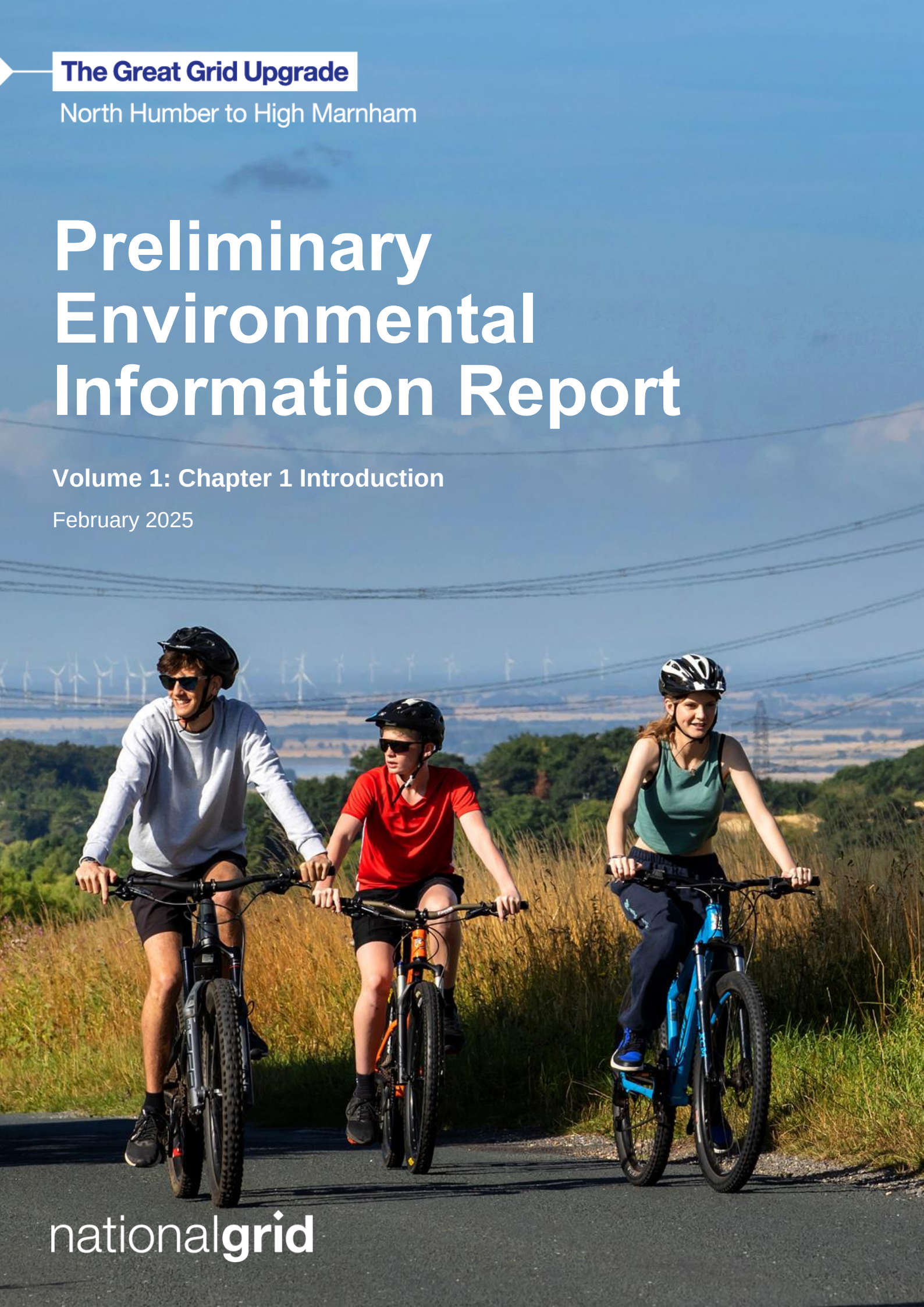
The Great Grid Upgrade

North Humber to High Marnham

Preliminary Environmental Information Report

Volume 1: Chapter 1 Introduction

February 2025



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1. Introduction

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1. Introduction

1.1 Overview of the Project

1.1.1 The North Humber to High Marnham Project (the 'Project') is a proposal by National Grid Electricity Transmission (NGET) referred to as National Grid in this report, to reinforce the transmission network between a new Birkhill Wood Substation, close to the existing Creyke Beck Substation in Yorkshire, and a new substation adjacent to the existing High Marham Substation in Nottinghamshire. This would be achieved by reinforcing the transmission network with a new 400 kilovolt (kV) electricity transmission line over approximately 90 kilometres (km).

1.1.2 National Grid owns, builds and maintains the electricity transmission network in England and Wales, and operates the high voltage electricity network throughout Great Britain, transporting electricity from generators (such as wind farms, solar farms and power stations) to local distribution network operators (DNOs). Under the Electricity Act 1989 (Ref 1.1) (the Act), National Grid holds a transmission licence under which it is required to develop and maintain an efficient, coordinated, and economical electricity system.

