



The Great Grid Upgrade

Eastern Green Link 3 (EGL 3) and
Eastern Green Link 4 (EGL 4)

Preliminary environmental information report (PEIR)

Volume 1, Part 1, Chapter 1: Introduction
May 2025

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1. Introduction

1. Introduction

1.1 Introduction to this Preliminary Environmental Information Report

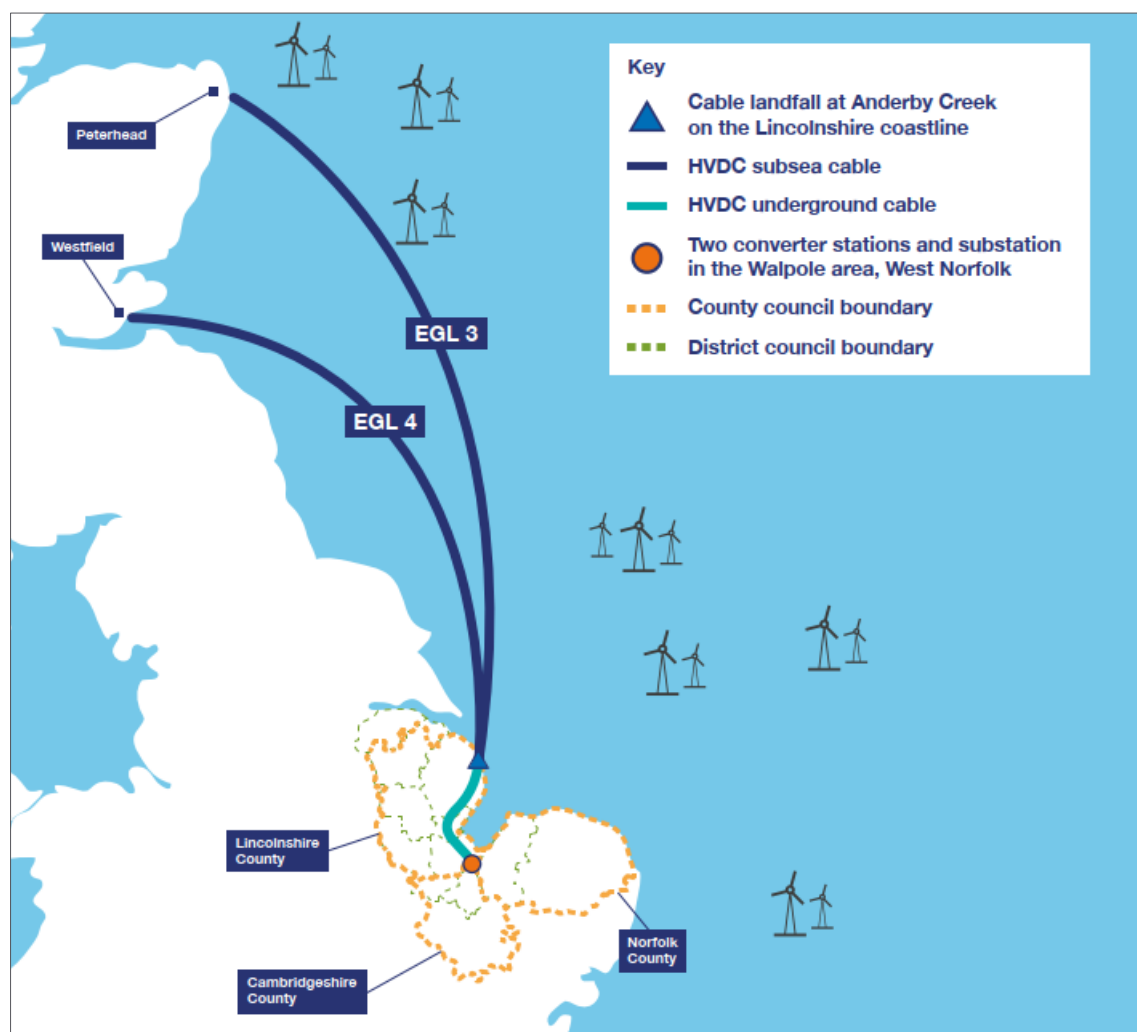
- 1.1.1 This Preliminary Environmental Information Report (PEIR) is the written output of the Environmental Impact Assessment (EIA) undertaken to date for the English components of Eastern Green Link 3 (EGL 3) and Eastern Green Link 4 (EGL 4) (referred to as the 'Projects'). Although preliminary, the findings of the assessment are set out within this report to allow an informed view to be developed of the Projects that are being promoted and the assessment approach that has been undertaken to draw preliminary conclusions on the likely significant effects of the Projects and the environmental measures currently proposed.
- 1.1.2 The requirement to consult on Preliminary Environmental Information (PEI) is set out in The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017) (hereafter referred to as the 'EIA Regulations') (Ref 1.1). Regulation 12(1)(b) requires the applicant to set out in a statement of community consultation (SoCC) prepared under section 47 of the Planning Act (2008) (Ref 1.2), how it *'intends to publicise and consult on preliminary environmental information'* (where the proposed development is 'EIA development'). In accordance with section 47(7) of the Planning Act (2008) (Ref 1.2) the applicant is required to carry out consultation in accordance with the SoCC. The SoCC (Ref 1.3) sets out how National Grid Electricity Transmission plc (NGET) (the 'Applicant') intends to consult statutory consultees, stakeholders, affected residents, businesses and local communities ahead of its application for development consent for the Projects.
- 1.1.3 Preliminary environmental information is defined in Regulation 12(2) of the EIA Regulations (2017) (Ref 1.1) as:
- "Information referred to in regulation 14(2) which (a) has been compiled by the applicant; and (b) is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development)".*
- 1.1.4 By providing a preliminary view of the assessment's findings, the PEIR allows an informed view to be made of the Projects likely significant effects identified to date, to support statutory consultation. The PEIR has regard to the preliminary stage in the design process and has taken into account the complexities of the Projects and the receiving environment.
- 1.1.5 This PEIR has been prepared for the purposes of statutory consultation prior to submission of an application for development consent which will include an Environmental Statement (ES). The ES will present the final results of the EIA undertaken for the Projects. The purpose of the PEIR is to enable members of the public, consultation bodies and other stakeholders to develop an informed view of the likely significant effects, as identified at this stage, and comment on particular aspects of interest.
- 1.1.6 Consultation feedback will inform the ongoing development of the Projects. The design of the Projects and therefore the assessment of its effects will continue to evolve in

response to consultation, and as further baseline information becomes available. As such, information on the likely significant effects (material to the decision-making process) may change between the point of preparing the PEIR and the point of finalising the ES for submission of the application for development consent. However, the baseline information presented in the PEIR is considered to be sufficient to inform the preliminary assessment of the Projects and is further informed by the judgement of specialists undertaking the environmental studies.

