



Morven Hawthorn Pit Grid Connection Project

Preliminary Environmental Information Report

Volume 1, Chapter 4: Approach to Environmental
Impact Assessment

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Annex 4.2	Transboundary Screening
Annex 4.3	Cumulative Screening and Location Plan

Glossary

Term	Meaning
Commitments	Measures (embedded mitigation and secondary) to be adopted during the construction, operation and maintenance, and decommissioning phases of the Morven Hawthorn Pit Grid Connection (MHPGC) Project.
Cumulative effect	The combined effect of the MHPGC Project 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 MHPGC Project alongside the likely effects arising from other proposed developments on the same receptor or resource.
Embedded mitigation	Measures included as part of the project design. Includes both primary and tertiary mitigation.
Environmental Impact Assessment (EIA)	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.
Inter-related effects	Effects that may arise from the interactions between different EIA topic effects considered within the project-alone assessment, potentially leading to more significant effects than if they were to be considered in isolation.
Magnitude	A combination of the spatial extent, duration, frequency and reversibility of an impact.
Marine Directorate Licensing Operations Team (MD-LOT)	The part of the Scottish Government's Marine Directorate responsible for assessing and administering applications for marine licences and Section 36 consent (offshore) in Scotland.
Marine Management Organisation (MMO)	The MMO, as a UK government body, is responsible for licensing, regulating and overseeing activities in the marine environment for English waters. For a Development Consent Order (DCO) and deemed marine licence, the MMO acts as a statutory consultee, advising on marine planning, environmental impacts, habitats and compliance with marine licensing regulations.
Maximum Design Scenario (MDS)	The realistic worst-case scenario, selected on a topic-specific and impact specific basis, from a range of potential parameters for the MHPGC Project.
MHPGC Project Scoping Report	A Scoping Report for the MHPGC Project, scoping the likely significant effects of the project on the environment, submitted and accepted by Planning Inspectorate (PINS) and submitted to the Scottish Ministers, via the Marine Directorate – Licensing Operations Team (MD-LOT) in February 2025.
MHPGC Project Scoping Opinions	Separate scoping opinions received from PINS (on behalf of the Secretary of State (SoS)) and MD-LOT (on behalf of the Scottish Ministers) in response to the MHPGC Project Scoping Report. The MHPGC Project Scoping Opinions contain the range of issues that PINS, and MD-LOT in consultation with statutory stakeholders, have identified should be considered within the EIA process.

Term	Meaning
Morven Hawthorn Pit Grid Connection Project	The MHPGC Project is comprised of the offshore export cables in Scottish and English waters from the Morven North or the Morven South offshore substation platform(s) (OSP), landfall, onshore export cables, the onshore land substation (LSS) and AC connection cables. Also referred to in this report as the MHPGC Project, for ease of reading.
Operations and maintenance (O&M) phase	The operational and maintenance phase of the MHPGC Project.
Planning Inspectorate (PINS)	PINS is an executive agency of the UK Government responsible for administering and examining DCO applications for NSIPs in England. PINS manages the application process, oversees consultation and examination, and makes a recommendation to the relevant Secretary of State on whether consent should be granted.
MHPGC Project Preliminary Environmental Information Report (PEIR)	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.
Primary mitigation	Measures included as part of the location or design of the MHPGC Project made during the pre-application phase that are an inherent part of the MHPGC 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 MHPGC Project, the parameters and associated commitments secured by the DCO and marine licence, or both.
Residual effects	Effects that continue to exist after mitigation has been applied.
Secondary mitigation	Actions that will require further activity to achieve the anticipated outcome and may be imposed as part of the planning consent, or through inclusion in the ES. These include measures required to reduce the significance of environmental effects and may be secured through an environmental management plan. For secondary mitigation measures both pre-mitigation and residual effects are presented.
Significance	Effect factor that is determined by the magnitude of impact along with the sensitivity of the receptor.
Tertiary mitigation	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.
the Applicant	The legal entity making the applications for consent, Morven Offshore Wind Limited (MvOWL).
Transboundary impact	Potential impacts resulting from MHPGC Project and affecting another European Economic Area (EEA) state.
Transboundary effects	Assessment of potential significant effects resulting from MHPGC Project on the interests of another EEA state(s).

Acronyms

Acronym	Meaning
BBP	Bentonite Breakout Plan
CEA	Cumulative Effects Assessment
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Construction Environmental Management Plan
CNMP	Construction Noise Management Plan
CoCP	Code of Construction Practice
CSIP	Cable Specification and Installation Plan
CTMP	Construction Traffic Management Plan
DCC	Durham County Council
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
DMRB	Design Manual for Roads and Bridges
EEA	European Economic Area
EIA	Environmental Impact Assessment
EMF	Electromagnetic field
EPP	Evidence Plan Process
ES	Environmental Statement
EWG	Expert Working Group
FLO	Fisheries Liaison Officer
GHG	Greenhouse Gas
HDD	Horizontal Directional Drilling
HRA	Habitats Regulations Assessment
IEMA	Institute of Environmental Management and Assessment
IFCA	Inshore Fisheries Conservation Authority
ISEP	Institute of Sustainability and Environmental Professionals
LEMP	Landscape and Ecological Management Plan
LPA	Local Planning Authority
LSE	Likely Significant Effects
LSS	Land substation
MAH	Major Accident Hazard
MBAGC	Morven Branxton Area Grid Connection Project
MCA	Maritime and Coastguard Agency
MCCA	Marine and Coastal Access Act
MCZ	Marine Conservation Zone
MD-LOT	Marine Directorate - Licensing Operations Team

Acronym	Meaning
MDS	Maximum Design Scenario
MHPGC	Morven Hawthorn Pit Grid Connection
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
MvOWL	Morven Offshore Wind Limited
NFFO	National Federation of Fishermen's Organisations
NLB	Northern Lighthouse Board
NPS	National Policy Statement
NRA	Navigation Risk Assessment
NTS	Non-Technical Summary
O&M	Operation and Maintenance
OMP	Operations and Maintenance Plan
OSP	Offshore Substation Platform
PDE	Project Design Envelope
PEIR	Preliminary Environmental Impact Report
PINS	Planning Inspectorate
PPP	Pollution Prevention Plan
PRoW	Public Right of Way
PROW MP	Public Rights of Way Management Plan
RSPB	The Royal Society for the Protection of Birds
RYA	Royal Yachting Association
SMP	Soil Management Plan
SFF	Scottish Fisheries Federation
SoS	Secretary of State
SWGMP	Surface Water and Groundwater Management Plan
SWMP	Site Waste Management Plan
UK	United Kingdom
VMP	Vessel Management Plan
ZoI	Zone of Influence

Units

Unit	Meaning
m	Metre

1 Approach to Environmental Impact Assessment

1.1 Introduction

1.1.1.1 This chapter of the Preliminary Environmental Impact Report (PEIR) outlines the methodology used for the Environmental Impact Assessment (EIA) of the Morven Hawthorn Pit Grid Connection Project (hereafter 'MHPGC Project'). It details the approach used for identifying, assessing and mitigating likely significant effects. The EIA covers both assets that are located within Scottish waters and assets located within England, including English waters. Additionally, it explains the legal requirement for the EIA and defines its temporal, spatial and technical scope. Further details on topic-specific methodologies, are provided in their respective chapters within this PEIR (**Volume 2, 3 and 4**) of this PEIR.

1.1.1.2 This chapter should also be read in conjunction with the following technical chapters:

- **Volume 1, Chapter 2: Project Description, of the PEIR;**
- **Volume 1, Chapter 3: Site Selection and Consideration of Alternatives, within the PEIR;**
- **Volume 1, Chapter 5: Policy and Legislative Context, of the PEIR;**
- **Volume 2, Chapter 1: Physical Processes, of the PEIR;**
- **Volume 2, Chapter 2: Offshore Water and Sediment Quality, of the PEIR;**
- **Volume 2, Chapter 3: Benthic Ecology, of the PEIR;**
- **Volume 2, Chapter 4: Fish and Shellfish Ecology, of the PEIR;**
- **Volume 2, Chapter 5: Marine Mammals, of the PEIR;**
- **Volume 2, Chapter 6: Marine Ornithology, of the PEIR;**
- **Volume 2, Chapter 7: Commercial Fisheries, of the PEIR;**
- **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR;**
- **Volume 2, Chapter 9: Marine Archaeology, of the PEIR;**
- **Volume 2, Chapter 10 Infrastructure and Other Sea Users, of the PEIR;**
- **Volume 3, Chapter 1: Geology, Hydrogeology and Ground Conditions, of the PEIR;**
- **Volume 3, Chapter 2: Water Resources and Flood Risk, of the PEIR;**
- **Volume 3, Chapter 3: Terrestrial Ecology and Terrestrial and Intertidal Ornithology, of the PEIR;**
- **Volume 3, Chapter 4: Onshore Archaeology and Cultural Heritage, of the PEIR;**
- **Volume 3, Chapter 5: Traffic and Transport, of the PEIR;**
- **Volume 3, Chapter 6: Onshore Noise and Vibration, of the PEIR;**
- **Volume 3, Chapter 7: Onshore Air Quality, of the PEIR;**
- **Volume 3, Chapter 8: Land Use, Tourism and Recreation, of the PEIR;**
- **Volume 3, Chapter 9: Agriculture and Soils, of the PEIR;**
- **Volume 4, Chapter 1: Landscape and Visual Amenity, of the PEIR;**
- **Volume 4, Chapter 2: Human Health, of the PEIR;**
- **Volume 4, Chapter 3: Socioeconomics, of the PEIR;**
- **Volume 4, Chapter 4: Climate Change, of the PEIR;**
- **Volume 4, Chapter 5: Inter-related Effects, of the PEIR;**
- **PEIR Non-Technical Summary (NTS).**

1.1.1.3 The chapter also draws on information contained within the following technical reports and annexes:

- **Volume 1, Annex 1.1: Statement of Expertise, of the PEIR;**
- **Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR;**
- **Volume 1, Annex 4.2: Transboundary Screening, of the PEIR;**
- **Volume 1, Annex 4.3: Cumulative Screening and Location Plan, of the PEIR;**

1.2 Legislative context

1.2.1.1 The foundation of EIA Regulations in the United Kingdom (UK) is based on the European Directive 2011/92/EU, amended by Directive 2014/52/EU, which outlines the requirements for assessing the impacts of certain public and private projects on the environment.

