES. In particular the following effects have been identified, with the chapters that they are considered in also stated: • a reduction in groundwater quality and quantity resulting from accidental pollution: Volume 3, Chapter 1: Geology, hydrogeology and ground conditions; • the impact of accidental pollution on quality of surface water and watercourses: Volume 3, Chapter 2: Hydrology and flood risk; • increased flood risk: Volume 3, Chapter 2: Hydrology and flood risk; • the vulnerability of the Transmission Assets to climate change: Volume 4, Chapter 1: Climate change; • accidental pollution: – Volume 3, Chapter 3: Onshore ecology and nature conservation; and – Volume 3, Chapter 4: Onshore and intertidal ornithology. • the risk of vessel anchor and gear snagging: Volume 2, Chapter 7: Shipping and navigation; • the risk of increased vessel collisions: Volume 2, Chapter 7: Shipping and navigation; • a reduction of under keel clearance: Volume 2, Chapter 7: Shipping and navigation; • a reduction of emergency response capability and reduced access for SAR responders: Volume 2, Chapter 7: Shipping and navigation; • the impact of construction traffic on accidents and safety: Volume 3, Chapter 7: Traffic and transport; and • the impact of Abnormal Indivisible Loads on safety: Volume 3, Chapter 7: Traffic and transport.

5.3.3.2 The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017 are collectively referred to as the Habitats Regulations. As set out in Volume 1, Chapter 1: Introduction, the findings of the Habitats Regulations assessment and the Marine Conservation Zone assessment are provided within the following reports that are provided alongside this ES:

- Habitat Regulations Assessment Stage 1 Screening Report (document reference E3);
- Information to Support Appropriate Assessment report (document reference E2.1, 2.2, 2.3); and

- Stage 1 Marine Conservation Zone Assessment (document reference E4).

5.3.4 Topics scoped out of the EIA process

5.3.4.1 Effects on other aspects of the environment, not detailed above, are not likely to be significant. The topics proposed to be scoped out of the assessment were presented in the Scoping Report. The Planning Inspectorate set out its response on these matters in the Scoping Opinion (document reference J25), as set out in **Table 5.4**.

Table 5.4: Matters scoped out of the EIA process

Topic	Agreed position
Planning policy	A standalone Local Planning Policy chapter has been scoped out of the EIA process on the basis that a description of the consenting process is outlined in the introductory chapters and that relevant legislation and planning policy context is outlined within each of the topic chapters. A Planning Statement (document reference J28) is provided to accompany the application for development consent. The Scoping Opinion confirms that the Planning Inspectorate is content with this approach.
Sunlight, daylight and microclimate	Taking into account the likely maximum design scenario, an assessment of the effects in relation to sunlight, daylight and microclimate has been scoped out of the EIA process. The Scoping Opinion (document reference J25) confirms that the Planning Inspectorate is content with this approach. The effects of the Transmission Assets on climate change are considered separately in Volume 4, Chapter 1: Climate change of the ES.
Heat	The construction and decommissioning stages, and operational infrastructure are unlikely to generate significant levels of heat, and the infrastructure will be designed to reduce heat emissions. Therefore, a specific chapter relating to heat effects has been scoped out. The Scoping Opinion (document reference J25) confirms that the Planning Inspectorate is content with this approach. It is noted that some topics consider the effects of heat in relation to their topic area (for example, geology, hydrogeology and ground conditions). Where this was specifically noted as being scoped in within the Scoping Report, this has been considered within the EIA process and is presented in the relevant chapter of this ES.
Radiation	The construction and decommissioning stages, and operational infrastructure are unlikely to generate significant levels of radiation including electromagnetic fields (EMF), and the infrastructure will be designed to reduce EMF emissions, comply with current guidance, or be inaccessible to the general public. Therefore, a specific chapter relating to radiation effects has been scoped out. The Scoping Opinion confirms that the Planning Inspectorate is content with this approach. It is noted that some topics consider EMF in relation to their topic area (for example, offshore ecology). Where this was specifically noted as being scoped in within the Scoping Report, this has been considered within the EIA process and is presented within the relevant chapter of this ES. An EMF Compliance Statement is provided in Volume 1, Annex 3.4: Electromagnetic fields compliance statement of the ES.

5.3.4.2 Discussions regarding detailed scope for individual topics have continued throughout the EIA process (both prior to and following publication of the PEIR) through the engagement and evidence plan process (see **section**

5.4.4). Details of any matters agreed through the scoping process or through subsequent engagement are provided within each topic chapter of this ES. Further details are provided in the Technical Engagement Plan (document reference: E5).

5.4 Approach to EIA

5.4.1 Introduction

5.4.1.1 This section outlines the approach to assessment within this ES for topics scoped into the EIA process.

5.4.2 Relevant EIA guidance

5.4.2.1 The government or institute guidance set out in **Table 5.5** has been taken into account during the EIA process.

5.4.2.2 Other topic-specific specialist methodologies and good practice guidelines have been drawn on as necessary and are set out in each topic chapter of this ES (Volumes 2, 3 and 4).

Table 5.5: Relevant EIA guidance documents

EIA guidance documents
National Policy Statements and other relevant national policy
Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security and Net Zero, 2023a)
National Policy Statement for Renewable Energy Infrastructure (EN-3) (Department for Energy Security and Net Zero, 2023b)
National Policy Statement for Electricity Networks Infrastructure (EN-5) (Department for Energy Security and Net Zero, 2023c)
National Planning Policy Framework (Department for Levelling Up, Housing and Communities, 2023)
Planning Inspectorate guidance*
The Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents (Planning Inspectorate, 2024a)
The Planning Inspectorate Advice Note Three: EIA notification and consultation (Planning Inspectorate, 2024b)
The Planning Inspectorate Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements (Planning Inspectorate, 2020a)
The Planning Inspectorate Advice Note Nine: Rochdale Envelope (Planning Inspectorate, 2018)
The Planning Inspectorate Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects (Planning Inspectorate, 2022)
The Planning Inspectorate Advice Note Twelve: Transboundary Impacts and Process (Planning Inspectorate, 2020b)
The Planning Inspectorate Advice Note Seventeen: Cumulative effects assessment (Planning Inspectorate, 2019)