1.2 Overview of Eastern Green Link 3 and Eastern Green Link 4

- 1.2.1 EGL 3 and EGL 4 are two proposed new electrical connections being developed to reinforce the electricity transmission system between Scotland and England. This PEIR is written with specific regard to the English components of EGL 3 and EGL 4 i.e. where the Projects fall within England. Therefore, as the Transmission Operator in England and Wales, NGET is the sole Applicant for the Development Consent Order (DCO) (application) to which this PEIR applies. As noted in **Section 1.1** above, the English components of EGL 3 and EGL 4 i.e. those which are the subject of this PEIR, are referred to as the 'Projects'. For context purposes only, details of the entire extent of EGL 3 and EGL 4 are outlined below.
- 1.2.2 EGL 3 is being jointly developed by NGET and Scottish Hydro Electric Transmission Ltd (SHE-Transmission), who are operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission). The proposals comprise a 2-Gigawatt (GW) High Voltage Direct Current (HVDC) link between Peterhead, Aberdeenshire in Scotland, and King's Lynn and West Norfolk, Norfolk in England.
- 1.2.3 EGL 4 is also being developed in parallel with EGL 3. EGL 4 is being jointly developed by NGET with Scottish Power Transmission (SPT), who are operating and known as Scottish Power Energy Networks (SPEN) and comprises a 2 GW HVDC link between Westfield, Fife in Scotland and King's Lynn and West Norfolk, Norfolk in England (see **Plate 1-1**). Collectively, the entire extent of EGL 3 and EGL 4, i.e. between the connection points onshore in Scotland and the connection point onshore in England, are referred to as 'EGL 3 and EGL 4'.
- 1.2.4 EGL 3 and EGL 4 are separate projects, independent of one another; however, they have a common landfall on the Lincolnshire coastline, a common connection point to the existing transmission network in Norfolk and they also follow the same onshore cable route in England for the majority of their length.

Plate 1-1: Overview of EGL 3 and EGL 4



1.3 Background to and need for the Projects

- 1.3.1 In April 2022, the industry regulator, the Office of Gas and Electricity Markets (OfGEM) and the Department for Energy Security and Net Zero (DESNZ) jointly decided to proceed with the creation of a new, independent future system operator. On October 1st, 2024, this role was taken on by the National Energy System Operator (NESO) (Ref 1.4). NESO is a new independent public body responsible for maintaining the UK's energy supplies, protecting energy consumers and planning for an efficient clean energy system that is fit for the future. To deliver NESO, the previous National Grid Electricity System Operator (NGESO) was separated from NGET and acquired by Government.
- 1.3.2 NESO now controls and operates the high voltage electricity transmission system in England and Wales, balancing electricity supply and demand to ensure homes and businesses in Great Britain have the electricity they need 24/7. NESO facilitates several roles on behalf of the electricity industry, including making formal offers to connection applicants to the National Electricity Transmission System (NETS). The planning and development of the electricity transmission system is governed by the Security and Quality of Supply Standards (SQSS), which ensure that the network is developed and operated securely and is resilient to any foreseeable network faults and disruption.

- 1.3.3 Future Energy Scenarios (FES) are produced annually by NESO. These are developed in consultation with industry stakeholders to identify what ‘credible futures’ might exist, when considering the rate at which the UK may decarbonise, the impact of de-carbonisation of supply and how consumer behaviour will impact demand. NESO undertakes power system modelling of future power flow requirements across the transmission system and identifies parts of the system where insufficient capacity exists to accommodate these future power flows. This work is published annually in the Electricity Ten Year Statement (ETYS).
- 1.3.4 **Plate 1-2** provides an overview of key networks studies completed by NESO. These studies make recommendations for electrical infrastructure development, such as EGL 3 and 4. Where there is a requirement for additional transmission network capacity, the Transmission Operators, such as NGET propose to NESO a range of reinforcements that could deliver the identified reinforcements. Further details on the role of NGET are provided below.

Plate 1-2: Key network studies



The role of National Grid Electricity Transmission plc

- 1.3.5 NGET owns, builds and maintains the national high voltage electricity transmission system throughout England and Wales. NGET is responsible for making sure electricity is transported safely and efficiently from where it is produced (such as wind farms, solar farms and power stations) to the local distribution network operators (DNOs) and for developing upgrades to the network as agreed with OfGEM.
- 1.3.6 Under the Electricity Act (1989) (Ref 1.5), NGET holds a transmission licence, under which it has a legal duty to develop and maintain an efficient, coordinated and economical electricity system. NGET's transmission system in England and Wales consists of approximately 7,250 km of overhead lines and a further 1,450 km of underground cables, operating at 400 kilovolts (kV) and 275 kV. The 275 kV grid was developed in the 1950s to provide a national electricity transmission system, and then developed further from the mid-1960s, at 400 kV to increase its power carrying capacity. The overhead lines and underground cables connect over 300 substations to form a highly interconnected network. The substations provide points of connection to the local distribution networks, which operate at voltages from 132 kV down to 240 V (the voltage at which electrical power is distributed to domestic consumers).
- 1.3.7 NGET is also required, under Section 38 of the Electricity Act (1989) (Ref 1.5), to comply with the provisions of Schedule 9 of the Act. Schedule 9 requires licence holders such as NGET, in developing proposals to transmit electricity to:
- Schedule 9(1)(a) '...have 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
- Schedule 9(1)(b) '...do what [it] 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'.*
- 1.3.8 The Transmission Operator licence areas for NGET as well as those for SSEN Transmission and SPEN (Transmission Operators for northern Scotland and central and southern Scotland respectively) are illustrated in **Volume 3, Part 1, Figure 1-1**. SSEN Transmission and SPEN own, build and maintain the high voltage electricity transmission system within their respective regions of Scotland (both offshore and onshore) and similar to NGET, are responsible for ensuring electricity is transmitted safely and efficiently from generation to user. As transmission license holders under the Electricity Act (1989) (Ref 1.5) both SPEN and SSEN Transmission also have a number of statutory duties to comply with the provisions of Schedule 9 of the Electricity Act (1989) (Ref 1.5), including those outlined above.

The need for reinforcement in the East of England and East Anglia

- 1.3.9 The electricity industry in Great Britain is undergoing unprecedented change. The Climate Change Act (2008) (as amended) (Ref 1.6) now commits the UK Government by law to reducing greenhouse gas emissions by at least 100% from the 1990 baseline by 2050. This 2050 target is commonly known as 'Net Zero'. The Scottish Government's target is to become Net Zero by 2045, five years ahead of the rest of the UK.
- 1.3.10 It is the UK Government's ambition to increase generation of energy from offshore wind to 50 GW by 2030 – more than enough to power every home in the UK (Ref 1.7). This has led to a shift towards offshore renewable generation of power away from coal power generation in the north and Midlands. The UK is also transporting more power between

countries across the North Sea, using interconnectors. These factors have driven a change in the energy landscape across the UK, in particular the East of England including the Yorkshire and Humber, East Midlands, and Norfolk regions of England where reinforcement of the network (overhead lines, pylons, cables and other infrastructure that transports electricity around the country) is required to deliver this change.