1.2.1.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, and The Marine Works (Environmental Impact Assessment) Regulations 2007, outline the requirements for EIA under

the Planning Act 2008 and the MCAA 2009, respectively. These regulations are collectively referred to as the EIA Regulations. The EIA process evaluates the likely significant environmental effects of proposed development projects to inform decision-making. The EIA Regulations are a key component of environmental protection policy, designed to assess the likely significant effects of development projects on the environment. Originating from EU directives, these regulations have been transposed into UK law to ensure comprehensive assessment and mitigation of environmental impacts.

- 1.2.1.3 This PEIR presents the preliminary findings of the EIA process in accordance with Regulation 12 of the 2017 EIA Regulations, which requires applicants to compile 'preliminary environmental information' for consultation.
- 1.2.1.4 This PEIR will form the basis of the subsequent Environmental Statement (ES), which will be submitted with the application for development consent in accordance with the 2017 EIA Regulations and 2007 Marine Works Regulations.
- 1.2.1.5 Where relevant topic-specific guidance and legislation exists, this is discussed within the relevant topic PEIR chapters. Relevant overarching policy is also provided in **Volume 1, Chapter 5: Policy and Legislative Context, of the PEIR**.

1.3 Scope of the Assessment

1.3.1 EIA Scoping

- 1.3.1.1 Scoping is the term used in the 2017 EIA Regulations whereby an applicant may request a formal 'scoping opinion' from the SoS on the proposed content of the PEIR and ES, and the extent of the information to be considered in the assessments. The purpose of scoping is to help deliver a proportionate EIA, which is focused upon the key environmental issues and potential impacts.
- 1.3.1.2 A Scoping Report for the MHPGC Project was issued to the Planning Inspectorate (PINS) and MD-LOT in February 2025 (RPS, 2025). Following consultation with the appropriate statutory bodies, PINS (on behalf of the SoS) and MD-LOT both provided Scoping Opinions in March 2025 (PINS, 2025; MD-LOT, 2025, respectively).
- 1.3.1.3 For each technical topic, the key comments raised during the scoping opinion and details of how these comments have been addressed are presented within the relevant technical chapters of this PEIR.
- 1.3.1.4 **Table 1.1** sets out the key comments raised during the scoping process specific to the approach to the EIA, with details of how these comments have been addressed within this PEIR.

Table 1.1: Summary of scoping responses relevant to the Approach to Environmental Impact Assessment

Comment	How and where considered in the PEIR
Durham County Council	
Standalone Cumulative Effects Assessment (CEA) chapter preferred and considered holistic.	A CEA has been provided within all technical chapters to ensure assessments are relevant to the technical disciplines.
Health and Safety Executive	
The 2017 EIA Regulations requires the assessment of significant effects to include, where relevant, the expected significant effects arising from the proposed development's vulnerability to major accidents.	The approach to Major Accidents and Disasters is set out in Table 1.3 below and as outlined in the MHPGC Scoping Opinion (PINS, 2025b), it has been agreed that specific major accidents and disaster categories will be considered as part of appropriate technical chapters within this PEIR.
Project crosses the Consultation Zone of two Major Accident Hazard (MAH) pipelines. The Applicant should make the necessary approaches to the relevant pipeline operator.	The approach to Major Accidents and Disasters set out in Table 1.3 below and as concluded in the MHPGC Scoping Opinion (PINS, 2025b), the assessment of construction impact on existing services has been scoped out.

Comment	How and where considered in the PEIR
Natural England We would expect the following principles (relating to Schedule 4 of the 2017 EIA Regulations) to be applied: • A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases; • An assessment of alternatives and clear reasoning as to why the preferred option has been chosen; • Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation etc.) resulting from the operation of the proposed development; • A description of the aspects of the environment likely to be significantly affected by the development including biodiversity, land, soil, water, air, climate, cultural heritage and landscape; • A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium, and long term, permanent and temporary, positive, and negative effects; • Effects should relate to the existence of the development, the use of natural resources (in particular land, soil, water and biodiversity) and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment; • A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment; • A non-technical summary of the information. Based on the EIA Scoping Report provided, it appears that these principles are likely to be met.	Table 1.2 within this chapter of the PEIR, sets out how the Applicant has complied with the requirements in Schedule 4 of the 2017 EIA Regulations.
It is important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the 'in combination' effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the Application. All supporting infrastructure and activities should be included within the assessment. An impact assessment should identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. The following types of projects should be included in such an assessment, subject to available information: • Existing completed projects; • Approved but uncompleted projects; • Ongoing activities; • Plans or projects for which an application has been made and which are under consideration by the consenting authorities;	A CEA has been provided within all technical chapters of the PEIR and considers the whole scheme in accordance with the methodology set out in Section 1.5.

Comment	How and where considered in the PEIR
Plans and projects which are reasonably foreseeable, i.e., projects for which an application has not yet been submitted, but which are likely to progress before completion of the development and for which sufficient information is available to assess the likelihood of cumulative and in-combination effects. More broadly, Natural England strongly recommends an overall coordinated and holistic approach is adopted for the projects to minimise environmental impacts in this region, and we would welcome strategic discussions with the Applicant on this.	
Natural England advises that outline documents and/or assessment will need to be included in the Application to ensure that all impacts have been considered and appropriately managed. These should include, but not be limited to, the following: - Sand Wave Levelling Plan; - Cable Burial Risk Assessment; - Cable Burial Protection Plan; - Cable Specification and Installation Plan (CSIP); - Horizontal Directional Drilling (HDD) / trenchless techniques frac-out contingency plan; - Construction Environmental Management Plan (CEMP); - Marine Mammal Mitigation Protocol (MMMP); - Marine Pollution Contingency Plan (MPCP); - Landscape and Ecological Management Plan (LEMP); - Public Rights of Way Management Plan (PROW MP); - Operations and Maintenance Plan (OMP); - Vessel Management Plan (VMP); - Decommissioning Plan; - Soil Management Plan; - Construction Traffic Management Plan (CTMP); - Construction Noise Management Plan (CNMP).	Outline management plans will be submitted alongside the Development Consent Order (DCO) application and not as part of the PEIR. The proposed list of outline management plans to be included alongside the DCO application at this stage, are listed in the MHPGC Management Plans Overview accompanying this consultation.
When using EIA matrices, without evidence to support the use of the lower value in a range, Natural England's view is that the higher value should always be assessed.	The methodology used for the assessment of effects is set out within Section 1.4.7 of this chapter, paragraph 1.4.7.18 sets out that where the combination of sensitivity and magnitude falls between two significance categories, professional judgement is applied to determine the most appropriate outcome, considering the specific context of the receptor and the nature of the impact. This reflects common practice in EIA.
Methodology for assessing significance needs to be clarified and consistent throughout the PEIR.	The methodology used for the assessment of effects is set out within Section 1.4.7 of this chapter and has been applied consistently throughout the PEIR.
Dates for Expert Working Groups (EWGs) to be agreed with Natural England early. EWGs to be set up for: - Physical processes, marine archaeology, benthic ecology and fish and shellfish ecology; - Marine mammals; - Offshore ornithology; - Terrestrial ecology.	The EWG process is set out within Section 1.4.4 of this chapter. These initial EWGs took place in Q4 2025 and subsequently a second tranche of EWGs took place in Q3 2026.

Comment	How and where considered in the PEIR
If a more coordinated approach for energy transmission for multiple NSIP projects is taken forward, Natural England advises that thorough consideration be given to consenting implications from infrastructure and interdependency and assessing in-combination and cumulative impacts.	Methodology for CEA set out in Section 0 of this chapter. CEA to be considered within technical chapters of the PEIR. Inter-related effects are considered within Volume 4, Chapter 4: Inter-related Effects, of the PEIR .
Natural England recognise that the Scottish-English border isn't a "boundary" in the sense of "EIA transboundary effects". In the ES, Natural England advise that quantification of impacts must be presented showing the impacts of the Scottish portion of the cable on English receptors.	Impacts to Scottish and English receptors will be considered within the technical chapters of the PEIR. The methodology for transboundary effects assessment is set out in Section 1.7 of this chapter. Transboundary impacts are covered in Volume 1, Annex 4.2: Transboundary Screening, of the PEIR . Any transboundary impacts screened in will be assessed as part of the relevant technical chapters of the PEIR.
PINS	
ES to include an Outline Site Waste Management Plan (SWMP) or equivalent to meet requirements for assessment of impacts associated with waste at each stage of the project.	An Outline SWMP (CoT45) will be prepared and submitted as part of the application for development consent.
Ensure project description and technical assessments make clear which elements are to be consented under the DCO and the environmental effects of these. Where it is not possible to distinguish between DCO and marine licence associated effects, the assessment approach should be justified and clearly explained.	Volume 1, Chapter 2: Project Description, of the PEIR outlines which elements are to be consented under the DCO application and which under the marine licence application(s) to MD-LOT.
Where the ES utilises professional judgement to either assign significance or in the absence of a recognised methodology, the ES should provide a justification and methodology for this. Where judgement is used to assess that a significance of 'moderate effect' is not considered a significant effect, this should clearly be stated in the ES.	The methodology used for the assessment of effects is set out within Section 1.4.7 of this chapter and justification is provided in the individual chapters where they use professional judgement to assign significance.
The ES should assess transboundary effects, including stating which European Economic Area (EEA) States would be affected. The Inspectorate will undertake a transboundary screening on behalf of the SoS in due course.	The methodology for transboundary effects assessment is set out in Section 1.7 of this chapter. Transboundary impacts are covered in Volume 1, Annex 4.2: Transboundary Screening, of the PEIR . Any transboundary impacts screened in will be assessed as part of the relevant technical chapters of the PEIR.
Content with approach to not have a chapter for 'residues and emissions' so long as these are covered in respective chapters for dust, light, noise etc.	Approach to 'residues and emissions' set out within Table 1.3 of this chapter.
Content with approach to scope out heat and radiation impacts as per Scoping Report, with operational EMF's covered elsewhere.	Approach to heat and radiation impacts set out within Table 1.3 of this chapter.
The Scoping Report lists matters relating to major accidents and disasters that are proposed to not be addressed in other aspect chapters. These matters are either extremely unlikely, do not apply to the proposed development, or will be adequately addressed under other standardised precautions and regulations. On this basis the Inspectorate agrees that the matters listed in this section can be scoped out from further assessment and a standalone chapter for major accidents and disasters is not required.	Approach to major accidents and disasters set out within Table 1.3 of this chapter.

