



Eastern Green Link 2 - Marine Scheme

Environmental Appraisal Report Volume 2

Chapter 1 - Introduction

nationalgrid



National Grid Electricity Transmission and Scottish Hydro Electric Transmission plc

June 2022

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Table of Contents

1.	Introduction.....	1-1
1.1	General Introduction	1-1
1.2	Need for the Project.....	1-4
1.3	Project Overview.....	1-5
1.4	The Marine Scheme.....	1-5
1.5	Regulatory Context	1-5
1.6	The Applicant	1-7
1.7	The Environmental Appraisal	1-7
1.8	Availability of the Environmental Appraisal Report	1-9
1.9	References	1-9

Figures

Figure 1-1: The Marine Scheme.....	1-2
Figure 1-2: Scope of the Marine Scheme	1-3

Tables

Table 1-1: Structure of the Environmental Appraisal	1-8
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1. Introduction

1.1 General Introduction

National Grid Electricity Transmission (NGET) and Scottish and Southern Electricity Networks (SSEN) Transmission (also known as Scottish Hydro Electric Transmission plc (SHE Transmission) under licence) (hereafter collectively referred to as 'the Applicant') are jointly developing a submarine High Voltage Direct Current (HVDC) link between Peterhead in Aberdeenshire and Drax in North Yorkshire, referred to as the Eastern Green Link 2 Project (hereafter referred to as 'the Project') (Figure 1-1). NGET will be the Transmission Operator (TO) within English jurisdiction and SHE Transmission will be the TO within Scottish jurisdiction.

NGET and SHE Transmission are submitting Marine Licence Applications (MLAs) to the Marine Scotland Licensing Operations Team (MS-LOT) and to the Marine Management Organisation (MMO) for the marine elements of the Project referred to as the 'Marine Scheme', which extend up to Mean High Water Springs (MHWS) at both the Scottish and English landfalls.



The onshore components of the Project, referred to as the Scottish Onshore Scheme and the English Onshore Scheme, will be subject to two separate consenting processes under the Town and Country Planning (Scotland) Regulations 1997, and Town and Country Planning Act 1990. Applications will be submitted to Aberdeenshire Council, and East Riding of Yorkshire Council and Selby District Council respectively, supported by the relevant environmental studies.

The spatial extent of the Marine Acts (Marine and Coastal Access Act 2009 and the Marine (Scotland) Act 2010) and Town and Country Planning Acts (Town and Country Planning Act (Scotland) 1997 and Town and Country Planning Act 1990) overlap between MHWS and Mean Low Water Springs (MLWS). On this basis, the intertidal zone is covered within the scope of both Marine Scheme as well as the respective Onshore Scheme's consent applications, within the respective jurisdictions. A schematic showing the extent of the Marine Scheme is provided in Figure 1-2.

Advice from MS-LOT (02 December 2020) and MMO (16 March 2021) set out their respective formal positions that the Marine Scheme is not considered to be 'EIA Development' under the terms of the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the Scottish EIA Regulations) and The Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (the English EIA Regulations). However, NGET and SHE Transmission, in line with their statutory obligations as Transmission Operators (TOs) under Schedule 9 of the Electricity Act 1989, consider it important to provide comprehensive information about the Project's potential environmental impacts, which are presented in this non-statutory Environmental Appraisal Report (EAR), prepared to accompany the MLAs to MS-LOT and the MMO. Further information is provided in Section 1.5.3 regarding the TOs obligations.

This EAR has been prepared by appropriately qualified and experienced environmental specialists from AECOM UK Ltd, supported by Wessex Archaeology, Xodus Group Ltd, and Brown and May Marine Ltd.