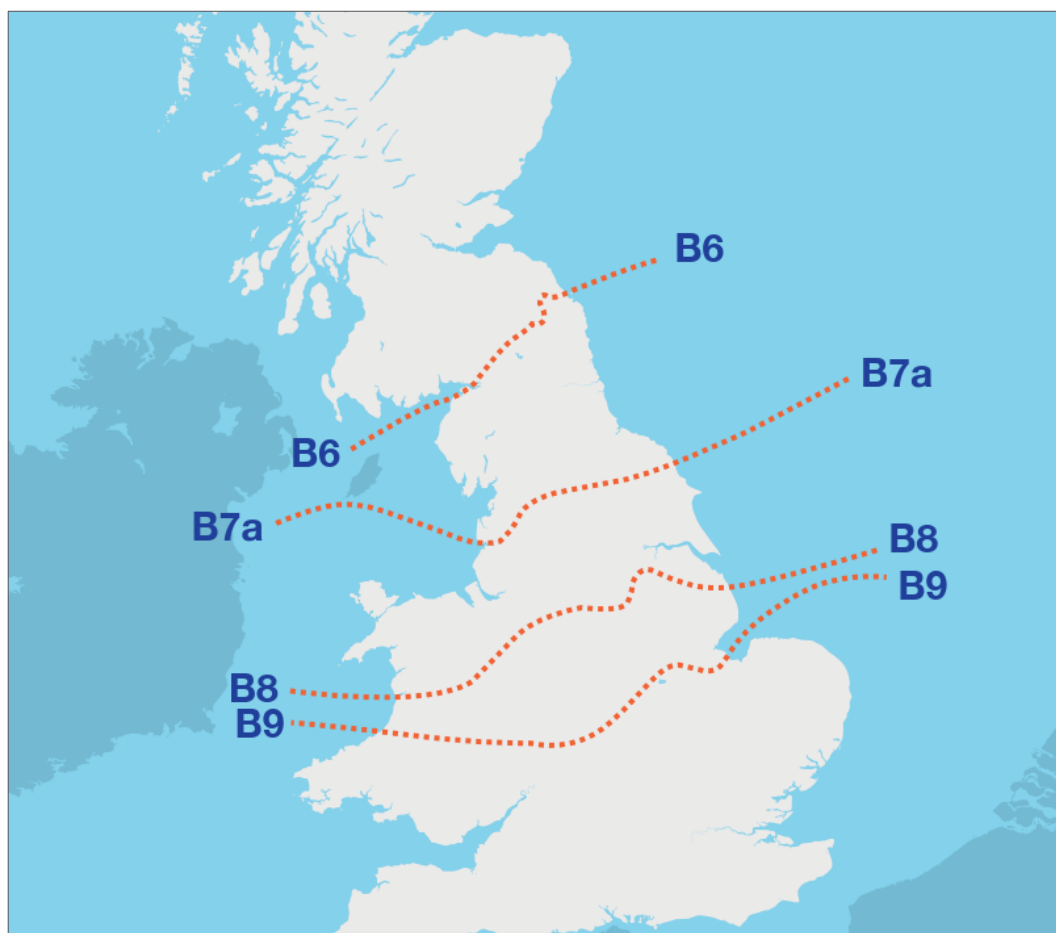
- 1.3.11 As the volume of renewable energy generation connecting to the transmission system in Scotland continues to grow, there is a need to increase cross-border transmission capability to ensure this energy is economically and efficiently transmitted from where it is generated to where it is needed.
- 1.3.12 EGL 3 and EGL 4 are part of the continued co-ordinated development of significant cross-border transmission routes that are needed due to the significant and increasing levels of north-south power flows. They form part of 'The Great Grid Upgrade'; the largest overhaul of the electricity grid in generations and would play a big part in the UK government's plan to boost homegrown power¹. Along with a number of other projects EGL 3 and EGL 4 would support the UK's Net Zero target by reinforcing the electricity transmission network and facilitating the connection of sources of electricity, allowing clean energy to be carried on the network. Other projects include the Grimsby to Walpole Project which is also being delivered by NGET. The Grimsby to Walpole Project would be located in the Humber and East Midlands region of England and would increase the capability of the electricity transmission system to carry clean green energy from the north of England to the Midlands and East Anglia. The Grimsby to Walpole Project is expected to comprise the construction and operation of approximately 140 km of new 400 kV overhead electricity transmission line. Five new 400 kV substations are also needed as part of the Grimsby to Walpole Project.

How do network boundaries work?

- 1.3.13 To understand current and future demands on the electricity network, the concept of network boundaries is used. Network boundaries is how Transmission System Boundaries have been referred to in this PEIR. A boundary splits the system into sections and shows where there are high-power flows between parts of the network. When flows across a network boundary are forecast to be above the capability of the network, there are two options to manage this:
- Pay electricity generators on one side of the boundary to reduce the energy they produce (and in turn pay generators on the other side of the boundary to compensate for the shortfall). This then reduces the flows of electricity across the boundary. When the NESO pay generators to do this, these are called 'constraint payments' and these payments ultimately flow back to the consumer.
 - In line with the NESO's vision for a future where everyone has access to reliable, clean and affordable energy, the other option is to increase the capability of the network to allow more electricity to flow.
- 1.3.14 The network boundaries most relevant to EGL 3 and EG 4 are shown on **Plate 1-3**.

¹ The Great Grid Upgrade comprises 17 major infrastructure projects including EGL 3 and EGL 4, that will help connect more clean, secure energy to homes and businesses across England and Wales. For further details of The Great Grid Upgrade please visit <https://www.nationalgrid.com/the-great-grid-upgrade>.