Comment	How and where considered in the PEIR
MMO	
The MMO is content with the proposal for cumulative impacts and in-combination impacts.	A CEA is considered within all technical chapters of the PEIR, and considers the whole scheme in accordance with the methodology set out in Section 1.5 .

1.3.2 Technical chapters of the PEIR

- 1.3.2.1 The scope of the EIA process, including the scope of this PEIR, has been informed by legislative requirements, the nature, size and location of the MHPGC Project, the Scoping Opinion and stakeholder engagement undertaken to date.
- 1.3.2.2 **Table 1.2** summarises the scope of the PEIR for the MHPGC Project in the context of the requirements of Regulation 14(2) and Schedule 4 of the 2017 EIA Regulations which pertain to information required for Environmental Statements.

Table 1.2: Location of 2017 EIA Regulations legislative requirements for ES as addressed within the PEIR

2017 Requirements	EIA Required information	Location within PEIR
Project description		
Regulation 14 (2)(a)	A description of the proposed development comprising information on the site, design, size and other relevant features of the development.	Volume 1, Chapter 2: Project Description, of the PEIR provides a description of the MHPGC Project and the parameters used for assessment within this PEIR. This includes details of the construction, operation and maintenance (O&M) and decommissioning phases.
Schedule 4, paragraph 1 (a)	A description of the location of the development.	
Schedule 4, paragraph 1 (b)	A description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases.	
Schedule 4, paragraph 1 (c)	A description of the main characteristics of the operational phase of the development, for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used.	
Consideration of alternatives		
Regulation 14 (2)(d)	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	Volume 1, Chapter 3: Site Selection and Consideration of Alternatives, of the PEIR sets out details of the site selection undertaken to date. This includes a description of the alternatives considered by the Applicant, and the environmental aspects taken into account.
Schedule 4, paragraph 2	A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	
Baseline conditions, assessment of effects and mitigation measures		
Schedule 4, paragraph 1 (d)	An estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases.	Details of the baseline environmental conditions, methodologies used, commitments and mitigation measures and likely significant

2017 Requirements	EIA Required information	Location within PEIR
Regulation 14 (2)(b)	A description of the likely significant effects of the proposed development on the environment.	effects are provided in each of the technical chapters set out within Volumes 2, 3 and 4, of the PEIR. • Volume 2, Chapter 1: Physical Processes, of the PEIR; • Volume 2, Chapter 2: Offshore Water and Sediment Quality, of the PEIR; • Volume 2, Chapter 3: Benthic Ecology, of the PEIR; • Volume 2, Chapter 4: Fish and Shellfish Ecology, of the PEIR; • Volume 2, Chapter 5: Marine Mammals, of the PEIR; • Volume 2, Chapter 6: Marine Ornithology, of the PEIR; • Volume 2, Chapter 7: Commercial Fisheries, of the PEIR; • Volume 2, Chapter 8: Shipping and Navigation, of the PEIR; • Volume 2, Chapter 9: Marine Archaeology, of the PEIR; • Volume 2, Chapter 10 Infrastructure and Other Sea Users, of the PEIR; • Volume 3, Chapter 1: Geology, Hydrogeology and Ground Conditions, of the PEIR; • Volume 3, Chapter 2: Water Resources and Flood Risk, of the PEIR; • Volume 3, Chapter 3: Terrestrial Ecology and Terrestrial and Intertidal Ornithology, of the PEIR; • Volume 3, Chapter 4: Onshore Archaeology and Cultural Heritage, of the PEIR;
Regulation 14 (2)(c)	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 (3)	A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	
Regulation 14 (4)	A description of the factors specified in regulation 5(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (e.g. organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects and landscape.	
Regulation 14 (2)(c)	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.	
Schedule 4, paragraph 5	A description of the likely significant effects of the development on the environment resulting from, inter alia: • The construction and existence of the development, including, where relevant, demolition works; • The use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources; • The emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste; • The risks to human health, cultural heritage or the environment (for example due to accidents or disasters); • 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; • The impact of the project on climate (e.g. the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change; • The technologies and the substances used.	

2017 Requirements	EIA Required information	Location within PEIR
Schedule 4, paragraph 6	A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (e.g. technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	• Volume 3, Chapter 5: Traffic and Transport, of the PEIR; • Volume 3, Chapter 6: Onshore Noise and Vibration, of the PEIR;
Schedule 4, paragraph 7	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 (e.g. the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset and should cover both the construction and operational phases.	• Volume 3, Chapter 7: Onshore Air Quality, of the PEIR; • Volume 3, Chapter 8: Land Use, Tourism and Recreation, of the PEIR; • Volume 3, Chapter 9: Agriculture and Soils, of the PEIR;
Schedule 4, paragraph 8	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 disasters which are relevant to the project concerned.	• Volume 4, Chapter 1: Landscape and Visual Amenity, of the PEIR; • Volume 4, Chapter 2: Human Health, of the PEIR; • Volume 4, Chapter 3: Climate Change, of the PEIR; • Volume 4, Chapter 4: Socioeconomics, of the PEIR; • Volume 4, Chapter 5: Inter-related Effects, of the PEIR. In addition, effects in relation to the following are considered within the above chapters and supporting annexes as set out in Table 1.3: • Underwater noise; • Other residues and emissions; • Material assets; • Major accidents and disasters; • Offshore airborne noise.
Non-technical summary		
Regulation 14 (1) (e)	A non-technical summary of the information referred to in sub-paragraphs (a) to (d).	A PEIR Non-Technical Summary (NTS) has been published as part of the consultation and an updated NTS will be submitted as part of the application for development consent.
Schedule 4, paragraph 9	A non-technical summary of the information provided under paragraphs 1 to 8.	
Additional information		
Schedule 4, paragraph 10	A reference list detailing the sources used for the descriptions and assessments included in the ES.	References are provided at the end of each chapter in this PEIR.

2017 Requirements	EIA Required information	Location within PEIR
Regulation 14 (4)	In order to ensure the completeness and quality of the environmental statement— - The applicant must ensure that the environmental statement is prepared by competent experts; - The environmental statement must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts	The expertise and qualification of lead authors for all chapters are outlined in Volume 1, Annex 1.1: Statement of Expertise, of the PEIR.

1.3.3 Topics included elsewhere in the PEIR

1.3.3.1 **Table 1.3** details the topics that will be covered in either standalone technical reports provided as Annexes to the PEIR or included as part of other technical chapters of the PEIR.

Table 1.3: Topics included within the EIA that do not form specific chapters within the PEIR and ES

Topic	Location within the PEIR
Underwater noise	Information on underwater noise resulting from the construction, O&M and decommissioning phases of the MHPGC Project is included in Volume 2, Annex 5.1: Underwater Sound Technical Report, of the PEIR. 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 PEIR chapter and impacts resulting from an increase in underwater sound are assessed in Volume 2, Chapter 4: Fish and Shellfish Ecology, of the PEIR and Volume 2, Chapter 5: Marine Mammals, of the PEIR.
Other Residues and Emissions	The potential impacts of residues and emissions (e.g. dust, pollutants, light, noise, vibration) arising from the construction, O&M and decommissioning of the offshore and onshore elements of the MHPGC Project will be considered in the following topic chapters of the PEIR where relevant: Volume 2, Chapter 2: Water and Sediment Quality, of the PEIR (impacts of emissions to water and release of sediment-bound contaminants on water and sediment quality); Volume 2, Chapter 3: Benthic Ecology, Chapter 4: Fish and Shellfish Ecology of the PEIR (impacts of water, increased suspended sediments, sediment deposition, underwater noise and thermal and electromagnetic field (EMF) emissions on ecological receptors) Volume 2, Chapter 4: Fish and Shellfish Ecology of the PEIR (impacts of emissions to water, underwater noise, increased suspended sediments and thermal and EMF emissions on fish and shellfish receptors) Volume 2, Chapter 5: Marine Mammals of the PEIR (impacts of emissions to water and underwater noise on marine mammal receptors) Volume 2, Chapter 6: Offshore Ornithology of the PEIR (impacts of emissions to water and underwater noise on offshore ornithological receptors) Volume 2, Chapter 2: Water and Sediment Quality, of the PEIR (impacts of emissions to water and release of sediment-bound contaminants on water and sediment quality); Volume 3, Chapter 1: Geology, Hydrogeology and Ground Conditions, of the PEIR (impacts of emissions/residues to land on soil quality); Volume 3, Chapter 2: Water Resources and Flood Risk, of the PEIR (impacts of surface water run-off on water quality and flood risk); Volume 3, Chapter 3: Terrestrial Ecology and Terrestrial and Intertidal Ornithology, of the PEIR (impacts of emissions to water, land or air and noise emissions on ecological receptors); Volume 3, Chapter 6: Onshore Noise and Vibration, of the PEIR (impacts of noise emissions and vibration); Volume 3, Chapter 7: Onshore Air Quality, of the PEIR (impacts of emissions to air, including dust and other pollutants).

Topic	Location within the PEIR
Major Accidents and Disasters	As concluded in the EIA Scoping Report (RPS, 2025), specific major accidents and disaster categories will be considered as part of appropriate technical chapters within this PEIR, as follows: - Physical Environment: - Reduction in groundwater quality and quantity from spillages and presence of UXO in Volume 3, Chapter 1: Geology, Hydrogeology and Ground Conditions, of the PEIR; - Impact on quality of surface water and watercourses in Volume 3, Chapter 2: Water Resources and Flood Risk, of the PEIR; - Increased flood risk in Volume 3, Chapter 2: Water Resources and Flood Risk, of the PEIR; - The vulnerability of the MHPGC Project to climate change in Volume 4, Chapter 3: Climate change, of the PEIR; - Biological Environment: - Accidental pollution in Volume 3, Chapter 3: Terrestrial Ecology and Terrestrial and Intertidal Ornithology, of the PEIR. - Human Environment: - Risk of anchor interaction and fishing gear interaction with subsea cables in Volume 2, Chapter 8: Shipping and Navigation, of the PEIR; - Reduction of under keel clearance in Volume 2, Chapter 8: Shipping and Navigation, of the PEIR; - Increased risk of vessel to vessel collision in Volume 2, Chapter 8: Shipping and Navigation, of the PEIR; - Risk of interference with navigation, communications and position-fixing equipment in Volume 2, Chapter 8: Shipping and Navigation, of the PEIR; - Impact of construction traffic on accidents and safety in Volume 3, Chapter 5: Traffic and Transport, of the PEIR and Volume 2, Chapter 8: Shipping and Navigation, of the PEIR; - Impact of Abnormal Indivisible Loads on safety in Volume 3, Chapter 5: Traffic and Transport, of the PEIR.
Material Assets	The potential impacts on material assets arising from the construction, O&M, and decommissioning of the MHPGC Project is considered in the following topic chapters of the PEIR: Volume 2, Chapter 10: Infrastructure and Other Sea Users, of the PEIR; Volume 3, Chapter 4: Onshore Archaeology and Cultural Heritage, of the PEIR; Volume 3, Chapter 8: Land Use, Tourism and Recreation, of the PEIR; Volume 4, Chapter 4: Socioeconomics, of the PEIR.

