Eastern Green Link 3

Marine Environmental Appraisal – Non-Technical Summary

Prepared for: Scottish Hydro Electric Transmission PLC (SHE-T)

Scottish & Southern Electricity Networks
TRANSMISSION

collaborative environmental advisers

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Point of Contact: Patricia Elder
Tel: [Redacted]
Email: [Redacted]

Collaborative Environmental Advisers
Registered in England at Mountbatten House, 1 Grosvenor Square, Southampton, SO15 2JU
Registered number: 11114584

Tel: + 44 (0) 7719 523106 or +44 (0) 7920 714 411
Email: info@ceaenvironmental.co.uk
www.ceaenvironmental.co.uk

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Abbreviations/Glossary

Acronym	Definition
AA	Appropriate Assessment
CCS	Carbon Capture and Storage
DCO	Development Consent Order
EDR	Effective Deterrent Radius
EGL1	Eastern Green Link 1
EGL2	Eastern Green Link 2
EGL3	Eastern Green Link 3
EGL4	Eastern Green Link 4
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
ESO	Electricity System Operator
GW	Gigawatt
HDD	Horizontal directional drilling
HPMA	Highly Protected Marine Area
HND	Holistic Network Design
HRA	Habitats Regulation Appraisal
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
Hz	Hertz
ICES	International Council for the Exploration of the Sea
JNCC	Joint Nature Conservation Committee
MBES	Multi-Beam Echo Sounder
MCAA	Marine and Coastal Access Act (2009)
MD-LOT	Marine Directorate Licensing Operations Team
MEAp	Marine Environmental Appraisal
MHWS	Mean high water springs
MMMP	Marine Mammal Mitigation Plan
MPA	Marine Protected Area
NCMPA	Nature Conservation Marine Protected Areas
NETS	National Electricity Transmission System
NGET	National Grid Electricity Transmission
NM	Nautical miles
NOA	Network Options Assessment
NTS	Non-Technical Summary
OWF	Offshore Wind Farm
RAG	Red Amber Green
RLB	Red Line Boundary
PCE	Potential cumulative effects

PMF	Priority marine feature
SBP	Sub-Bottom Profiling
SHE-T	Scottish Hydro Electric Transmissions plc
SPA	Special Protection Area
SSEN	Scottish and Southern Electricity Networks
UXO	Unexploded Ordnance
ZoI	Zone of Influence

1. Introduction

1.1. Overview

Eastern Green Link 3 (EGL 3), herein referred to as the 'Project' is a proposed high voltage subsea cable between Peterhead, Aberdeenshire and Anderby Creek, Lincolnshire being jointly developed by Scottish and Southern Electricity Networks Transmission and National Grid. SSEN Transmission own and are responsible for the transmission network in the North of Scotland whilst National Grid own and are responsible for the transmission network in England and Wales. This non-technical summary (NTS) summarises the information from the Marine Environmental Appraisal (MEAp) prepared as part of the marine licence application process and is specific to the part of the Project within Scottish waters; referred to as the Proposed Development. An overview of EGL3 is shown in **Figure 1-1**.

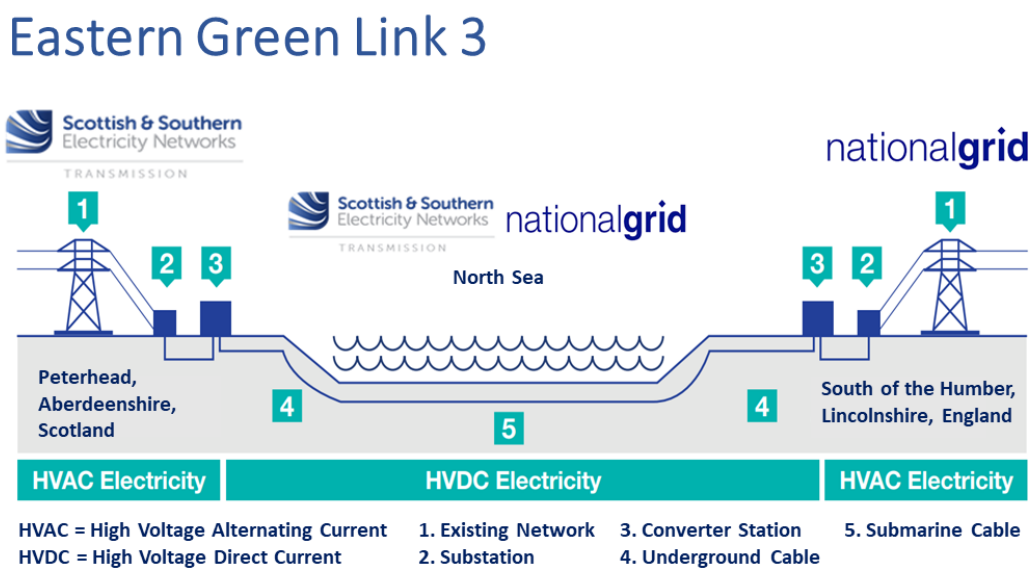

Figure 1-1 Overview of the Project

1.2. Purpose of this Non-Technical Summary

The aim of this NTS is to enable local communities and other stakeholders to understand the likely effects arising from the Proposed Development in a concise manner which is easily understood and accessible by all. Effects are assessed in terms of how 'significant' they would be, and the MEAp is primarily concerned with 'likely significant effects' and those unlikely to be significant. A summary of the contents included in this NTS is provided in **Table 1-1**.

Table 1-1 What is included in this NTS

Section	What is it about?
1. Introduction	This introduction chapter introduces Scottish and Southern Electricity Networks Transmission, the Project and where it is located and why it is needed
2. Reasonable Alternatives Considered	Explains the main alternative designs and options considered to date and provides a summary of how the design has evolved and developed to date
3. Project Description	Explains how the Proposed Development would be built (should it be consented), what new electricity infrastructure would be implemented and how long construction would take
4. Approach and Methodology	Explains the approach to the Marine Environmental Appraisal process and how it has been informed by consultation and stakeholder engagement to date
5. Marine Environmental Appraisal	This chapter provides a summary of the potential environmental effects of the Project including a summary of existing conditions, assessment conclusions and proposed measures to reduce significant effects (where required).

1.3. Eastern Green Link 3

The Project would comprise a 2-gigawatt (GW) High Voltage Direct Current (HVDC) electricity link between Peterhead, Aberdeenshire in Scotland, and Walpole in Norfolk, with a landfall on the Lincolnshire coastline, England. The link would comprise approximately 700 km of subsea and underground HVDC cables between new converter stations at each end of the electricity transmission link. These in turn would be connected to the existing National Electricity Transmission System (NETS) via High Voltage Alternating Current (HVAC) cables between the new converter stations and new substations.

The existing electricity distribution networks in Scotland operate using predominantly HVAC systems. However, transmission projects such as the Project use HVDC technology because it is more efficient at transmitting large volumes of electricity over longer distances with lower losses compared to an equivalent HVAC system. A HVDC system also provides a greater degree of control over the magnitude and direction of flow, and this flexibility delivers complementary operational benefits. For large scale transmission projects such as EGL 3, specialised electrical plant and equipment contained within converter stations is required at either end of the transmission link to convert electricity from HVAC to HVDC (or vice versa).

For the purposes of seeking the necessary consents, EGL 3 has been split into different 'Schemes' i.e. English Onshore Scheme, English Offshore Scheme, Scottish Onshore Scheme and the Scottish Offshore Scheme (with the latter herein referred to as 'the Proposed Development'). The Proposed Development comprises approximately 145 km of subsea HVDC cable from the landfall at Sandford Bay to the boundary with Scottish adjacent waters. The subsea cable system would consist of two HVDC cables which are laid together (known as bundled) and a fibre optic cable (up to the first offshore joint) for control and monitoring purposes.