EIA guidance documents
The Planning Inspectorate Advice Note Eighteen: The Water Framework Directive (Planning Inspectorate, 2017b)
Institute of Environmental Management and Assessment (IEMA) guidance
Guidelines for Environmental Impact Assessment (IEMA, 2004)
Environmental Impact Assessment Guide to: Shaping Quality Development (IEMA, 2015)
Environmental Impact Assessment Guide to: Delivering Quality Development (IEMA, 2016)
Delivering Proportionate EIA, A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice (IEMA, 2017)
Effective Non-Technical Summaries for Environmental Impact Assessments (IEMA, 2023)
Other relevant guidance
Cumulative Impact Assessment Guidelines, Guiding Principles for Cumulative Impact Assessment in Offshore Wind Farms (RenewableUK, 2013)
Design Manual for Roads and Bridges: Sustainability and Environmental Appraisal. LA 104: Environmental assessment and monitoring (Highways England *et al*., 2020)
Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects (Centre for Environment, Fisheries and Aquaculture Science (Cefas), 2012).
National Planning Practice Guidance (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2020)

*The Applicants are aware of updated Advice Notes published in September 2024. These have not been incorporated to the assessments due to the late stage of receipt ahead of submission of the DCO Application. These will be reviewed and any necessary changes applied to the assessment post-application.

5.4.3 Proportionate EIA

5.4.3.1 This ES has been prepared with the need for proportionate EIA in mind. Since the 1980s, as EIA practice has developed, reporting outputs have become larger. This has, in some cases, resulted in an overall improvement in detail and quality. However, it is also reflective of a precautionary approach and can result in large, unwieldy documents that are difficult for the reader to digest.

5.4.3.2 IEMA recognises this concern and has developed a drive towards proportionate EIA and has published guidance in the form of its publication 'Delivering proportionate EIA' (IEMA, 2017).

5.4.3.3 The EIA process for the Transmission Assets has used the following tools in order to deliver a proportionate approach to its EIA process.

- Effective scoping. As set out in **section 5.3**, a Scoping Report was submitted to the Planning Inspectorate. This set out topics to be scoped out of the EIA process. It also set out the scope of assessment for those environmental topics scoped in, including areas or sub-topics within each topic that can be scoped out. This has been carried forward into the EIA process.

- Ongoing engagement and the Evidence Plan process. As set out in **section 5.4.4** below, the Applicants' approach to community and stakeholder engagement throughout the EIA process allows for ongoing consideration of the necessary scope. Survey findings and the outcomes of assessments are discussed through the Evidence Plan process Steering Group (EPP Steering Group) and Expert Working Groups (EWGs), in order to agree refinements to the scope, where appropriate and justifiable. Agreements are recorded through agreement logs.
- Commitments Register. All mitigation, monitoring and enhancement is recorded within the Commitments Register. The Commitments Register is provided at Volume 1, Annex 5.3: Commitments Register of the ES. This ensures early identification of measures required and avoids repetition of these measures throughout this ES document.
- Digital outputs. GIS mapping has been used throughout the EIA process to communicate results of the process clearly.

5.4.3.4 All topics have been evaluated by competent experts, as required by Regulation 14(4) of the 2017 EIA Regulations. A statement setting out the relevant expertise of each of the EIA team and ES topic authors is provided in Volume 1, Annex 1.1: Statement of expertise of the ES.

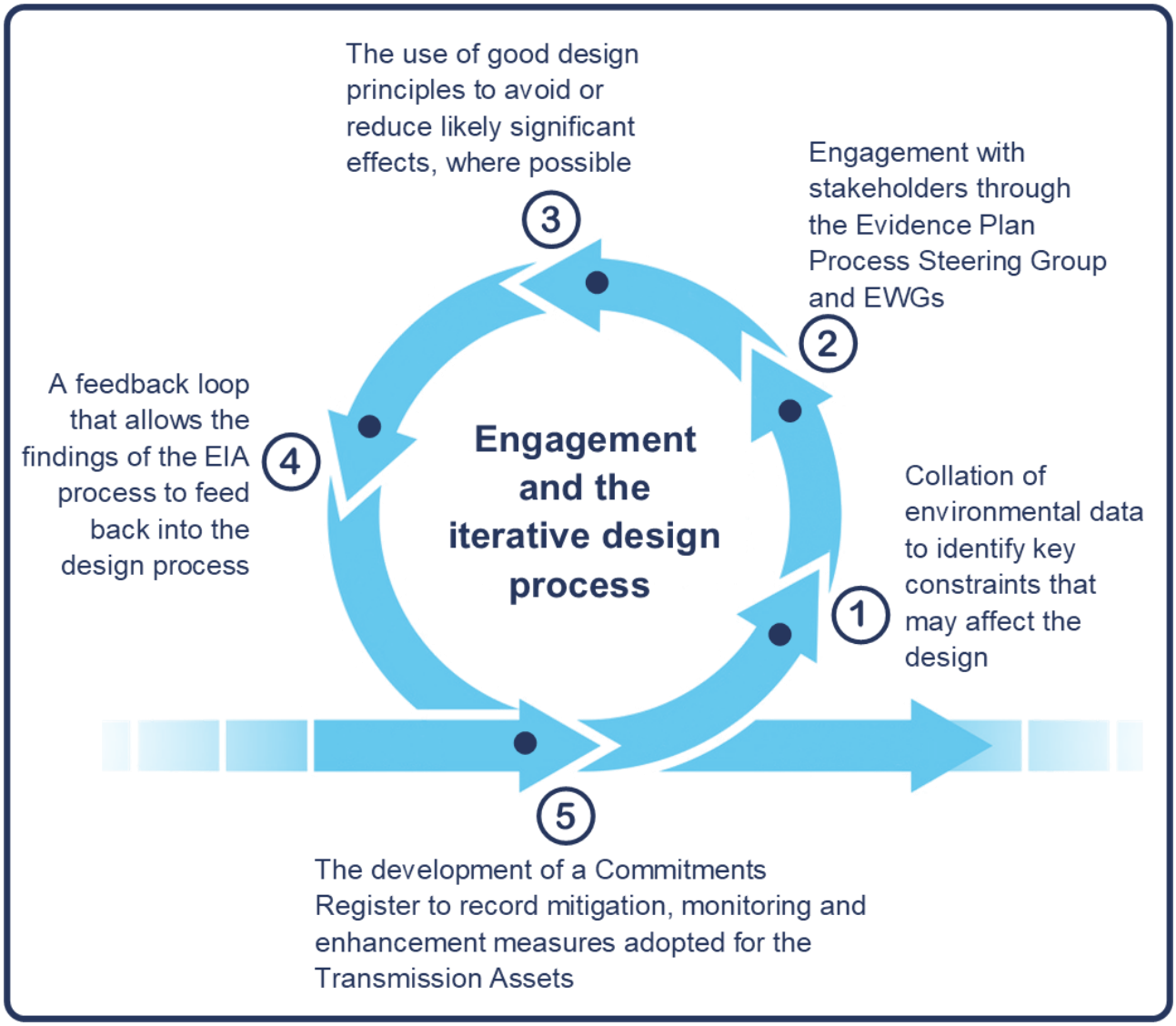
5.4.4 Engagement and the iterative design process

Iterative design

5.4.4.1 During the EIA process, environmental impacts have been taken into account as part of an ongoing iterative design process. The process of EIA has therefore been used as a means of informing the design.