PROJECT
Eastern Green Link 2

- KEY**
-  Marine Installation Corridor
 - UK Territorial Sea Limit
 -  Scottish/English Water Border

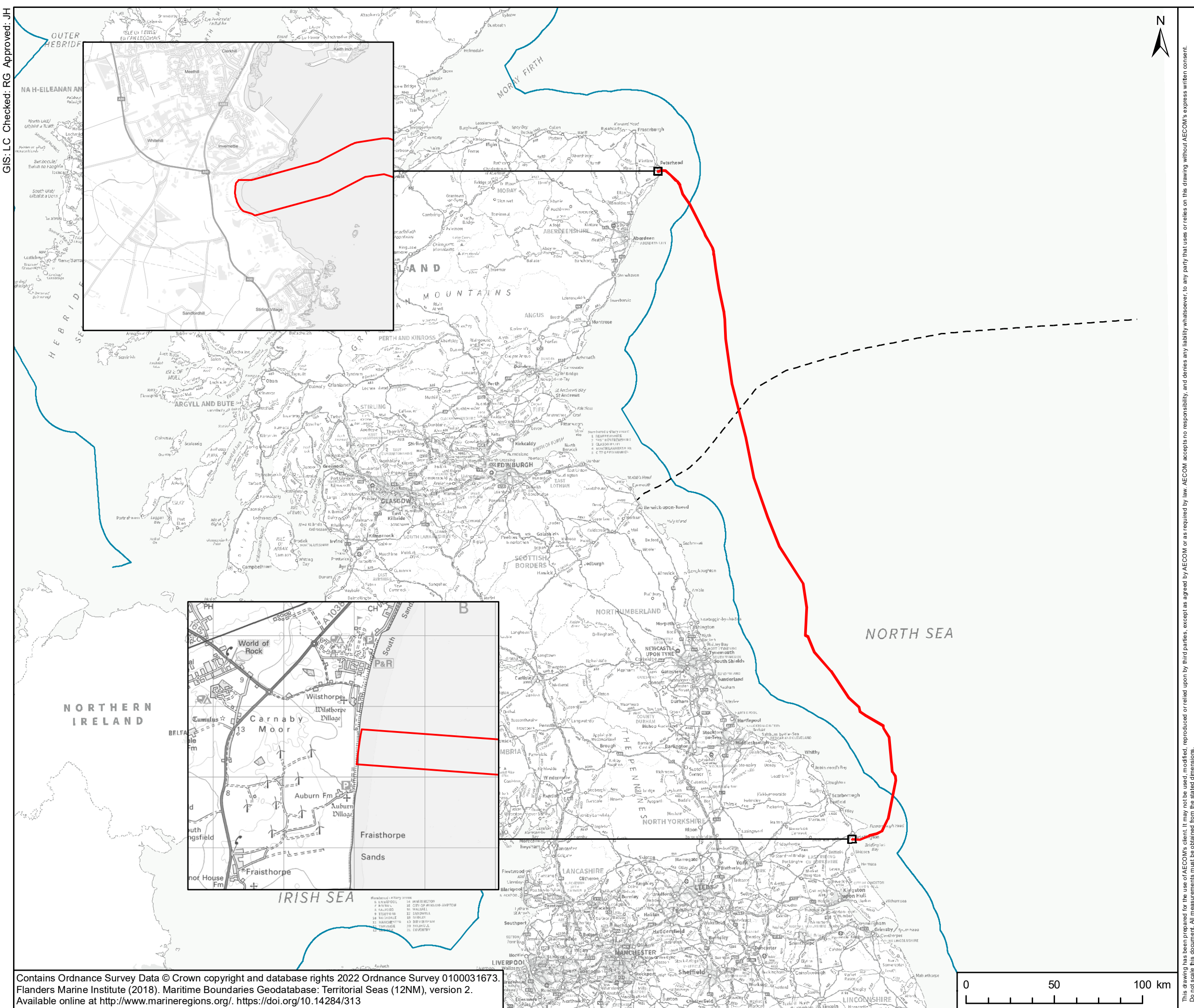
TITLE

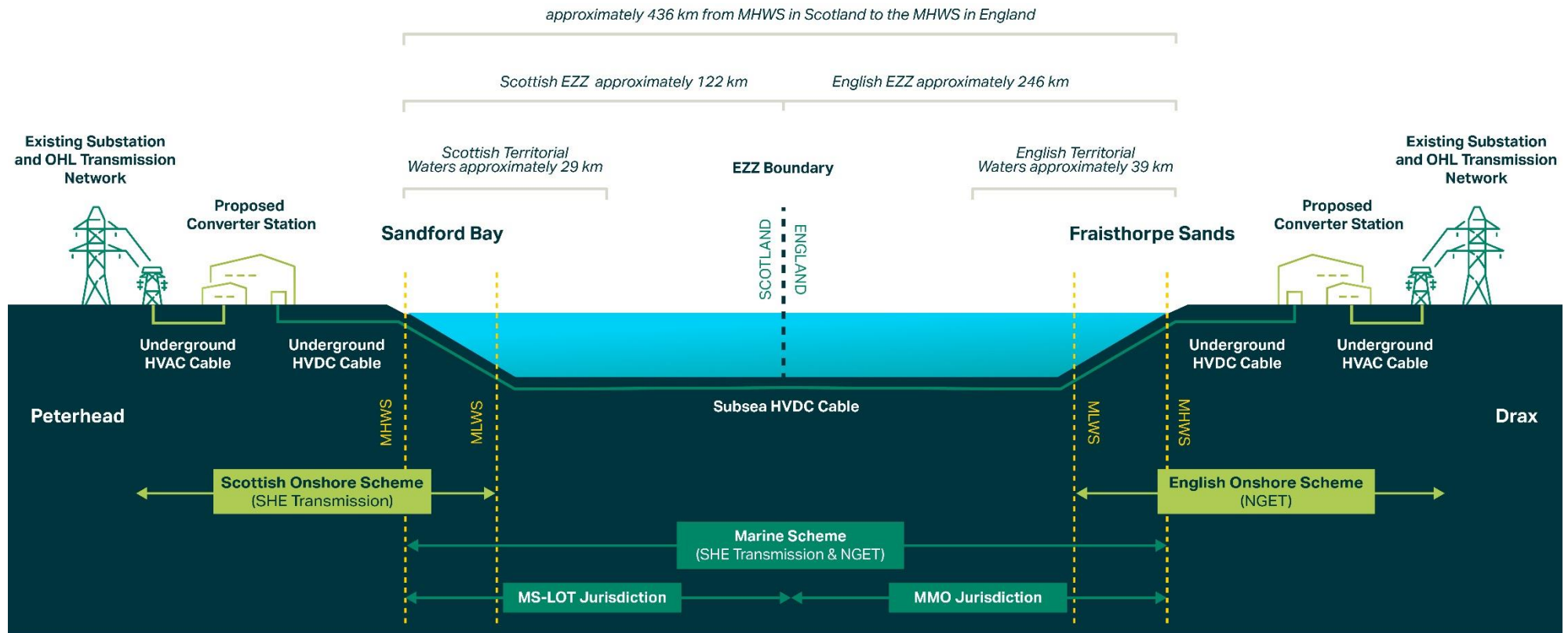
Figure 1-1
The Marine Scheme

REFERENCE

SEGL2_M_EAR_1-1_v2_20220511

SHEET NUMBER	DATE
1 of 1	11/05/2022





Key:

HVDC - High Voltage Direct Current
HVAC - High Voltage Alternating Current
OHL - Overhead Line
MHWS - Mean High Water Springs

MLWS - Mean Low Water Springs
MMO - Marine Management Organisation
MS-LOT - Marine Scotland Licensing Operations Team
NGET - National Grid Electricity Transmission

SHE Transmission - Scottish Hydro Electric Transmission
EZZ - Exclusive Economic Zone

Figure is not to scale.