1.4. Who is Scottish and Southern Electricity Transmission?

Scottish Hydro Electric Transmissions plc (SHE-T) (operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission) are responsible for maintaining and investing in the electricity network in the north of Scotland.

The SSEN- Transmission network consists of underground and subsea cables, overhead lines on wooden poles or steel towers, and electricity substations. It extends over a quarter of the UK's land mass, crossing some of its most challenging terrain.

Their first priority is to provide a safe and reliable supply of electricity to communities, by taking the electricity from generators and transporting it at high voltages over long distances through our transmission network for onwards distribution to homes and businesses in villages, towns and cities.

SSEN Transmission operating area is home to vast renewable energy resources and this is being harnessed by wind, hydro and marine generation. Working closely with National Grid Electricity Transmission (NGET), the Great Britain (GB) transmission System Operator, SSEN also enable these electricity generators to connect to the transmission system by providing their connections and allowing the electricity generated by them to be transported to areas of demand across the country.

Scotland's transmission network has a strategic role to play in supporting delivery of the United Kingdom (UK) and Scotland's Net Zero targets. Scotland is already a mass exporter of renewable energy, with around two thirds of power generated in the network area exported to demand centres further south. By 2050, the north of Scotland is expected to need 40GW of low carbon energy capacity to support net zero delivery. For context, SSEN currently have over 9 GW of renewable generation connected in the north of Scotland.

1.5. Why is EGL 3 needed?

With the Government's ambition to connect up to 50 GW of offshore generation to the electricity network by 2030, additional network capacity and greater power transfer capability is needed. To transmit Scotland's vast reserves of renewable energy across the UK, the National Grid Electricity System Operator (ESO) Network Options Assessment (NOA) (National Grid ESO, 2022), and the Pathway to 2030 Holistic Network Design (HND) recommended construction of four new HVDC Links between Scotland and England. These are:

- **Eastern Green Link 1** (EGL 1) is due to run from Torness in East Lothian to Hawthorn Pit in County Durham.
- **Eastern Green link 2** (EGL 2) is due to run from Peterhead in Aberdeenshire to Drax, North Yorkshire.
- **Eastern Green Link 3** (EGL 3, this Project), which would run between Peterhead in Aberdeenshire to Anderby Creek in Lincolnshire and
- **Eastern Green Link 4** (EGL 4) which would run between Kinghorn in Fife to Anderby Creek in Lincolnshire.

The core objectives of the Project are to develop a reinforcement link between the Scottish and English electricity transmission networks. The Project is expected to be operational by 2030/31 and will coordinate and co-locate surrounding infrastructure to minimise impacts on the environment and communities as far as possible. Project infrastructure should be realistic to consent and deliver. The

most efficient onshore and offshore cable route has been selected, and construction, operation and decommissioning will be undertaken in a safe manner. Disruption to onshore communities, shipping and commercial fisheries will be minimised and crossing through protected sites will be avoided or otherwise minimised as far as possible.

1.6. The Consenting Process for EGL 3

A Marine Licence Application (MLA) is being sought under the Marine (Scotland) Act 2010 for all activities associated with laying a submarine cable within territorial waters (between mean high water springs (MHWS) and 12 nautical miles (NM) from shore) and under the Marine and Coastal Access Act 2009 (MCAA) for any cable protection material and seabed preparation that may be required within the Scottish offshore waters (between 12 NM and 200 NM). The laying of submarine cables beyond 12 NM is exempt from requiring a Marine Licence under the MCAA however, all associated activities require consent. The MLA covers the Scottish Offshore Scheme (Proposed Development) and will be submitted to the Marine Directorate Licensing Operations Team (MD-LOT) who, under the Marine (Scotland) Act 2010, hold responsibility to ensure that the application complies with the requirements of Scottish legislation.

A separate application will be sought for activities within English offshore and territorial waters, there are differences in the governing legislation between Scotland and England, with Scotland as a devolved administration. The English Offshore Scheme will seek a single Development Consent Order with separate Deemed Marine Licences under the Planning Act 2008 for both EGL 3 and Eastern Green Link 4 (EGL 4).

2. Reasonable Alternatives Considered

2.1. Introduction

The legal regulations on Environmental Impact Assessment (EIA) require that the 'reasonable' alternatives to a project are considered. Such alternatives can relate to the location of a project as well as its layout, size, scale and technology.

2.2. Strategic Options Appraisal

To support the identification of the route for EGL 3, an initial strategic options appraisal was undertaken and considered the need and alternatives for the end-to-end project. A Marine Route Options Appraisal was then conducted to identify the offshore route from landfall to landfall (NGET, 2024). Several scenarios were discounted as they did not support UK or Scottish Government policy; these were:

- **Do nothing** – This option dictates that the transmission system must remain the same which will constrain the transmittal of electricity when generation exceeds demand. It does not meet the UK policy objectives, nor does it meet the project need or deliver any of the core project objectives.
- **Alternative transmission options** – As part of the review for the connection of a new HVDC link, the SSEN Transmission considered whether currently available alternative technology options, including High Voltage Alternating Current (HVAC) and HVDC based onshore options using overhead line technology solutions, should be further investigated. Findings from this review were that:
  - HVDC links over the proposed distance have comparable capital costs to the required HVAC solution, but much lower lifetime costs over this distance than the alternative onshore HVAC option. HVAC options are often the most economic when their distance is under multiple hundreds of kilometres, but in this case the proposed connections are in the order of 500 km or greater where HVDC represents the economical and viable technology choice.
  - A fully onshore solution would consist of a substantially long route length, carrying a much higher delivery risk than the HVDC subsea cable reinforcement proposals that are currently being progressed, and this would not be possible to deliver by the 2030 timescale that is required by the system need.
  - Consequently, an option using overhead line technology is not considered to be the right alternative in this case as the distances involved make subsea HVDC a more viable, economical, deliverable, and electrically controllable solution.
- **Reduce electricity demand** - This solution would not meet the project need or deliver any of the core project objectives and serves as a complementary measure rather than an alternative to the Project. The National Energy and Climate Plan (BEIS, 2020b) states that "*to meet the UK's 2050 net zero climate change target, emissions from buildings will need to be near zero, coupled with action on industrial processes*." Noting in Scotland, the Climate Change (Emissions Reduction targets) (Scotland) Act 2019 reduced the timeframe setting a target of 2045 to achieve net zero. To meet the drive for decarbonisation, sectors across the economy are switching to electricity, driving up electrical demand. Energy demand management will play an important role in the future energy balance but cannot on its own deliver the decarbonised energy system. Different pathways will need to be developed concurrently such as reduced use of high carbon fossil fuels, increased energy efficiency, investment in renewables, more decentralised energy and a greater level of interconnection and transmission. This solution is therefore akin to 'do nothing' as it does not meet the UK policy

objectives for decarbonisation on its own, does not meet the project need and does not entirely deliver any of the core project objectives.