5.4.4.2 As set out in Volume 1, Chapter 4: Site selection and consideration of alternatives, the early stages of design included gathering environmental constraints data, which has been used to refine the design as shown in **Diagram 5.2**.

Diagram 5.2: Iterative design process



Engagement and the Evidence Plan process

5.4.4.3 Following scoping, engagement has continued throughout the EIA process in order to facilitate proportionate EIA and the iterative design process.

5.4.4.4 A key part of this engagement has included the Evidence Plan process. The Evidence Plan process was initially developed by the Major Infrastructure Environment Unit of the Department for Environment, Food and Rural Affairs. It aimed to provide a formal mechanism for applicants and statutory bodies to agree what information and evidence should be submitted in support of an application for development consent. As such, the Evidence Plan process is a part of the pre-application stage of the development consent process.

5.4.4.5 The Evidence Plan process is voluntary. The output of the process is recorded in an Evidence Plan document, which is a non-legally binding agreement between the Applicants and relevant stakeholders.

5.4.4.6 The Evidence Plan process was initially used by applicants to ensure compliance with the Habitats Regulations. The process is now increasingly applied to broader EIA matters, as well as the Marine Conservation Zone Assessment process.

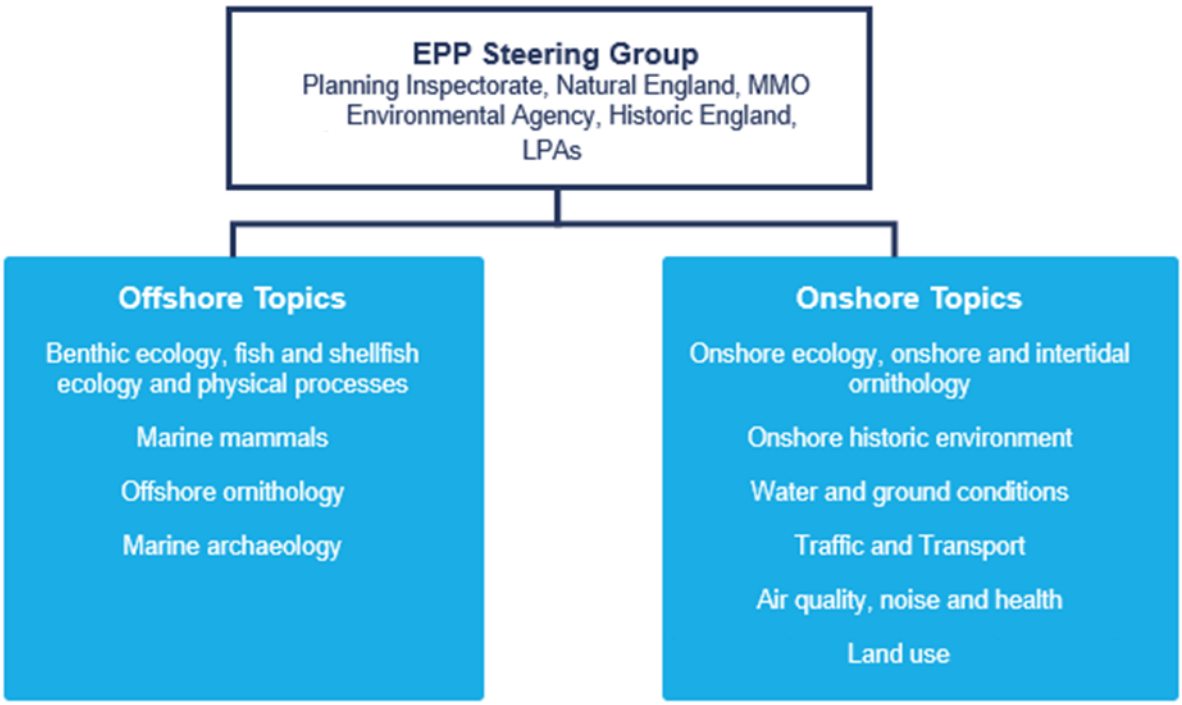
5.4.4.7 In developing the Evidence Plan for the Transmission Assets, stakeholder engagement and input is of fundamental importance. The development and monitoring of the Evidence Plan and its subsequent progress has been through the EPP Steering Group. The EPP Steering Group includes the following:

- the Applicants and their EIA consultants;
- the Planning Inspectorate;
- Natural England;
- the Marine Management Organisation (Cefas);
- Historic England;
- Blackpool Council;
- Fylde Council;
- Preston City Council;
- South Ribble Borough Council; and
- Lancashire County Council.

5.4.4.8 The Steering Group has met at key milestones throughout the EIA process. Details of all meetings are provided in the Technical Engagement Plan (document reference E5).

5.4.4.9 In addition, EWGs have been set up to discuss topic specific areas with the relevant stakeholders. The structure for the Evidence Plan process (including EPP Steering Group and EWGs) is shown in **Diagram 5.3**.

Diagram 5.3: Transmission Assets EPP Steering Group and EWGs



5.4.4.10 In addition to the above, meetings on other topics, such as landscape and visual assessment, have been held with key stakeholders where required (such as to agree viewpoints for assessment). This includes a marine navigation engagement forum, held jointly with other projects in the area, as well as liaison with commercial fishery interests.

5.4.4.11 Further details of technical engagement are provided in the Technical Engagement Plan (document reference: E5).

Non-statutory community engagement

5.4.4.12 Alongside stakeholder engagement via the Evidence Plan process, two rounds of non-statutory consultation with communities have been undertaken to date, as set out below.

- 2 November to 13 December 2022: to introduce the Transmission Assets, share early plans and give an opportunity for comment.
- 19 April to 4 June 2023: to seek feedback from the community on key elements of the Transmission Assets, including:
  - the landfall area;
  - the indicative onshore export cable corridor and associated temporary and permanent areas; and
  - the indicative search areas for onshore substation locations.