Figure 1-2: Scope of the Marine Scheme

1.2 Need for the Project

The UK is a world leader in offshore wind energy (UK Research and Innovation, 2021) and its target of achieving net-zero in all greenhouse emissions by 2050 for England and Wales (under the Climate Change Act 2008 (2050 Target Amendment) Order 2019) and by 2045 for Scotland (under the Climate Change (Scotland) Act 2009 (as amended)) is now enshrined in law. In addition, the Government has shown clear commitment to developing offshore wind at scale through the recent Ten Point Plan and Energy White Paper (UK Government, 2020), identifying a target of delivering 40 gigawatts (GW) of wind energy by 2030, enough to power every home in the UK.

New North Sea developments, including offshore wind farms, interconnectors, and transmission system reinforcements will be essential to meeting these climate change targets and driving economic growth across the country. The Project will form part of the UK transmission system and is not an interconnector.

As the UK transitions away from traditional forms of fuel to power vehicles and heat homes, there will be a greater need for renewable and low carbon electricity. By the end of this decade, every home in the country has the potential to be powered by renewable energy (UK Government, 2020). To move this renewable and low carbon energy from its source and into people's homes and businesses the UK needs to increase the capability of its electricity transmission network.

The Project is a major reinforcement of the electricity transmission system which will provide additional transmission capacity between the north and south of the UK across transmission network boundaries, ensuring that green energy is transported from where it is produced to where it is needed. It is particularly required to help bring Scotland's extensive reserves of renewable energy to millions of homes across the rest of the UK.

The divergence between existing and required boundary transfer capability between now and the late 2020s drives the need for the Project. Reinforcements to provide increased boundary transfer capability are required to ensure the economic and efficient operation of the transmission system in line with NGET's and SHE Transmission's statutory obligations. This will prevent excessive constraints from occurring and allow the network to keep pace with projected growth supporting the UK and Scottish Governments' net zero ambitions.

The primary objective of the project is to reinforce the electricity network and increase transmission capacity across the B7 boundary between southern Scotland and northern England before 2030

Balancing the cost of investing in the network against the costs of constraints is undertaken by National Grid Electricity System Operator (National Grid ESO, which is entirely separate entity to NGET) and overseen by the Office of Gas and Electricity Projects (Ofgem). Reviews include:

- Future Energy Scenarios (FES) – these are developed annually by National Grid ESO with input from industry and other stakeholders. The FES represent a range of different, credible ways in which the energy system could evolve taking account of policy and legislation, including net zero targets.
- Electricity Ten Year Statement (ETYS) – using data from the FES, National Grid ESO undertakes an annual assessment to identify points on the transmission system where more network capability is needed to ensure that energy is delivered efficiently and reliably to where it is needed.
- Network Options Assessment (NOA) – the Transmission Owners and other stakeholders respond to ETYS with solutions to address network capability requirements. These are assessed by National Grid ESO so that the most economic and efficient solutions are recommended to proceed, and others told to hold or stop.

The need for the Project has been identified and assessed as part of this continuous annual cycle.

A second HVDC link, Scotland England Green Link 1 (SEGL1) / Eastern Link 1 (EL1) from Torness in East Lothian to Hawthorn Pit in County Durham, is also being developed by NGET and Scottish Power Transmission (SPT), however that project is subject to separate MLAs.

