




**Cambois Connection – Marine Scheme
Environmental Statement – Volume 1
Non-Technical Summary**

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Acronyms


Acronym	Description
BBWF	Berwick Bank Wind Farm
BBWFL	Berwick Bank Wind Farm Limited
BEIS	Department for Business, Energy and Industrial Strategy
CCC	Climate Change Committee
EC	European Commission
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPS	European Protected Species
ES	Environmental Statement
EU	European Union
GES	Good Environmental Status
GHG	Greenhouse Gas
HPMA	Highly Protected Marine Area
HRA	Habitats Regulations Appraisal / Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
iNDC	Indicative Nationally Determined Contribution
LSE	Likely Significant Effect
LPA	Local Planning Authority
MARPOL	The International Convention for the Prevention of Pollution from Ships
MCZ	Marine Conservation Zone
MD-LOT	Marine Directorate Licensing Operations Team
MDS	Maximum Design Scenario
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MPA	Marine Protected Area
MSFD	Marine Strategy Framework Directive
MPS	Marine Policy Statement

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Acronym	Description
ncMPA	Nature Conservation Marine Protected Area
NCC	Northumberland County Council
NDC	Nationally Determined Contribution
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Projects
NTS	Non-Technical Summary
OCSP	Offshore Converter Station Platform
RBMP	River Basin Management Plan
RIAA	Report to inform Appropriate Assessment
SAC	Special Area of Conservation
SPA	Special Protection Area
SSER	SSE Renewables
UK	United Kingdom
UNFCCC	United Nations Framework Convention on Climate Change
WFD	Water Framework Directive


Units

Unit	Description
%	Percent
C	Degrees Celsius
GW	Gigawatt
km	Kilometre
km ²	Square kilometre
m	Metre
MtCO ₂ e	Million tonnes of carbon dioxide equivalent
nm	Nautical mile


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Glossary

Term	Description
Berwick Bank Wind Farm (BBWF)	Refers to the offshore wind farm from which the Cambois Connection (the Project) will export part of the generated electricity. The consent applications for BBWF are currently being determined.
Cambois Connection (the Project)	Offshore Export Cables, Onshore Export Cables, an onshore converter station and associated onshore grid connection at the existing National Grid ESO, Blyth substation near Cambois in Northumberland. The purpose of this infrastructure is to facilitate the export of a portion of the green electricity from BBWF, allowing the BBWF to reach its full generation capacity by the early 2030s.
Environmental Impact Assessment	Assessment of the consequences of a plan, project or activity on the Ecological Features of the receiving environment.
Grid Substation	Refers to the point at which electricity is connected into the UK transmission network. For the Onshore Scheme, this is the National Grid ESO substation at Blyth.
Horizontal Directional Drilling	Horizontal Directional Drilling or 'HDD' refers to a trenchless method of drilling generally used for installation of underground utilities which does not require any direct works and which can aid installation of crossings with sensitive or challenging features and obstructions.
High Voltage Alternating Current (HVAC)	Refers to high voltage electricity in alternating current ('AC') form. The GB's transmission and distribution network infrastructure consists of AC form.
High Voltage Direct Current (HVDC)	Refers to high voltage electricity in direct current ('DC') form. In relation to transmission, HVDC is often selected for longer transmission infrastructure on the basis that losses are typically lower when compared to transmission infrastructure utilising alternating current.
Intertidal	The area of seabed located between Mean High Water Springs and Mean Low Water Springs.
Landfall	Area and activities associated with the Offshore Export Cables carrying power from BBWF to the shore and which connect the offshore and onshore infrastructure. The Landfall includes areas and activities that extend beyond both MLWS and MHWS.
Marine Licence	A licence granted under the Marine and Coastal Access Act 2009.
Marine Scheme	Activities required as part of the Project extending seawards below Mean High Water Springs.
Marine Scheme in English waters	Activities required as part of the Marine Scheme located within English territorial waters (MHWS – 12 nm) and English offshore waters (12 – 200 nm).

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Term	Description
Marine Scheme in Scottish waters	Activities required as part of the Marine Scheme located within Scottish offshore waters (12-200 nm).
Maximum Design Parameters	The maximum range of design parameters of each Marine Scheme asset.
Mean High Water Springs	Monthly tides are defined as ‘Springs’ or ‘Spring tides’ when the tidal range is at its highest and ‘Neaps’ or ‘Neap tides’ when the tidal range is at its lowest. The height of Mean High Water Springs (MHWS) is the average throughout the year, of two successive high waters, during a 24-hour period in each month when the range of the tide is at its greatest (Spring tides).
Mean Low Water Springs	The height of Mean Low Water Springs (MLWS) is the average throughout a year of the heights of two successive low waters during periods of 24 hours (approximately once a fortnight).
Offshore Converter Station Platform (OCSP)	Power generated by the wind turbines is transferred to the Offshore Converter Station Platform (OCSP) via the inter array cables. The electricity generated by the wind turbines is HVAC. The OCSPs are then used to convert the HVAC electricity into HVDC electricity for exporting to the onshore converter station.
Offshore Export Cable	High voltage cable used for exporting power from the offshore converter station platforms located within the array area of BBWF to Onshore Export Cables at the Landfall.
Offshore Export Cable Corridor	The area within which the Offshore Export Cables will be located. This area will be refined post consent following detailed engineering design.
Onshore Converter Station	Onshore infrastructure used to convert electricity from Direct Current (DC) to Alternating Current (AC)
Onshore Export Cable	High voltage cable used for exporting power produced by BBWF between the Offshore Export Cables and the onshore converter station.
Onshore Scheme	Activities required as part of the Project extending landwards above Mean Low Water Springs
Project Design Envelope	A series of maximum design parameters which are defined for the Marine Scheme and which are considered to be the worst case for any given assessment.
Transition Joint Bay	A concrete structure where Offshore Export Cables and Onshore Export Cables are spliced together.

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1. Non-Technical Summary


1.1. Introduction

1.1.1. Overview

1. Berwick Bank Wind Farm Limited (BBWFL), a wholly owned subsidiary of SSE Renewables (SSER) ('the Applicant'), is proposing the development of the Cambois Connection ('the Project'). The Project will include Offshore Export Cables, Onshore Export Cables, and an Onshore Converter Station and associated grid connection at Blyth substation in Northumberland. The purpose of this infrastructure is to facilitate the export of green energy from the generation assets associated with the Berwick Bank Wind Farm (BBWF), located in the outer Firth of Forth in Scottish waters.
2. BBWF is subject to a separate consenting process, and applications for consent under Section 36 of the Electricity Act 1989 (as amended) and for a marine licence under the Marine and Coastal Access Act 2009 are currently being determined by the Marine Directorate Licensing Operations Team (MD-LOT), following submission of the applications in December 2022. The Cambois Connection will enable the BBWF to reach full generating capacity by 2030.
3. The Cambois Connection comprises of two distinct proposals, or 'Schemes': the Onshore Scheme and the Marine Scheme. A summary is provided in section 1.1.5 and in Plate 1.
4. For the onshore components of the Project down to the seaward extent of the Landfall at mean low water springs (MLWS) ('the Onshore Scheme'), consent will be sought via a planning application to Northumberland County Council (NCC) as the local planning authority (LPA) under Section 57 of the Town and Country Planning Act 1990. A separate Environmental Statement (ES) is being prepared to support the planning application to NCC in accordance with The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended).
5. For the offshore components of the Project seaward of mean high water springs (MHWS) ('the Marine Scheme'), consent is being sought in Scotland and England as the Marine Scheme is located within both Scottish and English waters. In Scotland, the Marine Scheme is entirely within offshore waters (i.e., between the 12 nautical miles (nm) limit and the outer limits of the Scottish Exclusive Economic Zone (EEZ)). In England, the Marine Scheme is within both offshore and territorial waters.
6. It is considered that whilst the Marine Licence Applications to MD-LOT and the MMO are distinct and divided by the geographical jurisdictions within Scottish and English waters, it is appropriate to carry out a single Environmental Impact Assessment (EIA) and present a single Environmental Statement (ES) for the Marine Scheme to support the applications. To aid decision making and reviews by stakeholders within different jurisdictions, relevant distinctions between aspects of the Marine Scheme in Scottish waters and English waters have been made; for example, specific policy and guidance relevant to each jurisdiction, design parameters within each jurisdiction or potential impacts relevant to each jurisdiction (such as potential impacts at the Landfall which is in English waters only).


1.1.2. Purpose of this Document

7. This document is a Non-Technical Summary (NTS) of the ES prepared for the Marine Scheme.
8. This NTS is intended to act as a stand-alone document that will provide an overview of the likely environmental effects of the Marine Scheme and where relevant, proposed mitigation measures, in non-technical language.

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1.1.3. Purpose of the Environmental Statement

9. The Marine Scheme ES provides a description of the Marine Scheme and presents the environmental information which has been gathered in order to carry out an assessment of the likely significant effects of the Marine Scheme on the receiving environment.
10. The Marine Scheme ES specifically:
 - Provides statutory and non-statutory consultees with technical information to facilitate understanding of the Marine Scheme;
 - Presents the existing environmental baseline information, established from desktop studies, site-specific surveys and/or stakeholder consultation and engagement;
 - Describes the EIA methodology used for the assessments;
 - Presents the potential environmental impacts arising from the Marine Scheme, based on baseline information and data gathered, and the analysis and assessment of likely significant effects, including consideration of cumulative, inter-related and transboundary effects, completed as part of the EIA process;
 - Outlines any limitations encountered during the compilation of the environmental information, including where any data gaps or deficiencies exists, and the level of confidence in the information gathered;
 - Identifies designed in measures to avoid, prevent, reduce or, where possible, offset any identified likely significant adverse effects on the environment, and where appropriate, proposes monitoring arrangements to validate findings of the Marine Scheme. Where additional mitigation measures have been identified (in addition to those already designed into the Marine Scheme), the likely residual significance of effects has been presented; and
 - Provides a description of the reasonable alternatives considered for the Marine Scheme, and an indication of the main reasons for site-selection.
11. The structure of the Marine Scheme ES is as follows:
 - Volume 1 – Non-Technical Summary;
 - Volume 2 – ES Chapters;
 - Volume 3 – Technical Appendices;
 - Volume 4 – ES Figures; and
 - Volume 5 – Outline Management Plans.
12. The Applicant submitted a Scoping Report for the Marine Scheme to MD-LOT and the MMO in November 2022. The Scoping Opinions received from both regulators on 23 February 2023 and 10 March 2023 respectively have informed the scope of this Marine Scheme ES. Based on the Scoping Opinions received, and formal engagement with relevant stakeholders, this Marine Scheme ES includes the following topic areas:
 - Offshore Physical Environment and Seabed Conditions;
 - Benthic Subtidal and Intertidal Ecology;
 - Fish and Shellfish Ecology;
 - Offshore and Intertidal Ornithology;
 - Marine Mammals;
 - Commercial Fisheries;
 - Shipping and Navigation;
 - Marine Archaeological and Cultural Heritage;
 - Other Sea Users;
 - Effects on Climate (through greenhouse gas emissions); and
 - Inter-related effects.
13. The following topic areas have been scoped out of the assessment, in accordance with the Scoping Report and feedback received from stakeholders during and following scoping:

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- Seascape, Landscape, and Visual Impact Assessment;
- Aviation and Radar;
- Water and Sediment Quality¹;
- Major Accidents and Disasters²;
- Population and Human Health;
- Air Quality; and
- Socio-Economics.