1.3.4 Topics Scoped out of the PEIR

1.3.4.1 **Table 1.4** details the technical topics scoped out of the EIA process. The EIA Scoping Report (RPS, 2025) provides context and justification for scoping out the topics, this is summarised in **Table 1.4**.

Table 1.4: Topics scoped out of the MHPGC Project EIA

Topic	Rationale for Scoping out of the PEIR
Offshore Air Quality	Airborne pollutants (e.g. particulates) from offshore vessels associated with cable installation and maintenance activities are considered insignificant and scoped out of assessment in the PEIR and ES. This was agreed by PINS in their Scoping Opinion, ID 3.4.7.

Topic	Rationale for Scoping out of the PEIR
Daylight, sunlight and microclimate	The MHPGC Project will comprise offshore export cables, landfall, onshore export cables, a LSS, AC connection cables and associated infrastructure. None of the permanent infrastructure to be constructed as part of the MHPGC Project will exceed 35m above ground level and thus would not be sufficiently tall or in proximity to other buildings to result in significant effects in relation to daylight and sunlight. In addition, given the nature of the offshore and onshore elements of the MHPGC Project, these are not likely to result in microclimate changes and therefore this topic was scoped out of assessment in the PEIR. This was agreed by PINS in their PINS Scoping Opinion, ID 6.2.2
Heat and Radiation	Heat Construction, O&M and decommissioning phases of the onshore components of the MHPGC Project are unlikely to generate significant levels of heat. The technical specification of the LSS will consider any heat generated within the design and this would, as is usual practice, prevent any overheating or heat effects. With these measures in place, it is not considered likely that significant effects in relation to heat will occur and the topic has been scoped out of further assessment in the PEIR. This was agreed by PINS in their PINS Scoping Opinion, ID 6.2.3 and MD-LOT in their Scoping Opinion, ID 5.19.1.1. Radiation The construction and decommissioning of the onshore components of the MHPGC Project would generate negligible levels of EMFs. O&M of the onshore export cables and LSS would produce EMFs due to the voltage and flow of current through electrical infrastructure. However, all of the electrical infrastructure associated with the MHPGC Project would be designed to comply with current guidelines (ICNIRP, 2020) on levels of public exposure and design of electrical infrastructure. Onshore exposure to EMF is therefore not considered to be a potential significant effect associated with the MHPGC Project and has been scoped out of further assessment in the PEIR. This was agreed by PINS in their Scoping Opinion, ID 10.2.4 and MD-LOT in their Scoping Opinion, ID 5.19.1.1. Notwithstanding, a compliance statement is included in Volume 1, Annex 2.1 Onshore EMF Compliance Statement. Offshore EMF is addressed in Marine EMF Technical Report, Volume 2, Annex 4.2: Morven HVDC EMF Study of the PEIR.

Topic	Rationale for Scoping out of the PEIR
Major Accidents and disasters	Selected major accident and disaster scenarios were scoped out of further assessment within the PEIR due to one or more of the following reasons: • Their risk being assessed as sufficiently unlikely; • Existing design features and embedded mitigation negating any risk; • Existing legislation, regulations and industry standards that the MHPGC Project will comply with negating any risk. The scenarios scoped out of further assessment are as follows: • Accidents during construction and decommissioning; • Accidents during operation and maintenance; • Construction impacts on existing services; • Impacts on transport networks and network impacts on cable; • Impacts on mines and storage caverns; • Third party damage; • Aircraft crash; • External major accident – chemicals; • External major accident – nuclear; • Loss of utilities servicing the MHPGC Project; • Cyber-attack; • Terrorism; • Widespread public disorder; • Biological threats (e.g. disease epidemics, animal diseases); • Lightning; • Seismic events; • Space weather. A specific chapter on major accidents and disasters was scoped out of the assessment. This was agreed by PINS in their Scoping Opinion (ID 6.1.3) and by MD-LOT in their Scoping Opinion (Section 5.18.1.1). Major accident and disaster scenarios scoped into the assessment within technical chapters of the PEIR (see Table 1.3 for details) include: • Reduction in groundwater quality and quantity from spillages and presence of UXO • Impact on quality of surface water and watercourses • Increased flood risk • The vulnerability of the MHPGC Project to climate change • Accidental pollution • Risk of vessel anchor and gear snagging • Reduction of under keel clearance • Reduction of emergency response capability and reduced access for Search and Rescue (SAR) responders • Impact of construction traffic on accidents and safety • Impact of Abnormal Indivisible Loads on safety • Impact of vessel to vessel collision • Impact of vessel allision

Topic	Rationale for Scoping out of the PEIR
Accidental release of pollutants from vessels	Vessels, vehicles, machinery, and other equipment have the potential to accidentally release pollution during all phases of development. However, pollution impacts (accidental oil/fuel spills) during all phases of the MHPGC Project are scoped out on the basis that the implementation of standard post-consent plans (e.g. a Code of Construction Practice and a Spillage and Emergency Response Plan) will avoid the risk of significant pollution events. Consequently, marine ecological receptors are extremely unlikely to be significantly affected by any such pollution impacts. As such, no significant impacts would occur, and this is scoped out of assessment in the PEIR and ES. This was agreed by PINS in their Scoping Opinion (ID 6.2.1) and by MD-LOT in their Scoping Opinion (Section 5.5.3).
Aviation and Radar	Impacts to aviation (military and civil) and radar associated with the MHPGC Project are considered insignificant and scoped out of assessment in the PEIR and ES. This was agreed by PINS in their Scoping Opinion (ID 5.3.5) and by MD-LOT in their Scoping Opinion (Section 5.15.2).

1.4 Approach to EIA

1.4.1 Overview

- 1.4.1.1 This section describes the methodology that has been used to assess the preliminary likely significant effects on the natural, human, and built environment as a result of the MHPGC Project.
- 1.4.1.2 EIA is a systematic process aimed at identifying, predicting, and evaluating the environmental impacts of proposed projects to promote sustainable development and mitigate adverse effects. Projects like the MHPGC Project, which require a DCO and marine licences, are subject to EIA, with early-stage environmental impacts being assessed and recorded through this PEIR.
- 1.4.1.3 The EIA process includes several stages: screening, scoping, impact analysis, mitigation, reporting, and post-decision monitoring. Screening determines the necessity of an EIA, while scoping identifies the key environmental issues. Impact analysis evaluates potential effects, and mitigation addresses measures to manage impacts. Reporting involves compiling findings into documents like the PEIR and subsequently the ES, ensuring transparency. Post-decision monitoring checks the effectiveness of mitigation measures.
- 1.4.1.4 Public consultation and stakeholder engagement are integral throughout the EIA process to feed into the iterative design process and ensure inclusiveness and transparency. Through a comprehensive approach, EIA supports informed decision-making, balancing development needs with environmental protection to achieve sustainable outcomes.

1.4.2 Relevant EIA guidance

- 1.4.2.1 **Volume 1, Chapter 5: Policy and Legislation, of the PEIR** details how the National Policy Statements (NPSs) and other relevant national and local planning policy have been used to guide the design of the MHPGC Project. **Table 1.5** lists the relevant guidance that has been used to inform the EIA process and production of this PEIR. Topic-specific methodologies and guidance that have been used in the assessment of specific technical topics are set out in each respective chapter of this PEIR.

Table 1.5: EIA guidance documents relevant to the MHPGC Project

Policy and guidance relevant to EIA
PINS advice for Nationally Significant Infrastructure Projects
Advice on the Preparation and Submission of Application documents (PINS, 2026b)
Advice Note Fifteen: drafting Development Consent Orders (PINS, 2025a)
Advice on working with public bodies in the infrastructure planning process (PINS, 2026c)
Advice on Preparing Applications for Linear Projects (PINS, 2026d)
Pre-Application Advice on Environmental Impact Assessment (PINS, 2026a)
Advice on Cumulative Effects Assessment (PINS, 2026e)

Policy and guidance relevant to EIA
Advice on Transboundary Impacts and Process (PINS, 2024e)
Advice on EIA Notification and Consultation (PINS, 2024b)
Commitments Register (PINS, 2024f)
Advice on Good Design (PINS, 2024c)
National Policy Statements
NPS for Energy (NPS EN-1) (Department for Energy Security and Net Zero (DESNZ), 2025)
NPS for Renewable Energy Infrastructure (NPS EN-3) (DESNZ, 2025)
NPS for Electricity Networks Infrastructure (NPS EN-5) (DESNZ, 2025)
Scottish Policy
Scotland's National Marine Plan (Scottish Government, 2015)
Institute of Sustainability and Environmental Professionals (ISEP), formerly Institute of Environmental Management and Assessment (IEMA) guidance
Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice (IEMA, 2017)
Implementing the Mitigation Hierarchy from Concept to Construction (IEMA, 2024)
Other relevant guidance
Design Manual for Roads and Bridges (DMRB): Sustainability and Environmental Appraisal. LA 104: Environmental assessment and monitoring (Highways England <i>et al.</i> , 2020)

1.4.3 Delivery of a proportionate EIA

- 1.4.3.1 As the UK's professional institute for EIA, the Institute of Sustainability and Environmental Professionals (ISEP, formerly IEMA) advocates for the delivery of proportionate EIA, which is appropriately focused on the most important environmental impacts (IEMA, 2017). This enables better understanding of the key environmental issues associated with a proposed development by decision makers, consultees and the public, allowing for a more efficient EIA process.
- 1.4.3.2 The MHPGC Project has aimed to deliver a proportionate EIA by the following means:
- Appropriate use of scoping throughout the EIA process;
 - Recording all mitigation, monitoring and enhancement within the commitments register (**Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR**);
 - A systematic stakeholder engagement process that feeds into the evolving project design (see **Section 1.4.4**);
 - Evaluation of technical topics 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 PEIR**.