2.3. Consideration of Alternatives

Once strategic options had been considered specific project alternatives were then assessed. The consideration of project alternatives included the following:

- **Alternative Technology** – There are two viable options for transporting electricity: High Voltage Direct Current (HVDC) and High Voltage Alternating Current (HVAC) technology. HVDC technology is more effective at transmitting electricity over longer distances with lower energy losses compared to HVAC and therefore was selected for this reason.
- **Alternative National Connection Points** – The first stage of the project development process was to identify the connection points into the transmission network in England and Scotland. SSEN Transmission identified Aberdeenshire, Scotland as optimal connection point in Scotland and National Grid identified Lincolnshire as optimal in England. In Scotland, the connection point was selected to avoid a dispersed pattern of development and minimise the landscape impact to the local community.
- **Alternative Landfall Sites** – Landfall locations were initially identified through a review of publicly available information and mapped data considering various factors such as an access to onshore grid connection, ground conditions, site access onshore and offshore, alternative access for landowners, avoidance of existing infrastructure, environmental and socio-economic constraints, topography and coastal sediments. A site selection process was undertaken which considered a long list of 12 possible landfalls which was reduced to a short list of four following assessment. The preferred landfall of Sandford Bay was selected based on fewer technical and environmental constraints compared to other options.
- **Alternative Offshore Cable Routes** - Following the identification of potential landfall sites, it was possible to start identifying potential marine cable route options. The aim was to create the shortest marine cable route possible which will optimise the route to ensure the cable can be buried along its extent, minimise the length of cable needed, reduce the manufacturing and installation costs, and minimise the environmental footprint of the Project. It was also designed to:
    - Avoid environmentally sensitive areas, where possible.
    - Avoid areas which would represent restrictions to vessel movement e.g., anchorages, restricted navigation channels.
    - Avoid areas of archaeological importance and wrecks.
    - Avoid existing offshore infrastructure e.g., offshore wind farms, oil and gas infrastructure, marine aggregate extraction areas, aquaculture sites.
    - Minimise the crossing of in-service cables and pipelines. Where it is not possible to avoid a crossing altogether, then to seek to optimise the crossing angle and to ensure that navigational safety or water depth is not adversely affected.
    - Avoid hazardous seabed e.g., mobile sediments or bedrock outcrops and sub crops.
    - Minimise any impact on third party considerations such as seasonal fishing activities or local tourism
- **Alternative Construction Techniques** - A variety of alternative construction techniques for power cables are available. The decision as to which combination of techniques to choose influences how the Project will affect the physical, biological and socio-economic environment. Typically, the selection of construction techniques depends on the individual constraints and environmental conditions at specific points along the cable route, meaning that different techniques may be appropriate at different locations. Site-specific surveys have been carried out to inform engineering decisions and the selection of installation solution.

3. Proposed Development Description

3.1. Overview

The Proposed Development comprises approximately 145 km of subsea HVDC cable from the landfall at Sandford Bay to the boundary with adjacent English waters. The Proposed Development comprises:

- Two bundled (laid together in a trench) HVDC electricity cables.
- Fibre optic cables for the purpose of control and monitoring (up to the first offshore cable joint).
- All associated activities to install the cables, including testing and commissioning.
- All associated activities to operate and maintain the cables.

An overview of the Proposed Development is shown in **Figure 3-1 (Drawing reference C01494-EGL3-MEA-LOC-017-A)**.

500000 550000 600000 650000

6400000 6350000 6300000 6250000

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Scottish & Southern Electricity Networks TRANSMISSION

EGL 3 Red Line Boundary

C01494-EGL3-MEA-LOC-017-A

Legend

- Red Line Boundary
- 12NM Limit
- Scottish Adjacent Waters

0 12 24 36 KM

0 6 12 18 NM

N

Date	05/08/2025
Coordinate System	ETRS89 / UTM zone 30N
Projection	Universal Transverse Mercator (UTM)
Unit	meters
Scale at A3	1:650,000
Created	JC
Reviewed	AN
Authorised	LJ/PE

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3.2. Subsea Cable Description

The subsea cable system would consist of two bundled HVDC cables and a fibre optic cable for control and monitoring purposes. An example illustration of the bundled HVDC cable with fibre optic arrangement is shown in **Figure 3-2**.

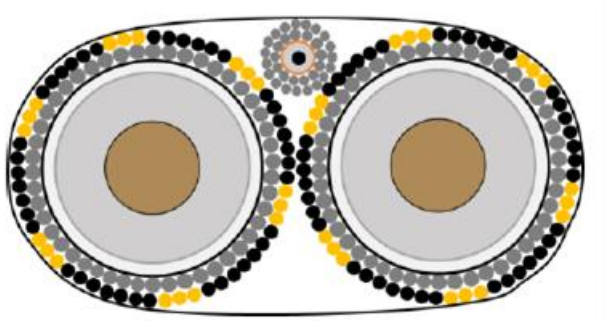

Figure 3-2 Example Illustration of Bundled HVDC Cable with Fibre Optic Cable

3.3. Pre-Lay Surveys

The objective of pre-lay surveys is to confirm any obstructions on the seabed, identify where infrastructure crossings are required, determine if there is any unexploded ordinance, identify seabed features and support micro-routing around any sensitive habitats ahead of cable laying/installation. The pre-lay surveys could involve a range of techniques, for example Multi-Beam Eco Sounder (MBES) and Sub-Bottom Profiling (SBP), which are types of acoustic seabed surveys which provide detailed topographical information and pictures of the seabed. The pre-lay surveys would typically be split into two elements: nearshore (<10 m depth of water) and offshore (>10 m depth of water), each requiring a survey vessel suitable for the different water depths. An offshore vessel generally can conduct 24-hour operations. Operations are usually kept to 12 hours (or daylight hours) however, if the size of the vessel allows night working or 24-hour working, operations would still be possible.

3.4. Route Preparation

Following and considering the results of pre-lay surveys, the seabed may need to be prepared to ensure safe and efficient installation of the cable. The following route preparation activities may be required:

- Boulder clearance – Clearance of boulders on the seabed may be required where they cannot be routed around to allow the use of cable burial equipment
- Pre-Lay Grapnel Run – which consists of a chain with hooks along its length. Required to clear any debris or obstacles (such as old cables and abandoned fishing gear) from the seabed prior to cable installation. This will typically clear debris on or just below the seabed up to 1 m depth which will be brought up to the vessel for licenced disposal onshore
- Trial Trenching – Trial trenches may be required to ensure that the cable will be buried to a sufficient depth. If cable burial is successful in trial trenches, the cable would be subsequently removed and installed.
- Sand wave clearance – In areas where there are natural aggregations of sand this will require clearance to ensure a more level seabed surface for safe cable burial and to minimise the cable becoming exposed in the future
- Other infrastructure crossings – Where the Proposed Development would cross other cables and infrastructure on the seabed, agreements would be sought with other infrastructure users to ensure the safe burial of the cable and that it will not impact existing infrastructure.

3.5. Landfall Works

At the landfall, the cable would be installed using a method that avoids digging open trenches in the intertidal called Horizontal Direct Drilling (HDD). A small hole would be drilled at the landfall, and a drill would create a path or channel underground which is widened to allow a cable to be pulled through. The cable would run to a point out to sea (typically referred to as a 'punch out' point.

3.6. Cable Installation

To lay the cable, the cable would be transported to the location where it was being laid and laid from a cable lay vessel. The cable is either to be laid directly on the seabed for later burial or would be directed into a burial tool for burial into the seabed. There are three configurations for cable installation, pre-cut trenching, simultaneous lay and burial, and post-lay burial. Cable lay and burial operations typically operate 24-hours a day to maximise the vessel and equipment time, and minimise disruption to shipping channels, fishing grounds or any other sensitive areas. There are a range of burial tools, the selection of the tool depends on seabed geology and mobility.

Indicative burial depth of the cable is 2.5 m maximum below the seabed. The minimum and maximum cable burial depth would vary along the Proposed Development, depending on numerous factors such as seabed type, presence/absence of rock, shipping and fishing activity and the type of burial tool utilised.

In locations where the cable needs to cross existing cables or pipelines or where the required burial depth cannot be achieved, cable protection may need to be placed around the cable. This could comprise rock, concrete or protective coverings.

3.7. Operation and Maintenance

The Proposed Development would be designed to minimise any maintenance requirements and routine maintenance is not anticipated. However, the following activities may be periodically required once the cable has been installed:

- Inspection surveys, including geophysical surveys
- Cable repair (if required)
- Reburial of the cable or remedial protection or maintenance and reinstatement of cable protection features

Should a fault be identified, it would be necessary to retrieve the cable to the surface for inspection. The actual operational details of repair would depend on the type of repair identified. A cable repair operation would be expected to take between two and six weeks depending on the type and extent of the damage, the burial requirements, and operational constraints such as weather.