1.1.4. The Applicant

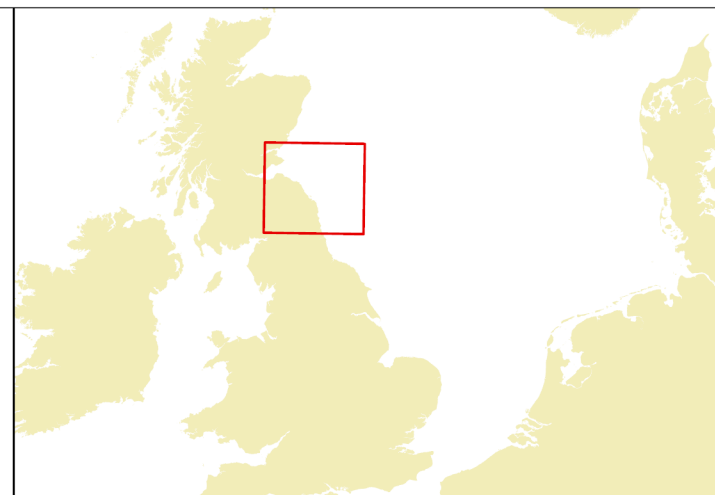
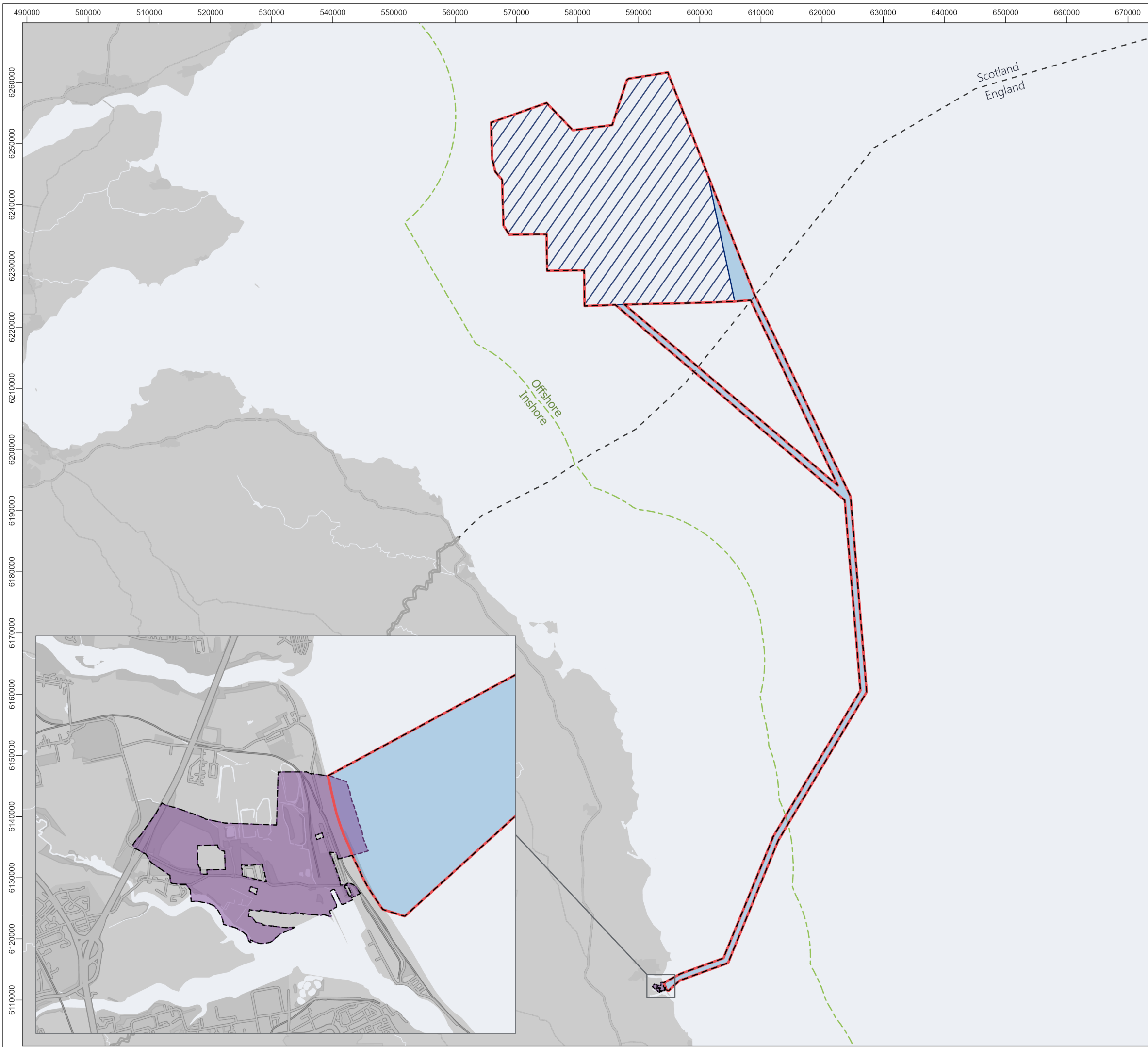
14. BBWFL is a wholly owned subsidiary of SSER. SSER is a leading developer and operator of renewable energy, headquartered in the UK and Ireland, with a growing presence internationally. Its strategy is to lead the transition to a net zero future through the world-class development, construction and operation of renewable power assets and it is building more offshore wind energy than any other company in the world. SSE Renewables is part of SSE plc, the UK-listed integrated energy group which is investing £18bn to 2027, or £10m a day, to deliver a Net Zero Acceleration Programme Plus to address climate change head on. This includes plans by SSE Renewables to increase its installed renewable energy capacity to 9GW by 2027. The company also plans to almost quadruple capacity to over 15GW by 2031, increasing output fivefold to over 50TWh annually – enough to be able to power around 20 million homes each year. SSE Renewables has a team of around 1,500 renewable energy professionals based across the UK, Ireland, Spain, France, Italy, Greece, the Netherlands, Japan and the USA, all committed to delivering the green energy the world needs now and in the future.
15. SSER is currently constructing one of the world’s largest offshore wind energy projects, the 3.6 GW Dogger Bank Windfarms in the North Sea, which is a joint venture with Equinor and Eni, as well as Scotland’s largest and the world’s deepest fixed bottom offshore site, the 1.1 GW Seagreen Offshore Windfarm in the Firth of Forth, a joint venture with Total Energies.
16. When complete, Dogger Bank and Seagreen Offshore Wind Farm will help power millions of UK homes and businesses and drive the transition to net zero carbon emissions. These assets will join the Applicant’s existing operational offshore wind portfolio across two offshore joint venture sites, Beatrice and Greater Gabbard, both of which are operated on behalf of asset partners.

1.1.5. Project Overview

17. The key components of the Marine Scheme and Onshore Scheme for the Project are summarised below and are illustrated in Plate 1 and Figure 1.1.

¹ Noting that impacts upon Water Framework Directive (WFD) bodies have been assessed within a dedicated WFD assessment to support the Marine Licence applications, as agreed through formal engagement with the Environment Agency (Environment Agency, 2023).

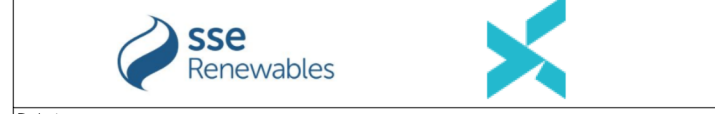
² Although there is no dedicated chapter assessing major accidents and disasters, this topic is being adequately covered within Volume 2, Chapter 12: Commercial Fisheries and Volume 2, Chapter 13: Shipping and Navigation.



- Legend**
- Cambois Connection
 - Marine Scheme Boundary
 - Marine Scheme Offshore Export Cable Corridor
 - Berwick Bank Wind Farm Array Area
 - Onshore Scheme Boundary
 - UK 12 Nautical Mile Limit
 - Scotland/England Territorial Waters

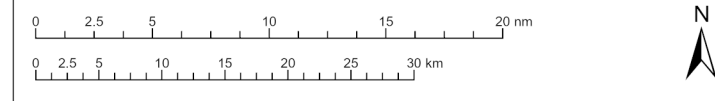
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Project
Cambois Connection

Title
Figure 1.1 Location and Extent



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Scale	Plot Size	Datum	Projection
1:600,000	A3	WGS84	UTM30N
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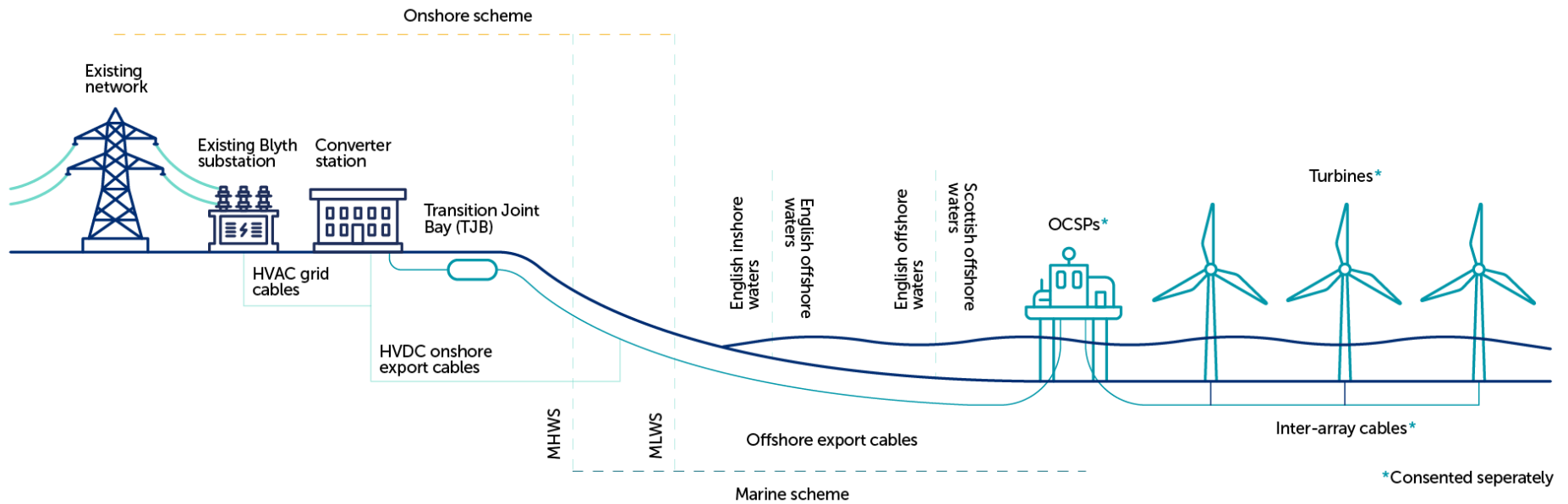



Plate 1 Overview of the key components of the Cambois Connection

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18. The key components of the Project are:

- **Marine Scheme:** The Applicant is proposing the construction, operation and maintenance, and decommissioning of up to four high voltage direct current (HVDC) Offshore Export Cables from up to two Offshore Converter Station Platforms (OCSPs)³ within the BBWF array area to MHWS of the Landfall location near Cambois, Northumberland. The Marine Scheme includes all aspects of the Project seaward of MHWS; and
- **Onshore Scheme:** The Applicant is proposing the construction, operation and maintenance, and decommissioning of a cable from MLWS to the National Grid Blyth substation, including up to four onshore HVDC cables (Onshore Export Cables), an onshore Converter Station, high voltage alternating current (HVAC) grid cables and works to integrate into the existing National Grid Blyth substation. The Onshore Scheme includes all aspects of the Project located landward of MLWS.


1.1.5.1. THE MARINE SCHEME

19. The Marine Scheme will involve the construction, operation and maintenance, and decommissioning of up to four subsea HVDC cables (the Offshore Export Cables) from within the BBWF array area located in Scottish waters. The Offshore Export Cables will originate at up to two OCSPs which will be located within the wider BBWF array area. From this point, the Offshore Export Cables will be installed along a route with a broad north-south alignment to the proposed Landfall location along the Cambois coastline, Northumberland, as presented in Figure 1.1.
20. The Offshore Export Cable Corridor will have a length of up to approximately 180 km. Within this, the four Offshore Export Cables will be installed using a combination of burial (the preferred method of construction) and cable protection techniques (e.g., rock placement, concrete mattresses) where burial to the target burial depth cannot be achieved, and at locations where Offshore Export Cables cross third party infrastructure, such as other subsea cables. The Applicant will develop and sign proximity and crossing agreements with third-party asset owners as required.
21. The Offshore Export Cables outwith the BBWF array area will be installed within a consented corridor of approximately 1 km in width, 500 metres (m) either side of a centre line. Whilst the actual construction footprint will be far less than this, this corridor provides a necessary degree of flexibility to refine and ‘micro-route’ the final position of the Offshore Export Cables, following detailed pre-installation surveys and route preparation, to avoid or reduce potential impacts upon local technical and environmental constraints and based on commercial factors.