1.4.4 An iterative design process

Iterative design

- 1.4.4.1 As is best EIA practice, an iterative design approach has been prioritised where significant environmental effects have been avoided, where possible, in the first instance through design refinements and iterations, as reported within **Volume 1, Chapter 3: Site Selection and Consideration of Alternatives, within the PEIR**.
- 1.4.4.2 Where adverse environmental effects were identified through early assessment work and stakeholder engagement through the Evidence Plan Process (EPP) opportunities to avoid, reduce or compensate for such effects, were identified and incorporated into the design. In addition, opportunities to enhance the beneficial environmental effects have also been sought and incorporated into the MHPGC Project, where possible.

1.4.4.3 **Figure 1.1** illustrates the iterative design process, which allows the findings of the EIA and stakeholder engagement to feedback into the evolving design.

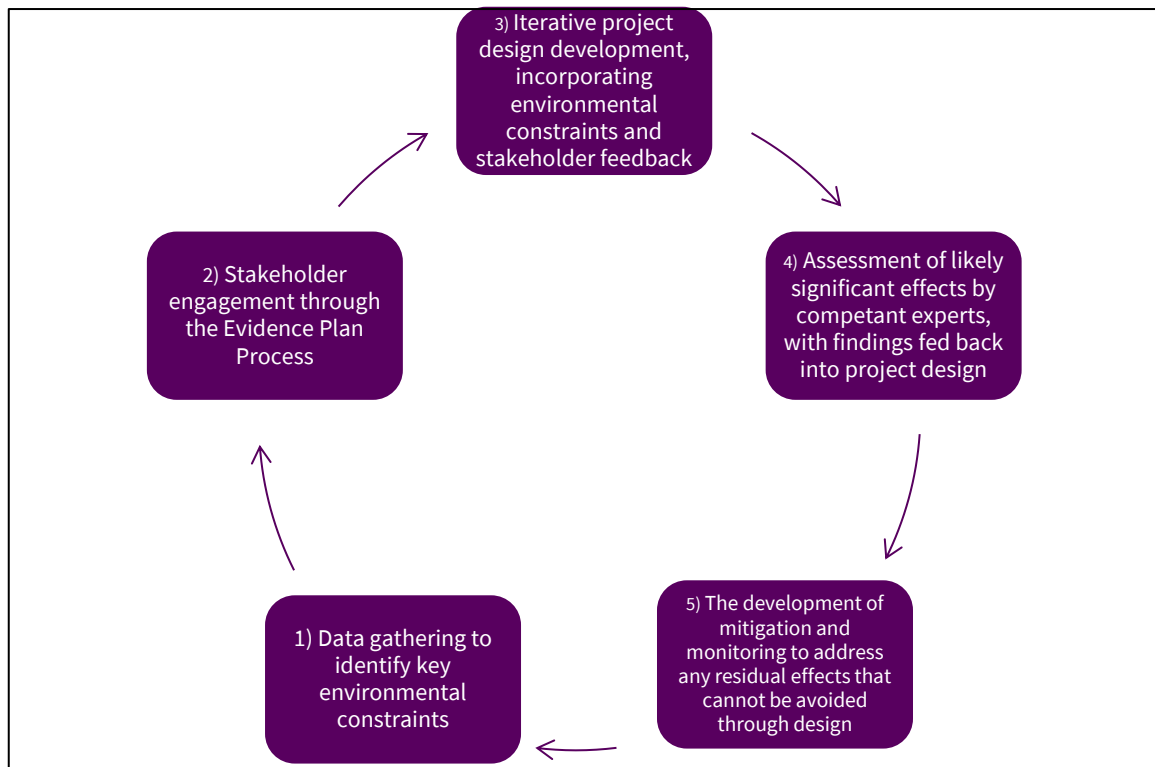


Figure 1.1: The iterative design process

The Evidence Plan Process for stakeholder engagement

1.4.4.4 Following scoping, engagement continued throughout the EIA process to:

- Refine the scope of the EIA and therefore contribute to delivering a proportionate EIA;
- Enable the project design to incorporate feedback from stakeholders in the iterative design process.

1.4.4.5 The EPP is a voluntary part of the pre-application stage of the development consent process that aims 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.

EPP Steering Group

1.4.4.6 For the MHPGC Project, the EPP is being used, with an EPP Steering Group established in September 2025 for the purposes of developing and monitoring the progress of the Evidence Plan Process. The EPP Steering Group includes the following:

- Applicant;
- PINS;
- MMO;
- NatureScot;
- Natural England;
- Environment Agency;
- Durham County Council;
- Sunderland City Council.

1.4.4.7 The Steering Group has met and will continue to meet at key milestones throughout the EIA process. In addition, Expert Working Groups (EWGs) have been set up to discuss EIA-topic specific issues with the relevant stakeholders. The structure for the MHPGC Project's EPP (including the EPP Steering Group and EWGs) is shown in **Figure 1.2**.



Figure 1.2: EPP Steering Group and Expert Working Group structure

1.4.4.8 The focus of the EPP Steering Group initially was to agree the aims, scope and content of the Terms of Reference. Subsequent meetings have and will focus on updating the EPP Steering Group on the progress made within the EWGs and discussing any issues that may arise.

1.4.4.9 In addition, the EPP Steering Group meetings will provide key project updates to regulators and stakeholders and ensure clarity on the timescales for inputs from members of the EPP Steering Group to ensure resources will be available during these key consultation periods.

Expert Working Groups

1.4.4.10 The aim of the EWGs is to discuss and agree (where possible) key elements of the EIA, Habitats Regulations Assessment (HRA) and Marine Conservation Zone (MCZ) assessment processes during the pre-application phase of the application for development consent. Meetings will be held at key stages or when new information becomes available for each technical topic, for example, when survey data has been analysed, to provide the opportunity for stakeholders to provide feedback and advice at an early stage. The EWGs and their participants are outlined in **Table 1.6**.

Table 1.6: List of EWGs and their associated membership

EWG	Membership
Benthic ecology, physical processes, fish and shellfish	• Applicant; • MMO; • NatureScot; • Natural England; • Environment Agency; • Centre for Environment Fisheries and Aquaculture Science (Cefas); • North Sea Wildlife Trusts.
Marine Mammals	• Applicant;

EWG	Membership
	• MMO; • NatureScot; • Natural England.
Offshore Ornithology	• Applicant; • MMO; • NatureScot; • Natural England.
Marine Archaeology	• Applicant; • Historic England; • MMO.
Onshore Ecology & Onshore and Intertidal Ornithology	• Applicant; • MMO; • Cefas • Durham County Council (DCC) Planning and DCC Ecologist; • Natural England; • Environment Agency; • North Sea Wildlife Trusts; • Durham Wildlife Trust.
Onshore Heritage	• Applicant; • DCC Planning and DCC County Archaeologist; • Historic England.
Landscape and Visual Impact Assessment	• Applicant; • DCC Planning and DCC Landscape Officer; • Natural England.
Traffic & Transport	• Applicant; • DCC Planning and DCC as Local Highway Authority; • National Highways.
Noise & Vibration	• Applicant; • DCC Planning and DCC Environmental Health Officer.
Hydrology & Flood Risk	• Applicant; • Environment Agency; • DCC Planning and DCC as Lead Local Flood Authority.

Additional targeted engagement

1.4.4.11 In addition to the EWGs, technical topics for which there will be targeted engagement that stand outside of the groups listed above are set out in **Table 1.7**.

Table 1.7: Targeted topic-based engagement

Technical topic	Method of engagement
Shipping and navigation	To be undertaken through Navigation Risk Assessment (NRA) and targeted consultation workshops, including Maritime and Coastguard Agency (MCA), Chamber of Shipping, Trinity House, Northern Lighthouse Board (NLB), Port of Seaham and Port of Sunderland

Technical topic	Method of engagement
Commercial fisheries	To be undertaken through meetings with regional and national organisations, groups and individuals e.g., Inshore Fisheries Conservation Authorities (IFCAs), Scottish Fisheries Federation (SFF), National Federation of Fishermen's Organisations (NFFO), and Fisheries Liaison Officer (FLO).
Other sea users	To be undertaken by email and meetings with relevant stakeholders e.g., offshore third-party asset owners, Royal Yachting Association (RYA), Port of Seaham.

Community consultation

- 1.4.4.12 In addition to stakeholder engagement via the EPP, community consultation has also been undertaken to inform the design of the MHPGC Project.
- 1.4.4.13 To date, two rounds of consultation on the proposals for the MHPGC Project have been undertaken.
- 1.4.4.14 Between July and September 2024, a consultation on broad corridors of search for where offshore and onshore infrastructure within England could be located was held. Feedback from the consultation fed into further technical studies and stakeholder engagement to identify potential options for the offshore cable corridor, cable landfall, onshore cable corridor and land substation.
- 1.4.4.15 A second round of consultation on these options was undertaken between October and November 2025, with feedback informing the on-going design development.
- 1.4.4.16 This PEIR has been published as part of the third round of consultation will be undertaken between October to November 2026, prior to the DCO application submission.