Plate 1-3: Network Boundaries



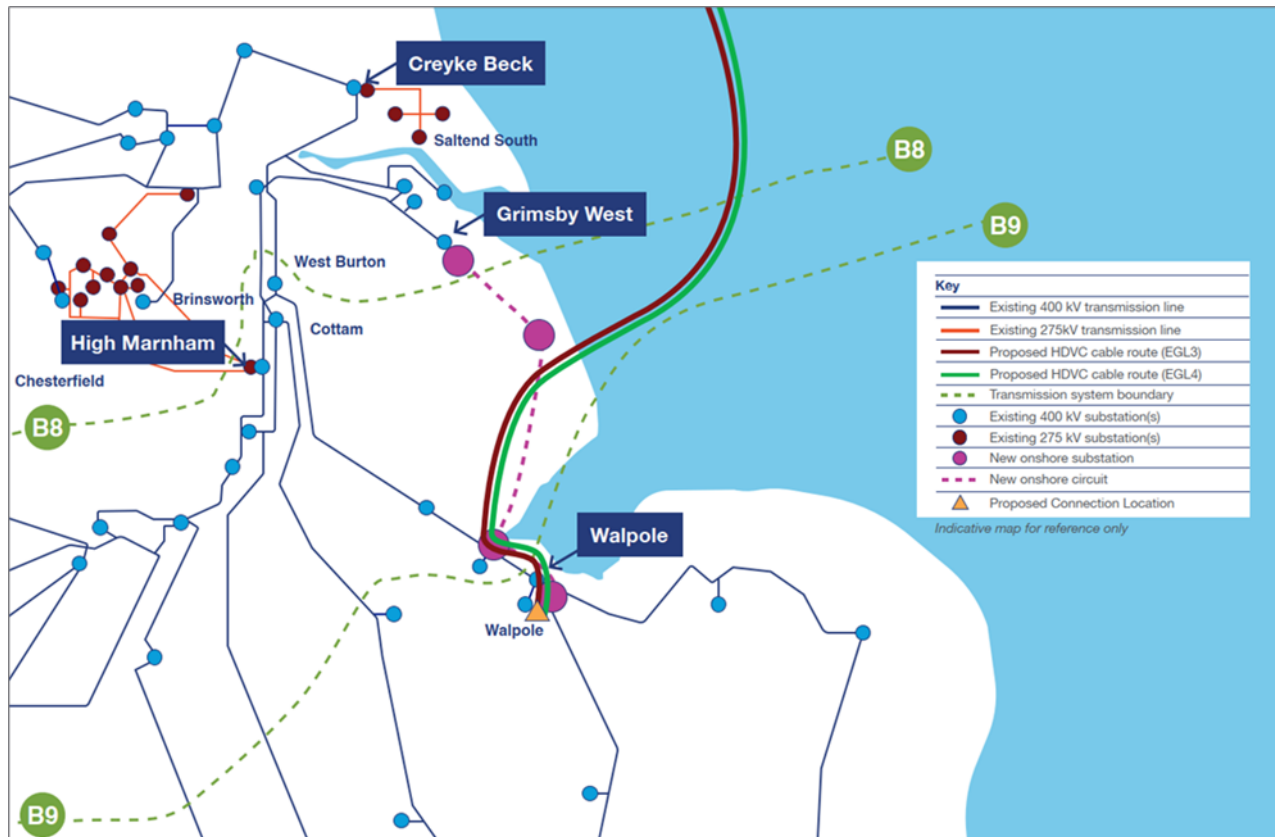
- 1.3.15 As recommended in the January 2022 National Grid ESO² Network Options Assessment report (Ref 1.8), network reinforcements need to be developed to resolve the issues associated with network boundaries B6, B7a and B8, as shown on **Plate 1-3**. The recommended approach to resolving these issues comprised two new 2 GW subsea HVDC links on the East Coast between Scotland (Peterhead and southeast Scotland (subsequently confirmed to be Fife)) and the South Humber region, England. These new HVDC links, provided by EGL 3 and EGL 4, are part of the continued co-ordinated development of significant cross-border transmission routes that is needed due to the significant and increasing levels of north-south power flows
- 1.3.16 In July 2022, the ESO published the Pathway to 2030 Holistic Network Design (HND) report (Ref 1.7) and the Network Options Assessment (NOA) 2021/22 Refresh (Ref 1.8). The HND helps to unlock the UK Government's ambition for 50 GW of offshore wind by 2030, by setting out a single, integrated transmission network design approach that supports large scale delivery of electricity generated from offshore wind, to where it is needed across Great Britain. The NOA 2021/2022 Refresh forms part of the suite of documents that make up the HND, replaces the 2021/2022 NOA and incorporates the recommended offshore network design set out in the HND. The ESO's HND and 2021/2022 NOA Refresh restated the recommendations for development of two new 2 GW subsea HVDC links on the East Coast between Scotland and South Humber region. The ESO published the Beyond 2030 report which builds on top of the Holistic

² Now the National Energy System Operator (NESO)

Network Design and makes a set of network recommendations throughout the 2030s. The report restated the recommendations for development of EGL 3 and EGL 4.

- 1.3.17 In addition to the above, the National Grid ESO, ETYS (2023) (Ref 1.9) emphasised that significantly higher power flows will occur in the Northern English and East of England network, which includes the transmission network between the Scottish border and the Midlands. This will put pressure on the existing network and reinforcement of the network in the Humber, East Midlands, East of England and East Anglia areas is necessary to ensure optimal operation of the transmission system and reliable economic long-term supply.
- 1.3.18 Following the ESO's recommendation for two new 2 GW HVDC links, NGET undertook additional network studies documented in a strategic options report (SOR) (Ref 1.10), to evaluate the impact on the existing transmission system in England and Wales, and to confirm which connection point provided the best value to customers whilst minimising potential environmental and socio-economic impacts. As stated in the needs case for EGL 3 and EGL 4 (as described in the SOR), two issues were identified, both of which need to be resolved:
- Part One: Provide >10 GW of capacity across the B6, B7a and B8 network boundaries; and
 - Part Two: Provide >6 GW of capacity across the B9 network boundary for future generation growth resilience.
- 1.3.19 The network boundaries are shown on **Plate 1-3** above.
- 1.3.20 A number of potential strategic options were identified which could meet NGET's need case for EGL 3 and EGL 4 as well as to enable NGET to meet its statutory duties. Initially a 'long list' of options was identified connecting a number of potential 'start' and 'end' points. These included connection points at, or close to, existing or already planned substations. These options were then appraised and filtered to obtain a short list of options, which were subject to a detailed appraisal against a range of technical, socio-economic, environmental, cost and programme issues.
- 1.3.21 The strategic options assessment identified a Strategic Proposal comprising EGL 3 and EGL 4 HVDC links south of the B9 network boundary to or near to a Main Interconnected Transmission System substation (identified as a proposed new substation at Walpole). This is referred to as EGL Option (OPP) 6 (new Walpole substation), in the SOR and is shown below in **Plate 1-4**.
- 1.3.22 As detailed in the Clean Power (2030) report (Ref 1.11), NESO has identified EGL 3 and EGL 4 as projects with delivery dates beyond 2030 which have potential for acceleration. EGL 3 has also been identified as a project of 'major onshore enabling works' that must be delivered to ensure the offshore windfarms within the pathways can connect and export their power on the transmission network.

Plate 1-4: EGL OPP6 New Walpole Substation potential strategic option



1.4 Terminology in this Preliminary Environmental Information Report

The Projects

1.4.1 For ease of presentation within this PEIR, EGL 3 and EGL 4 have been split into two geographical parts, hereafter referred to as ‘the English Onshore Scheme’ and ‘the English Offshore Scheme’, collectively termed ‘the Projects’. It is these Projects which are the subject of this PEIR and will be subject to a single DCO application. The draft Order Limits of the Projects are shown on **Volume 3, Part 1, Figure 1-2**.

1.4.2 The following definitions are relevant to this PEIR:

- “English Onshore Scheme” – All components of EGL 3 and EGL 4 between the electricity transmission connection point in England and the Mean Low Water Springs (MLWS) in England. A summary of the English Onshore Scheme is provided in **Section 1.5** below, and a detailed description is provided in **Volume 1, Part 1, Chapter 4: Description of the Projects**.
- “English Offshore Scheme” – All components of EGL 3 and EGL 4 within the English marine environment up to the Mean High-Water Springs (MHWS) in England. A summary of the English Offshore Scheme is provided in **Section 1.6** below, and a detailed description is provided in **Volume 1, Part 1, Chapter 4: Description of the Projects**.
- “Landfall” – The landfall is the interface between the English Offshore Scheme and English Onshore Scheme. It is an area along the Lincolnshire coastline, where subsea cables cross the intertidal zone and connect to the onshore underground

cables at a buried Transition Joint Bay (TJB). The landfall would be located at Anderby Creek, East Lindsey.