5.4.4.13 Each round of consultation has included in-person drop in consultation events, pop-up events and online webinars.

5.4.4.14 Further details of community consultation are provided in the Consultation Report, Annexes 4 and 5 (document reference: E1.4, E1.5).

Statutory consultation

5.4.4.15 The Applicants published the PEIR (and accompanying documentation) in October 2023 to form the basis of statutory consultation under the Planning Act 2008. The PEIR presented the preliminary findings of the EIA process in accordance with Regulation 12 of the 2017 EIA Regulations. Statutory consultation ran between the 12 October and 23 November 2023.

5.4.4.16 Public exhibitions and online webinars were held during the statutory consultation period. At these events, the Applicants consulted stakeholders and the local community on the contents of the PEIR alongside a suite of other documents. Feedback provided from consultation with the community, statutory consultation bodies and other interested parties has helped refine the design of the Transmission Assets and inform development of the ES. The topic chapters in this ES provide a summary of the key relevant consultation responses and the way in which they have been considered, together with relevant statutory and non-statutory consultation that has been undertaken.

5.4.4.17 As the project design was refined, and the boundary reduced, additional targeted statutory consultation took place from November 2023, with specific land interests and a small number of additional stakeholders.

5.4.4.18 All consultation materials are available online at:

- https://morecambeandmorgan.com/

5.4.4.19 Further details of technical and community engagement are set out in the Technical Engagement Plan (document reference: E5) and the Consultation Report (document reference E1) respectively.

5.4.5 Identification of design parameters for assessment

5.4.5.1 As set out in Volume 1, Chapter 3: Project description, this ES has adopted the Project Design Envelope (PDE) approach (also known as the Rochdale Envelope approach). This approach defines a design envelope and parameters within which the final design will sit. It allows flexibility for elements that are likely to require more detailed design subsequent to submission of the ES, such as siting of infrastructure, foundation types and construction methods. It enables different project scenarios, where they may arise, to be presented and assessed for their respective potential impacts, magnitude of impact and/or different effects on receptors, where relevant. It also allows the findings of the consultation process and feedback from statutory and non-statutory stakeholders to be considered during the design process, where appropriate. Further details are provided in Volume 1, Chapter 3: Project description of this ES.

5.4.5.2 Each topic chapter of this ES sets out the assumptions made regarding the PDE, relevant to that chapter, and the maximum design scenario for each impact, along with a justification for the use of the MDS as the basis of each respective assessment.

5.4.6 Approach to mitigation and monitoring

5.4.6.1 Mitigation measures are measures developed to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects. In some cases, measures are proposed that would create or enhance beneficial environmental or social effects; these are referred to as enhancement measures. Schedule 4 of the 2017 EIA Regulations requires that the EIA process identify such measures, as set out in **Table 5.2**.

Measures adopted as part of the Transmission Assets

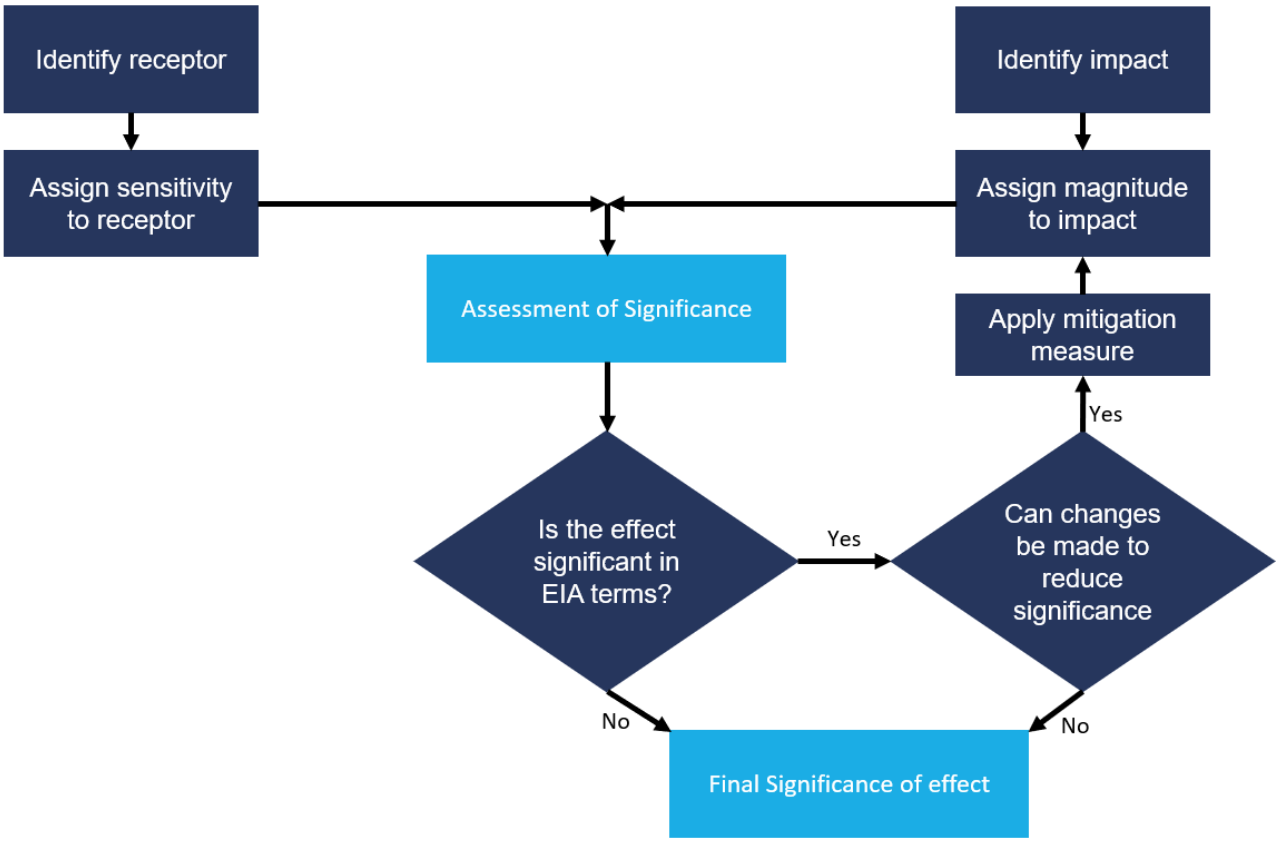
5.4.6.2 For the purposes of this ES, the term 'measures adopted as part of the Transmission Assets' is used to include measures that have been identified during the EIA process and that are presented on the Commitments Register. This is provided at Volume 1, Annex 5.3: Commitments Register of the ES. This includes the following types of mitigation measures.