1.1.3 National Grid is also required under Section 38 of the Act (Ref 1.1) to comply with the provisions of Schedule 9 of the Act (Ref 1.1). Schedule 9 requires licence holders, in the formulation of 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*.'

1.1.4 The current draft proposals for the Project comprise of the following elements:

- Approximately 90 km of new overhead line between the new Birkhill Wood and High Marnham 400 kV Substations.
- Replacement and re-alignment of a section of the existing 400 kV 4ZQ overhead line route between Brantingham and east of Broomfleet.
- Replacement and re-alignment of a section of the existing 400 kV ZDA overhead line route between Ealand and west of Keadby.
- A new 400 kV Birkhill Wood substation, with a new permanent access. This is proposed to be a Gas Insulated Switchgear (GIS) substation.
- Replacement and re-alignment of a section of the existing 400 kV 4ZR route to allow for connection into the new Birkhill Wood substation.
- A new 400 kV High Marnham substation, with a new permanent access. This is proposed to be an Air Insulated Switchgear (AIS) substation.

- Replacement and re-alignment of the existing 4ZV and XE 275 kV overhead line routes and existing 400 kV ZDA and ZDF overhead line routes, to allow for connection into the new High Marnham substation.

1.1.5 The Project will include other required works, for example, temporary diversions for works on existing overhead line routes, temporary access roads, highway works, temporary works compounds, work sites and ancillary works. The Project will also include utility diversions and drainage works. There would also be land required for mitigation, compensation and enhancement, including biodiversity net gain.

1.1.6 At the time of EIA Scoping the proposed Birkhill Wood Substation and proposed High Marnham Substation (to which the overhead line is proposed to connect) where subject to separate applications made under the Town and Country Planning Act 1990 (TCPA) (Ref 1.8) procedures (and other required consent application procedures). Following submission of the EIA Scoping Report (Ref 1.9) the approach to the inclusion of the proposed Birkhill Wood Substation and proposed High Marnham Substation has altered. Whilst implementation of these two substations remains subject to achieving consent through separate TCPAs, in order to achieve a comprehensive consenting position for the Project these substations and their associated overhead line reconfigurations have been included as part of the Project. The preliminary assessment of the likely environmental effects of these substations is provided in **Chapter 20 Substations and Associated Works**.

1.1.7 A detailed description of the Project is set out in **Chapter 4 Description of the Project**.

1.1.8 The Project is a Nationally Significant Infrastructure Project (NSIP), as defined under Part 3(16) of the Planning Act 2008 (as amended) (Ref 1.2) because it is in England and comprises new overhead electricity transmission connections of more than 2 km, with an operating voltage of above 132 kV.

1.1.9 The Project also constitutes Environmental Impact Assessment (EIA) development as defined in the Infrastructure Planning EIA Regulations 2017 (Ref 1.3) (referred to as the 'EIA Regulations'). The Project falls within Schedule 1 paragraph 20 of the EIA Regulations (Ref 1.3) as it comprises '*Construction of overhead electrical power lines with a voltage of 220 kV or more and a length of more than 15 km'*. Therefore, an assessment of the impacts of the Project on the environment is required.

1.2 The Need for the Project

1.2.1 With growing offshore wind and interconnectors[1], an anticipated tripling of wind generation connected across the Scottish networks by 2030 and Government's increased ambition to connect 50 GW of offshore wind by 2030, north-south power flows are set to increase.

1.2.2 The existing electricity transmission network in the Humber and East Midlands region was initially developed in the 1960s and has historically been able to meet demand. However, due to the changes noted above in terms of delivering net zero emissions, the existing network in the Humber and East Midlands region does not have the capability to reliably and securely transport all the energy that will be connected by 2030, whilst operating to the standards it is required to.

[1] Interconnectors are high voltage cables that are used to connect the electricity systems of neighbouring countries

1.2.3 The North Humber to High Marnham Project will support the UK's net zero target by reinforcing the electricity transmission network between the north of England and the Midlands and facilitate the connection of planned offshore wind generation and interconnectors with other countries, allowing clean green energy to be carried on the network. The North Humber to High Marnham Project, together with other reinforcements along the East Coast, will help meet future energy requirements.

1.2.4 National Grid has considered alternative strategic options[2] to reinforce the network and alternative route corridors, as part of the options appraisal process (see **Chapter 3 Project Need and Alternatives**). The reinforcements are necessary to support the connection of new generation projects in Scotland and the north-east of England in the next decade and beyond. National Grid identified that the existing transmission system would not be sufficient to meet connection demand going forward. Without additional network capability, offshore wind and interconnectors will be constrained off at times of high wind generation and high imports. The operation of the network would become sub-optimal in the long term, less efficient, and more carbon intensive sources of generation would potentially need to be used at those times, hindering progress towards net zero.