3.8. Cable Decommissioning

There are currently no specific plans to decommission the Proposed Development. It is expected that the transmission of electricity would continue for as long as there is a business case for doing so and that any decommissioning activity would occur decades in the future. The expected minimum operational life of the proposed landfall infrastructure is 40 years, with replacement only expected to occur upon the failing of specific assets.

3.9. Indicative Programme

The construction programme for the Proposed Development is expected to take approximately 55 months, commencing in 2028 with pre-lay activities. Works at the landfall may commence in 2028 / 2029 with installation of the horizontal directional drilling (HDD) and ducts ahead of the main works. It is anticipated that the offshore construction works would be split into several activities: Landfall HDD preparation and installation, Route Preparation, up to 3 cable lay and burial campaigns. The indicative duration of works is listed in Error! Reference source not found..

Table 3-1 Indicative construction programme

Parameter	Indicative Programme
Earliest construction starts (HDD)	At consent award (subject to discharge of Marine Licence conditions)
Earliest construction starts offshore	2028 for pre-lay activities 2030 for cable lay activities
Latest construction starts offshore	2028 for pre-lay activities 2031 for cable lay activities
Offshore construction duration window	2028 - 2033
Latest construction finish offshore	2033

4. Approach and Methodology

4.1. Marine Environmental Appraisal Process

The purpose of the Marine Environmental Appraisal (MEA) is to provide a structured assessment of the potential impacts the Proposed Development may have in relation to the existing conditions (baseline). A summary of the MEA process is provided in Figure 4-1

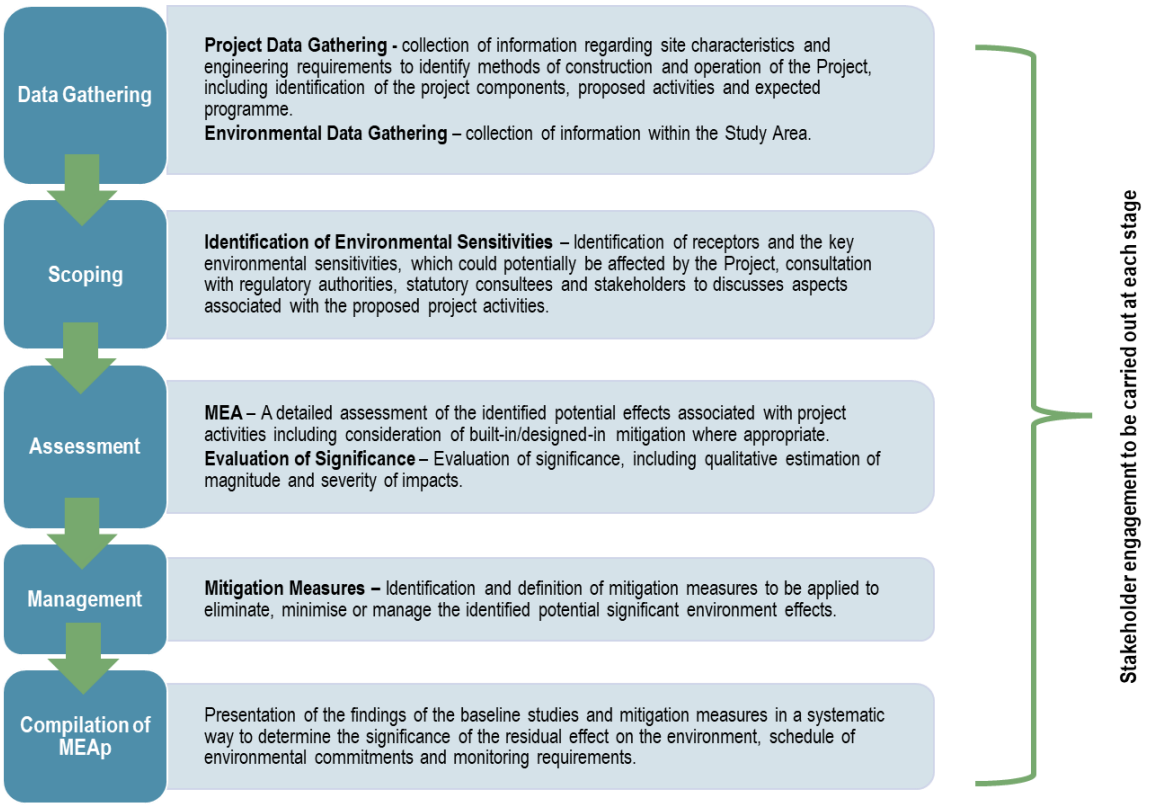

Figure 4-1 Overview of the MEA Process

The outcomes of the MEA are reported in a Marine Environmental Appraisal Report (MEAp) which provides information to the regulatory authority (in this case MD-LOT), stakeholders and the public, to enable them to consider whether the Proposed Development should be permitted.

The MEAp examines how the Proposed Development could affect the environment. It uses a 'source-pathway-receptor' model, which studies where impacts come from, how the impacts spread, and what the impacts affect (i.e. the receptor). The MEAp firstly described the current state of the environment, then identifies possible impacts, assesses how significant the effect of the impacts are, and suggests ways to reduce them, if needed. Stakeholders, such as government bodies and other organisations, are consulted throughout the process, from the feasibility stage, through to the assessment process. The MEAp is accompanied by supporting reports, such as the Habitats Regulation Appraisal, Water Framework Directive Assessment, Marine Plan Assessment, and Navigational Risk Assessment.

Effects are given a 'significance level', based on 'magnitude' (how big, long-lasting, frequent, or severe the impact is), and 'sensitivity' (how valuable, adaptable, or vulnerable the affected receptor is. From these, impacts are rated as negligible, minor, moderate, or major.

Most impacts can be managed through existing laws and best practices, so additional mitigation is sometimes limited or not cost-effective. Where needed, specific measures are proposed to reduce or offset harmful effects. Mitigation can happen in two ways; through embedded mitigation (built-in rules and obligations that apply during construction, operation and maintenance, and decommissioning), or by project-specific mitigation (extra actions required if a significant negative effect is identified).

Any effects that remain after mitigation are known as residual effects.

The MEAp has undertaken a cumulative impact assessment required under the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (as amended). Cumulative effects refer to the combined impacts of multiple plans or projects on specific

environmental resources or receptors. These effects can arise from the addition or interaction of impacts from different activities or multiple similar activities over time.

4.2. Consultation and Engagement

The Marine Licensing (Pre-application Consultation) (Scotland) Regulations 2013 and Marine (Scotland) Act 2010 describe the activities that require a marine licence and pre-application consultation (PAC) and outline the PAC process and reporting requirements. Consultation and engagement have been undertaken to engage with stakeholders, local communities, landowners and residents to gain feedback on the Proposed Development prior to submitting a marine licence application. The process and outcomes of the PAC have been reported in a PAC Report.

A series of events were held regarding the Proposed Development including:

- Non-statutory public consultation event on 14 June 2023 at 14:00-19:00 at Peterhead Football Club, Balmoor Stadium, Balmoor Terrance, Peterhead, AB42 1EQ
- Community information events on 5 March 2025 at 10:00-12:30 at Buchan Braes Hotel, Boddam, Peterhead, AB42 3AR and 15:00-19:00 at Longside Parish Church Hall, 4-13 Inn brae, Longside, Peterhead, AB42 4XN
- Statutory PAC event on 22 May 2025 at 15:00-19:00 at Peterhead Football Club, Balmoor Stadium, Balmoor Terrance, Peterhead, AB42 1EQ

All queries raised during the PAC event were answered at the time and not considered to require any specific responses or changes to the Proposed Development. A small number of additional comments were received after the events; however, these were also not considered to require any specific response or changes to the Proposed Development. The approach to the consultation events has ensured the local community and stakeholders have been given the opportunity to comment on the Proposed Development and provide feedback. Much of the feedback from the public concerned the onshore aspects of the project and therefore is not relevant in the context of the MEAp and Marine Licence Application.