- Embedded mitigation. This includes the following measures, as identified in the IEMA 'Guide to Shaping Quality Development' (IEMA, 2015).
  - Primary (inherent) mitigation. These are measures included as part of the project design. IEMA describes these as 'modifications 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'. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the project and the parameters secured in the Development Consent Order and/or marine licences. For example, a reduction in footprint or height.
  - Tertiary (inexorable) mitigation. IEMA describes these 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 requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects'. It may be helpful to secure such measures through a Code of Construction Practice or similar.
- Secondary (foreseeable) mitigation. IEMA describes these as '*actions that will require further activity in order to achieve the anticipated outcome'*. These include measures required to reduce the significance of environmental effects (such as lighting limits) and may be secured through an environmental management plan.

5.4.6.3 The development of mitigation and enhancement measures (where relevant) forms a key part of the iterative EIA process described above, whereby measures are developed throughout the EIA process in response to the findings of initial assessments and stakeholder engagement.

5.4.6.4 The methodology involves a 'feedback loop' as illustrated in **Diagram 5.4**.

Diagram 5.4: Iterative approach to mitigation and design



5.4.6.5 Where the findings of initial assessments indicate that effects may be significant, changes are made where practicable to the project design to reduce or offset the impact. This process is repeated until the EIA practitioner is satisfied that either:

- the effect is reduced to a level that is not significant in EIA terms; or
- no further primary or secondary mitigation can be applied to reduce the impact magnitude (and hence the significance of the effect). In these cases, an overall effect that is still significant in EIA terms may be presented.

5.4.6.6 The Transmission Assets assessed within this ES therefore include a range of measures that have been designed to reduce or prevent significant adverse effects arising. The incorporation of such measures within the design of the Transmission Assets demonstrates commitment to implementing the identified measures.

5.4.6.7 In line with guidance (IEMA, 2004), it is usual practice to assess potential impacts and consequent potential effects arising from a project's current design, incorporating all primary and tertiary mitigation that an applicant is committed to. Therefore, within this ES, primary and tertiary measures that will form part of the design of the Transmission Assets (and/or are established legislative requirements/good practice) have been taken into account in the assessments presented in each topic chapter. The initial determination of impact magnitude and significance of effects therefore

assumes implementation of these measures. This ensures that the measures that the Applicants are committed to are taken into account in the assessment of effects.

5.4.6.8 For secondary measures, which require further activity, both pre-mitigation and residual effects are presented. The assessment of residual effects, with secondary mitigation in place, is presented after the initial assessment within each topic chapter within this ES.

5.4.6.9 Once committed to by the Applicants, all mitigation measures are recorded in the Commitments Register, which includes details of how each measure will be secured. The Applicants have actively encouraged stakeholders to propose mitigation commitments.

Enhancement

5.4.6.10 In some cases, the measures identified through the iterative EIA process or through stakeholder consultation will result in enhancement of environmental conditions. Enhancement measures are identified within the Commitments Register (see Volume 1, Annex 5.3: Commitments Register of the ES).

Monitoring

5.4.6.11 Monitoring commitments may be put in place, as necessary, to assess the effectiveness of mitigation measures and validate assessment conclusions.

5.4.6.12 All monitoring measures are recorded in the Commitments, with details of how each measure will be secured Register (see Volume 1, Annex 5.3: Commitments Register of the ES).

5.4.7 Assessment of effects

Impacts and effects

5.4.7.1 The Transmission Assets have the potential to create a range of 'impacts' and consequent 'effects' on the physical, biological and human environment. The definitions of impact and effect used in this assessment are drawn from the Design Manual for Roads and Bridges (DMRB) LA104 (Highways England *et al.*, 2020). The DMRB was devised for linear transport schemes but can be applied to any infrastructure project, including offshore wind farms and their associated linear cable routes. The DMRB provides overarching descriptions and matrices that can be applied to all technical topics within the EIA process. These are described further in this section.

5.4.7.2 For the purposes of the ES, the term 'impact' is defined as a change that is caused by an action. For example, the installation of a cable (action) is likely to require excavation of trenches (impact). Impacts can be defined as direct or indirect. They can be either positive/beneficial or adverse, although the relationship between them is not always straightforward and relies on available evidence and professional judgement.

5.4.7.3 The term 'effect' is defined as the consequence of an impact on a receptor. For example, the excavation of a cable trench (impact) results in loss of grassland habitat (effect).

5.4.7.4 The 'significance' of each effect is determined by considering the magnitude of the impact alongside the sensitivity or importance of the receptor/receptor group, in accordance with the defined significance criteria.

5.4.7.5 The following topic chapters follow a more topic-specific methodology than the general approach set out in this chapter, and describe that methodology within their respective chapters:

- Volume 3, Chapter 9: Air quality;
- Volume 4, Chapter 1: Climate change; and
- Volume 1, Annex 5.1: Human health.

Defining the sensitivity of receptor

5.4.7.6 For the purpose of this ES, receptors are defined as the physical or biological resource or human user group that could be affected by the Transmission Assets impacts. These receptors are identified through available data and baseline studies that have been reviewed in the preparation of this ES.

5.4.7.7 In defining the sensitivity for each receptor, the vulnerability, recoverability and value/importance has been taken into consideration. The determination of sensitivity of a receptor for each topic draws upon relevant external guidance and other material, including specialist knowledge relevant to that topic. Each topic chapter within this ES (Volumes 2, 3 and 4) sets out the definitions of sensitivity used for that assessment. Where no topic-specific guidance is available, the definitions of sensitivity are based on the definitions set out in **Table 5.6**.

Table 5.6: Definition of terms relating to the sensitivity of the receptor

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

Terminology based on DMRB LA104 (Highways England *et al*., 2020)

Defining the magnitude of impact

5.4.7.8 For each of the impacts assessed in this ES, a magnitude has been assigned. The magnitude of an impact considers factors such as the spatial extent, duration, frequency and reversibility of the impact from the construction, operation and maintenance, or decommissioning phases.