1.3 Project Overview

The Eastern Green Link 2 Project comprise the following components:

- **Scottish Onshore Scheme:** From the existing transmission system and an adjacent substation approximately 1 km of buried high voltage alternating current (HVAC) cable will connect to a proposed converter station. A further approximately 1 km of buried HVDC will extend from the proposed converter station to the landfall at Sandford Bay, Peterhead. The scope of the Scottish Onshore Scheme ends at MLWS, and is covered by a separate consent application which was submitted in November 2021 to Aberdeenshire Council and permission granted in May 2022 (APP/2021/2681);
- **Marine Scheme:** Commencing at MHWS within Sandford Bay, approximately 436 km of submarine HVDC cable, comprising 150 km in Scottish waters and 286, km in English waters, will extend to MHWS at Fraithorpe Sands on the East Riding of Yorkshire coast. This comprises the subject of the MLAs to MS-LOT and the MMO, which this EAR supports; and
- **English Onshore Scheme:** From MLWS at Fraithorpe Sands, approximately 67 km of underground buried HVDC will connect to a proposed converter station in Drax within the Selby District. The proposed converter station will then connect to an existing substation within the boundary of the Drax Power Station by approximately 100 m of HVAC cable. This is subject to a separate consent application which was submitted to East Riding of Yorkshire Council (Planning Portal Ref: PP-11285186v1BZD) and Selby District Council (Planning Portal Ref: PP-11291708v1GQS) in May 2022.

There is overlap between the Marine Scheme and the Onshore Schemes in the intertidal zone between MLWS and MHWS (illustrated in Figure 1-2). This EAR has been prepared for the scope of the Marine Scheme only.

1.4 The Marine Scheme

The HVDC cable system, comprising two HDVC single core metallic conductors and a separate fibre optic (FO) cable, will be installed within a 500 m wide installation corridor (hereinafter referred to the 'Marine Installation Corridor'). The cables will either be laid separately or as a single bundle. If the conductors are laid separately, the separation between them will be up to 30 m, with the FO cable bundled with one of the conductors.

At both the Scottish and English landfalls the cable system will be installed beneath the intertidal zone using Horizontal Directional Drilling (HDD) to install cable ducts from the temporary Transition Joint Pit (TJP) located landward of MHWS (and therefore not part of the Marine Scheme and not considered further in this EAR) to the location of the exit pit located offshore.

The Marine Scheme is described in detail within Chapter 2: Project Description.

1.5 Regulatory Context

The regulatory regime is such that each of the components of the Project requires separate permissions and licences from different authorities. The separate permissions and licences are being sought for the Marine Installation Corridor, which will encompass the eventual route of the installed cables. It is recognised that within this corridor, there will be flexibility as to final cable route, to allow for micro routing and refinement following detailed design by the installation contractor.

Further information on legislation and policy is presented in Chapter 3: Legislation and Policy Framework.

1.5.1 Marine Licence

The MSA (2010) and MCAA (2009), together known as 'the Marine Acts', set out the framework for marine licensing. Under the MSA 2010, MS-LOT is responsible for the marine licensing activities carried out in the Scottish inshore region, from MHWS to 12 nautical miles (NM). The MMO is responsible under Part 4 of the MCAA 2009 for licensing of activities relating to the construction and removal of any

substance of object in English territorial waters (up to 12 NM). Under the MCAA 2009, MS-LOT have responsibility for licensing and enforcement for the Scottish offshore region from 12 NM to 200 NM.

A Marine Licence is therefore required for the installation and maintenance of the Marine Scheme within Scottish and English territorial waters from MS-LOT and the MMO respectively. Under Section 81 (2) (b) of the MCAA 2009, works undertaken in the course of laying or maintaining a submarine cable in the English and Scottish offshore region (12 NM to 200 NM) are exempt from a Marine Licence. This means that:

- Laying and burial of the inshore section within English and Scottish territorial waters requires a Marine Licence; and
- Within offshore waters, the installation and maintenance of the cable is exempt from requiring a Marine Licence however, the placement of cable protection material is considered a licensable activity by MS-LOT and the MMO, and a Marine Licence is still required for this activity.