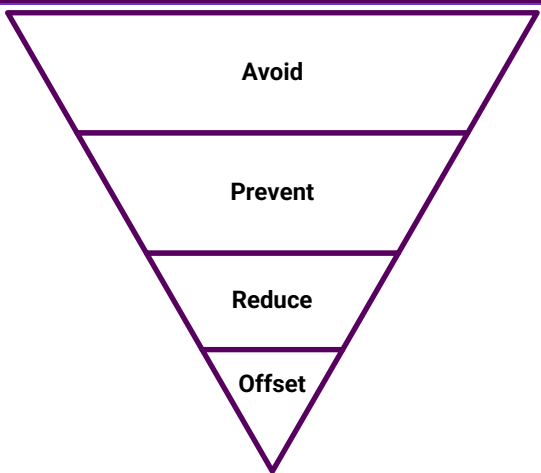
1.4.5 Identification of design parameters for assessment

- 1.4.5.1 The design for the MHPGC Project is still in development as the engagement and iterative design process is ongoing. As a result, the PEIR has adopted the Project Design Envelope (PDE) approach (also known as the Rochdale Envelope approach). The approach has been developed in accordance with the PINS Nationally Significant Infrastructure Projects: Pre-application Advice on Environmental Impact Assessment (PINS, 2026a).
- 1.4.5.2 The PDE approach allows the assessment of a realistic range of design parameters where aspects of the final design are not yet fixed. The assessment is an approach to environmental assessment, which assesses the realistic worst-case scenario where flexibility or a range of options are sought as part of the consent application.
- 1.4.5.3 PINS Advice Note Nationally Significant Infrastructure Projects: Pre-application Advice on Environmental Impact Assessment (PINS, 2026a) sets out the following principles for the use of the Rochdale Envelope approach in DCO applications:
- The assessment should be based on a cautious 'worst case' approach and the mitigation measures proposed should adequately address the worst case
 - information should be sufficient to enable the main, or the likely significant effects on the environment to be assessed and the mitigation measures should be described, and
 - the need for flexibility should not be abused and does not give applicants an excuse to provide inadequate project descriptions.
- 1.4.5.4 The PDE approach defines a design envelope and specifies the parameters within which the final design will be developed.
- 1.4.5.5 This approach provides flexibility for certain elements that need more detailed design after the submission of the PEIR, allowing a degree of adaptability to the outcomes of stakeholder engagement and the topic assessments of the PEIR.
- 1.4.5.6 Each technical chapter of this PEIR sets out the assumptions made regarding the PDE, relevant to that chapter, and assesses the Maximum Design Scenario (MDS) for each impact, which represents a 'realistic worst case' scenario based on **Volume 1, Chapter 2: Project Description, of the PEIR**. Ensuring the MDS for each impact is assessed, ensures that the final design is not restricted to the existing technology at the time of assessment as the consent permits the use of any components so long as they are within the MDS that has been assessed.

1.4.6 Approach to mitigation and monitoring

- 1.4.6.1 A key feature of the EIA process is the implementation of mitigation measures, which are measures to avoid, reduce and, where feasible, remedy significant adverse environmental effects. The environmental assessment and design process should incorporate mitigation measures following a hierarchical approach, as outlined in **Table 1.8**, which is based on IEMA (now ISEP) guidance 'Implementing the Mitigation Hierarchy from Concept to Construction' (IEMA, 2024) and directs that mitigation measures to avoid and prevent potentially significant adverse effects should be prioritised over measures to reduce them, with offsetting measures only employed when no other mitigation options are feasible.

Table 1.8: Mitigation hierarchy

Mitigation hierarchy	Description
	Avoid: Avoid adverse impacts from the outset through consideration of project need, scale, design and duration.
	Prevent: Where impacts propose a significant adverse effect to a receptor, take action to remove the impact at source or prevent the pathway to the receptor.
	Reduce: If further avoidance/prevention is not feasible, mitigate impacts to minimise adverse effects.
	Offset: Remaining impacts to be offset and compensated for.

- 1.4.6.2 Additionally, enhancement measures can also be developed, which create or enhance beneficial environmental effects.
- 1.4.6.3 Mitigation and enhancement measures developed throughout the EIA process in response to baseline surveys, assessments and consultation will be recorded in a Commitments Register. A draft version of the Commitments Register is provided with this PEIR in **Volume 1, Annex 4.1: Draft Commitments Register, of the PEIR**, though it is noted this remains a working document as the EIA process is ongoing.
- 1.4.6.4 Embedded mitigation includes the following measures as identified in the ISEP (formally IEMA) 'Guide to Shaping Quality Development' (IEMA, 2015):
- Primary mitigation - 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 DCO and/or marine licences;
 - Tertiary mitigation – these are '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'.
- 1.4.6.5 Embedded mitigation measures that will form part of the final design (and/or are established legislative requirements/good practice, or both) have been taken into account as part of the initial assessment (i.e., the initial determination of impact magnitude and significance of effects assumes implementation of these measures). This ensures that the measures that the Applicant has committed to are considered in the assessment of effects.
- 1.4.6.6 Where an assessment identifies likely significant adverse effects, secondary mitigation measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by IEMA (now ISEP) as "actions that will require further activity in

order to achieve the anticipated outcome” and may be imposed as part of the planning consent, or through inclusion in the ES. These include measures required to reduce the significance of environmental effects and may be secured through an environmental management plan. For secondary mitigation measures both pre-mitigation effects and any residual effects are assessed and presented.

- 1.4.6.7 Environmental monitoring should be used, where necessary, to assess the effectiveness of mitigation measures and the accuracy of assessment conclusions. Where monitoring is committed to, this will be secured in the relevant management plan.
- 1.4.6.8 Any proposed monitoring measures would be undertaken during the construction and O&M phase of the MHPGC Project. The time period for each monitoring programme would depend on legislative requirements, industry best practice and the activities being undertaken.

1.4.7 Assessment of effects

Existing baseline and future conditions

- 1.4.7.1 The baseline conditions represent the pre-existing environment immediately prior to an effect occurring. Effects could be as a result of construction, operation or decommissioning of the MHPGC Project. Any change is measured against the baseline in order to measure the effect.
- 1.4.7.2 Construction, O&M and decommissioning effects can be temporary or permanent. The EIA has sought to describe effects on the basis of when they occur (i.e. during construction, operation or decommissioning) and to then describe the temporal duration of the effect (i.e. temporary or permanent).
- 1.4.7.3 Identification of baseline conditions must take into account predicted changes that would occur prior to the construction, O&M or decommissioning of the MHPGC Project (i.e. the baseline conditions when a predicted effect is experienced) , and that are entirely independent of the MHPGC Project. Examples of changes include predicted growth in traffic levels, changes in predicted air quality and changes in land use.
- 1.4.7.4 Identification of the baseline therefore involves the identification of the existing baseline and the determination of how likely the existing baseline is to change before the implementation of the MHPGC Project.
- 1.4.7.5 Each topic chapter of the PEIR defines the baseline against which the environmental effects of the MHPGC Project were assessed. Each topic chapter also explains how future baseline conditions have been predicted and how any limitations in prediction have been managed in the methodology.

Impacts and effects

- 1.4.7.6 The MHPGC Project has the potential to create a range of impacts and consequential effects on physical, biological and human environmental receptors.
- 1.4.7.7 For the purposes of the PEIR, the term 'impact' is defined as a change that is caused by an action and the term 'effect' is defined as the consequence of an impact on a receptor. Effects can be classified in a number of different ways, as detailed in **Table 1.9**.
- 1.4.7.8 An EIA assesses the likely significance of effects that are likely to arise as a consequence of a potential impact to environmental receptors following the application/consideration of primary mitigation measures. The 'significance' of each effect is evaluated by examining both the magnitude of the impact and the sensitivity of the receptor, based on established significance criteria.

Table 1.9: Types of effects

Effect	Explanation
Adverse	Detrimental or negative effect to an environmental resource or receptor.
Neutral	An effect that on balance, is neither beneficial nor adverse to an environmental resource or receptor or an effect that is equally beneficial and adverse to an environmental resource or receptor.
Beneficial	Advantageous or positive effect to an environmental resource or receptor.

Effect	Explanation
Direct	Direct effects are those which arise as a direct consequence of a project action, e.g. the loss of habitat or the run-off of surface water to a watercourse.
Indirect	Indirect effects include, for example, the decline in the abundance of a species as a result of the loss of habitat or the damage to aquatic vegetation as a result of water pollution. Other common examples include the effect on air quality and ambient noise as a result of increased traffic flows.
Cumulative	Effects arising from the cumulation of effects between those from the MHPGC Project and those from other existing and, or planned projects.
Inter-related	Effects arising from a number of separate impacts associated with the same project affecting a single receptor.
Long term	To be defined where relevant on an individual topic basis.
Medium term	
Short Term	
Reversible	Capable of being reversed so that the previous state or situation is restored.
Irreversible	Permanent.

Method used for the assessment of effects

- 1.4.7.9 The EIA process requires the identification of likely significant effects of the MHPGC Project on the receiving environment. This includes likely effects during the construction, O&M and decommissioning phases.
- 1.4.7.10 The approach used for the determination of the significance of effects for the MHPGC Project has been based upon the standardised approach set out within the Design Manual for Roads and Bridges (DMRB) LA 104 (Highways England *et al.*, 2020). The methodology has been broadly applied across the EIA to enable a consistent approach whilst retaining topic-specific assessment guidelines and allowing a degree of professional judgement where required. For some topics the significance of an effect is established by comparing the magnitude of an impact with a quantified standard. In this instance, the quantified standard is in turn based on a level at which recognised effects are triggered. Such topic-specific methodologies followed are described in detail within the relevant assessment chapters as carried out by suitably qualified technical experts.

Receptor sensitivity

- 1.4.7.11 Receptors can be defined as individual environmental features that have the potential to be impacted by the MHPGC Project. For each topic, baseline studies have informed the identification of potential environmental receptors. It is noted that some receptors are more sensitive to certain environmental effects than others. The sensitivity of a receptor may depend, for example, on its frequency, extent of occurrence or conservation status at an international, national, regional or local level.
- 1.4.7.12 Sensitivity is defined within each topic chapter of the PEIR and considers factors including the following:
- Vulnerability of the receptor to change;
 - Recoverability of the receptor (ability to recover from a temporary impact);
 - Importance of the receptor.
- 1.4.7.13 The definitions of sensitivity set out in **Table 1.10**

Table 1.10: Sensitivity of receptors

Sensitivity of receptor	Description
Very High	• Very high importance and rarity; • international scale; • very limited potential for substitution.

Sensitivity of receptor	Description
High	• High importance and rarity; • national scale; • 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.

Impact magnitude

- 1.4.7.14 Within each technical chapter of the PEIR, the potential likely impacts arising from the MHPGC Project have been identified and compared with the baseline (i.e. without the MHPGC Project). Potential impacts are divided into the stage within which they occur (i.e. construction, O&M and decommissioning).
- 1.4.7.15 Key factors that influence the magnitude of an impact are:
- Scale of impact;
 - Spatial extent;
 - Duration and frequency.
- 1.4.7.16 The magnitude of impacts upon receptors is reported within each topic chapter. Where relevant, individual technical chapters set out variations in magnitude description requirements based on relevant guidance specific to the technical topic. However, as a general guide the definitions for impact magnitude are set out in **Table 1.11**.