5.4.7.9 The determination of magnitude of impact for each topic draws upon relevant external guidance and other material, including specialist knowledge relevant to that topic. Each topic chapter within this ES (Volumes 2, 3 and 4) sets out the definitions of impact magnitude used for that assessment. Where no

topic-specific guidance is available, the definitions are based on the definitions set out in **Table 5.7**.

Table 5.7: Definition of terms relating to the magnitude of an impact

Term	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 of 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).
No change	No loss or alteration of characteristics, features or elements; no observable impact either adverse or beneficial.

Terminology based on DMRB LA104 (Highways England *et al.*, 2020)

5.4.7.10 Unless otherwise defined within topic chapters, the following descriptions have been used to describe the duration of impact:

- short term: a period of months, up to one year;
- medium term: a period of more than one year, up to five years; or
- long term: a period of greater than five years.

Evaluation of significance of effect

5.4.7.11 The overall significance of an effect is evaluated by considering the magnitude of the impact and the sensitivity of receptor. Each chapter defines the approach taken to the assessment of significance. Unless set out otherwise within the topic chapter, a matrix approach has been adopted as a guide.

Table 5.8: Matrix used for the assessment of the significance of the effect

Sensitivity of receptor	Magnitude of impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	Negligible or Minor	Minor	Moderate	Moderate or Major
High	Minor	Minor or Moderate	Moderate or Major	Major
Very High	Minor	Moderate or Major	Major	Major

Matrix based on DMRB LA104 (Highways England *et al*., 2020)

5.4.7.12 Where the magnitude of impact is 'no change', no effect would arise.

5.4.7.13 Professional judgement has been used to define the magnitude of impact and receptor sensitivity. The matrix has then been used, together with professional judgement, to evaluate the significance of effect. Where more than one option is available in the significance matrix, the significance of effect has been determined by the author using professional judgement. In general, a significance of effect of moderate or greater is considered 'significant' in EIA terms. For each topic chapter within this ES, what is considered 'significant' is clearly defined.

5.4.7.14 In cases where a range is suggested for the significance of effect, the significance is based upon the expert's professional judgement. The broad definitions for each of the significance levels are shown in **Table 5.9**.

Table 5.9: Definition of significance levels for the Transmission Assets

Sensitivity	Definition
Major	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category. Effects upon human receptors may also be attributed this level of significance.
Moderate	These beneficial or adverse effects have the potential to be important and may influence the key 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.
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 enhancing the subsequent design of the project.
Negligible	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

Terminology based on DMRB LA104 (Highways England *et al*., 2020)

5.4.8 Addressing uncertainty and limitations

5.4.8.1 There is some degree of inherent uncertainty within the EIA process. There is uncertainty in relation to future improvements to construction and design. In

addition, there is uncertainty in relation to future baseline conditions, such as the potential effects of climate change on existing receptors. There is also a degree of uncertainty in terms of the margin of error within forecasting or modelling tools. The following sections set out the approach to addressing uncertainty within this ES. In all cases, where uncertainty and limitations exist, this has been identified (and quantified where possible) within the relevant chapter of this ES, together with details of the measures that have been taken to reduce uncertainty as far as reasonably practicable.

Future baseline and assessment years

5.4.8.2 The baseline for the assessment of environmental effects has primarily been drawn from evidence collated during review of desktop data and any site-specific environmental surveys. Consideration has also been given to any likely changes between the time of data collection/survey and the future baseline for the construction and operation and maintenance phases of the Transmission Assets. In some cases, these changes may include the construction or operation of other planned developments in the area. Where such developments are built and operational at the time of writing and data collection, these are considered to form part of the baseline environment. Where sufficient and robust information is available, such as expected traffic growth figures, other future developments are considered as future baseline conditions. In all other cases, planned future developments are considered within the assessment of cumulative effects.

5.4.8.3 The consideration of future baseline conditions has taken into account the likely effects of climate change, as far as these are known at the time of writing. It is recognised that there is some element of uncertainty regarding future trends in environmental conditions and climate. Where accepted methodologies for identifying the likely effects of climate change are available, these have been considered in the assessment. For example, the Met Office Hadley Centre publishes probabilistic climate change projections for the UK, termed the UKCP18 dataset (Met Office Hadley Centre, 2018). The UK Offshore Energy Strategic Environmental Assessment 2022 (Department for Energy Security and Net Zero, Offshore Petroleum Regulator for Environment and Decommissioning, and Department for Business, Energy & Industrial Strategy, 2022) has also been taken into account. Recent published research has also been reviewed to inform judgements on whether specific receptors are susceptible to the effects of climate change.

Forecasting and modelling

5.4.8.4 Where forecasting and modelling tools are used, care has been taken to ensure that the tool selected is appropriate for the assessment, taking into account topic-specific good practice and guidance. Model assumptions are described, and calibration has been used to ensure a reasonable degree of accuracy in measurements. In addition, uncertainty has been addressed by undertaking modelling for a number of scenarios and at representative points across the Transmission Assets, where applicable. Topic chapters within the

ES set out the measures taken to address any uncertainty with regard to modelling inputs and outputs.

5.4.9 Cumulative effects assessment

5.4.9.1 Cumulative effects are effects on a single receptor arising from the Transmission Assets when considered alongside the likely effects arising from other proposed developments. This includes projects that were not present at the time of data collection or survey and, as such, are not considered as part of the baseline for the topic being assessed.

5.4.9.2 The cumulative effects assessment (CEA) for the Transmission Assets has been undertaken in accordance with the following guidance:

- The Planning Inspectorate's Advice Note 17 (Planning Inspectorate, 2019); and
- Cumulative Impacts Assessment Guidelines: Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farms (RenewableUK, 2013).

5.4.9.3 Advice Note 17 recommends that CEA should take into account developments that are:

- under construction;
- permitted application(s), but not yet implemented;
- submitted application(s) not yet determined;
- projects on the National Infrastructure Planning Portal's Programme of Projects;
- projects identified in relevant development plans; and
- projects identified in other plans and programmes as may be relevant.

5.4.9.4 A requirement of undertaking CEA is to identify those projects, plans or activities with which the Transmission Assets may interact to produce a cumulative effect. These interactions may arise within the construction, operation and maintenance or decommissioning phases. 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'.

5.4.9.5 A process has been developed in order to methodically and transparently screen the projects, plans and activities that may be considered cumulatively alongside the Transmission Assets and produce a 'long list'. The following factors have then been used to refine the long list to create a short list to be taken forward for each topic.