Therefore, three Marine Licences are required for the Marine Scheme, as follows:

- Two Marine Licences are required for the Marine Scheme in Scottish waters:
 - One under the MSA 2010, for all activities associated with the installation, installation of cable protection, removal of materials and other supporting and maintenance works of the Marine Scheme in Scottish territorial waters (within 12 NM); and
 - One under the MCAA 2009 for the installation of cable protection activities only, for elements of the Marine Scheme in Scottish offshore region between 12 NM and 200 NM. Under Section 81 (2) (b) of the MCAA 2009, works undertaken in the course of laying or maintaining a submarine cable is exempt from a Marine Licence, although licence conditions may still be applied.
- In English waters, one Marine Licence is required, under the MCAA 2009, for all activities associated with the installation, installation of cable protection, removal of materials and other supporting and maintenance works of the Marine Scheme within English territorial waters, and for cable protection activities only in the English offshore region (from the 12 NM limit to 200 NM).

This EAR has been prepared in support of the MLAs to the MMO and MS-LOT under the Marine Acts.

1.5.2 Other Statutory Duties and Use of Licences

Several other permissions and licences are also required to support the Project. These will be sought through separate processes at the appropriate time and include, but may not be limited to:

- Planning Permission: The works required for the Scottish Onshore Scheme and English Onshore Schemes extend from the connection point at the substation to MLWS. The Applicant has made separate applications for planning permission as detailed in Section 1.1. The applications for planning permission are supported by separate relevant environmental information.
- Other environmental permissions/licences e.g., European Protected Species licence(s).

1.5.3 Requirement for Environmental Appraisal

On receipt of a MLA, it is the responsibility of the MMO and MS-LOT to assess and understand the potential impacts of the proposed activities associated with the Marine Scheme. The Applicant must supply in support of the MLA sufficiently high-quality information to allow the MMO and MS-LOT to undertake that assessment.

The Environmental Impact Assessment (EIA) Directive (Council Directive 85/337/EC) (as amended 2003/35/EC) requires that certain types of projects with the potential to significantly affect the environment have an EIA before a licence decision is made. The EIA Regulations (i.e., The Scottish EIA Regulations and the English EIA Regulations) transpose the requirements of the EIA Directive (2014/52/EU) into UK law. The EIA Regulations set out the requirement for the EIA process to consider all licensable activities proposed within UK waters.

There is no reference to cable projects or the constituent inshore or offshore component parts of this type of development in the EIA Regulations. The installation of cables or cable protection is not listed

on either Schedule A1 or A2 of the EIA Regulations. A formal screening request was submitted to MS-LOT and MMO, and the following advice was received:

- Advice received from MS-LOT on 02 December 2020 confirmed that the Marine Scheme in Scottish waters is not considered EIA Development (MS-LOT Pers. Comm); and
- The MMO advised that screening for EIA in English waters is not possible since the installation of a cable within the UK Marine Area is not listed under the Schedules of the English EIA Regulations (16 March 2021. Case Reference MMO Case Ref: EIA/2021/00007, 2021b).

A statutory EIA under the terms of the EIA Regulations (with reference to Annex I and II of Council Directive 85/337/EEC) is therefore **not** required in respect of the application for the Marine Scheme¹.

Notwithstanding this, in order to provide the MMO and MS-LOT the relevant information to assess and understand the likely impacts of the proposed activities, this document has been prepared as non-statutory EAR.

A non-statutory scoping request was submitted to both the MMO and MS-LOT on 06 July 2021, with responses received on 06 September 2021 from the MS-LOT and 03 November 2021 from the MMO. MMO/MS-LOT responses are presented in Chapter 6 along with how these comments have been subsequently addressed within this EAR.

1.6 The Applicant

The Marine Scheme is being jointly developed and consented by SHE Transmission and NGET. SHE Transmission and NGET own the high-voltage electricity transmission network in northern Scotland, and in England and Wales respectively. They are responsible for ensuring electricity is transmitted safely and efficiently from generation to user.

SHE Transmission and NGET are transmission licence holders under the Electricity Act 1989 and have a number of statutory duties, which the EAR will support, includes the requirement “*to develop and maintain an efficient, coordinated and economical system of electricity transmission*” as well as specific responsibilities under Schedule 9 with regard to the preservation of amenity, including:

- Having regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and
- Doing what they reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.