1.1.5.2. BERWICK BANK WIND FARM

22. BBWF is located in the North Sea, in the outer Firth of Forth, and is one of the largest offshore wind opportunities in the world, contributing approximately 37% of the Scottish Government’s decarbonisation target of 11 GW of installed offshore wind capacity by 2030. Additionally, BBWF will contribute to the Scottish Government’s UK target of net-zero greenhouse gas emissions by 2045 under the Climate Change (Scotland) Act 2009 (as amended) and to for the 2050 net zero target of the UK Government for England and Wales under the Climate Change Act 2008 (2050 Target Amendment) Order 2019.
23. The Applicant submitted an application for consent for BBWF to MD-LOT in December 2022 which is currently being determined. As described previously, the Marine Scheme boundary overlaps with the BBWF array area as the Marine Scheme Offshore Export Cables will connect into the OCSPs

³ It is important to note that whilst the Marine Scheme boundary overlaps with the BBWF array area, this is only to accommodate the Offshore Export Cables and supporting works for the Project; no OCSPs or generation assets are included within the scope of the Marine Scheme.

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within the BBWF array area. The location of these OCSPs is not known at this stage and hence the cable corridor within the BBWF array area is also unknown at present. Consequently, the complete boundary of the BBWF array area has been included in the boundary of the Marine Scheme. It is important to note that whilst linked to the Marine Scheme, the BBWF is subject to separate consenting.

1.1.5.3. GRID CONNECTIONS

24. The Applicant has three signed grid connection agreements; two agreements are for a substation in Scotland (Branxton), with the Project as the third connection at Blyth substation in Northumberland, England. As described above, the Project will enable the BBWF to reach full generating capacity by 2030 and will contribute to the UK Government’s legally binding net zero targets and the urgent need to decarbonise the UK’s energy system.

1.2. Policy and Legislative Context


1.2.1. Overview

25. This section provides a summary of the policy and legislative context for the Marine Scheme, specifically in relation to:
- International and domestic climate change commitments which aim to reduce greenhouse gas (GHG) emissions, in the context of avoiding emissions through investment in renewable energy;
 - Legislation and Policy (including Marine Planning) relevant to climate change and renewable energy relevant to the elements of the Marine Scheme in Scottish offshore waters; and
 - Legislation and Policy (including Marine Planning) relevant to climate change and renewable energy relevant to the elements of the Marine Scheme in English territorial and offshore waters.

1.2.2. Climate Change Policy and the Need for the Development

1.2.2.1. INTERNATIONAL COMMITMENTS

26. The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC) which commits industrialised nations, including the UK, to limit and reduce GHG emissions. The Kyoto Protocol has been in effect since 2005. The commitments of the Kyoto Protocol were transposed into UK law through the Climate Change Act 2008.
27. In 2015, the Paris Agreement was established to commit countries to reduce global GHG emissions and limit the global temperature increase in this century to 2°C while pursuing efforts to limit global warming to 1.5°C compared to pre-industrial levels. The Paris Agreement entered into force as a legally binding internationally treaty on climate change in 2016.

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1.2.2.2. EU LEGISLATION AND EU EXIT

28. The EU Roadmap 2050 sets out a plan for a low-carbon economy in Europe by 2050 with a goal of achieving an overall 80% reduction in the EU's emissions by 2050 (compared to 1990) through investment in clean energy and clean technology (European Climate Foundation, 2010⁴).
29. The UK is currently committed to implement international environmental obligations in accordance with the EU (Withdrawal) Act 2018, in which the UK Government maintains environmental commitments following the withdrawal from the EU on 31 January 2020. The UK Government established a roadmap to 2050 through the UK Net Zero Strategy (2021) (UK Government, 2021a⁵).

1.2.2.3. THE CLIMATE CHANGE ACT 2008 & DOMESTIC COMMITMENTS

30. The Climate Change Act 2008 (2050 Target Amendment) Order 2019 revised the Climate Change Act 2008 to set a 'net zero target' requiring GHG emissions to be 100% lower than the 1990 levels by 2050. In Scotland, the Climate Change (Scotland) Act 2009 as amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 has established a net zero target to reduce net Scottish GHG emissions by at least 100% by 2045 from 1990 levels.
31. The Climate Change Act 2008 also established the Committee on Climate Change (CCC), an independent statutory body which advises the UK and devolved governments on emission targets and reports to the UK Parliament on progress in reducing GHG emissions. To date, the CCC have produced six 'Carbon Budgets' which provide a limit on total GHG emissions to be emitted during their budgetary periods of four-year intervals. The UK Carbon Budget Order 2021 set the level of the Sixth Carbon Budget (2033 – 2037) to 965 million tonnes of carbon dioxide equivalent (MtCO_{2e}) in line with an interim target of 78% reduction in emissions by 2035 (UK Government, 2021b⁶).
32. In 2019, the Scottish Government announced a global climate emergency and set forth the commitment to act. In 2020, the UK communicated its Nationally Determined Contribution (NDC) to the UNFCCC. The UK committed to reducing economy wide GHG emissions by at least 68% by 2030 (UK Government, 2022⁷). In 2021, Scotland announced an indicative NDC (iNDC) to reduce GHG emissions by at least 75% by 2030 (Scottish Government, 2021a⁸).


⁴ European Climate Foundation (2010). Roadmap 2050: A practical guide to a prosperous, low-carbon Europe. Volume 1 April 2010. Available at: <https://www.roadmap2050.eu/reports>. Accessed on: 19 January 2023.

⁵ UK Government (2021a). Net Zero Strategy: Build Back Greener. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf Accessed on: 27 March 2023.

⁶ UK Government (2021b). The Carbon Budget Order 2021. Available at: <https://www.legislation.gov.uk/uksi/2021/750/article/2/made>. Accessed on: 8 December 2022.

⁷ UK Government (2022). United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution. Updated September 2022. CP 744. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1109429/uk-nationally-determined-contribution.pdf. Accessed on: 19 January 2023.

⁸ Scottish Government (2021a). Scotland's contribution to the Paris Agreement – an indicative NDC. July 2021. Available at: <https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2021/07/scotlands-contribution-paris-agreement-indicative-ndc/documents/scotlands-contribution-paris-agreement-indicative-ndc-july-2021/scotlands-contribution-paris-agreement-indicative-ndc-july-2021/govscot%3Adocument/scotlands-contribution-paris-agreement-indicative-ndc-july-2021.pdf>. Accessed on: 19 January 2023.

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1.2.3. Marine Planning Policy

1.2.3.1. UK

33. The UK Marine Policy Statement (MPS) was published in September 2011 and updated in September 2020. It was prepared and adopted for the purposes of Section 44 of the Marine and Coastal Access Act 2009. The UK MPS was prepared to rationalise planning in the marine environment and provide a framework for marine spatial planning, specifically for the context of Marine Plans. The UK MPS is implemented throughout the UK through Marine Plans which provide detailed policy and spatial guidance for a marine area that will contribute to the overall aims of the UK MPS.


1.2.3.2. SCOTLAND

34. In Scotland, Scotland's National Marine Plan (2015) covers the management of Scottish territorial (between 0 and 12 nm) and offshore (between 12 nm and 200 nm) waters. Scotland's National Marine Plan states that, under the Marine Acts, Marine Licence applications must be considered in accordance with the objectives and policies of the National Marine Plan and other future regional plans. The conformance of the Marine Scheme with Scotland's National Marine Plan is fully demonstrated within Marine Scheme ES.

1.2.3.3. ENGLAND

35. In England, the Marine Scheme overlaps with the boundaries of the North East Inshore and North East Offshore Marine Plans. The North East Inshore Marine Plan covers the marine area between MHWS and 12 nm and the North East Offshore Marine Plan covers the marine area from 12 nm extending seaward to the limits of English offshore waters.
36. Additionally, the National Policy Statement (NPS) (UK Government, 2011⁹) outlines the objectives for the development of Nationally Significant Infrastructure Projects (NSIPs) within England and Wales. NSIPs are defined in Part 3 of the Planning Act 2008. The list of projects comprising NSIPs is provided in Section 14 of the Planning Act 2008; none of the projects listed relate to the development of Offshore Export Cables. Development consent is required for 'development to the extent that the development is or forms part of a NSIP', as set out within Section 31 of the Planning Act 2008. The NPS forms a key part of the wider national planning policy framework which is taken under consideration during the appraisal process of a planning application.
37. Both, BBWF due to its location in Scottish Waters and the Marine Scheme which is not an NSIP and does not form part of a NSIP, do not require development consent under the Planning Act 2008. NPSs are however a statement of government intention relating, in this case, to renewable energy projects, therefore can be taken into consideration during the preparation of the Marine Scheme ES. The following NPSs relating to renewable energy projects have been taken into consideration and used to inform this ES: the Overarching NPS for Energy (EN-1), NPS for Renewable Energy Infrastructure (EN-3), and NPS for Electricity Networks Infrastructure (EN-5). A suite of draft revised Energy NPSs was published by the UK Government in March 2023. These draft revised NPSs will now be subject to consultation before revised NPSs are formally adopted.

⁹ UK Government (2011). National Policy Statements from energy infrastructure. Available at: <https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure> Accessed on: 27 March 2023.

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1.2.4. Consenting Requirements and EIA Regulations

38. As detailed in section 1.1.1 of this Non-Technical Summary, the primary consents that will be sought in support of the Marine Scheme are as follows:

- A Marine Licence from MD-LOT under the Marine and Coastal Access Act 2009 for the Offshore Export Cables between 12 nm and the outer boundary of the EEZ in Scotland; and
- A Marine Licence from the MMO under the Marine and Coastal Access Act 2009 for Offshore Export Cables, Landfall works and supporting activity for the portion of the Marine Scheme in English inshore and offshore waters.

1.2.4.1. SCOTLAND (OFFSHORE)

39. The extent of the Marine Scheme within Scotland is located entirely within Scottish offshore waters, between 12 nm and the outer boundary of the Scottish EEZ. A Marine Licence Application is being sought under the Marine and Coastal Access Act 2009 for the Marine Scheme in Scottish offshore waters. This will be submitted to MD-LOT as the regulator responsible for determining Marine Licence applications on behalf of Scottish Ministers. It should be noted that the Marine (Scotland) Act 2010 does not apply to the Marine Scheme as it covers licensable activities in the territorial region (0 to 12 nm only).

1.2.4.2. ENGLAND (OFFSHORE AND INSHORE)

40. The extent of the Marine Scheme within England is in both inshore and offshore waters. A single Marine Licence is being sought under the Marine and Coastal Access Act 2009 for the licensable activities of the Marine Scheme in both territorial and offshore English waters. The Marine Licence Application will be submitted to the Marine Licensing team within the MMO.

41. Consent for the Onshore Scheme will be via a separate application for planning permission to NCC as the local planning authority under Section 57 of the Town and Country Planning Act 1990. A separate ES has been prepared to accompany the planning application to NCC for the Onshore Scheme.


1.2.4.3. EIA REGULATIONS

42. The requirement for an EIA was established by the EU's Environmental Impact Assessment (EIA) Directive (85/337/EEC codified by EIA Directive 2011/92/EU and then amended by Directive 2014/52/EU). The EIA Directive has been transposed into UK law via The Marine Works (Environmental Impact Assessment) Regulations 2007 ('the EIA Regulations'). The purpose of the EIA Directive is to ensure that the potential effects of a project on the environment are taken into consideration before development consent is granted. If a development of a specified nature is deemed likely to have a significant effect on the environment by virtue of factors such as size or location, then an EIA is required. The results from an EIA must be provided by the Applicant to the decision maker in the form of an ES.