5. Marine Environmental Appraisal (MEAp)

5.1. Designated Sites

To support the marine licence application for the Proposed Development, the following assessments were completed:

- Habitats Regulations Appraisal (HRA)
- Marine Protected Area (MPA) Assessment.

5.1.1. HRA

The HRA considers the potential for likely significant effects resulting from the Proposed Development on ecologically important designated sites such as Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites (wetlands of international importance). The HRA process can have up to three stages:

1. Screening – to check if a project or plan is likely to have a significant effect on designated sites conservation objectives. If this stage concludes not significant effects, there is no requirement to progress to the next stages
2. Appropriate Assessment – to assess the likely significant effects of a plan or project in more detail and identify ways to avoid or minimise any effects
3. Derogation – to consider if a plan or project that would have an adverse effect on a designated site, qualify an exemption

The Stage 1 Screening provided in **Appendix 5A: Habitats Regulations Appraisal Stage 1 Screening**, identified 14 UK European sites as relevant, either because they were in the direct Zone of Influence (ZoI) of the Proposed Development, or they contained mobile qualifying species which could potentially travel into the ZoI of the Proposed Development. Out of 14 sites only 1 was assessed as having a Likely Significant Effect, the Buchan Ness to Collieston Coast SPA. The qualifying features were for breeding common guillemot and breeding European shag for visual disturbance or displacement and in-combination effect for visual disturbance or displacement. Therefore, this site was progressed onto a Stage 2 Appropriate Assessment (AA).

A Report to Inform Appropriate Assessment (RIAA) has been prepared to provide further information to enable the competent authority to carry out an AA of the Proposed Development, this is provided in **Appendix 5B: Habitats Regulations Appraisal Stage 2 Report**

to Inform Appropriate Assessment. The RIAA concluded that following mitigation, there would be no adverse effects on integrity to the Buchan Ness and Collieston Coast SPA from the Proposed Development alone or in-combination with other plans or projects.

5.1.2. MPA Assessment

Having regard to the relevant legislation and the methodology followed, a Stage 1 Initial Screening was undertaken to ascertain whether the Proposed Development can affect (other than insignificantly) the protected features of an MPA. The Stage 1 Initial Screening identified four Nature Conservation Marine Protected Areas (NCMPAs) and three Highly Protected Marine Areas (HPMAs) as relevant, either because they were in the direct ZoI of the Proposed Development, or they contained mobile species which could potentially travel into the ZoI of the Proposed Development. However, Appendix 5C: Marine Protected Area (MPA) Assessment determined that there was no source-pathway-receptor between the potential impacts of 'temperature changes – local', 'accidental Spills' and 'Barriers to species movement' with any of the receptor groups (habitats, benthic species, bird species, geomorphological/geological features, marine mammals and fish and shellfish). These potential impacts were therefore not considered further considered in the Stage 1 Initial Screening

5.2. Marine Physical Processes

Chapter 6: Marine Physical Processes of the MEAp outlines and assesses the potential interaction of the Proposed Development with marine physical processes. The MEAp establishes a baseline of bathymetry and seabed features, water levels, tides and currents, wind and waves, geology and seabed sediments, geomorphology and sediment transport, coastal geomorphology and finally, designated sites.

The seabed within the project boundary is characterised as relatively flat, smooth and featureless. The bathymetry is typically 70m below Lowest Astronomical Tide (LAT), however this changes close to the Scottish coast where it deepens over 100m below LAT. Water levels are predominantly driven by the semi-diurnal tides although non-tidal or meteorological effects also play a role. Offshore currents are orbital and become bi-directional at the proposed submarine cable corridor approaches landfall, where mean wind speed is 7.6 m/s unlike offshore which is slightly higher at 8.1 m/s, which controls the generation of waves. The primary wave direction is from the north, and the frequency is dependent on the varying fetch lengths. Sediment transport is largely dependent on wave action and tidal currents as there are no local significant sediment sources. Under non-storm cloud free conditions SSC values increase slightly close to landfall but remain low at less than 3 mg/l, although there is slight seasonal variability.

The coastline within the Study Area, which encompasses the project boundary as well as a buffer, is characterised by alternating cliff height from 20 m to 40 m and sandy dune backed beaches. The surrounding geology consists of a combination of Triassic rocks, but surrounding the proposed landfall mudstone, gypsum-stone, old red sandstone and igneous rock is present. The Study Area intersects a wide range designated sites including Buchan Ness to Collieston Coast SPA, supporting colonies of seabirds. Other sites include Ythan Estuary, Sands of Forvie and Meikle Loch SPA.

Embedded mitigation measure have been incorporated into the design of the Proposed Development to minimise potential interactions with marine physical processes: horizontal directional drilling (HDD), using non-toxic drilling fluids, micro-routing within the RLB to avoid environmental constraints and seabed features; sediment displaced for exit pits and cable installation will be locally placed and used to backfill; cable protection will be installed only where considered necessary for safe operation and, where possible, will be the same material as the receiving environment; berms will be designed to reduce snagging risk in so far as practicable and the rock will be igneous, clean with flow lines; designated (as minimal as possible) anchoring areas shall be employed during marine operations and maintenance minimising the physical disturbance of the seabed.

The potential impacts of the Proposed Development on marine physical processes during construction, operation and maintenance and decommissioning are disturbance of sub-tidal seabed morphology, disturbance to intertidal morphology and temporary increase in suspended sediment concentrations and subsequent deposition during construction. All effects on marine physical processes are assessed as Negligible or Minor and Not Significant.

All effects on marine physical processes are assessed as **Negligible** or **Minor Adverse** (**Not Significant**). Therefore, no further mitigation is required.

For marine physical processes cumulative effects of disturbance of sub-tidal seabed morphology, disturbance of intertidal morphology during construction and temporary increases in SSCs and subsequent deposition during construction are assessed in-combination with Eastern Green Link 2, Morven and Ossian Offshore Wind Farms and NorthConnect cable. In all instances, the cumulative effects are assessed as **Minor** or **Negligible** and **Not Significant**.

5.3. Intertidal and Subtidal Benthic Ecology

Chapter 7: Intertidal and Subtidal Benthic Ecology of the MEAp outlines and assesses the potential interaction of the Proposed Development with intertidal and benthic ecology. The MEAp establishes a baseline of intertidal (the area above low tide that is sometimes not covered with seawater) and subtidal (the area below low tide that is always underwater) benthic ecology. The subtidal

benthic habitats identified along the Proposed Development were generally dominated by rock, sand, coarse sediment and mixed sediments. The sediment characteristics of these habitats comprised varying proportions of rock, gravel, sand, and fine sediments.

The Scottish landfall is dominated by high energy rock. The priority marine feature (PMF) '*Laminaria hyperborea* on Tide-swept infralittoral rock' and medium reef structures of Annex I stony reef are present at Peterhead nearshore. Low reef structures of Annex I *Sabellaria spinulosa* reef are also present along the Proposed Development and occurrences of small, young individuals of ocean quahog (a bivalve species, and PMF) were found in grab samples collected near the Scottish-English adjacent waters boundary.

Embedded mitigation measures have been incorporated into the design of the Proposed Development to minimise potential interactions with benthic ecology: horizontal direction drilling (HDD), using non-toxic drilling fluids, will be used at the landfall to avoid damage to intertidal habitats and species; external rock cable protection will only be used where necessary for the safe installation of the cable and, where possible, will be the same material as the receiving environment (e.g. granite will be used in areas of granite) to minimise the footprint of permanent habitat loss from external rock cable protection; all project vessels and materials added to the marine environment will be cleaned prior to use to avoid the accidental spread of marine invasive non-native species (a species that is moved to a different place by human activity and causes harm) and cables will be bundled to reduce EMF.