Table 1.11: Magnitude of impact

Magnitude of impact		Description
High	Adverse	• Loss of a resource and quality and integrity of resource; • Severe damage to key characteristics, features or elements.
	Beneficial	• Large-scale or major improvement of resource quality; • Extensive restoration or enhancement; • Major improvement of attribute quality.
Medium	Adverse	• Loss of resource but not adversely affecting the integrity; • Partial loss of/damage to key characteristics, features or elements.
	Beneficial	• Benefit to, or addition of, key characteristics, features or elements; • Improvement of attribute quality.
Low	Adverse	• Some measurable change in attributes, quality or vulnerability; • Minor loss of, or alterations to, one (or more) key characteristics, features or elements.
	Beneficial	• Minor benefit to, or addition of, one (or more) key characteristics, features or elements; • Some beneficial impacts on an attribute or a reduced risk of negative impact occurring.

Magnitude of impact		Description
Negligible	Adverse	Very minor loss or detrimental alteration to one or more characteristics, features or elements.
	Beneficial	Very minor benefit to, or positive addition of one or more characteristics, features or elements.
No change		- No loss or alteration of characteristics, features or elements; - No observable impact in either direction.

Significance of effect

- 1.4.7.17 The significance of an effect is evaluated by considering both the magnitude of the impact and the sensitivity of receptor. Unless otherwise specified within each topic chapter, the matrix approach set out in **Table 1.12** has been used to evaluate the significance of potential effects.
- 1.4.7.18 Where the combination of sensitivity and magnitude falls between two significance categories, professional judgement is applied and justification is included to determine the most appropriate outcome, considering the specific context of the receptor and the nature of the impact.

Table 1.12: Assessing the significance of potential effects

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

- 1.4.7.19 Following the classification of an effect using this methodology, a clear statement will then be made as to whether that effect is significant or not significant. **Table 1.13** indicates how each category of significance typically relates to the decision-making process in the application for development consent. Major and moderate effects are considered to be significant, whilst minor and negligible effects are considered to be not significant, in EIA terms. However, professional judgement has also been applied in reaching conclusions as to the significance of effects.

Table 1.13: Description of the significance categories

Significance	Definition	Significant effect
Major	A large and detrimental change to a valuable/sensitive receptor, likely exceeding an accepted threshold. A large and beneficial change, resulting in enhancements in baseline conditions, transitioning from previously poor conditions to new legal compliance, or making a major contribution to national goals These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional scale. Major effects may relate to features that are unique and irreplaceable.	Significant
Moderate	A medium scale change that, although not beyond an accepted threshold, is still considered to be generally unacceptable, unless offset by significant positive benefits of the project. If adverse, these effects are likely to be important at a regional or local scale and on their own could influence on decision making. A positive moderate effect is a medium scale change that is improves baseline conditions sufficiently to contribute to guideline targets.	Significant

Significance	Definition	Significant effect
Minor	A minor adverse change Minor positive change that is unlikely to substantially impact the overall balance of considerations. These effects might be raised as local issues and could be relevant to the detailed design of a project, but they are unlikely to be critical in the decision-making process.	Not significant
Negligible	A very small change that is so inconsequential it can be considered acceptable to disregard. These effects fall below perceptible limits, lie within normal variations, or fall within the margin of forecasting error. They are unlikely to influence decision-making.	Not significant

1.5 Morven programme, whole project and cumulative scenarios

1.5.1 Overview

- 1.5.1.1 The Morven Programme comprises four distinct projects which will be consented separately and therefore do not form part of the MHPGC Project application: Morven North, Morven South, MHPGC Project, and Morven Branxton Area Grid Connection Project (MBAGC Project). Assessment is required to assess the Likely Significant Effects (LSE) on the environment, arising from the MHPGC Project cumulatively with Morven North, Morven South and the MBAGC Project.
- 1.5.1.2 The requirement for this assessment was confirmed through advice received and subsequent engagement following the Morven Offshore Wind Array Project EIA Scoping Report (RPS, 2023), as set out in **Table 1.1** and as part of the Morven North and Morven South applications.
- 1.5.1.3 All components have been considered where applicable within the MHPGC Project PEIR (**Volume 2** to **Volume 4** inclusive) in the scenarios defined in **Section 1.5.2**, which outlines the scenario approach and how these have been applied in this PEIR.

1.5.2 Scenario Approach

- 1.5.2.1 The nature of the Morven Programme has required the development of a scenario-based approach to the MHPGC Project CEA, whole project assessment and where required, a programme level assessment. Four assessment scenarios have been developed to consider the split of the Morven Array sites and the need to consider potential combinations of the MHPGC Project with MBAGC, as well as Morven South, Morven North and the third-party projects screened into the CEA.
- 1.5.2.2 The assessment scenarios that have been considered to identify the LSE of MHPGC Project in combination with other projects on the same receptor, as follows (and summarised in **Table 1.14**):
- Whole project assessment: to identify the potential impacts associated with MHPGC Project together with Morven North or Morven South in turn, (Scenario 1: Morven North and Scenario 2: Morven South), each of which would comprise a “Whole Project”;
 - Morven Programme assessment: to identify potential impacts associated with all four components of the Morven Programme together with other relevant projects, plans and activities (Scenario 3);
 - CEA: to identify the potential impacts associated with MHPGC Project together with relevant projects, plans and activities, including other components of the Morven Programme, using a tiered approach (Scenario 4).

Table 1.14: MHPGC whole project assessment, Morven Programme assessment and Cumulative Effects Assessment Scenarios

Whole project assessment		Morven Programme assessment	CEA
Scenario 1	Scenario 2	Scenario 3	Scenario 4
MHPGC Project and Morven North	MHPGC Project and Morven South	MHPGC Project, Morven North, Morven South and MBAGC Project (Morven Programme)	MHPGC Project, Tier 1 (including Morven North and Morven South), Tier 2 and Tier 3 (including MBAGC Project) projects and plans screened in

Approach to the whole project assessment

- 1.5.2.3 As the different components of the Morven Programme have the potential to form a “whole project”, there is a requirement to understand the impacts which may arise from the construction, O&M and decommissioning phases of the different components of the Morven Programme in the form of component scenarios of the whole project. Scenario 1 and 2 have considered either of the proposed array options (Morven North or Morven South) as a whole project with the MHPGC Project.
- 1.5.2.4 Whole project assessment aligns with paragraph 2.8.57 of the National Policy Statement (NPS) for Renewable Energy Infrastructure (EN-3) (Department for Energy Security & Net Zero, 2025), which states: “where applicants seek consent for offshore transmission infrastructure separately from proposals for offshore wind development, for example, Multi-Purpose Interconnectors or subsea ‘onshore’ transmission also referred to as bootstraps, consideration should be given at a strategic level to the overall environmental impacts of the offshore development and transmission infrastructure”.
- 1.5.2.5 The whole project assessment has been based on the EIA reports and project information available for the MHPGC project and Morven North or Morven South. The whole project assessment is undertaken and reported in the sections of the PEIR outlined below where the Zones of Influence (Zol) interact with those of Morven North or Morven South.
- **Volume 2, Chapter 1: Physical Processes, of the PEIR;**
 - **Volume 2, Chapter 2: Offshore Water and Sediment Quality, of the PEIR;**
 - **Volume 2, Chapter 3: Benthic Ecology, of the PEIR;**
 - **Volume 2, Chapter 4: Fish and Shellfish Ecology, of the PEIR;**
 - **Volume 2, Chapter 5: Marine Mammals, of the PEIR;**
 - **Volume 2, Chapter 6: Marine Ornithology, of the PEIR;**
 - **Volume 2, Chapter 7: Commercial Fisheries, of the PEIR;**
 - **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR;**
 - **Volume 2, Chapter 9: Marine Archaeology, of the PEIR;**
 - **Volume 2, Chapter 10: Infrastructure and Other Sea Users, of the PEIR;**
 - **Volume 4 Chapter 2 Socio-economics, of the PEIR;**
 - **Volume 4 Chapter 4 Climate Change, of the PEIR.**
- 1.5.2.6 There is no overlap in the Zol for onshore assessments reported in **Volume 3, of the PEIR** and therefore no whole project assessment is reported there.

Approach to Morven Programme assessment

- 1.5.2.7 The Morven Programme assessment approach has been adopted to maintain consistency with the cumulative assessment methodology applied for the Morven North and Morven South applications. The inclusion of the wider programme reflects topic-specific stakeholder feedback received during the Morven North and Morven South assessment process, which identified the need to consider each component when assessing potential effects on offshore ornithological and shipping and navigation receptors. These assessments are detailed in **Volume 2, Chapter 6: Offshore Ornithology, of the PEIR** and **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**.
- 1.5.2.8 The Morven Programme assessment is also undertaken for **Volume 4 Chapter 2 Socio-economics, of the PEIR** and **Volume 4, Chapter 4: Climate Change, of the PEIR** to address the programme-wide GHG emissions. Information for the Morven Programme assessment is drawn from the EIA reports

and project information available for the MHPGC project, Morven North, Morven South and the MBAGC Project.

Approach to CEA

- 1.5.2.9 Scenario 4 is a CEA of the MHPGC Project with the other components of the wider Morven Programme, this has been undertaken in line with the appropriate legislation and guidance and is described further in **Section 1.5.3** and **Section 1.5.4**.

1.5.3 Cumulative Effects Assessment legislation and guidance

- 1.5.3.1 Cumulative effects are effects on a single receptor arising from the MHPGC Project when considered alongside the likely effects arising from other proposed developments in the same Zol.
- 1.5.3.2 The legislative requirements for EIA are set by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, (referred to in this report as the 2017 EIA Regulations), which set out requirements for EIA under the Planning Act 2008 to assess cumulative effects.
- 1.5.3.3 Schedule 4 paragraph 5(e) of the 2017 EIA Regulations requires the ES to include a description of the likely significant effects of the development 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”.
- 1.5.3.4 This requirement is fulfilled through the CEA, which considers the cumulative effects of the MHPGC Project together with other proposed developments. This includes, for example, effects on a single receptor that may arise from the MHPGC Project in combination with one or more of the other proposed developments identified.
- 1.5.3.5 In line with PINS advice ‘Advice on Cumulative Effects Assessment’ (PINS, 2026e), cumulative effects within this PEIR comprise those arising from the MHPGC Project with existing developments and existing plans and projects that are ‘reasonably foreseeable’. Projects that were built and operational at the time of data collection and assessment are classified as part of the existing baseline environment. Projects that are in the planning system, have yet to commence construction, or projects that are only partially completed at the time of data collection and assessment for the MHPGC Project, are included within the CEA.
- 1.5.3.6 The CEA consists of a screening exercise of projects, plans and activities followed by the assessment of the combined envelopes of the projects screened in, together with the MHPGC Project. Screening is based upon the potential for cumulative effect, the spatial overlap of impact extents, the temporal overlap of impacts, and data confidence. Specific criteria for each type of project, plan or activity are used to develop a ‘long list’ of projects to be considered. Categories provided by the PINS advice ‘Advice on Cumulative Effects Assessment’ (PINS, 2026e) are outlined in **Table 1.15**.
- 1.5.3.7 Once a long-list is defined, this is further refined using specific criteria for each EIA topic to develop ‘short lists’ of projects that are carried through to the CEA. Further detail is provided within **Volume 1, Annex 4.3 Cumulative Screening and Location Plan, of the PEIR**.
- 1.5.3.8 Other relevant guidance documents which have been considered in the development of the whole project assessment and CEA approach, including:
- RenewableUK Cumulative Impact Assessment Guidelines. Guiding Principles for Cumulative Impacts Assessment in Offshore Wind Farms (RenewableUK, 2013);
 - NPS for Renewable Energy Infrastructure (EN-3);
- 1.5.3.9 Further details on legislation and policy relevant to the MHPGC Project are provided in **Volume 1, Chapter 2: Policy and legislation, of the PEIR**.