1.2.5. Other Consents and Legislation

1.2.5.1. THE HABITATS AND BIRDS DIRECTIVE

43. The EU Council Directive 2009/147/EC on the conservation of wild birds (the 'Birds Directive') provides a framework for the conservation and management of wild birds within the EU with protection to Annex I and regularly occurring migratory species through the identification and designation of Special Protection Areas (SPAs).

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44. The EU Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('the Habitats Directive') aims to maintain or restore natural habitats and wild species listed in the Annexes at a favourable conservation status.
45. The Birds Directive and Habitats Directive have been transposed into national law as the 'Habitats Regulations' which comprise of the following legislation applicable to the Marine Scheme:
 - The Conservation of Offshore Marine Habitats and Species Regulations 2017, applies to Scottish and English offshore waters; and
 - The Conservation of Habitats and Species Regulations 2017 (as amended), applies to English territorial waters.
46. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (the '2019 Regulations') amended the 2017 Habitats Regulations and grant protection through the designation of a UK national site network, which was previously granted through European Sites. The national site network consists of:
 - Special Areas of Conservation (SACs);
 - SPAs; and
 - Ramsar Sites¹⁰.
47. Where a plan or project is likely to have a significant effect on a European site, there is a requirement, under the Habitats Regulations for the competent authority (MD-LOT and the MMO) to carry out an Appropriate Assessment.
48. The Habitats Regulations require sufficient information to be provided the competent authority to enable it to assess whether there are likely to be any significant effects, and to carry out the Appropriate Assessment (and any subsequent stages of the HRA), where necessary, as part of an HRA. This information and the legislative and policy background to the assessment is provided by the Applicant in the Marine Scheme Report to Inform Appropriate Assessment (RIAA) which accompanies the Marine Scheme ES.

1.2.5.2. EUROPEAN PROTECTED SPECIES LICENSING


49. European Protected Species (EPS) refers to the animals and plants listed in Annex IV of the Habitats Directive that are afforded protection under the Habitats Regulations. All cetacean species (i.e., whales, dolphins and porpoises) are EPS. If an activity is likely to cause disturbance or injury to an EPS, then an EPS licence is required to undertake that activity. EPS licences are obtained from the MMO/Natural England or NatureScot/ MD-LOT (on behalf of Scottish Ministers), depending on receptor and jurisdiction. Although the grant of EPS licences is separate to the Marine Licence application process, it can be considered in parallel by the competent authorities.

1.2.5.3. MARINE STRATEGY FRAMEWORK DIRECTIVE

50. The Marine Strategy Framework Directive (MSFD) (European Commission, 2008¹¹) aims to protect marine ecosystems and ensure sustainable use of marine resources. The aim of the MSFD is to achieve Good Environmental Status (GES) of the marine environment through an ecosystem-based approach, with GES determined based on 11 qualitative descriptors. Member states are required to develop strategies to achieve GES for the 11 descriptors. The MSFD has been

¹⁰ Ramsar Sites are not formally covered by the Regulations but are included in the process as a result of guidance in the National Planning Policy Framework (NPPF), as revised in 2021. Within the NPPF, Ramsar Sites are granted the same protection as habitats sites (UK Government, 2021c).

¹¹ European Commission (2008). Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive). Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0056> Accessed on: 8 December 2022.

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implemented into UK law through the Marine Strategy Regulations (UK Government, 2010¹²). The Commission Decision on Good Environmental Status (European Commission, 2017¹³) expanded on the MSFD to include criteria and methodological standards along with specifications for monitoring and assessment.

1.2.5.4. WATER FRAMEWORK DIRECTIVE REGULATIONS

51. The Water Framework Directive 2000/60/EC (WFD) provides protection to water in Europe by regulating pollutants and setting corresponding regulatory standards to protect and, where necessary, restore water bodies in order to reach good status, and to prevent deterioration. The WFD is applied in England via the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The WFD applies to inland, transitional, and coastal surface waters as well as groundwaters. The WFD is implemented through River Basin Management Plans (RBMP). The WFD applies to the Marine Scheme for activities in coastal waters (i.e., up to 3 nm from MHWS). The Northumbria RBMP applies to the Marine Scheme (Environment Agency, 2022¹⁴). A WFD Assessment has been completed for the Marine Scheme and accompanies this application.

1.2.5.5. MARINE PROTECTED AREAS, HIGHLY PROTECTED MARINE AREAS AND MARINE CONSERVATION ZONES

1.2.5.5.1. SCOTLAND


52. Nature Conservation Marine Protected Areas (ncMPAs) are designated under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009 in Scottish territorial and offshore waters respectively. In accordance with the Marine and Coastal Access Act 2009, consideration is required of the potential of the Marine Scheme to affect the protected features of ncMPAs and any ecological or morphological process on which the protected features depend. This is set out in the MCZ/ MPA Assessment, which accompanies this application. Based on the location of the Marine Scheme (i.e., beyond 12 nm) and in the absence of updated guidance on the assessment of Scottish MPAs in relation to offshore developments, the methodology followed for the MPA assessment has been informed by the archived guidance¹⁵ described, as well as the published available guidance regarding Marine Conservation Zone (MCZ) assessments (the high-level process described in both Scottish and English guidance is considered complementary). By following this approach, the Applicant will ensure that an appropriate level of information has been provided to allow MD-LOT to make an informed decision on the potential impacts of the Marine Scheme on Scottish ncMPAs. Relevant ncMPAs have been considered within the MCZ/ MPA Assessment which accompanies this application.
53. On 12 December 2022, Marine Scotland launched an open consultation regarding Scottish Highly Protected Marine Areas (HPMAs), which have been proposed to protect and allow recovery of

¹² UK Government (2010). The Marine Strategy Regulations 2010. Available at: <https://www.legislation.gov.uk/ukSI/2010/1627/contents/made> Accessed on: 27 March 2023.

¹³ European Commission (2017). Commission Decision (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017D0848> Accessed on: 8 December 2022.

¹⁴ Environment Agency (2022). Northumbria River Basin District River Management Plan. Updated December 2022. Available at: <https://www.gov.uk/guidance/northumbria-river-basin-district-river-management-plan-updated-2022>. Accessed on: 19 January 2023.

¹⁵ Marine Scotland's Nature Conservation Marine Protected Areas: Draft Management Handbook (Marine Scotland, 2014a) (archived) and Marine Scotland and the Joint Nature Conservation Committee (JNCC) founding principles of MPAs, and preliminary guidance on management of MPAs (also now archived) (Marine Scotland, 2014b).

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marine ecosystems, contribute to halting biodiversity loss and aid efforts to mitigate and adapt to the effects of climate change. HPMAs will build upon the existing network of ncMPAs.

54. The consultation closed in April 2023 and in June 2023, the Cabinet Secretary for Transport, Net Zero and Just Transition confirmed that the proposals for HPMAs would not be taken forward. It is understood that the Scottish Government is committed to introducing HPMAs covering at least 10% of territorial and offshore waters by 2026, as set out in the Bute House Agreement (Scottish Government, 2021b), however the timescales and method to how this will be secured is currently to be confirmed and therefore timescales do not allow for this to be considered within the Project’s application process.

1.2.5.5.2. ENGLAND

55. In accordance with the Marine and Coastal Access Act 2009, consideration is required of the potential of the Marine Scheme to affect the protected features of MCZs and any ecological or morphological process on which the protected features depend. MCZs seek to protect a range of nationally important marine habitats, species, geological features, and geomorphological features in English and Welsh territorial waters, as well as UK offshore waters. All relevant MCZs have been assessed as part of the MCZ/MPA Assessment that accompanies this application.


1.3. EIA Methodology

56. The EIA is a systematic process which identifies what impacts could result from a development, and then aims to avoid, reduce, or offset any likely significant effects (generally, any adverse impacts on the environment) through the implementation of mitigation measures where practicable. The EIA process is undertaken in coordination with the project design, and thus the design of the Marine Scheme has been adjusted to avoid potential impacts identified where practicable. Similarly, where there is the potential for the Marine Scheme to benefit the environment, measures have been put in place to maximise these benefits. Where avoidance was not practicable, reduction or offsetting of the likely significant effects through other mitigation measures were proposed. Consultation with key stakeholders has been carried out throughout the EIA process to inform the identification of potential impacts and the development of mitigation measures.
57. This section presents the EIA methodology used for the assessment of likely significant effects of the Marine Scheme on physical, biological and human environment receptors throughout all phases of the Marine Scheme (construction, operation and maintenance, and decommissioning). It describes the approach that has been employed to determine impact magnitude, receptor sensitivity, and the assessment of the likely significance of effects, including for inter-related effects, cumulative effects, and transboundary effects.

1.3.1. Key Principles of the Assessment

1.3.1.1. OVERVIEW

58. The EIA methodology is detailed in full in the EIA Methodology Chapter. Additionally, the following are discussed within each of the technical chapters of the Marine Scheme ES:
- A description of topic-specific consultation and stakeholder engagement undertaken;
 - A description of the evidence used to identify and assess the effects on the environment, including any limitations and assumptions;
 - A description of the environmental factors likely to be significantly affected by the Marine Scheme (known as the ‘baseline’);
 - An assessment of the likely significant effects, including an evaluation of significance;
 - A description of any mitigation measures;
 - A Cumulative Effects Assessment (CEA);
 - An assessment of transboundary effects;

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- An assessment of inter-related effects; and
- A reference list.

1.3.1.2. PROJECT DESIGN ENVELOPE

1.3.1.2.1. MAXIMUM DESIGN SCENARIO

59. For all EIA receptors considered in each technical assessment chapter (Volume 2, Chapters 7 to 15 of the Marine Scheme ES), potential impacts have been assessed based on the project design parameters that represent a Maximum Design Scenario (MDS) which can be considered a realistic ‘worst-case’ scenario. Realistic combinations of design parameters have been considered to ensure that the ‘worst-case’ scenario options are not overly precautionary or unrealistic. Under this approach, the combination of Marine Scheme design options constituting the worst-case scenario may differ from one receptor to another and from one impact to another. The end result is an EIA which has been based on clearly defined parameters that have defined the range of Marine Scheme design possibilities and hence the likely environmental impacts that could result from the Marine Scheme.


1.3.1.2.2. MITIGATION MEASURES

60. As part of the Marine Scheme design process, a number of measures have been considered to reduce the potential for impacts to the environment. These include measures which have been adopted as part of the Marine Scheme design, referred to as ‘designed in measures’ or primary mitigation. Primary mitigation measures are considered inherently part of the design of the Marine Scheme and have therefore been considered in the assessment undertaken as part of each technical chapter of the Marine Scheme ES.
61. Secondary mitigation measures are implemented to further reduce environmental effects to ‘not significant’ levels where the initial assessment concludes there is the potential for a significant adverse effect to occur. This is referred to as ‘secondary mitigation’ (whereby additional mitigation is specifically developed due to specific findings within the ES).
62. Tertiary mitigation are measures which will be implemented regardless of the design process and the EIA, for example, regulations derived from The International Convention for the Prevention of Pollution from Ships (MARPOL). These measures include actions that will be undertaken to meet existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects (IEMA, 2016b¹⁶). Tertiary mitigation is therefore considered ‘designed in’ measures, in line with primary mitigation.

1.3.1.3. ASSESSMENT OF IMPACTS AND EFFECT

63. The ‘source-pathway-receptor’ model has been utilised for the identification and assessment of potential effects of the Marine Scheme on the environment during construction, operation and maintenance, and decommissioning. The source represents the origin of an impact (i.e., an activity related to the Marine Scheme), the pathway represents the route through the environment by which the effects of an activity are transmitted, and the receptor is the environment or resource that receives the impact. Where there is no known ‘pathway’ then no effect is considered to occur, and the impact is scoped out. By way of an example, the construction of the Offshore Export Cables associated with the Marine Scheme (the ‘activity’) will result in seabed disturbance and suspension of sediment (the ‘impact’) with the potential to disturb benthic habitats and species (the ‘effect’).

¹⁶ IEMA (2016b). Environmental Impact Assessment Guide to: Delivering Quality Development. Available at: www.iema.net. Accessed on: 26 January 2023.