- “Intertidal Zone” – The area between MLWS and MHWS where the English Offshore Scheme and English Onshore Scheme overlap and transition from submarine cables to land cables. The intertidal zone is described and primarily assessed within **Volume 1, Part 3, English Offshore Scheme**; however, appropriate references are made within the **Volume 1, Part 2 English Onshore Scheme** and **Part 3 English Offshore Scheme** to ensure that both offshore and onshore considerations are taken into account to prevent duplication of assessments and reporting of potential effects.
- “the Projects” – is the collective term used to refer to all of the English elements EGL 3 and EGL 4 which are the subject of this PEIR i.e. both the English Onshore Scheme and the English Offshore Scheme. More specifically, the Projects comprise the ‘Authorised’ development³ for EGL 3 and EGL 4 that will be subject to a DCO application.
- “EGL 3 Project” – specifically the EGL 3 components of the Projects which will be subject to a DCO application. Also refer to the definition of ‘the Projects’ above for further details.
- “EGL 4 Project” – specifically the EGL 4 components of the Projects which will be subject to a DCO application. Also refer to the definition of ‘the Projects’ above for further details.
- “EGL 3” – EGL 3 comprises a 2 GW HVDC system linking Peterhead in Scotland and Norfolk in England. EGL 3 comprises the following Schemes: Scottish Onshore; Scottish Offshore; English Offshore; and English Onshore. EGL 3 and EGL 4 may be referred to jointly as ‘EGL 3 and EGL 4’.
- “EGL 4” – EGL 4 comprises a 2 GW HVDC system linking Fife in Scotland and Norfolk in England. EGL 4 comprises the following Schemes: Scottish Onshore; Scottish Offshore; English Offshore; and English Onshore. EGL 4 and EGL 3 may be referred to jointly as ‘EGL 3 and EGL 4’.

1.4.3 The components of the English Onshore Scheme and English Offshore Scheme, which will be consented by one DCO, are illustrated in **Plate 1-5**. The Scottish Onshore and Scottish Offshore Schemes are also illustrated to provide context on the full extent of EGL 3 and EGL 4.

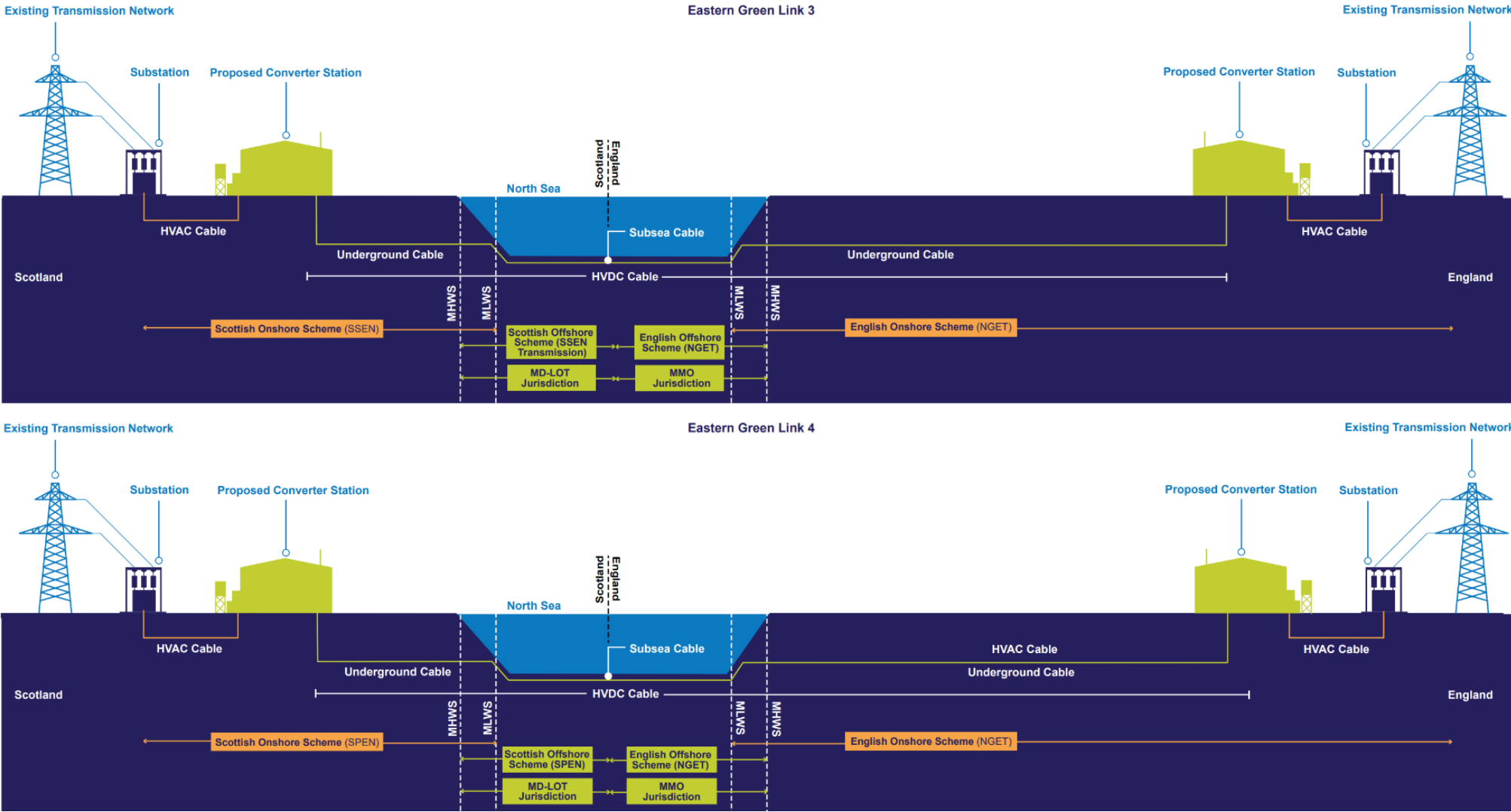
³ The development that will be described in Schedule 1 (authorised development) of the draft Development Consent Order

EGL 3 and EGL 4 Scottish Constituents

1.4.4 Separate consents will be sought for the Scottish elements of EGL 3 and EGL 4, i.e. separate to the English Onshore Scheme and English Offshore Scheme and therefore **the Scottish elements of EGL 3 and EGL 4 are not considered within this PEIR**. For context purposes only, the EGL 3 and EGL 4 Scottish Schemes are described below:

- “Scottish Onshore Scheme” - All components of EGL 3 and EGL 4 between the electricity transmission connection point in Scotland and the MLWS line in Scotland.
 - For EGL 3, these include a proposed converter station located to the west of Peterhead at Netherton from which an underground HVDC cable would route to a proposed landfall at Sandford Bay in Peterhead. The proposed converter station would be connected to a substation by underground HVAC cables. The substation connects EGL 3 to the existing Scottish transmission system.
 - For EGL 4, these include a proposed converter station located in Westfield from which there would be an underground HVDC cable to a proposed landfall at Kinghorn. The converter station would be connected to a substation by underground HVAC cables. The substation connects EGL 4 to the existing Scottish transmission system.
- “Scottish Offshore Scheme” - All components of EGL 3 and EGL 4 within the Scottish marine environment up to the MHWS in Scotland.
 - For EGL 3, these include approximately 144 km of subsea HVDC cable from the intersection with the EGL 3 Offshore Elements, at the marine boundary between English and Scottish territorial waters, to the MHWS mark at a proposed landfall at Sandford Bay. The submarine cable system would consist of two HVDC cables and a fibre optic cable.
 - For EGL 4, these include approximately 106 km of subsea HVDC cable from the intersection with the EGL 4 Offshore Elements, at the marine boundary between English and Scottish territorial waters, to the MHWS mark at a proposed landfall at Kinghorn, Fife, Scotland. The submarine cable system would consist of two HVDC cables and a fibre optic cable for control and monitoring purposes.