1.5.4 Approach to cumulative project screening

- 1.5.4.1 The CEA has considered the LSE of the MHPGC Project together with other relevant plans, projects and activities, including other components of the Morven Programme, using a tiered approach (Scenario 4 in **Table 1.14**).

1.5.4.2 In support to the development of the scenarios listed above, other projects, plans or activities with which the MHPGC Project may interact to produce a cumulative effect were identified. These interactions may arise within the construction, O&M or decommissioning phases. The following four stage method has been applied to the CEA for the MHPGC Project:

- Stage 1: Establish the long list;
- Stage 2: Establish the short list;
- Stage 3: Information gathering;
- Stage 4: Assessment.

1.5.4.3 The methodology used to compile the list of other projects, the tiering approach and the screening of projects for Scenario 4 is described below.

Stage 1: Establish Zone of Influence and identify the longlist of 'other development'

1.5.4.4 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 Cumulative Zol was developed utilising mapping where available.

1.5.4.5 Cumulative Zol were defined for each potential impact based on the maximum spatial extent across which potential cumulative impacts of the MHPGC Project that may be experienced by the relevant topic receptors. Further detail on the Cumulative Study Area for each topic is available in **Volume 1, Annex 4.3: Cumulative Screening and Location Plan, of the PEIR** and the relevant topic chapters (**Volume 2 to Volume 4**).

1.5.4.6 Projects, plans and activities within the largest cumulative Zol being considered across onshore and offshore topics have been compiled in the long list, including developments which:

- Form part of the Morven Programme;
- Have become operational since baseline data was collected;
- Are under construction;
- Have consent (including those that are the subject of Judicial Review);
- Are the subject of an application for consent that has been submitted but not yet determined;
- Have a scoping report submitted, at PEIR stage (in the case of English and Welsh projects), or both;
- Are plans and projects which are "reasonably foreseeable" (i.e. Developments that are being planned such as proposed residential development within areas identified for development within adopted Local Plans or offshore transmission cables that are the subject of a valid Marine Licence application) and for which is sufficient information available in the public domain to enable a meaningful assessment;
- Existing developments for specific topics where there is a large conceptual, temporal and spatial overlap between project impacts (e.g. offshore ornithology assessments consider the cumulative effects of operational offshore wind farms and onshore traffic assessments consider the cumulative impacts of consented and operational developments within the local road network).

1.5.4.7 Existing and planned developments within the Zol are added to the long list and classified into three 'tiers' as explained in **Table 1.15**, according to the level of information available about them.

Table 1.15: Classification of projects by uncertainty for the CEA

Tier	Examples
Tier 1	• Projects under construction; • Permitted planning applications; • Submitted planning applications still being determined; • All refusals subject to appeal procedures not yet determined.
Tier 2	• Projects on the PINS Programme of Projects (PINS, updated 2025) where a scoping report has been submitted and is in the public domain.

Tier	Examples
Tier 3	- Projects on the PINS Programme of Projects (PINS, updated 2025) where a scoping report has not been submitted; - Projects identified in the relevant Development Plan (and emerging Development Plans) recognising that there will be limited information available on the relevant proposals; - Projects identified in other plans and programmes that set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

1.5.4.8 The CEA has considered all other relevant plans, projects and activities that are publicly available three months prior to submission of the MHPGC Project PEIR.

1.5.4.9 The CEA long list has been developed using datasets from MD-LOT, MMO, Crown Estate Scotland, The Crown Estate, DCC, Sunderland, Newcastle, Gateshead, South Tyneside and Hartlepool Councils, PINS and others to identify project and plans in the vicinity of the MHPGC Project relating to environmental topics.

1.5.4.10 The CEA long list methodology and the CEA long list for the MHPGC Project is provided in **Volume 1, Annex 4.3: Cumulative Screening and Location Plan, of the PEIR**.

Stage 2: Creation of a Shortlist

1.5.4.11 In Stage 2, the long list is refined by applying threshold criteria to establish a shortlist of development for inclusion in the CEA. This ensures a proportionate assessment whereby the assessment is focused upon the developments most likely to result in cumulative effects.

1.5.4.12 The following criteria are used for the shortlisting:

- Temporal scope – developments which align with the timelines for construction, O&M and decommissioning of the MHPGC Project are included in the shortlist;
- Scale and nature – the size and type of the development has been assessed for the potential to interact with effects from the MHPGC Project;
- Other factors – environmental conditions that could influence cumulative effects have been taken into consideration using a source-pathway-receptor approach, with only those with the potential to contribute to cumulative effects taken forward.

1.5.4.13 Professional judgment has been used to supplement threshold criteria to ensure significant effects are not overlooked, including developments below threshold limits that might cause substantial or cumulative impacts due to their proximity. Conversely, it may also support the exclusion of developments exceeding thresholds without evident effects.

1.5.4.14 The shortlisting process is clearly documented in **Volume 1, Annex 4.3: Cumulative Screening and Location Plan, of the PEIR** with clear justifications provided for inclusion or exclusion of developments.

Stage 3: Information gathering

1.5.4.15 For the developments in the shortlist, further research was conducted to gather information on the other plans and projects:

- The proposed design and location;
- The proposed programme of construction, O&M and decommissioning;
- Environmental assessments that set out baseline data and effects arising from other existing and, or approved development.

Stage 4: Assessment of cumulative effects

1.5.4.16 Where possible, the methodology for assessing cumulative effects aligns with that used for evaluating the effects of the MHPGC Project alone, ensuring consistency across each topic chapter in the PEIR and facilitating relevant comparisons. However, this approach varies between topic chapters depending on factors such as the nature of the topic, the included cumulative projects, the available data, and the practicalities of conducting a CEA for each discipline. The findings of the CEA are detailed within the specific technical chapter of the PEIR.

1.6 Inter-related effects

- 1.6.1.1 For the purpose of this PEIR, inter-related effects are those that arise from a number of separate impacts affecting a single receptor. In line with PINS Advice Note Pre-application advice on Environmental Impact Assessment (PINS, 2026a) the PDE will be established to ensure:
- that potential interactions between environmental aspects can be assessed taking into account a realistic worst-case scenario, and
 - that impacts not considered significant on their own but that have the potential to become significant when they inter-relate with other impacts, are assessed.
- 1.6.1.2 Potential inter-related effects have been assessed considering two levels of potential effects:
- Project lifetime effects: effects that occur throughout multiple phases of the project (construction, O&M, and decommissioning) potentially interacting to create a more significant effect upon a receptor than if assessed for a single phase of the project;
 - Receptor-led effects: effects that interact temporally and/or spatially resulting in inter-related effects upon a single receptor. For example, the effect of habitat loss/disturbance and increased suspended sediment concentrations (SSC) may be greater when combined as opposed to when they are considered in isolation.
- 1.6.1.3 Receptor-led effects might be short-term, temporary or transient effects, or incorporate longer term effects. Within the MHPGC PEIR, 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 not assess every individual receptor assessed at the EIA stage, but rather, potentially sensitive groups of receptors.
- 1.6.1.4 Where the significance of an effect within the topic-specific assessment has been identified as negligible across all phases, it is considered that these effects cannot contribute to any inter-related effects. These effects will subsequently not be carried forward to the inter-related effects assessment as any effect is predicted to be negligible over the lifetime of the MHPGC Project.
- 1.6.1.5 Inter-related effects are considered within **Volume 4, Chapter 4: Inter-related Effects, of the PEIR**.

1.7 Transboundary effects

- 1.7.1.1 Transboundary effects occur when impacts from a project within one European Economic Area (EEA) state affect the environment of another state. This consideration is mandated by the United Nations Economic Commission for Europe Convention on 'EIA in a Transboundary Context', known as the 'Espoo Convention'. The Espoo Convention requires assessments to extend across borders between member states if a planned activity could cause significant adverse transboundary effects.
- 1.7.1.2 The Espoo Convention has been implemented in the UK by the 2017 EIA Regulations which require the EIA to consider the transboundary effects of a development.
- 1.7.1.3 The methodology used for assessing potential transboundary effects of the MHPGC Project follows that set out in the PINS guidance 'Advice on Transboundary Impacts and Process' (PINS, 2024e). This involves a number of steps, broadly divided into two main stages, as follows:
- Stage 1:
 - Applicant carries out pre-application consultation with other state(s), if required;
 - Applicant notifies the relevant government bodies in England and Scotland of the transboundary assessment;
 - Applicant prepares an initial matrix to identify potential significant impacts on other state(s) and provides to the relevant authorities;
 - Scottish Ministers (Scottish waters) or PINS (English waters) undertake the transboundary screening process and notify other relevant state(s);
 - Other state(s) then notify the relevant authority of their wish to participate in the consultation.

- Stage 2:
 - Applicant submits the Application, including translated non-technical summary and a consultation report summarising any pre-submission transboundary consultation;
 - Scottish Ministers or PINS undertake consultation with other relevant states;
 - Other state(s) consult with their public and provide comments and responses, which are taken into consideration during the decision-making process.

1.7.1.4 Transboundary impacts are covered in **Volume 1, Annex 4.2: Transboundary Screening, of the PEIR.**

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