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64. The identified impacts are then assessed based on the sensitivity of the receptor and the magnitude of the impact which are defined within each of the ES technical chapters through topic-specific criteria. Considering the impact magnitude and the sensitivity of a receptor, the significance of the effect can be ascertained based on baseline information, professional judgment, and stakeholder advice. A defined methodology and matrix have been used in each ES technical chapter to ensure consistency when evaluating the significance of effects (Table 1.1). For effects assessed as minor to moderate, professional judgement has been applied to determine if the effect is significant in terms of the EIA regulations. A typical categorisation of effect significance is shown below in Table 1.2, noting that effects can be either beneficial or adverse. Any effect with a significance of moderate or greater is considered 'significant' in terms of the EIA regulations, and effects identified as minor or negligible are considered to be 'not significant' in terms of the EIA regulations.

Table 1.1 Significance of effects matrix


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

Table 1.2 Definition of consequence of effect and associated significance

Category	Definition	Significance
Major	A fundamental change to the environment or receptor, resulting in a significant effect.	Significant
Moderate	A material but non-fundamental change to the environment or receptor, resulting in a possible significant effect.	Significant
Minor	A detectable but non-material change to the environment or receptor resulting in no significant effect or small-scale temporary changes.	Not Significant
Negligible	No detectable change to the environment or receptor resulting in no significant effect.	Not Significant

1.3.1.4. CUMULATIVE EFFECTS ASSESSMENT

65. An initial screening was performed to identify developments with which the Marine Scheme may interact that may result in cumulative effects during construction, operation and maintenance, and decommissioning. The screening considered what detail is currently available regarding current and future developments, as well as the likelihood of a potential interaction. The CEA has considered all other relevant plans, projects and activities that are publicly available three months prior to submission of the Marine Scheme application.
66. The screening resulted in a long list of potential developments within the 20 km Zone of Influence (ZOI), as agreed through Scoping. The long list of potential developments is provided in Volume 3, Appendix 3.4.

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67. The projects included in the long list were reviewed on a topic-by-topic basis based on the knowledge and experience of technical specialists of the topic-specific ZOIs to identify if there was an impact-receptor-pathway that could result in a cumulative effect. The long list was then reduced to a short list which considered whether the impacts from the Marine Scheme physically overlapped with the impacts from other developments (with consideration of mobile receptors) or temporally overlapped (noting some impacts may only occur during certain phases of the Marine Scheme). Conceptual overlaps were also considered, as defined where an impact has the potential to directly or indirectly affect the receptor being assessed.
68. The approach to the cumulative effects assessment may differ across the technical chapters as appropriate to the specific receptor type. However, where potential effects are assessed as negligible for the Marine Scheme alone or where a potential effect is highly localised, these will generally not be considered within the CEA as it is not considered that there will be a potential for cumulative effects.

1.3.1.5. TRANSBOUNDARY EFFECTS

69. Transboundary (i.e., cross-border) effects are considered where there is potential for a development within one European Economic Area (EEA) state's territory to affect the environment of another EEA state(s). The Applicant has performed a transboundary screening for all potential impacts and pathways on physical, biological, and human receptors with regard to the distance from the Marine Scheme to the boundary of the EEZ of EEA states in which there may be potential for transboundary impacts.


1.3.1.6. INTER-RELATED EFFECTS

70. An assessment of the inter-related effects (i.e., where multiple impacts affect one receptor) has been carried out within each ES technical chapter. The inter-related effects assessment considers effects from the Marine Scheme, and not those from other projects cumulatively with the Marine Scheme. These latter effects are considered within the CEA. There are two main types of inter-related effects:
- **Project Lifetime Effects:** these are effects which occur over time at more than one phase of the Marine Scheme (i.e., construction, operation and maintenance, decommissioning) and may interact together to potentially create a more significant effect on a specific receptor when compared to if only assessed in isolation; and
 - **Receptor-Led Effects:** these are effects which may interact spatially and/or temporally resulting in the potential for inter-related effects on a specific receptor. Receptor-led inter-related effects may be short term, temporary or incorporate longer-term, potentially permanent effects. For example, where potential impacts on a key prey resource (e.g. sandeels from multiple impact pathways such as habitat disturbance), results in a greater impact on the receptor species than one impact pathway alone.

1.4. Stakeholder Consultation and Engagement

1.4.1. Introduction

71. This section of the NTS for the Marine Scheme ES provides a record of the stakeholder and public engagement that has been undertaken in the pre-application stage for the Marine Scheme.
72. Early and ongoing engagement with stakeholders is an important part of EIA best practice and the development of any project. The Applicant is committed to ongoing and targeted dialogue and engagement with stakeholders, regulators, and communities under a robust programme of meaningful stakeholder engagement and consultation activity to inform decision making and Project design.

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1.4.2. Regulatory Framework

73. Under the Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013 ('the PAC Regulations'), there are statutory requirements for the Marine Scheme to undertake pre-application consultation and engagement for certain activities within Scottish territorial waters and which require a Marine Licence under the Marine (Scotland) Act 2010. As the Marine Scheme is to be located outside Scottish territorial waters and the two Marine Licence Applications submitted for the Marine Scheme fall under the Marine and Coastal Access Act 2009, the PAC Regulations do not apply and there are no statutory requirements for consultation and engagement to be undertaken with either MD-LOT or the MMO.

1.4.3. Engagement with MD-LOT

74. Whilst there are no statutory requirements to undertake consultation and engagement with MD-LOT, the Applicant undertook engagement with MD-LOT to discuss guidance and best-practice relevant to the Marine Scheme. The MD-LOT guidance encourages the Applicant to confirm the scope of any consultation and engagement activity within the Marine Licence Application, including any advertising or engagement with the general public and relevant conservation bodies (MD-LOT, 2011¹⁷).

1.4.4. Engagement with the MMO

75. The MMO has not published any direct guidance relating to engagement and consultation requirements, however they do 'strongly encourage' engagement between the Applicant and the MMO prior to the submission through their own enquiry service (MMO, 2023b¹⁸). The application for the Marine Scheme fulfils the requirements of the MMO regulator-led consultation once a Marine Licence Application has been submitted (MMO, 2018¹⁹).

1.4.5. Further Technical Engagement

76. Technical engagement has been carried out, and will continue to be carried out, with a range of relevant stakeholders in relation to the Marine Scheme (and where appropriate, the Project as a whole). A list of the stakeholders consulted in relation to the Marine Scheme is included in the Marine Scheme ES.

77. In November 2022, the Applicant submitted a request for a Scoping Opinion (BBWFL, 2022a²⁰) for the Marine Scheme Scoping Report. The comments that have been received from MD-LOT and the MMO, which are applicable to specific receptors, are further detailed in the relevant chapters of the Marine Scheme ES.


78. A dedicated Stakeholder Engagement Manager (SEM) has been appointed to facilitate continued engagement with the community (including the general public, community councils, businesses,

¹⁷ MD-LOT (2011). Marine Renewable Energy Projects in the territorial Sea and UK Controlled Waters Adjacent to Scotland. Marine (Scotland) Act 2010. Available online at: <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2020/02/marine-licensing-applications-and-guidance/documents/applications/marine-renewable-energy-projects-2011/marine-renewable-energy-projects-2011/govscot%3Adocument/Marine%2Brenewable%2Benergy%2Bprojects%2B%25282011%2529.pdf> Accessed April 2023.

¹⁸ MMO (2023b). Guidance: make a marine licence application. Available online at: <https://www.gov.uk/guidance/make-a-marine-licence-application> Accessed April 2023.

¹⁹ MMO (2018). Guidance – The marine licence application timeline. Available online at: <https://www.gov.uk/guidance/the-marine-licence-application-timeline> Accessed April 2023.

²⁰ BBWL (2022a). Berwick Bank Offshore Wind Farm Cambois Connection – Firth of Forth Marine Scheme Scoping Report. MMO Case ref: EIA/2022/00043. Document No. A-100742-S01-A-REPT-001-A02 Marine Scoping Report. November 2022

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and local organisations). Brown and May Marine Ltd has been appointed as the Fisheries Liaison Officer (FLO) for the Marine Scheme and is representing the Applicant in regard to issues relating to the fishing industry.

79. A public exhibition has been held by the Applicant to introduce the Project to the general public, provide updates on progress and to respond to any queries and questions. The Applicant has sought to engage with the communities and wider public stakeholders who are most affected by the proposals in the development of the Project and they have had the opportunity to comment on the proposals at key decision making points.

1.5. Project Description

1.5.1. Introduction

80. This section of the Non-Technical Summary for the Marine Scheme ES summarises the offshore components and methodology for the Marine Scheme. As addressed in section 1.3.1.2.1, the design parameters represent a Maximum Design Scenario, and therefore the Project description describes the maximum extent of the design as a basis to determine what the likely worst case effects may be, noting that for some technical topics the worst case might be a combination of parameters, not just the maximum parameter.

1.5.2. Offshore Infrastructure


81. The Offshore Export Cables will comprise up to four HVDC cable circuits, installed within a maximum of four no. trenches. The Offshore Export Cables will transfer power from the OCSPs within the BBWF array area however as explained above, the exact location of the OCSPs within the array area is not currently defined. Aside from the connection of the Offshore Export Cables and potential placement of small volumes of cable protection discussed below, there are no other activities required associated with the OCSPs as part of the Marine Scheme and they are not discussed further.
82. The Marine Scheme will consist of up to a maximum of four HVDC cable circuits. The cable circuits are made up of the Offshore Export Cables in either bipole or monopole design and will transmit power at a voltage up to 525 kV.
83. The Offshore Export Cables will be buried to a maximum target burial depth of 3 m and, depending on seabed conditions, and a minimum target burial depth of 0.5 m within the Offshore Export Cable Corridor. The cable trenches will have a maximum width of 2.5 m per cable circuit. It is anticipated that a 25 m maximum width of seabed disturbance will be required per trench to allow sufficient width for pre-construction route preparation, such as clearance.

1.5.3. Landfall

84. The Landfall is part of the Marine Scheme in English (inshore) waters only. The Landfall location at Cambois forms the interface between the Marine Scheme and Onshore Scheme where the Offshore Export Cables will be brought ashore.
85. The Landfall installation will require construction work within the marine environment (i.e., below MHWS) as well as onshore work (i.e., above MLWS). The Offshore Export Cables will be installed at the Landfall using a trenchless technology such as Horizontal Directional Drilling (HDD).

1.5.4. Indicative Programme

86. An outline of the programme for construction of the Marine Scheme is given below to provide indicative commencement and completion dates, together with estimated durations of key construction activities. Until detailed design of the Marine Scheme is progressed and further refined

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pre-construction, this programme for the Marine Scheme as a whole is indicative and is subject to further refinement, but is used to inform assessment of construction phase impacts for the Marine Scheme.

87. The indicative outline construction programme includes the following:
- Commencement of offshore construction (including site preparation works) expected in Q4 2026;
 - Commencement of construction at landfall estimated in Q4 2027;
 - Commencement of Offshore Export Cable installation estimated in Q3 2028;
 - Completion of construction in Q4 2029;
 - Key construction activity and estimated durations:
 - Site preparation works: up to 39 months;
 - Landfall construction: up to 15 months; and
 - Offshore Export Cable installation: up to 18 months.
88. Whilst the site preparation works will occur for the duration of the construction phase, these will not be continuous. As up to four Offshore Export Cables are to be installed, there are expected to be periods when some site preparation, landfall and cable installation works occur concurrently.


1.5.5. Site Preparation Activities

1.5.5.1. PRE-INSTALLATION SURVEYS

89. A number of pre-construction surveys will be required along the length of the Offshore Export Cable Corridor to:
- Further assess seabed conditions and morphology (e.g., to identify seabed features which may present technical constraints to cable installation);
 - Identify presence and absence of potential obstruction, hazards or sensitive features (e.g., UXO, archaeological or ecological sensitivities); and
 - Inform detailed design work e.g., specific cable routes, cable protection, final Landfall location and installation techniques.
90. Timings of surveys will be dependent on programme and survey vessel availability and the duration of the surveys could range from a few weeks e.g., four to six weeks to six months (or longer) depending on the nature of the survey and accounting for factors such as weather downtime for example.