Plate 1-5: Overview of the EGL 3 and EGL 4 Transmission Links



1.5 Summary of the English Onshore Scheme

- 1.5.1 The English Onshore Scheme is located within Lincolnshire, Norfolk and Cambridgeshire. The most northerly elements of the English Onshore Scheme would be located along the Lincolnshire coast in East Lindsey, where the Projects make landfall, and the most southerly elements would be in the vicinity of the existing Walpole substation in King's Lynn and West Norfolk, where the Projects will connect into the existing transmission system. The draft Order Limits of the English Onshore Scheme is illustrated in **Volume 3, Part 1, Figure 1-3**.
- 1.5.2 A detailed breakdown of the English Onshore Scheme is provided within **Volume 1, Part 1, Chapter 4: Description of the Projects** and illustrated in **Volume 3, Part 1, Chapter 4 Figures**.

Elements of the English Onshore Scheme

- 1.5.3 The principal elements of the Projects for which development consent will be sought, comprise:

EGL 3 Project

- A new converter station, in the vicinity of the existing Walpole substation in King's Lynn and West Norfolk.

EGL 4 Project

- A new converter station, in the vicinity of the existing Walpole substation in King's Lynn and West Norfolk.

- 1.5.4 These principal elements of the Projects have been determined by the Secretary of State to be nationally significant, and as such have been directed (under Section 35 of the Planning Act (2008) (Ref 1.2) to be development for which a DCO is required. See further **Section 1.7** below.
- 1.5.5 The remaining elements of the Projects are considered to constitute 'associated development' under Section 115 of the Planning Act (2008) (Ref 1.2) and under the current 'Guidance on associated development applications for major infrastructure projects' (Ref 1.12). These elements of the Projects comprise:

HVDC underground cables

- 1.5.6 New HVDC underground cables from landfall (MLWS), located on the Lincolnshire coast. The landfall would be located north of Anderby Creek in East Lindsey on the Lincolnshire coast. Both EGL 3 and EGL 4 will connect into the Anderby Creek Landfall.

EGL 3 Project

- Approximately 100 km of new underground 525 kV HVDC cable, from the landfall point (at Anderby Creek) to the proposed EGL 3 converter station in the vicinity of the existing Walpole substation in King's Lynn and West Norfolk.

EGL 4 Project

- Approximately 100 km of new underground 525 kV HVDC cable, from the landfall point (at Anderby Creek) to the proposed EGL 4 converter station in the vicinity of the existing Walpole substation in King's Lynn and West Norfolk.

HVAC Cable

EGL 3 Project

- Approximately 5 km of new underground 400 kV HVAC cable, between the EGL 3 Walpole converter station and a new 400 kV Walpole substation in the vicinity of the existing Walpole substation in King's Lynn and West Norfolk.

EGL 4 Project

- Approximately 5 km of new underground 400 kV HVAC cable, between the EGL 4 Walpole converter station and a new 400 kV Walpole substation in the vicinity of the existing Walpole substation in King's Lynn and West Norfolk.

New Walpole Substation

- 1.5.7 A new 400 kV substation (in proximity to the existing Walpole substation in King's Lynn and West Norfolk (described in this report as the 'new Walpole substation' but also known as 'Walpole B Substation'). The new Walpole substation is a common connection point for both the EGL 3 Project, the EGL 4 Project and the Grimsby to Walpole Project and the need for this new substation exists as a part of either EGL 3 and EGL 4 or the Grimsby to Walpole Project and therefore would form part of both respective DCOs.

Overhead Lines

- 1.5.8 Supplementary works to the existing 400 kV 4ZM transmission line that runs north from Burwell towards the existing Walpole A Substation, to connect the Walpole B Substation, and local changes to the lower voltage distribution networks to facilitate the construction of the new onshore transmission connections in England.

1.6 Summary of the English Offshore Scheme

- 1.6.1 The English Offshore Scheme is sited within the English marine environment, through inshore and offshore waters, and up to MHWS in England. The most northerly elements of the English Offshore Scheme would be located at the boundary of English Waters where it meets Scottish Waters, and the most southerly elements would be located at MHWS at Anderby Creek, at landfall. The location of the English Offshore Scheme is illustrated in **Volume 3, Part 1, Figure 1-4**Error! Reference source not found..
- 1.6.2 The key elements of the English Offshore Scheme are summarised below; however, a detailed breakdown of the English Offshore Scheme is provided within **Volume 1, Part 1, Chapter 4: Description of the Projects**.

EGL 3 Project:

- Approximately 436 km of subsea HVDC cable from the landfall at Anderby Creek, Lincolnshire, England, to where it meets the marine boundary between English and Scottish waters. The submarine cable system would consist of two HVDC cables and a fibre optic cable for control and monitoring purposes.

EGL 4 Project:

- Approximately 425 km of subsea HVDC cable from the landfall at Anderby Creek, Lincolnshire, England, to where it meets the marine boundary between English and Scottish waters. The submarine cable system would consist of two HVDC cables and a fibre optic cable for control and monitoring purposes.