- Data confidence: data confidence has been taken into account when screening projects, plans and activities into or out of the CEA. The premise is that projects, plans and activities with a low level of detail publicly available cannot meaningfully contribute to a CEA and, as such, are screened out.

- Conceptual overlap: for a conceptual overlap to occur it must be established that 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: a physical overlap refers to the potential for impacts arising from the Transmission Assets to overlap spatially with those from other projects, plans and activities on a receptor basis. This means that, in most examples, an overlap of the physical extent of the impacts arising from the two (or more) projects, plans or activities must be established for a cumulative effect to arise. Exceptions to this exist for certain mobile receptors.
- Temporal overlap: in order for a cumulative impact 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. In these cases, it is important to establish the extent to which an overlap may occur between the specific phase of the Transmission Assets and other projects, plans or activities.

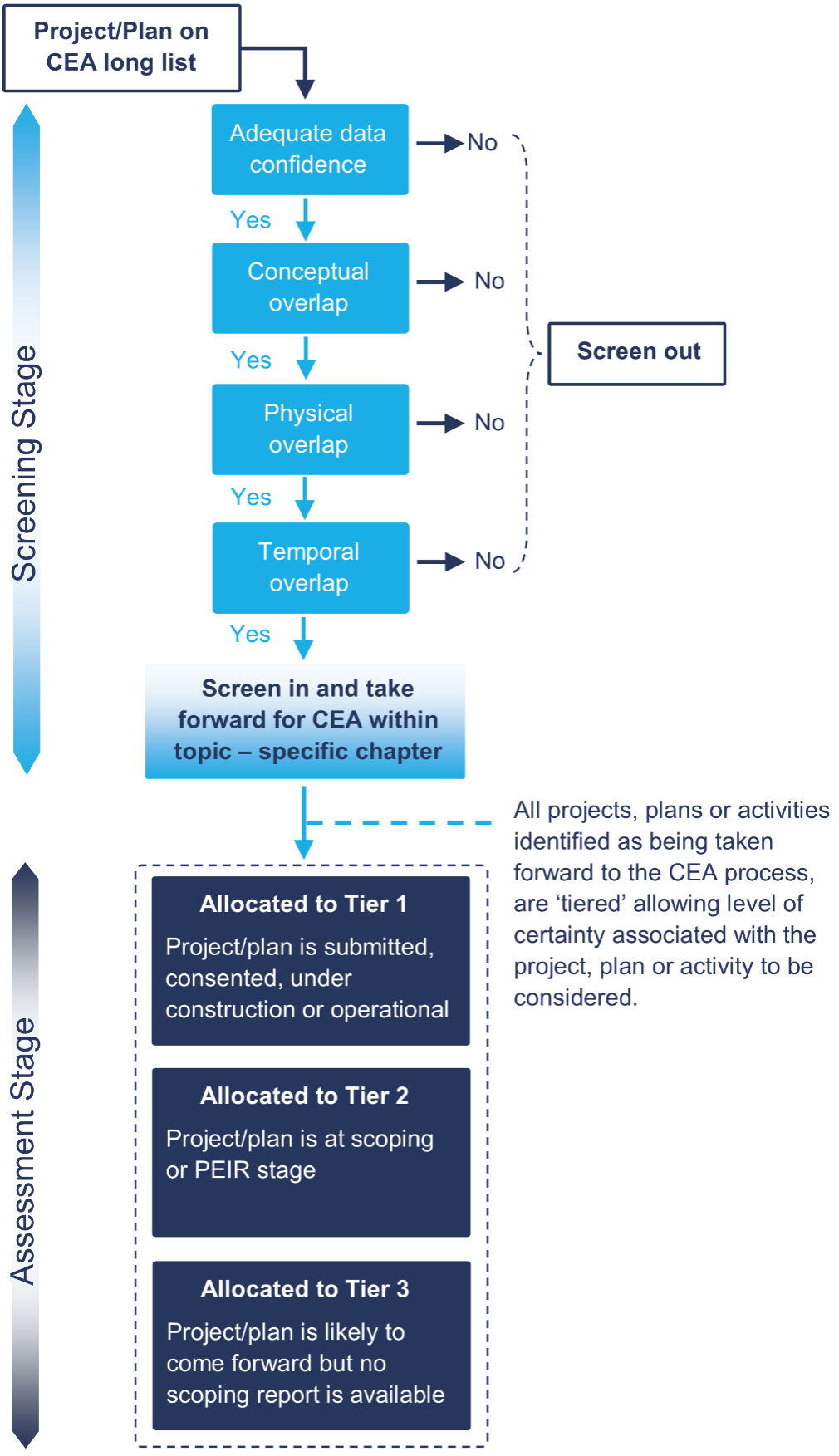
5.4.9.6 All projects, plans or activities identified as being taken forward to the CEA process, are 'tiered' in accordance with the guidance set out in the Planning Inspectorate's Advice Note 17 (Planning Inspectorate, 2019). This allows the level of certainty associated with the project, plan or activity to be considered.

Table 5.10: Assigning uncertainty to projects, plans or activities for CEA

Tier	Examples
Tier 1	• Under construction. • Permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented. • Submitted application(s) whether under the Planning Act 2008 or other regimes but not yet determined.
Tier 2	• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted and is in the public domain.
Tier 3	• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted and is not in the public domain. • Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there will be limited information available on the relevant proposals. • Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

5.4.9.7 The approach to identifying plans, projects and activities for consideration is summarised in **Diagram 5.5**. Details of the other proposed developments considered are provided in Volume 1, Annex 5.5: Cumulative effects screening matrix and location plan.

Diagram 5.5: Methodology for the screening of potential projects, plans and activities to provide cumulative effects



5.4.9.8 Where practicable, the methodology used to assess cumulative effects follows that used to assess the effects of the Transmission Assets alone. This approach is employed in order to maintain consistency throughout each topic chapter within this ES and to allow relevant comparisons to 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. As such, while all topics have, in the first instance, aimed to undertake a full quantitative assessment, this has not been possible throughout and in select cases the assessment presented employs a mix of qualitative and quantitative or wholly qualitative assessment.