The potential impacts of the Proposed Development on benthic ecology during construction and decommissioning are temporary habitat loss from seabed abrasion and penetration, permanent habitat loss from external rock cable protection and temporary increase and deposition of suspended sediments. During the operation and maintenance phases of the Proposed Development, potential impacts include permanent loss of subtidal benthic habitats and species (in areas of rock placement), temporary habitat loss from seabed abrasion and penetration during repairs (if needed), temporary increase and deposition of suspended sediments during repairs (if needed), electromagnetic field (EMF) on subtidal species and thermal emissions (heat produced by the cables) on subtidal species. In all cases, significance of the effects was assessed as **Negligible** to **Minor (Not Significant)**, therefore no additional mitigation is proposed.

For intertidal and benthic ecology, the cumulative effects of temporary habitat loss, permanent habitat loss, temporary increase and deposition of suspended sediments, EMF, and temperature increase are assessed in-combination with Eastern Green Link 2 and Cenos Floating Offshore Wind Farm. In all instances, the cumulative effects are assessed as **Negligible** to **Minor** (**Not Significant**).

5.4. Fish and Shellfish

Chapter 8: Fish and Shellfish of the MEAp outlines and assesses the potential interaction of the Proposed Development with fish and shellfish receptors. The MEAp established a baseline of fish and shellfish diversity, abundance, and spatiotemporal distributions within five International Council for the Exploration of the Sea (ICES) rectangles, which were created by ICES to allow for simplistic management and policy decisions for fisheries.

Landings statistics from commercial fishing activities revealed herring, haddock, mackerel and whiting to be landed in the highest numbers from the ICES rectangles for fish, whilst edible/brown crab, scallop, and nephrops were the shellfish species landed in the highest volumes. Count data from scientific trawl surveys were also examined from the ICES rectangles, which found herring, haddock, whiting, spray and grey gurnard to be the topmost abundant five fish species, with European common squid, nephrops, long finned squid, queen scallop and spiny spidercrab to be the most abundant shellfish species, although some of these were in low numbers.

Embedded mitigation measures have been incorporated into the design of the Proposed Development to minimise potential interactions with fish and shellfish receptors. For example, external rock cable protection will only be used where necessary for the safe installation of the cable. This will help to minimise the footprint of permanent habitat loss from external rock cable protection, and high voltage direct current (HVDC) poles would be bundled to minimise effects of electromagnetic fields. No additional mitigation is proposed.

The potential impacts of the Proposed Development on fish and shellfish are from temporary habitat loss/seabed disturbance due to seabed abrasion and penetration, during construction and any maintenance works during operation; permanent habitat loss during construction due to the deposit of external cable protection; temporary increase and deposition of suspended sediments due to pre-sweeping during construction and decommissioning; electromagnetic changes/barrier to species movement due to electromagnetic fields produced by the operational cable during operation; and temperature increase near to the operational cable during operation. In all cases, significance of the effects was assessed as **Negligible** to **Minor (Not Significant)**.

For fish and shellfish, the cumulative effects of temporary habitat loss, permanent habitat loss, temporary increase and deposition of suspended sediments, EMF, and temperature increase are assessed in-combination with Eastern Green Link 2 and Cenos Floating Offshore Wind Farm. In all instances, the cumulative effects are assessed as **Minor** (**Not Significant**)**.**

5.5. Intertidal and Offshore Ornithology

Chapter 9: Intertidal and Offshore Ornithology of the MEAp outlines and assesses the potential interaction of the Proposed Development with bird species which are likely to be present in the area. The MEAp establishes a baseline of intertidal (the area above low tide that is sometimes not covered with seawater) and offshore (the area below low tide that is always underwater) ornithology receptors. The most frequently recorded intertidal bird species identified within the intertidal zone in the Proposed Development are herring gull (*Larus argentatus*), European shag (*Phalacrocorax aristotelis*), black-legged kittiwake (*Rissa tridactyla*), common gull (*Larus canus*) and Sandwich tern (*Thalasseus sandvicensis*). In the offshore area along the Proposed Development, bird species recorded during surveys for nearby offshore wind projects generally fall into one of four functional group categories: divers, grebes and mergansers (e.g., European shag); seaducks, geese and swans (e.g., barnacle goose (*Branta leucopsis*); auks (e.g., common guillemot (*Uria aalge*) and terns; gulls, kittiwakes and gannets (e.g., Northern fulmar (*Fulmarus glacialis*).

The Buchan Ness to Collieston Coast Special Protection Area (SPA) is designated for five breeding seabirds (black-legged kittiwake, common guillemot, European shag, fulmar and herring gull) as well as an internationally important seabird assemblage of more than 20,000 seabirds in the breeding season. The Proposed Development overlaps with the Buchan Ness to Collieston Coast SPA for 205 m on approach to the Sandford Bay Landfall. However, the Proposed Development does not overlap with any of the sea cliff habitat components of this site which form important habitat for breeding seabirds.

Embedded mitigation measures have been incorporated into the design of the Proposed Development to minimise potential interactions with marine birds: existing shipping lanes would be used for vessel transiting routes, where practicable, to minimise visual and physical disturbance or displacement of marine birds; vessels will avoid areas of high densities of birds, where practicable, and vessel operators will be informed of seabird sensitivity and importance; artificial lighting on vessels will only be used when necessary; and where possible areas of bird prey habitat will be avoided.

The potential impacts of the Proposed Development on marine birds during construction, operation & maintenance and decommissioning are temporary increase and deposition of suspended sediments, changes in distribution of prey species and visual/physical disturbance or displacement. Impacts from temporary increase and deposition of suspended sediments and changes in distribution of prey species was assessed as **Negligible** to **Minor Adverse (Not Significant**). Impacts from visual and physical disturbance to designated species of the Buchan Ness to Collieston Coast SPA was assessed as **Moderate Adverse** (**Significant**).

Project specific mitigation measures for marine birds have been recommended because of significant effects of visual/physical disturbance or displacement on designated species of the Buchan Ness to Collieston Coast SPA during the breeding season (March to September). As part of this mitigation, vessels associated with the Proposed Development must avoid entering the Buchan Ness to Collieston Coast SPA during the period 01 March to 15 September inclusive and must avoid approaching cliffs where nesting birds are present. In addition, all vessels operating within 12 nautical miles (NM) of the coastline will have the boundary of the Buchan Ness to Collieston Coast SPA marked on their navigational systems, vessel routes will be planned to avoid entering the Buchan Ness to Collieston Coast SPA, and contractors must adhere to the Scottish Marine Wildlife Watching Code. With this mitigation, the residual effect of visual/physical disturbance or displacement on designated species of the Buchan Ness to Collieston Coast SPA is assessed as **Minor Adverse** (**Not Significant**).

For ornithology receptors, the effects of temporary increase and deposition of suspended sediments, changes in the distribution of prey species and visual/physical disturbance or displacement were assessed in-combination with the effects of Eastern Green Link 2, Ossian Floating Offshore Wind Farm, Cenos Floating Offshore Wind Farm and Muir Mhor Offshore Wind Farm. In all instances, the effects were assessed as Negligible or Minor, and Not Significant.

5.6. Marine Mammals and Reptiles

Chapter 10: Marine Mammals and Marine Reptiles of the MEAp outlines and assesses the potential interaction of the Proposed Development with cetaceans (porpoises, dolphins and whales), pinnipeds (grey and harbour seal) and otter.

The Southern North Sea Special Area of Conservation (SAC) is designated for harbour porpoise and is situated 133.1 km south of the Proposed Development. The Moray Firth SAC is designated for a residential group of bottlenose dolphin and is situated approximately 92.5 km to the northwest of the Proposed Development. The Southern Trench Nature Conservation Marine Protected Area (NCMPA) is designated for minke whale and is located 0.001km from the Proposed Development.