1.7 Intention to apply for Development Consent

- 1.7.1 As the Transmission Operator for England and Wales, NGET is responsible for consenting offshore works in English waters (and therefore the English Offshore Scheme) and all onshore works in England (and therefore the English Onshore Scheme). NGET has specific duties to uphold in relation to the desirability of preserving amenity of certain aspects of the environment and to mitigate the effects of its activities on the environment under Section 38 and Schedule 9 of the Electricity Act 1989 (Ref 1.5).
- 1.7.2 Whilst none of the elements of the Projects fall within the definition or thresholds of a 'Nationally Significant Infrastructure Project' (NSIP) defined under Part 3 of the Planning Act (2008) (Ref 1.2), NGET considers elements of the Projects to be of national significance for the reasons set out below. As such, following engagement with the relevant Local Planning Authorities (LPA) in Lincolnshire and Norfolk, NGET sought separate directions on 01 February 2024 under Section 35 (s35) of the Planning Act (2008) (Ref 1.2) from the Secretary of State (SoS) for elements of the Projects to be treated as a development for which development consent under the Planning Act (2008) (Ref 1.2) is required. The aspects of the Projects which the SoS considered nationally significant and for which development consent is required, comprise:
- Two converter stations in the Walpole area of Norfolk, England; one for the EGL 3 Project and one for the EGL 4 Project.
- 1.7.3 The remaining elements of the Projects would be considered to constitute 'associated development' under Section 115 of the Planning Act (2008) (Ref 1.2) and under the current 'Guidance on associated development applications for major infrastructure projects' (Ref 1.12).
- 1.7.4 Two separate directions were issued from the SoS on 29 February 2024, one for the EGL 3 Project and another for the EGL 4 Project; however, both requests specifically state that a single application for development consent will be made i.e. a single DCO for both the EGL 3 and EGL 4 Projects. The consideration of both the EGL 3 Project and EGL 4 Project via the same DCO application will ensure a co-ordinated strategic approach to the consenting and delivery of these projects, with holistic assessment of matters such as cumulative impacts and co-location of associated development (as encouraged by Section 2.13 of NPS EN-5).
- 1.7.5 The directions for both the EGL 3 and EGL 4 Projects stated the following, in relation to each of the EGL 3 Project and the EGL 4 Project independently:
- "The Secretary of State is of the opinion that the Direction should be issued because—*
- *The Proposed Project is of national significance, taking into account that it forms part of a 2 Gigawatt transmission reinforcement project that will transmit low carbon electricity from its generation in Scotland to England.*

- *The Proposed Project could play an important role in enabling an energy system that meets the UK's commitment to reduce carbon emissions and the Government's objectives to create a secure, reliable and affordable supply for consumers.*
- *Progressing the development through the Planning Act (2008) (Ref 1.2) development consent process would provide the certainty of a single, unified consenting process and fixed timescales."*

- 1.7.6 Whilst the EGL 3 Project and EGL 4 Project would form part of a single DCO, separate Deemed Marine Licences (DMLs) will be included within this for each of the Projects. Bringing the English Offshore Scheme within the DCO ensures a streamlined approach to consenting such that all necessary consents will be secured for the Projects within fixed timescales.
- 1.7.7 In accordance with the United Nations Convention on the Laws of the Sea (UNCLOS) and Section 81 of the Marine and Coastal Access Act (2009) (MCAA) cable installation beyond 12 Nautical Miles (NM) is exempt from requiring a Marine Licence. Therefore, the Applicant intends to structure the DMLs to reflect the licensable activities within and outside 12 NM.
- 1.7.8 NGET intends to submit an application for a DCO under Section 37 of the Planning Act (2008) (Ref 1.2) to the Planning Inspectorate. The application will comprise details of all development proposals and will be accompanied by an ES conforming to Regulation 14 of the EIA Regulations (Ref 1.1) and other relevant policies and legislation (see **Volume 1, Part 1, Chapter 2: Regulatory and Policy Overview**).

1.8 The need for Environmental Impact Assessment

- 1.8.1 EIA is a process required by UK law which brings together information about the potential significant effects of a development. The legal basis for EIA lies in European Community Directive 85/337/EEC (Ref 1.13) (the 'EIA Directive'). The EIA Directive is transposed into UK law through several pieces of legislation.
- 1.8.2 EIA is mandatory for development projects defined under Schedule 1 of the EIA Regulations (Ref 1.1). Those development projects defined in Schedule 2 only require EIA if they are likely to have significant effects on the environment by virtue of their nature, size or location.
- 1.8.3 It is not considered that any individual component of the Projects explicitly falls under Schedule 1 or 2 of the EIA Regulations. Schedule 3 of the EIA Regulations sets out the selection criteria for screening Schedule 2 development and thereby determining whether a project is likely to have significant effects, for which an EIA would subsequently be required. Having considered the criteria in Schedule 3, NGET proposes to undertake an EIA having given regard to the whole of Schedule 3 but specifically (Ref 1.1):
- Characteristics of development
 - *1.- (1) The characteristics of development must be considered with particular regard to—*
 - (a) the size and design of the whole development;*
 - (b) cumulation with other existing development and/or approved development;*
 - and*

(c) *Location of development*

- 2.- (1) *The environmental sensitivity of geographical areas likely to be affected by development, must be considered with particular regard to—*
 - (a) *the existing and approved land use;*
 - (b) *the relative abundance, availability, quality and regenerative capacity of natural resources (including soil, land, water and biodiversity) in the area and its underground;*
 - (c) *the absorption capacity of the natural environment, in particular:*
 - (i) *wetlands, riparian areas, river mouths;*
 - (ii) *coastal zone and the marine environment;*
 - (iv) *nature reserves and parks;*
 - (v) *European sites and other areas classified or protected under national legislation; and*
 - (viii) *landscapes and sites of historical, cultural or archaeological significance.*

1.8.4 Considering the nature and size of the Projects, an EIA will be undertaken in accordance with Regulation 8(1)(b) of the EIA Regulations (Ref 1.1). The potential for likely significant effects that NGET considers the EIA will need to address were identified in the Scoping Report (Ref 1.14) submitted to the Planning Inspectorate on 26 July 2024 and a Scoping Opinion (Ref 1.15) was received from the SoS on 05 September 2024. Issues raised in the Scoping Opinion by the Planning Inspectorate are summarised and responded to in the technical aspect chapters (**Volume 1, Parts 2, 3 and 4**) and in **Volume 2, Part 1, Appendix 1.1.A Scoping Opinion Responses**.

1.9 Purpose of the Preliminary Environmental Information Report

- 1.9.1 Regulation 12(2) of the EIA Regulations (Ref 1.1) defines PEI as information that “*has been compiled by the applicant*” and “*is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development).*”
- 1.9.2 The Planning Inspectorate’s Advice Note 7 (Ref 1.16), paragraph 8.4 states that:
- “*There is no prescribed format as to what PEI should comprise and it is not expected to replicate or be a draft of the ES... A good PEI document is one that enables consultees (both specialist and non-specialist) to understand the likely environmental effects of the Proposed Development and helps to inform their consultation responses on the Proposed Development during the pre-application stage.*”
- 1.9.3 The PEIR has been prepared in accordance with Advice Note 7 by competent experts. It reflects the current design position of the Projects and the status of the individual environmental assessments undertaken by each of the environmental disciplines (as presented in **Volume 1, Parts 2, 3 and 4**). The findings of the assessments are set out within this report to allow an informed view to be developed of the Projects that are being promoted and the assessment approach that has been undertaken; to draw preliminary conclusions on the likely significant effects of the Projects; and the

environmental measures currently proposed to mitigate or reduce the potential associated impacts.