5.4.9.9 The findings of the CEA are presented in each of the topic chapters of this ES.

CEA: assessment with Generation Assets

5.4.9.10 The CEA for the Transmission Assets draws on, and is informed by, the assessments set out in the ESs for the Morecambe Offshore Windfarm: Generation Assets and Morgan Offshore Wind Project: Generation Assets ('the Generation Assets'). The flow of information from the Generation Assets EIA documents into the CEA process for the Transmission Assets is set out in **Diagram 5.6.**

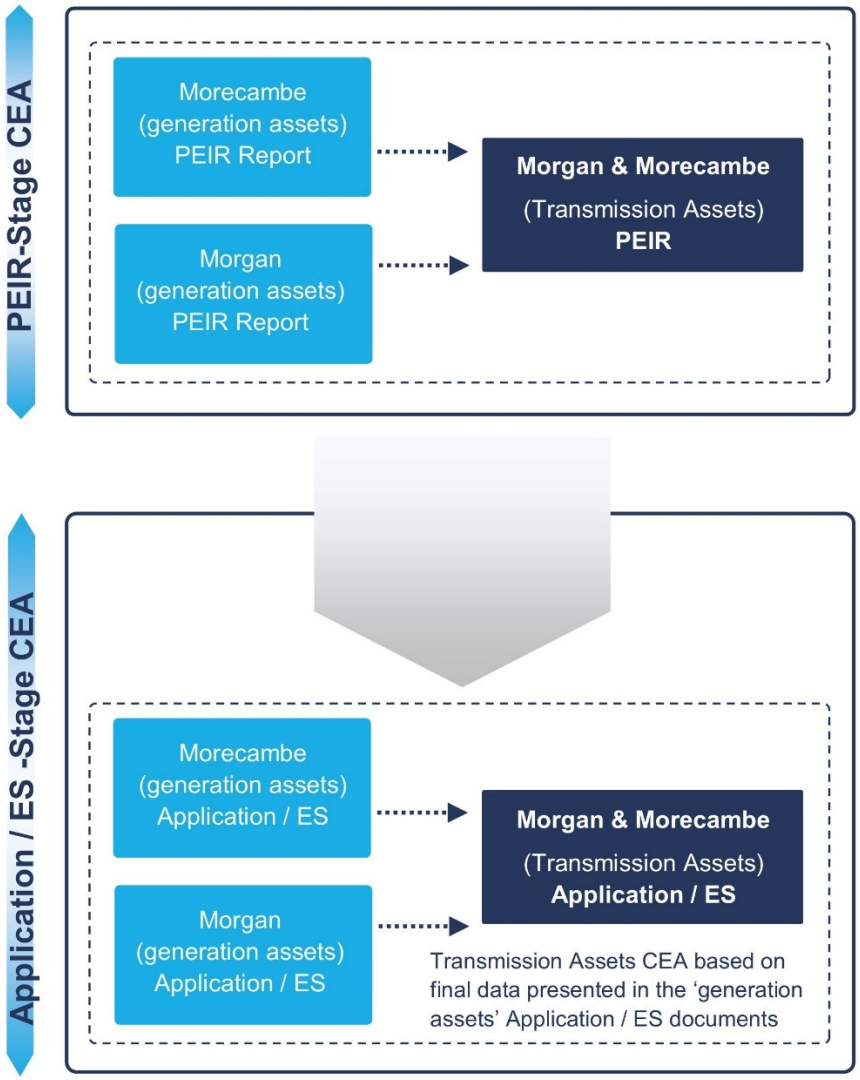
CEA: scenarios

5.4.9.11 The following scenarios have been considered, where relevant:

- Scenario 1: Assessment of the Transmission Assets, together with the Morecambe Offshore Windfarm: Generation Assets.
- Scenario 2: Assessment of the Transmission Assets, together with the Morgan Offshore Wind Project: Generation Assets.
- Scenario 3: Assessment of the Transmission Assets, together with both the Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets (the Generation Assets).
- Scenario 4: Assessment of Scenario 3 and all other relevant projects and plans.

5.4.9.12 Scenario 4 includes the cumulative assessment scenario together with all other relevant screened-in projects from the cumulative effects assessment long list.

Diagram 5.6: Flow of information from the Generation Assets EIA into the CEA process for the Transmission Assets



- Scenario 4a: Scenario 3 and Tier 1 projects, plans and activities which are:
  - under construction;
  - permitted application;
  - submitted application; or
  - those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact.
- Scenario 4b: Scenario 4a plus Tier 2 projects, plans and activities for which a:
  - scoping report has been submitted in the public domain.

- Scenario 4c: Scenario 4b plus Tier 3 projects, plans and activities which are:
  - where a scoping report has not been submitted and it is not in the public domain;
  - identified in the relevant Development Plan; or
  - identified in other plans and programmes.

5.4.10 Inter-related effects

5.4.10.1 The approach to the assessment of inter-related effects has been based on the Planning Inspectorate's Advice Note Nine section 4.13 (Planning Inspectorate, 2018) which states that:

'interactions [or inter-relationships] *between aspect assessment includes where a number of separate impacts, eg noise and air quality, affect a single receptor such as fauna'*

5.4.10.2 Inter-related effects are considered within this ES in Volume 4, Chapter 3: Inter-relationships.

5.4.11 Transboundary effects

5.4.11.1 Transboundary effects arise when impacts from a project within one European Economic Area state affect the environment of another state(s). The need to consider such transboundary effects has been embodied by the United Nations Economic Commission for Europe Convention on EIA in a Transboundary Context (commonly referred to as the 'Espoo Convention'). The Espoo Convention requires that assessments are extended across borders between parties of the Espoo Convention when a planned activity may cause significant adverse transboundary effects.

5.4.11.2 The Planning Inspectorate's Advice Note Twelve (Planning Inspectorate, 2020b) sets out the procedures for consultation in association with an application for development consent, where such development may have significant transboundary effects. The note sets out the roles of the Planning Inspectorate, other states and developers.

5.4.11.3 Applicants are advised to:

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

5.4.11.4 The Applicants have notified the Planning Inspectorate of the potential for transboundary impacts arising from the Transmission Assets through the request for a Scoping Opinion.

5.4.11.5 The identification and screening of transboundary impacts is presented in Volume 1, Annex 5.4: Transboundary screening. Where relevant, the assessment of transboundary effects for each receptor group is included in the relevant topic chapters of this ES.

5.5 References

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Planning Inspectorate (2020b) Advice Note Twelve: Transboundary Impacts and Process.

Planning Inspectorate (2022) Advice Note Ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects.

Planning Inspectorate (2024a) Nationally Significant Infrastructure Projects: Advice on the Preparation and Submission of Application Documents

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RenewableUK (2013) Cumulative Impact Assessment Guidelines: Guiding Principles for Cumulative Impact Assessment in Offshore Wind Farms.