1.5.5.2. UNEXPLODED ORDNANCE

91. The development of the Offshore Export Cable Corridor has been informed by a high level consideration of UXO risk and based on available information. Routeing has sought to, where possible, avoid areas where there is a higher likelihood that a UXO would be encountered based on modern history and available datasets.
92. Informed by ongoing survey activities, the Applicant will seek to further refine the Offshore Export Cable route such that it avoids areas of highest UXO risk, and indeed individual potential targets which have been identified through survey outputs / engineering studies.
93. Notwithstanding, some UXO investigation may be required along the offshore export cable route in advance of construction.
94. UXO will be avoided via cable routeing where possible. The potential for interaction with UXO along the length of the Offshore Export Cable Corridor will be informed by a desk-based UXO risk assessment.

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95. Following this desk-based assessment, UXO and potential UXO will be managed through further survey, sampling, and micro-routeing within the Offshore Export Cable Corridor and/ or further investigations on specific targets. Based on this approach and the width of the Offshore Export Cable Corridor, it is assumed that UXO will be avoidable and clearance of UXO is considered unlikely and therefore not included within the scope of the MLA or EIA.

1.5.6. Construction Phase

96. The Landfall installation will require construction work within the marine environment (i.e., below MHWS) as well as onshore (i.e., above MLWS), using trenchless technology. This will involve installing an underground cable duct by drilling a hole (or holes) from one point to another. The Offshore Export Cables are then installed through the duct(s). It is likely that the holes will be drilled from a trenchless technology compound which will be located above MHWS (onshore) to an agreed 'punch out' location in the nearshore marine area (below MLWS), therefore completely avoiding any works at the surface of the intertidal environment and reducing the potential for sediment disturbance.
97. Prior to construction of the Offshore Export Cables, obstacles identified within the Offshore Export Cable Corridor may need to be cleared or avoided, depending on the preferred cable alignment (a relatively flat seabed surface is typically required for construction tools to achieve burial depth). Obstacles may include boulders and discarded fishing gear etc.
98. A range of construction vessels will be required to complete the cable construction works. The vessels anticipated to be required for the construction activities include: cable construction vessels (i.e., Cable Lay Vessel or jack-up barge); cable protection installation vessels; and guard, support, and crew transfer vessels.
99. The main options being considered for the burial of the offshore export cables are as follows:
- Separate cable lay and burial campaigns - cable is pre-laid (placed on the seabed in advance of trenching and burial);
 - Simultaneous cable lay and burial – cable is laid at the same time as cable trenching and burial; and
 - Separate trench and burial campaigns – cable is laid directly into pre-cut cable trenches, for example by plough.
100. It is anticipated that up to five cable crossings (all within English waters) may be required across the extent of the Offshore Export Cable Corridor. Crossing agreements and designs will be sought with the relevant operators. Proximity agreements will also be sought where necessary.
101. The primary aim is to achieve minimum target burial depths through burial of the cables in the seabed. An Indicative Cable Burial Appraisal (ICBA) has been undertaken for the Marine Scheme to identify where cable burial to the target depths may not be possible due to seabed conditions. In these areas additional cable protection (such as rock placement or concrete mattresses, for example) may be required to achieve the target burial depth to protect the cable from third party damage or future exposure.

1.5.7. Operation and Maintenance Phase

102. Once in place and buried (where practicable), Offshore Export Cables do not typically require regular routine maintenance. It is likely that routine inspection of the Offshore Export Cables will be periodically required, up to annually in the initial years of operation, to monitor condition and burial throughout the life of the Marine Scheme. Any inspections would be undertaken using offshore surveys, including the use of remotely operated vessels (ROVs). Where inspection work concludes that work may be required along any length of the Offshore Export Cable Corridor, maintenance would be carried out. This may involve re-positioning of rock protection or placement of additional rock protection.

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103. The installation methods described above are designed to minimise the requirement for cable repair. However, natural processes and human activity may uncover buried cable and damage cable protection. The requirement for maintenance will be identified by inspections carried out by the Applicant. Where sections of the Offshore Export Cables require repair or replacement, it is expected that this will be undertaken by a number of different vessels consistent with those described above for the installation process, and depending on the location and seabed conditions where the repair is required (e.g., intertidal or subtidal).

1.5.8. Decommissioning Phase

104. At the end of the operational lifetime of the Marine Scheme, the operator of the Marine Scheme will develop a solution for the onward handling of the Offshore Export Cables in consultation with the regulator and key stakeholders as required. This decision will be based on the advice from the marine regulator at the time and informed by the prevailing environmental regulatory requirements at that time, and relevant best practice. The approach to decommissioning will align with regulatory guidance, requirements and industry good practice at the time of decommissioning.

1.5.9. Designed in Measures

105. The Marine Scheme includes a number of designed in measures which the Applicant is committed to delivering. These measures are integrated into the project design. A full description of the designed in measures for the Marine Scheme is provided in Volume 2, Chapter 5: Project Description of the Marine Scheme ES.

1.6. Route Appraisal and Consideration of Alternatives


106. The approach taken to Offshore Export Cable Corridor selection and subsequent assessment of alternative options for delivery of the Cambois Connection has been based on the objective of developing a viable connection between the BBWF and existing grid network in order to maximise export capacity, thereby delivering a significant volume of new low-carbon electricity as soon as possible, with a substantial contribution to the national grid before 2030.

107. An appraisal considering reasonable alternative Offshore Export Cable Corridor and Landfall options has been carried out for the Marine Scheme, considering potential environmental effects and technical constraints of the alternatives reviewed.

108. The design for the Marine Scheme is the outcome of an iterative process that commenced when the need to develop an additional connection from BBWF to a Landfall in England was identified with the objective to not only enable, but to accelerate BBWF reaching its full generation capacity.

109. The appraisal of the Marine Scheme determined that not developing the Cambois Connection and thus the Marine Scheme would not have assisted in rapidly tackling the global climate change emergency by contributing to achieving Scottish and UK targets set in response. The Marine Scheme will help deliver significant quantities of low-carbon electricity from BBWF's full generation capacity (as early as 2030, making a significant, necessary and timely contribution to the Scottish and UK targets of achieving Net Zero by 2045 and 2050 respectively, as well as the Scottish and UK targets of having 11 GW and 50 GW of offshore wind operating in Scottish and UK waters respectively by 2030. This early connection and important contribution to rapid decarbonisation and associated increase of electricity output from offshore wind would not have been achievable by BBWF with the additional grid connection originally offered at the Branxton substation in East Lothian, where BBWF will export the remaining electricity to. The additional grid connection at Blyth substation in North-East England was confirmed by the National Grid Electricity System Operator (NGESO) in July 2022 in their Holistic Network Design Review.

110. Following determination that the Marine Scheme is needed, a wide range of environmental, technical and commercial considerations have influenced the optioneering and design evolution process of the Offshore Export Cable Corridor and the Landfall. Alongside this, the formal


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consultation process (including a formal request by SSER for a Scoping Opinion in November 2022) and engagement with key stakeholders, including but not limited to MD-LOT, the MMO, Natural England and local fishermen, has informed the development of the Marine Scheme.

111. Three Offshore Export Cable Corridor options, encompassing a total of 16 route segments, were assessed during the development of Marine Scheme. The appraisal of these alternatives concluded that the Offshore Export Cable Corridor subject to this Environmental Impact Assessment is the most suitable alternative from an environmental and technical perspective. It avoids the Farnes East MCZ, in accordance with advice received from stakeholders, and thus avoids likely significant environmental effects on this designated site. It also does not pose the potential technical execution risks which other nearshore corridor options presented.
112. The Landfall area of search options extended from the Port of Blyth in the south up to Lynemouth north of Newbiggin-by-the-Sea and the River Wansbeck. However, it quickly became apparent that any Landfall to the north of the River Wansbeck would require construction of a far longer and more complex onshore cable route to the Blyth substation. This would interact with a number of conurbations, roads, other infrastructure and would require crossing of the River Wansbeck, resulting in significant additional technical complexity, cost and the need for additional construction activity on both riverbanks. A Landfall north of the River Wansbeck where cliffs are present may also be challenging for using trenchless Landfall installation technologies, which have been selected by the Applicant and have the advantage of avoiding and reducing potential environmental effects at the Landfall. An appraisal of the remaining Landfall area of search between the Port of Blyth and the River Wansbeck concluded that the preferred Landfall would be located in the south of this coastal stretch.

1.7. Offshore Physical Environment and Seabed Conditions

113. The Offshore Physical Environment and Seabed Conditions chapter assesses the likely significant effects of the Marine Scheme on the offshore physical environment and seabed conditions during the construction, operation and maintenance, and decommissioning phases.
114. A 10 km buffer around the Marine Scheme is applied as the study area for the Offshore Physical Environment and Seabed Conditions topic, based on the tidal excursion extent (i.e., extent to which suspended sediment may be carried through physical processes such as tides) of 5 km and the potential for more infrequent metocean conditions (e.g., wind, wave, and storm events). Water depths within the Marine Scheme in Scottish waters range between 39 m below Lowest Astronomical Tide (mLAT) and 68 mLAT, with the shallowest depths occurring over the shallow banks within the BBWF array area. Depths within English waters range between the deepest depths observed across the Marine Scheme of 110 mLAT, to the shallowest expected at the Landfall exit point of 10 mLAT. There are geological features of the seabed, referred to as morphological bedforms, present across the Marine Scheme in the form of primarily banks in the Scottish waters and sandwaves in the English waters. Seabed sediment is mixed, with muddy sand being the most common sediment type. The Landfall along Cambois Bay is backed by dunes and is considered to be relatively stable. The Marine Scheme intersects a number of designated sites with geological, sedimentological, or morphological features in both Scottish and English waters.
115. The Marine Scheme is in a region where there is a large tidal range (i.e. over four metres), known as a macrotidal regime, with a mean spring tidal range of up to 4.4 m. Tidal flow is largely symmetrical and orientated north-south, with flood flow to the south. Flow speeds are quite slow across the Marine Scheme, typically ranging between 0.2 m/s and 0.6 m/s under spring and neap conditions. Waves across the Marine Scheme are mainly from the north-east, with mean annual wave heights and peak period of around 1 m and 8 seconds respectively. Due to the low flow speeds and seabed sediment composition, sediment transport at the seabed is considered to be relatively low, with sediment mostly being moved during spring and peak neap tidal conditions. Suspended sediment concentrations are also relatively low, with background concentrations being less than 1 mg/l.

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116. The following impact pathways were scoped into the assessment, as agreed through the Scoping process and follow up consultation with stakeholders and consultees²¹:
- Change to seabed levels and sediment properties due to installation of Offshore Export Cables (C & D);
 - Increases to SSC due to installation of export cables (C & D);
 - Impact on designated features within the designated sites due to installation of Offshore Export Cables (C & D);
 - Change to coastal landfall morphology (C & D);
 - Potential changes to the tidal, wave and sediment transport regimes as a result of blockage effects from cable protection measures (O&M); and
 - Potential introduction of scour (including edge scour) (O&M).
117. With consideration given to proposed designed-in mitigation, all effects scoped in for assessment were considered to be negligible or minor adverse significance (not significant in EIA terms) for all activities and potential impacts in both Scottish and English waters.
118. With the presence of nearby projects, the potential for cumulative effects was assessed, but there was no increase in the assessed significance of effect from that of the Marine Scheme alone. Therefore the assessment concluded that there are no likely significant cumulative effects on the offshore physical environment and seabed conditions.
119. No transboundary effects are predicted to arise as a result of construction, operation and maintenance, and decommissioning activities associated with the Marine Scheme on physical environment and seabed condition receptors and no significant inter-related effects are predicted.