Embedded mitigation measures have been incorporated into the design of the Proposed Development to minimise impacts to marine mammals: geophysical survey will comply with the Joint Nature Conservation Committee (JNCC) guidelines for minimising risk of injury and disturbance to marine mammals, HVDC poles will be bundled to minimise effects of EMF, all vessels (exceeding 20m) shall not exceed 14 knots during construction operations within the red-line boundary and all vessels will adhere to the Scottish Marine Wildlife Watching Code. A Marine Mammal Mitigation Plan (MMMP) would also be produced as a condition to the marine licence which would contain further mitigation measures specific to marine mammals.

The potential impacts of the Proposed Development on marine mammals during construction, operation & maintenance and decommissioning are changes in distribution of prey species and underwater noise changes. In all cases, significance of the effects was assessed as **Negligible** to **Minor (Not Significant)**. No additional mitigation is proposed.

For marine mammals and reptiles receptors, it was concluded for all the designated sites that the Proposed Development impacts will not have a cumulative effect with the surrounding projects; EGL2, Morven Offshore Wind Farm, Ossian Floating Offshore Wind Farm, and Bowden Offshore Wind Farm, as the impacts to prey distribution is a much larger than the Proposed Developments. Therefore, it is concluded that there will be no detectable contribution to a cumulative effect resulting from this impact. The cumulative effect of underwater noise is assessed as **Negligible** (**Not Significant)**.

5.7. Shipping and Navigation

Chapter 11: Shipping and Navigation of the MEAp outlines and assesses the potential interaction of the Proposed Development on shipping and navigation. The MEAp establishes a baseline of vessel type distribution, navigational features and recreational activity. The Scottish landfall experiences an increase in marine traffic because of Aberdeen and Peterhead ports; the majority are cargo vessels heading in a north-east direction crossing the cable route. Passenger vessel density is higher approximately 6 km offshore due to numerous ferry routes. However, smaller fishing and recreational vessels may be underrepresented through their unreliable use of AIS, therefore vessel traffic may be higher than represented inshore. Saying this, collision incidents are rare, with one recorded in 2023.

The Proposed Development runs parallel between areas proposed for two windfarm developments, Morven OWF and Ossian OWF. Whilst not currently in construction they are planned to start in 2027 and 2031. A Military Practice Area is located between both developments; these are important navigational features to be aware of within the study area.

The potential impacts of the Proposed Development on shipping and navigation during construction, operation and maintenance and decommissioning include increased risk of vessel collisions, disturbance to existing shipping and fishing patterns, accidental anchor strike or drag onto exposed submarine cable, accidental snagging of fishing gear, reduction in under-keel clearance, Proposed Development vessels blocking navigational features and impact on human safety due to reduced visibility. Interference with marine navigational equipment is a specific impact during operation and maintenance.

Embedded mitigation measures have been incorporated into the design of the Proposed development to minimise potential interactions with shipping and navigation during construction this will include: vessels requested to maintain a minimum distance from construction vessels to prevent interactions; communication will be given to sea users in the area via warnings and/or broadcast warnings; procedures in place to minimise disruption near high density shipping areas e.g. avoidance of anchoring near busy areas; fisheries working groups will be maintained throughout installation to ensure information is effectively disseminated, dialogue maintained with the commercial fishing industry and access to home ports maintained during the main fishing season; communications with vessel traffic services (VTS) in port areas to keep vessels and other marine users updated; coordination of simultaneous operations with other developers and marine activities to be undertaken prior to the commencement of operations; pollution events will be managed through Project Emergency Response Plan, Marine Pollution Contingency Plan and specifically the Shipboard Oil Pollution Emergency Plan (SOPEP); Guard vessels will monitor vessel activity and predict possible interactions. During operation embedded mitigation can include bundles HVDC poles to minimise EMF effects; cables will be marked on Admiralty charts and fisherman's awareness charts; CBRA to identify appropriate target depth reducing the chance of interaction with other marine users.

For most cases the significance of effects on shipping and navigation are assessed as **Negligible** or **Minor Adverse** (**Not Significant**). However, disturbance to existing shipping and fishing patterns and Proposed Development vessels blocking navigational features are assessed as moderate and potentially significant. However, no further project specific mitigation is required as the risks are reduced to As Low as Reasonably Practicable (ALARP) with embedded mitigation.

The impacts for cumulative effects were assessed in-combination with Bowdun, Morven and Ossian Offshore Wind Farms, Flora (INTOG) BP Northeast Offshore Wind, NorthConnect and EGL 2 projects. The impacts were recognised as increased risk of vessel collisions which was concluded as **Minor** (**Not Significant**). Unlike, disturbance to existing shipping and fishing patterns and project vessels blocking navigational features, which was assessed as **Moderate** (**Potentially Significant**). However, no further project specific mitigation is required as the risks are reduced to As Low as Reasonably Practicable (ALARP) with embedded mitigation

5.8. Commercial Fisheries

Chapter 12: Commercial Fisheries of the MEAp outlines and assesses the potential interaction of the Proposed Development with commercial fisheries receptors. The MEAp established a baseline of vessel nationality, landing ports, gear types, catch volumes and catch values, temporal landings values, surveillance sightings of gear types, and fishing gear effort, within and around five ICES rectangles, which were created by ICES to allow for simplistic management and policy decisions for fisheries.

Landings statistics from commercial fishing activities from years 2019 to 2023 revealed the largest volumes of landed catch to be from vessels over 10m length, and primarily from demersal trawls, followed by pelagic trawls, and creels/pots. From year 2023, pelagic catch volumes contributed to the highest portion of catch.

Embedded mitigation measures have been incorporated into the design of the Proposed Development to minimise potential interactions with commercial fisheries. For example, a fisheries liaison officer and fisheries working groups will ensure project information is effectively shared with fishers, and cable protection would be designed to prevent risks of fishing gear snagging. No additional mitigation is proposed.

The potential impacts of the Proposed Development on commercial fisheries are from temporary restricted access to fishing ground, temporary displacement of fishing activity into other areas, loss of grounds, and changes in distribution of target species, during all project stages. In all cases, significance of the effects was assessed as **Negligible** to **Minor Adverse** (**Not Significant**).

Cumulative effects have been assessed for temporary restricted access to fishing ground, temporary displacement of fishing activity into other areas, loss of grounds, and changes in distribution of target species, for projects Flora OWF, Bowdun OWF, Muir Mhòr OWF, Ossian Floating OWF, Morven OWF, NorthConnect, MarramWind OWF, Cenos Floating OWF, Aspen Floating OWF, and EGL2. In all cases, cumulative effects were assessed as **Minor Adverse** (**Not Significant**).

5.9. Other Marine Users

Chapter 13: Other Marine Users of the MEAp outlines and assesses the potential interactions between the Proposed Development and Other Marine Users. The baseline characterisation sections include information on Offshore Wind Farms (OWF), power and telecommunication cables, Carbon Capture and Storage (CCS) and natural gas storage sites, aggregate extraction sites, and oil and gas operations. The baseline has been established by undertaking a desktop review of published information and through consultation with relevant bodies.

The following were identified within the study area:

- Offshore Wind Farms
  - Hywind Demo Site (at Buchan Deep) – operational
  - Bowdun OWF – pre-planning stage
  - Morven OWF – pre-planning stage
  - Ossian OWF – planning stage
- Cables
  - North Connect KS (interconnector) – planning stage (licence expired)
  - Eastern Green Link 2 (power reinforcement project) – in construction
  - TAMPNET CNSFTC (telecommunications cable) – operational
  - Cenos Offshore Wind Farm Transmission Infrastructure- planning stage, this follows the route of the North Connect KS interconnector in territorial waters
  - Aspen Offshore Wind Farm Transmission Infrastructure- pre -planning stage
  - Marram Wind Transmission Infrastructure – pre-planning stage
- Oil and Gas
  - Forties C to Cruden Bay PL721 pipeline – operational
  - Forties C to Cruden Bay PL8 pipeline – abandoned
- Carbon Capture and Storage
  - Acorn CCS – planning stage

Furthermore, there are two designated 'bathing waters' close to the proposed Scottish landfall. These sites (Cruden Bay and Peterhead Lido) were classified as having a good or excellent bathing water status in 2022/23. The study area is also used for scuba diving, sailing, cruising, water sports and angling.