Both SHE Transmission and NGET are responsible for the cost of the projects they promote as those costs will ultimately be borne by all electricity users. The Marine Licence applications for activities associated with cable installation and operation within Scottish and English waters will be jointly submitted to MS-LOT and the MMO respectively, by SHE Transmission and NGET.

1.7 The Environmental Appraisal

During non-statutory scoping consultation with the MS-LOT and the MMO (and their statutory and non-statutory advisors) the scope of this EAR was discussed and agreed. As part of the scope, specialist assessments were confirmed and have been undertaken where the potential for the Marine Scheme to significantly impact receptors was identified.

The structure of this EAR is presented in Table 1-1 and comprises three volumes:

- **Volume 1 – Non-Technical Summary.** This is readily accessible to the general public. It is concise and written in non-technical language providing a description of the Project, in particular the Marine

¹ Note: Requests for an EIA Screening and Scoping Opinion were submitted to Aberdeenshire Council and East Riding of Yorkshire Council and responses received confirming that the onshore components of the Project are EIA development, and that any planning application would need to be supported by an Environmental Statement in line with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Town and Country Planning (Environmental Impact Assessment) (England) Regulations 2017.

Scheme and a summary of the assessment of likely significant environmental effects and proposed mitigation measures.

- **Volume 2 – Main Report.** This comprises the main text including a description of the Marine Scheme (including the alternatives considered), the baseline conditions, and appraisal of the likely significant environmental effects resulting from the Marine Scheme, and proposed measures to mitigate those effects.
- **Volume 3 – Technical Appendices.** This comprises the supporting technical information which is cross referenced throughout Volume 2.

Table 1-1: Structure of the Environmental Appraisal

Chapter	Title/ Description
Volume 1 Non-Technical Summary	
Volume 2 Main Report	
01	Introduction
02	Project Description
03	Legislative and Policy Framework
04	Approach to Environmental Appraisal
05	Alternatives and Design Development
06	Consultation and Stakeholder Engagement
07	Physical Environment
08	Benthic Ecology
09	Fish and Shellfish Ecology
10	Marine Mammals
11	Ornithology
12	Marine Archaeology
13	Shipping and Navigation
14	Commercial Fisheries
15	Other Sea Users
16	Cumulative and In-Combination Effects
17	Schedule of Mitigation Commitments
18	Summary and Conclusions
Volume 3 Technical Appendices	
2.1	Eastern Link EMF and Compass Deviation Assessment
3.1	Marine Plans Compliance Checklist
3.2	Topic Specific Legislation and Policy
6.1	Scoping Responses
6.2	Report on Baseline Consultation with Fisheries Stakeholders
7.1	Water Framework Directive Report
8.1	Habitat Alignment Charts
8.2	Habitats Regulation Assessment Report
8.3	Marine Protected Area and Marine Conservation Zone Report
12.1	Marine Archaeology Technical Report
13.1	Summary and Hazard Log

1.8 Availability of the Environmental Appraisal Report

This EAR forms part of the Marine Licence application to the MMO and MS-LOT and will be advertised in accordance with MMO and MS-LOT required procedures.

Full digital copies of this EAR are available through:

- MS-LOT Marine License Details: [All applications | Marine Scotland Information](#)
- MMO Marine Case Management System:
https://marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO_LOGIN/login
- Project websites:
SHE Transmission: <https://www.ssen-transmission.co.uk/projects/eastern-hvdc-link/>
NGET: <https://www.nationalgrid.com/segl2>
- Projects communication team at:
SHE Transmission:
Email: Dav.S.Lynch@sse.com
Tel: 07918 404 443
NGET:
Email: info@segl2.nationalgrid.com
Tel: 0808 196 8407

1.9 References

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