1.8. Benthic Subtidal and Intertidal Ecology

120. The Benthic Subtidal and Intertidal Ecology chapter assesses the likely significant effects of the Marine Scheme on a number of benthic receptors, including subtidal and intertidal biotopes and species. The Benthic Subtidal and Intertidal Ecology Study Area was defined as the Marine Scheme boundary, encompassing the BBWF array area and the Offshore Export Cable Corridor.
121. Baseline surveys undertaken by the Applicant between 2019-2021 to support the EIA and consenting process of the BBWF covered the northernmost extent of the Marine Scheme. Further subtidal and intertidal surveys were undertaken for the Marine Scheme in 2022 and 2023. These surveys were used to characterise the benthic subtidal and intertidal ecology baseline.
122. Across the Marine Scheme subtidal sediments are dominated by muddy sand. Within the Offshore Export Cable Corridor, a mud fraction was consistently present with sediment compositions of 4-59% mud. Grab samples taken within the Offshore Export Cable Corridor recorded 518 taxa, dominated by annelids (e.g., worms), molluscs (e.g., snails, mussels) and crustaceans (e.g., crabs) in abundance. Overall the most abundant species within the Offshore Export Cable Corridor were *Amphiura filiformis*, *Amphiuridae* (both types of brittle star) and *Scoloplos armiger* (a type of bristle worm). Within the intertidal area, littoral sand and muddy sand were the dominant habitat type observed. Protected features identified within the Marine Scheme included biogenic and geogenic reef features²², seapen and burrowing megafauna communities, ocean quahog (a mollusc) and both coarse and fine sediment communities.

²¹ C = Construction, O&M = Operation and maintenance, D = Decommissioning


²² Reefs can either be biogenic (i.e., comprising of living or dead animals) or geogenic (i.e., non-biogenic (rocky reefs))

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123. The designated sites identified with a benthic subtidal or intertidal ecology qualifying feature were: the Firth of Forth Banks Complex ncMPA, the Farnes East MCZ and the Coquet to St Mary's MCZ.
124. The following impact pathways have been scoped into the assessment, as agreed through the Scoping process and follow up consultation with stakeholders and consultees:
- Temporary habitat and species loss or disturbance (C, O&M & D);
 - Temporary increases in suspended sediment concentrations (SSC) and associated sediment deposition and potential release of contaminants (C, O&M, D)
 - Permanent habitat and species loss or disturbance (O&M);
 - Colonisation of hard structures (O&M);
 - EMF effects (O&M);
 - Thermal emissions from operational cables (O&M); and
 - Changes in physical processes from cable protection measures (O&M).
125. With consideration given to proposed designed-in mitigation, all effects scoped in for assessment were considered to be of negligible or minor adverse significance (not significant in EIA terms) for all activities and potential impacts in both Scottish and English waters. As a result of the completed assessment, no significant effects were identified and no further mitigation measures or monitoring requirements were determined.
126. An assessment of cumulative effects concluded that no significant effects will occur as a result of construction, operation and maintenance, and decommissioning activities associated with the Marine Scheme and activities associated with other developments within a 10 km zone of influence.
127. No transboundary effects are predicted to arise as a result of construction, operation and maintenance, and decommissioning activities associated with the Marine Scheme on benthic subtidal and intertidal receptors and no significant inter-related effects are predicted.

1.9. Fish and Shellfish Ecology

128. The Fish and Shellfish Ecology chapter assesses the likely significant effects of the Marine Scheme on a number of fish and shellfish receptors, including marine finfish (pelagic and demersal fish), shellfish, elasmobranchs and diadromous fish that are either of conservation or commercial importance. The Fish and Shellfish Ecology Study Area was defined as a 10 km buffer around the Marine Scheme in order to encompass all likely zones of influence for fish and shellfish receptors. An additional buffer of 100 km around the Marine Scheme was defined in order to identify designated sites and salmon rivers which may be indirectly affected through interruptions to diadromous fish migrating through the Marine Scheme.
129. There are several fish and shellfish species known to be present in the Fish and Shellfish Ecology Study Area, which are protected under international and national conservation legislation, including but not limited to Atlantic salmon, herring, sea trout, and freshwater pearl mussel. There are also six designated sites, designated for diadromous fish, within 100 km of the Marine Scheme: River Tweed SAC, Tweed Estuary SAC, River Dee SAC, River Teith SAC, River Tay SAC, and the River South Esk SAC. Spawning grounds for 19 species are identified within the Fish and Shellfish Ecology Study Area, including those with pelagic spawning strategies, demersal spawners and oviparous species.
130. The following impact pathways have been scoped into the assessment, as agreed through the Scoping process and follow up consultation with stakeholders and consultees:
- Temporary habitat and species loss or disturbance (C & D);
 - Temporary increases in SSC and associated sediment deposition and potential release of contaminants (C & D);
 - Underwater noise (C & D);
 - EMF effects (O&M);


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- Permanent habitat loss (O&M); and
- Thermal emissions from operational cables (O&M).

131. With consideration given to proposed designed-in mitigation, all effects scoped in for assessment were considered to be negligible or minor (not significant in EIA terms) for all activities and potential impacts in both Scottish and English waters. As a result of the completed assessment, no significant effects were identified and no further mitigation measures or monitoring requirements were determined.
132. An assessment of cumulative effects concluded that no significant effects will occur as a result of construction, operation and maintenance, and decommissioning activities associated with the Marine Scheme and activities associated with other developments within the Fish and Shellfish Study Area.
133. Transboundary effects were scoped out of assessment on the basis that none are predicted to arise as a result of construction, operation and maintenance, and decommissioning activities associated with the Marine Scheme. No significant inter-related effects are predicted.

1.10. Offshore and Intertidal Ornithology

134. The Offshore and Intertidal Ornithology assessment assesses the likely significant effects of the Marine Scheme on wild bird receptors that use the marine and intertidal environment. The area over which birds could potentially be affected is defined as the Ornithology Study Area and consists the Marine Scheme plus a 2 km buffer of marine habitat.
135. The Ornithology Study Area is regularly used by at least 35 bird species, mostly comprising seabirds, seaducks and waders. All the birds that use the Ornithology Study Area are highly mobile species that are part of large to very large receptor populations that range over extensive, and in some cases very extensive, areas of marine and coastal habitat. Although the Ornithology Study Area plays a role in supporting (e.g., through providing foraging habitat) a wide variety of bird species, no part of the Ornithology Study Area was identified as having particularly high importance for the receptor population of any species.
136. Around a third of the bird species using the Ornithology Study Area are likely to have strong connectivity with one or more designated sites where they are qualifying interests. These species include seabirds that breed in Northumberland and south-east Scotland (e.g., gannet, European shag, tern species and auk species), common eider (breeding/non-breeding), purple sandpiper (non-breeding) and turnstone (non-breeding). The Marine Scheme directly overlaps with the boundaries of two sites designated for bird interests.
137. The following impact pathways have been scoped into the assessment, as agreed through the Scoping process and follow up consultation with stakeholders and consultees:
- Disturbance and displacement (vessel presence and nearshore area construction activities) (C & D);
 - Collision with lighted vessels (C & D)
 - Indirect effects on ornithological receptors through effects to prey species (C & D);
 - Disturbance and displacement as a result of operation and maintenance activities (vessel presence) (O&M); and
 - Indirect effects on ornithological receptors through effects to prey species (O&M).
138. For potential impacts on bird receptor populations arising from disturbance and prey availability effects during construction (and decommissioning), it is determined that, with the proposed designed in measures in place, both predicted effects on bird receptors are of negligible or minor adverse significance (not significant in EIA terms) for both Scottish and English waters. As there are no breeding colonies of these lighting-vulnerable seabird species in the region that could be affected by the Marine Scheme it was determined there was no impact pathway for vessel lighting


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to adversely affect seabird species. No mitigation additional to the Marine Scheme's designed in measures are required for bird receptors.

139. The potential for the Marine Scheme to affect the ornithological interests of designated sites is examined separately and is presented in the Marine Scheme Report to Inform Appropriate Assessment (RIAA) which accompanies the Marine Scheme ES.
140. An assessment of cumulative effects concluded no potential for the Marine Scheme to materially contribute to a wider regional cumulative impact on any ornithological receptors. As a result of the completed assessment, no significant effects were identified and no further mitigation measures or monitoring requirements were determined.
141. Transboundary effects were scoped out of the assessment given the very large geographical extent of receptors' wintering areas and the likely multiple breeding site origins of overwintering birds that use the Ornithology Study Area. Since the Ornithology Study Area is therefore unlikely to have particular importance for the receptor population it is concluded that there is no potential for any phase of the Marine Scheme to have a likely significant transboundary effect on any European Economic Area ornithology receptors. No significant inter-related effects are predicted.

1.11. Marine Mammals


142. The Marine Mammal chapter assesses the likely significant effects of the Marine Scheme on the following receptors:
- Key cetacean species:
 - Harbour porpoise (*Phocoena phocoena*);
 - Bottlenose dolphin (*Tursiops truncatus*);
 - White-beaked dolphin (*Lagenorhynchus albirostris*); and
 - Minke whale (*Balaenoptera acutorostrata*).
 - Other cetacean species:
 - Atlantic white-sided dolphin (*Lagenorhynchus acutus*);
 - Short-beaked common dolphin (*Delphinus delphis*);
 - Long-finned pilot whale (*Globicephala melas*);
 - Killer whale (or orca) (*Orcinus orca*); and
 - Risso's dolphin (*Grampus griseus*).
 - Pinnipeds:
 - Harbour seal (*Phoca vitulina*); and
 - Grey seal (*Halichoerus grypus*).
143. The Marine Mammal Study Area for the Marine Scheme gives consideration to the highly mobile nature of marine mammals and the potential for the Marine Scheme to impact species on both a local and regional scale. The Marine Mammal Study Area is defined as the Marine Scheme boundary plus a 20 km buffer. For the purpose of the assessment, potential impacts to marine mammals are considered for the UK portion of each cetacean Management Unit (MU) which directly overlaps with the Marine Mammal Study Area.
144. The Marine Mammal Study Area does not directly interact with any SACs designated for the conservation of marine mammal species. The Marine Mammal Study Area directly interacts with two SACs designated to protect important grey seal breeding colonies: the Isle of May SAC and the Berwickshire and North Northumberland Coast SAC. The Marine Mammal Study Area does not directly interact with any SACs designated for harbour seals.
145. As agreed during the Scoping process and follow up consultation with stakeholders and consultees, the following impacts were scoped in for assessment:

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- Noise-related impacts associated with construction noise, including physiological impacts, barrier effects and displacement (C & D);
 - Pre-construction surveys including geophysical/geotechnical and archaeological surveys (C);
 - Indirect impacts to prey species through temporary increases in SSC and associated sediment deposition and potential release of contaminants (C, O&M & D); and
 - Long term habitat change, including the potential for change in foraging opportunities (O&M).
146. With consideration given to proposed designed-in mitigation, all effects scoped in for assessment were considered to be negligible or minor (not significant in EIA terms) for all activities and potential impacts in both Scottish and English waters within the Marine Mammals Study Area. As a result of the completed assessment, no significant effects were identified and no further mitigation measures or monitoring requirements were determined.
147. An assessment of cumulative effects concluded that no significant effects will occur as a result of construction, operation and maintenance and decommissioning activities associated with the Marine Scheme and activities associated with other developments within a 10 nm zone of influence.
148. No transboundary effects are predicted to arise as a result of construction, operation and maintenance, and decommissioning activities associated with the Marine Scheme on marine mammal receptors and no significant inter-related effects are predicted.