- 1.9.4 This PEIR has been informed by the EIA Scoping Opinion published by the SoS on 05 September 2024 (Ref 1.15) and is intended to give consultees an understanding of the potential likely significant effects to enable them to prepare well informed responses to the statutory consultation. All conclusions and assessments are by their nature preliminary and are based on the Projects design and assumptions described within this PEIR. All assessment work has and continues to apply a precautionary principle, in that where limited information is available (in terms of the proposals for the Projects and environmental information available at this stage), a realistic worst-case scenario is assessed. The final assessment will be presented within the ES submitted with the application for development consent. This will take into account the representations made during statutory consultation and ongoing design informed by the EIA process.
- 1.9.5 This PEIR identifies which effects may be potentially significant and the environmental measures which should be implemented to mitigate these potential effects. Further consideration of these potential effects will continue as part of the EIA process and the EIA will continue to influence the design, whereby environmental measures may be embedded into the design, to help avoid and reduce potential significant effects arising from the Projects. Therefore, likely significant effects provisionally identified at this preliminary stage may later be found to be not significant when reported in the ES. As consent for the Projects will be sought through a DCO, the environmental measures identified will be the subject of a DCO requirement and will therefore be secured and there will be a legal requirement to implement them. As such, in this PEIR no assessment of likely significant effects has been undertaken prior to the application of environmental measures, as delivery of all measures will be a legal requirement.

1.10 Structure of the PEIR

- 1.10.1 The structure of this PEIR is outlined in **Table 1-1**. The PEIR has been presented in three volumes; Volume 1 (main text), Volume 2 (appendices) and Volume 3 (figures). The PEIR is also accompanied by a Non-Technical Summary. For ease of presentation, Volume 1 has been split into four Parts.
- 1.10.2 **Volume 1, Part 1 Introduction** sets out an overview of the Projects, an overview of the regulatory and planning context, an overview of the main alternatives considered; a description of the Projects and it also sets out the proposed PEIR approach and method.
- 1.10.3 **Volume 1, Parts 2 and 3** provide the technical aspect chapters for the English Onshore Scheme and English Offshore Scheme.
- 1.10.4 **Volume 1, Part 4** of the PEIR presents potential effects which are project wide (e.g. greenhouse gas and cumulative effects).
- 1.10.5 Each technical aspect chapter presents the preliminary environmental information for the receptors relevant to that aspect. Each chapter details the assessment scope and provides a description of the preliminary environmental information comprising; baseline, an initial view on the environmental measures required to mitigate potential effects and a description of the likely significant effects.

Table 1-1 – Structure of the PEIR

Chapter	Content
Non Technical Summary (NTS)	
Non Technical Summary	The NTS provides a concise description of the Projects. Its purpose is to provide succinct information of the Projects, the considered alternatives, environmental baseline, assessment methodology, mitigation and preliminary environmental effects.
Part 1 Introduction	
Chapter 1 Introduction	An introduction to the Projects and the purpose and structure of this PEIR.
Chapter 2 Regulatory and Policy Overview	Sets out an overview of the legislation and policy relevant to the Projects.
Chapter 3 Reasonable Alternatives Considered	An outline of the reasonable alternatives considered for the Projects.
Chapter 4 Description of the Projects	A description of the Projects including permanent components and associated temporary works. It describes the general characteristics of the Projects and outlines areas of flexibility in relation to design parameters.
Chapter 5 PEIR Approach and Methodology	A description of the EIA methodology that is proposed for the Projects including description of temporal scope, methodology that has been applied within this PEIR and approach to environmental mitigation.
Part 2 English Onshore Scheme	
Chapter 6 Biodiversity	<p>Each chapter (6-16) provides a description of:</p> <ul style="list-style-type: none"> • The technical guidance specific to the topic area. • Responses to the Scoping Opinion and consultation. • The approach, scope and methodology. • The basis of assessment. • The study area and the relevant baseline environment. • Environmental measures. • Preliminary assessment of effects.
Chapter 7 Cultural Heritage	
Chapter 8 Landscape and Visual Amenity	
Chapter 9 Water Environment	
Chapter 10 Geology and Hydrogeology	
Chapter 11 Agriculture and Soils	
Chapter 12 Traffic and Transport	
Chapter 13 Noise and Vibration	

Chapter	Content
Chapter 14 Air Quality	<ul style="list-style-type: none"> A brief conclusion and next steps.
Chapter 15 Socio-economics, Recreation and Tourism	
Chapter 16 Health and Wellbeing	
Part 3 English Offshore Scheme	
Chapter 17 Designated Sites	Each chapter (17-26) provides a description of:
Chapter 18 Coastal and Marine Physical Processes	<ul style="list-style-type: none"> The technical guidance specific to the topic area.
Chapter 19 Intertidal and Subtidal Benthic Ecology	<ul style="list-style-type: none"> Responses to the Scoping Opinion and consultation.
Chapter 20 Fish and Shellfish	<ul style="list-style-type: none"> The approach, scope and methodology.
Chapter 21 Intertidal and Offshore Ornithology	<ul style="list-style-type: none"> The basis of assessment.
Chapter 22 Marine Mammals and Marine Reptiles	<ul style="list-style-type: none"> The study area and the relevant baseline environment.
Chapter 23 Shipping and Navigation	<ul style="list-style-type: none"> Environmental measures.
Chapter 24 Commercial Fisheries	<ul style="list-style-type: none"> Preliminary assessment of effects.
Chapter 25 Other Marine Users	<ul style="list-style-type: none"> A brief conclusion and next steps.
Chapter 26 Marine Archaeology	
Part 4 Project Wide Scheme	
Chapter 27 Greenhouse Gas	A preliminary assessment of the Projects on Greenhouse Gas.
Chapter 28 Cumulative Effects	Presents the methodology for assessing cumulative and combined effects associated with the Projects.

1.11 Net Gain Commitments

- 1.11.1 Under the Environment Act (2021) (Ref 1.17) it will be mandatory for all (terrestrial) NSIPs to deliver Biodiversity Net Gain (BNG). The previous government committed to introducing BNG requirements for NSIPs submitted from November 2025. The requirement is to achieve at least 10 per cent measurable net gain, which is to be secured for at least 30 years. The detail of BNG requirements for NSIPs will be set out within a Biodiversity Gain Statement. The Department for Environment, Food and Rural Affairs is developing a draft Biodiversity Gain Statement and will publish a public consultation on its content in due course.

- 1.11.2 For the RIIO-T2 price control period (2021-26) NGET has committed to 10% Net Gain in Environmental value including as a minimum 10% BNG across all its construction projects (Ref 1.18). For the RIIO-T3 price control period (2026-31) NGET proposes a minimum 10% BNG with wider environmental and societal benefits across all in-scope construction projects (Ref 1.19).
- 1.11.3 These commitments are underpinned by the delivery of quantifiable enhancements for biodiversity measures from a baseline using the Department for Environment, Food and Rural Affairs Biodiversity Calculator (Ref 1.20) with actions formalised and secured by long term management arrangements with external organisations and partners.
- 1.11.4 A BNG Strategy will be provided to support the submission of the DCO application.

1.12 Competence

- 1.12.1 Regulation 14(4) of the EIA Regulations (Ref 1.1) requires that an ES is prepared by 'competent experts' and that the ES is accompanied by a statement outlining the relevant expertise or qualifications of such experts.
- 1.12.2 Competent experts have prepared this PEIR and will undertake the EIA and prepare the ES. All experts are accredited at a Company level by the Institute of Environmental Management and Assessment (IEMA) EIA Quality Mark Scheme (Ref 1.21). The scheme allows organisations that lead the co-ordination of EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.
- 1.12.3 Details of the expertise and qualifications of the competent experts who have been responsible for preparing the aspect specific chapters will be provided in the ES.

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