Embedded mitigation measures have been incorporated into the design of the Proposed Development to minimise potential interactions with other marine users. For example, timely and efficient communication will be given to sea users in the area via Notices to Mariners (NtM), Kingfisher Bulletins, Radio Navigation Warnings Navigational Telex (NAVTEX and Navigational Areas (NAVAREA) warnings and /or broadcast warnings and as-built locations of cable and external protection will be supplied to UKHO (Admiralty), The Crown Estate Scotland and Kingfisher (KIS-ORCA)

The potential impacts of the Proposed Development on other marine users are interaction with other seabed infrastructure, occupancy of the seabed (below seabed) and occupancy of the seabed (on the seabed). In all cases, significance of the effects was assessed as **Minor Adverse** (**Not Significant**).

Cumulative effects have been assessed for interaction with other seabed infrastructure, occupancy of the seabed (below seabed) and occupancy of the seabed (on the seabed) for projects Bowdun OWF, Muir Mhòr OWF, Ossian Floating OWF, Morven OWF, NorthConnect, MarramWind OWF, Cenos Floating OWF, Aspen Floating OWF, and EGL2. In all cases, cumulative effects were assessed as **Minor Adverse** (**Not Significant**).

5.10. Marine Archaeology

Chapter 14. Marine Archaeology of the MEAp outlines and assesses the potential interaction of the Proposed Development with marine archaeology. The MEAp establishes a baseline of submerged prehistory, maritime and intertidal archaeology (up to 12m), maritime archaeology (beyond 12m) and aviation archaeology. The North Sea contains archaeological remains dating back to almost one million years ago, as well as the identification of nine quaternary formations where most units have been interpreted as marine or glacial marine in origin, suggesting a very low potential for in situ archaeological remains and paleoenvironmental evidence. There is a slight potential for redeposited remains with secondary contexts, however evidence suggests this may be unlikely.

The assessment identified 998 non-designated heritage assets within the study area. The walkover survey identified two structures relating to an Historic Environment Record including a stone jetty, mooring fixture and a wooden element representing part of a wreck. There are numerous documented losses of debris, wreckage and lost cargo within 12 NM of the study area, where only one lies within the RLB. Only three aircraft documented losses were recorded however no know aircraft sites lie within the Study Area.

Embedded mitigation measures have been incorporated into the design of the Proposed Development to minimise potential interactions with marine archaeology: Archaeological Exclusion Zones (AEZs) and Temporary Archaeological Exclusion Zones (TAEZs) will be implemented around known and potential marine archaeological receptors, a consultant archologist will implement and provide guidance on the Written Scheme of Investigation (WSI) which will set out responsibilities of contractors and outline the receptors that could be impacted by the project, the Protocol for Archaeological Discoveries (PAD) will be followed when reporting unexpected finds of archaeological interest.

The potential impacts of the Proposed Development on marine archaeology during construction, operation and maintenance, are both direct and indirect on, known archaeological sites and high/medium potential geophysical anomalies, low potential geophysical anomalies, magnetic anomalies and unknown archaeological sites and remains. During construction, operation and maintenance and decommissioning, direct and indirect impacts apply to sub-seabed deposits of paleoenvironmental potential. All effects on marine archaeology are assessed as **Minor Adverse** (**Not Significant**). Therefore, no additional mitigation is required.

For marine archaeology, the cumulative effects of direct and indirect impacts from redeposition of suspended sediment, sediment removal and scouring are assessed in-combination with Morven Offshore Wind Farm, NorthConnect and Eastern Green Link 2 (EGL 2) cables. In all instances the cumulative effects are assessed as **Minor Adverse** (**Not Significant**).

6. Non-Technical Summary Conclusions

A summary of the conclusions from the MEAp are provided in **Table 6-1**.

Table 6-1 MEAp Conclusions Summary

Topic	Conclusions
Designated Sites	In terms of the effects on designated sites all sites were screened out except for the Buchan Ness to Collieston Coast SAC, which was taken forward for further analysis. Following a detailed Appropriate Assessment, it was confirmed that there would be no adverse effects on the integrity of this SAC. Additionally, the MPA Assessment concluded that all MPA sites were screened out and did not require further consideration
Marine Physical Processes	It was concluded that potential impacts from the Proposed Development such as disturbance to seabed and intertidal morphology and temporary increases in suspended sediment were assessed as **Negligible** to **Minor Adverse** (**Not Significant**) across all phases, including construction, operation, maintenance, and decommissioning.
Intertidal and Subtidal Benthic Ecology	It was concluded that potential impacts on benthic habitats and species from the Proposed Development across construction, operation, maintenance, and decommissioning phases were assessed **Negligible** to **Minor Adverse** (**Not Significant**). These included temporary and permanent habitat loss, sediment disturbance, and potential effects from electromagnetic fields and thermal emissions.
Fish and Shellfish	It was concluded that potential impacts from the Proposed Development including temporary and permanent habitat loss, sediment disturbance, and effects from electromagnetic fields and heat during operation, were assessed as **Negligible** to **Minor Adverse** (**Not Significant**) across all phases.
Intertidal and Offshore Ornithology	It was concluded that potential impacts from the Proposed Development including temporary sediment disturbance and changes in prey distribution during construction were assessed as **Negligible** to **Minor Adverse (Not Significant**) across all phases. Following project specific mitigation, impacts from visual/physical disturbance or displacement were assessed as **Minor Adverse** (**Not Significant**).

Marine Mammals and Marine Reptiles	It was concluded that potential effects from the Proposed Development during construction, operation and maintenance, and decommissioning were addressed as **Negligible** to **Minor Adverse (Not Significant**). These effects can be effectively managed through the embedded design and control measures, and no additional mitigation is considered necessary.
Shipping and Navigation	It was concluded that most potential impacts from the Proposed Development such as increased collision risk, gear snagging, and reduced visibility—were assessed as **Negligible** or **Minor Adverse** (**Not Significant**). However, disturbance to existing shipping and fishing patterns and the potential for construction vessels to block navigational features were assessed as **Moderate Adverse** (**Potentially Significant**). These risks have been reduced to ALARP through embedded mitigation measures, and no further project specific mitigation is required.
Commercial Fisheries	It was concluded that potential impacts from the Proposed Development such as temporary restricted access to fishing grounds, displacement of fishing activity, loss of grounds, and changes in target species distribution were assessed as **Negligible** to **Minor Adverse** (**Not Significant**) across all project stages. Embedded mitigation, including the appointment of a fisheries liaison officer, ongoing engagement with fisheries working groups, and cable protection design to reduce gear snagging risks, is considered sufficient, and no additional mitigation is proposed.
Other Marine Users	The potential impacts of the Proposed Development on other marine users during operation are interaction with other seabed infrastructure, occupancy of the seabed (below seabed) and occupancy of the seabed (on the seabed). In all cases, significance of the effects was assessed as **Minor Adverse** (**Not Significant**).
Marine Archaeology	It was concluded that potential direct and indirect impacts on known and unknown archaeological sites, geophysical anomalies, and sub-seabed deposits with paleoenvironmental potential were assessed as **Minor Adverse** (**Not Significant**) across all phases of the Proposed Development. Embedded mitigation measures such as AEZs, WSI, PAD will be implemented to manage potential interactions.