1.12. Commercial Fisheries

149. The Commercial Fisheries chapter of the Marine Scheme ES assesses the likely significant effects of the Marine Scheme on commercial fisheries receptors. Commercial fisheries include all legal fishing activity associated with commercial fish and shellfish stocks. The Commercial Fisheries Study Area is defined based on the International Council for the Exploration of the Sea (ICES) statistical rectangles for which the Marine Scheme overlaps in addition to those adjacent to the Marine Scheme for which there is potential for fishing effort to be relocated to as a result of the Marine Scheme (e.g., secondary displacement):
- ICES rectangles 39E8, 40E8, 40E9, 41E8 (overlap with the Marine Scheme); and
 - ICES rectangles 39E9, 41E9, and 42E8 (adjacent to the Marine Scheme).
150. The commercial fisheries baseline has been informed through consultation and technical engagement with relevant fisheries stakeholders, and a desk-based review of the most up-to-date literature and datasets. Additionally, to address data limitations and accurately represent the commercial fishing activity within the Commercial Fisheries Study Area, additional consultation was undertaken by the Fisheries Liaison Officer with local fisheries stakeholders to gather information on their fishing activity as well as identify key concerns of the fishing industry in relation to the Marine Scheme. Through the analysis of the feedback from local fisheries stakeholders and desk-based review, the following were identified as key fisheries:
- Demersal trawling – Nephrops;
 - Creeling / Potting – Lobsters and crabs; and
 - Dredging – Scallops.
151. The following impacts were identified for assessment:
- Temporary loss, displacement or restricted access to fishing grounds (C & D);
 - The presence of Marine Scheme vessel traffic, leading to the potential for increases to steaming times (C & D);
 - Snagging risk during installation, resulting from sections of exposed cable prior to burial/protection (C&D);


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- Long-term reduced access to key fishing grounds and resultant displacement (O&M); Potential for fishing gear to become entangled with cable (i.e., snagging), resulting in damage or loss of fishing gear (O&M); and
- Indirect impacts resulting from changes in abundance and distribution of target species (C, O&M, D).

152. With consideration given to proposed designed-in mitigation, all effects scoped in for assessment were considered to be negligible or minor (not significant in EIA terms) for all activities and potential impacts in the Scottish waters extent of the Commercial Fisheries Study Area.
153. A potential likely significant effect from the Marine Scheme and cumulative effect on creeling / potting during construction was identified in relation to the effects of temporary loss, displacement or restricted access to fishing grounds due to presence of vessels and safety zones during route preparation activities and during construction on creeling / potting in English waters. This is mainly in relation to the high activity by creelers / potters along the Northumberland coast and the potential requirement for the removal or relocation of gear during the construction phase. Secondary mitigation is therefore proposed for affected vessels, established using an evidence-based approach, through the establishment of co-operation agreements. With the implementation of this mitigation, the magnitude of the impact and cumulative impact would be reduced to low and the residual significance of the effect for the project alone and the cumulative effect reduced to minor (not significant in EIA terms). No other likely significant effects, including cumulative effects, were predicted to arise in English waters.
154. No significant inter-related effects or transboundary effects are anticipated.

1.13. Shipping and Navigation


155. The Shipping and Navigation chapter assesses the likely significant effects of the Marine Scheme on the flow of vessel traffic including commercial and non-commercial vessels. The Shipping and Navigation Study Area is defined as a 5 nautical mile (nm) buffer of the Marine Scheme which is considered sufficient to characterise the shipping activity and navigational features close to the Marine Scheme and to include any vessel traffic that may be impacted by the Marine Scheme. Key receptors for assessment included: commercial, fishing, recreational and anchored vessels, dredgers and ports and harbours.
156. Information on shipping and navigation within the Shipping and Navigation Study Area was collected through a detailed desktop review of existing studies and datasets including AIS and radar data for the BBWF array area and Offshore Export Cable Corridor into Branxton, East Lothian.
157. Based on six months AIS data (three months summer and three months winter) there was an average of 36 vessels recorded per day within the Shipping and Navigation Study Area during the winter period and 41 per day during the summer period. Higher vessel density areas within the Shipping and Navigation Study Area were associated with cargo vessels and tankers transiting north/south past Blyth, as well as some nearshore fishing activity. The most common vessel type recorded within the Shipping and Navigation Study Area was fishing vessels which accounted for 23% of the overall distribution, followed by tankers (22%) and cargo vessels (20%). Tanker routes to/from the Firth of Forth were observed throughout the Shipping and Navigation Study Area. Cargo vessels were mainly recorded heading in a north/south direction off the east coast, transiting past Blyth. Fishing activity was observed throughout the majority of the Shipping and Navigation Study Area, with a higher level of activity in the south, largely by demersal (otter) trawlers. The majority of vessel activity close to the Landfall location was from small vessels, such as fishing and recreational vessels. The majority of anchored vessels recorded in the Shipping and Navigation Study Area were associated with the charted anchorage area close to Port of Blyth.
158. The following impact pathways have been scoped into the assessment, as agreed through the Scoping process and follow up consultation with stakeholders and consultees:
- Increased vessel to vessel collision risk between a third-party vessel and a project vessel (C, O&M, D);

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- Vessel displacement leading to increased vessel to vessel collision risk between third-party vessels (C, O&M, D);
 - Reduced access to local ports (C, O&M, D);
 - Anchor interaction with exposed subsea cable between cable laying and protection campaigns (C);
 - Fishing gear interaction with exposed subsea cable between laying and protection campaigns (C);
 - Anchor interaction with subsea cable (O&M);
 - Fishing gear interaction with subsea cable (O&M);
 - Vessel grounding due to reduced under keel clearance (O&M); and
 - Interference with magnetic compasses (O&M).
159. With the relevant designed-in (including tertiary) measures in place, the significance of effect was deemed to be broadly acceptable or tolerable for all impacts and phases assessed in both Scottish and English waters and therefore not significant in EIA terms.
160. Proposed additional mitigation measure to ensure that tolerable risks are reduced to as far as practicable is as follows:
- The period during which the Offshore Export Cables are surface laid and not yet buried or protected – and thus exposed to the impact – should be reduced so far as practicable. This reduces the risk of vessel anchors and fishing gear snagging on surface-laid cable should there be a period of time between cable lay and protection when the Offshore Export Cables are surface-laid.
161. The cumulative effects assessed included all those assessed in the in-isolation assessment. Overall, it is concluded that there will be no likely significant cumulative effects from the Marine Scheme alongside other developments/plans/projects.
162. Since international shipping has been included in the baseline assessment, there is no potential for transboundary impacts upon shipping and navigation receptors due to construction, operation and maintenance and decommissioning of the Marine Scheme and transboundary effects were scoped out from assessment. No significant inter-related effects are anticipated.

1.14. Marine Archaeology and Cultural Heritage

163. The Marine Archaeology and Cultural Heritage chapter comprises a desk-based assessment to assess the likely significant effects on marine archaeology and cultural heritage from the Marine Scheme. The aims of the assessment were to assess the known and potential marine cultural heritage and archaeology resource within the Marine Archaeology Study Area, comprising a 500 m buffer around the Marine Scheme with no buffer added at the Landfall landwards of MHWs or around the BBWF array area, as the BBWF has been previously reported on including a marine geophysical data assessment.
164. Within the Marine Archaeology Study Area the following receptors have been identified:
- Four palaeogeographic features in the English Marine Scheme;
 - Fifty records of wrecks, obstructions and associated debris of archaeological interest, of which are 34 located in Scottish waters and 16 in English waters;
 - No known aircraft crash sites;
 - One intertidal heritage assets at the Landfall; and
 - The potential for further unknown maritime and aviation sites.
165. The following impact pathways have been scoped into the assessment, as agreed through the Scoping process and follow up consultation with stakeholders and consultees:


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- Direct loss of or damage to known and unknown marine and intertidal historic environment assets arising from Offshore Export Cable construction and decommissioning (C, D);
- Indirect loss of or damage to known and unknown marine and intertidal historic environment assets arising from Offshore Export Cable construction and decommissioning (C, D);
- Loss of or damage to submerged prehistoric landscapes arising from Offshore Export Cable construction and decommissioning (C, D);
- Direct loss of or damage to known and potential marine cultural heritage receptors from Offshore Export Cable repair and maintenance (O&M); and
- Indirect loss of or damage to known and potential marine cultural heritage receptors from changes in local scouring and sedimentation patterns (O&M).

166. The potential effects of the Marine Scheme on marine archaeology and cultural heritage have been appraised. Where appropriate, proportionate designed-in measures to avoid, mitigate or compensate for any identified adverse effects are identified. These include Archaeological Exclusions Zones and a Protocol for Archaeological Discoveries; where avoidance may not be possible further measures are proposed in an Outline Written Scheme of Investigation. As a result of the completed assessment, no likely significant effects were identified for both Scottish and English waters and no further mitigation measures or monitoring requirements were determined to be required.
167. Due to alignment and coordination of proposed embedded mitigation such as the implementation of a WSI and measures including AEZs, archaeological reporting protocols and other good-practice elements within the BBWF, the no likely significant cumulative effects are predicted.
168. Assessment of cumulative impacts with other projects has been undertaken and with designed-in mitigation to known and potential receptors within the Marine Scheme and considered other projects, it is judged that any cumulative effects arising from the direct and indirect impacts of other developments would be of negligible adverse significance (not significant in EIA terms).

1.15. Other Sea Users

169. The Other Sea Users Chapter assesses the likely significant effects of the Marine Scheme on marine recreational users receptors including recreational sailing, fishing, diving and water sports, and marine industrial activities: including dredging and disposal sites, marine renewable energy, oil and gas activities, aquaculture, port and harbours, marine aggregate extraction.
170. An Other Sea Users Study Area of 10 nm around the Marine Scheme was used to inform the baseline and in the impact assessment of the other sea users. No further site-specific surveys have been required as receptor information was obtained through existing data sets and references which are publicly available (including surveys and AIS data) and a detailed desk-based study informed through consultation with relevant stakeholders.
171. Given the offshore location of the Marine Scheme within Scottish waters, recreational activities associated with this area are low. Within English waters, recreational activities are generally located within territorial waters, with areas of low to moderate intensity of recreational boating and fishing (angling). The Marine Scheme overlaps with two beaches: Cambois North and Cambois South. In Scottish waters the Other Sea Users Study Area does not overlap with any area licenced for dredging, disposal or marine aggregates however in English waters a number of licenced dredge and disposal sites are located within the Other Sea Users Study Area. Within the Scottish EEZ, the Other Sea Users Study Area overlaps with the BBWF array area and BBWF Branxton Connection. Also within the Scottish EEZ, the other sea users study area overlaps with three additional developments: Seagreen, Inch Cape, and Neart na Gaoithe; however, the Marine Scheme does not directly overlap with these sites nor their associated export cables.
172. In English waters, there are no renewable developments in the offshore waters of the Other Sea Users Study Area. In inshore waters, the Marine Scheme overlaps with the Blyth Offshore Demonstrator Wind Farm and associated export cables. No oil and gas infrastructure relating to

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active licenses or boreholes present within the Other Sea Users Study Area. In English territorial waters the Other Sea Users Study Area coincides with the 33rd Licensing Round Blocks, the licences have yet to be awarded. In English waters the Marine Scheme coincides with two operational subsea power cables (Northern Sea Link and Blyth Offshore Windfarm – Blyth Demo Phase 1) and the Scotland to England Greenlink 1 (SEGL 1) cable which is in the planning stage. Crossing agreements will be required for these cables. A proximity agreement will be required for Eastern Greenlink 2 (EGL 2) as the Marine Scheme will be allocated approximately 2.5 km from this cable. Ministry of Defence Practice and Exercise Areas (PEXAs) occur in both the Scottish and English areas of the Other Sea Users Study Area. In English waters the Other Sea Users Study Area coincides with an area recognised as strategic area of sustainable growth for aquaculture.

173. As agreed during the Scoping process and following from the development of the baseline the following impacts were scoped into assessment for other sea users:
- Temporary obstruction to other marine renewable energy projects (wind, wave and tidal) (C & D);
 - Temporary obstruction to marine recreation (C & D);
 - Temporary obstruction to MoD interests (C & D);
 - Temporary obstruction to marine cables (C & D); and
 - Temporary obstruction to dredging and disposal interests (C& D).
174. With proposed mitigation in place all impacts were concluded to be negligible or minor adverse in terms of significance (not significant in EIA terms). This was the case in both the Scottish and English extents of the Other Sea Users Study Area. As a result of the completed assessment, no significant effects were identified and no further mitigation measures or monitoring requirements were determined to be required.
175. A cumulative effects assessment concluded that no significant effects will occur as a result of the Marine Scheme activities and activities associated with other developments (within a 10 nm zone of influence).
176. No transboundary effects are predicted as a result of the Marine Scheme on other sea user receptors and no significant inter-related effects are predicted.