1.3 Geographical Context

1.3.1 The Project is located in the east of England across the Humber and East Midland regions, as illustrated on **Figure 1.1 Project Location and Route Sections** in Volume 2. The draft Order Limits[3] lie within four local planning authority areas: the northern part of the Project lies within the East Riding of Yorkshire; the central part of the project lies in North Lincolnshire; and the southern part in Bassetlaw District, and Newark and Sherwood District in Nottinghamshire.

1.3.2 The Project is located in an area that is predominantly rural, with large parts of the land under arable use. The city of Kingston-upon-Hull and the towns of Beverley, Crowle, Scunthorpe, Epworth, Gainsborough and Retford are located within 5 km of the draft Order Limits. There are multiple villages and individual properties within or near to the Project.

1.3.3 The topography of the wider geographical area is predominantly flat and low lying, comprising of largescale arable fields with clusters of rural settlements. The draft Order Limits between the proposed Birkhill Wood Substation and the A63 are located within an area of higher undulating topography associated with the Yorkshire Wolds. The majority of this section is also locally designated as the Yorkshire Wolds Important Landscape Area (ILA). The draft Order Limits are also located in areas of higher topography to the west of Owston Ferry and between the Chesterfield Canal and the proposed new High Marnham Substation.

1.3.4 The draft Order Limits cross the River Ouse, which is designated as a Ramsar, Special Protection Area (SPA) and Special Area of Conservation (SAC) to the west of the settlement of Ousefleet and near where the existing 400 kV overhead line 4ZQ route crosses the River Ouse. Other ecological features in proximity to the Project include Thorne and Hatfield Moors SPA and Thorne Moor SAC which are located 2.5 km to the west of the draft Order Limits. The draft Order Limits cross part of Blacktoft Sands Royal

[2] Further information on the project need and strategic optioneering is set out in the '**Strategic Options Report Update**'

[3] The likely extents of land required to construct, operate and maintain the Project

Society of the Protection of Birds (RSPB) Reserve at the River Ouse crossing. Beckingham Marshes RSPB Reserve is located approximately 1.8 km to the east of the draft Order Limits, to the east of the settlement of Beckingham.

1.3.5 Heritage assets close to the Project include Risby Hall Grade II Registered Park and Garden, and Risby Jacobean gardens, hall, and medieval settlement scheduled monument. Hall Gath moated site scheduled monument and Axholme Carthusian Priority scheduled monument, as well as other discrete scheduled monuments and listed buildings, are also located close to the Project. The draft Order Limits also cross the Isle of Axholme Area of Special Historic Landscape Interest.

1.3.6 The draft Order Limits are located within several areas of flood risk (Flood Zones 2 and 3) particularly around the River Ouse and close to the River Trent.

1.3.7 The draft Order Limits are located on land that is categorised on provisional Agricultural Land Classification (ALC) mapping as Grade 3 land or higher quality, with some smaller sections located within land mapped as Grade 1.

1.3.8 The Project has been divided into eleven geographical sections for ease of reporting. These are presented on **Figure 1.1 Project Location and Route Sections** and comprise:

- Route Section 1: Creyke Beck to Skidby
- Route Section 2: Skidby to A63 Dual Carriageway
- Route Section 3: A63 Dual Carriageway to River Ouse Crossing
- Route Section 4: River Ouse Crossing
- Route Section 5: River Ouse Crossing to Luddington
- Route Section 6: Luddington to M180 Motorway
- Route Section 7: M180 Motorway to Graizelound
- Route Section 8: Graizelound to Chesterfield Canal
- Route Section 9: Chesterfield Canal to A620 east of North Wheatley
- Route Section 10: A620 east of North Wheatley to Fledborough
- Route Section 11: Fledborough to High Marnham

1.4 Purpose of the Preliminary Environmental Information Report

1.4.1 Regulation 12(2) of the EIA Regulations (Ref 1.3) defines Preliminary Environmental Information (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)*'.

1.4.2 The Planning Inspectorate's Advice Note Seven (Ref 1.4) in 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.'

1.4.3 This Preliminary Environmental Information Report (PEIR) has been prepared in accordance with Advice Note Seven (Ref 1.4). The information presented within this PEIR is preliminary; it reflects the current design position of the Project and the status of the individual environmental assessments. The findings of the assessment are set out within this report to allow an informed view to be developed of the Project that is being promoted, the assessment approach that has been undertaken, to draw preliminary conclusions on the likely significant effects of the Project, and the environmental measures proposed to address those effects.

1.4.4 This PEIR 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 Project design and assumptions described in **Chapter 4 Description of the Project**. 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 Project), a realistic worst-case scenario is assessed. The final assessment will be presented within the Environmental Statement (ES) submitted with the application for development consent. This will take into account the representations made during the statutory consultation and ongoing design informed by the EIA process.

1.4.5 This PEIR has been informed by the EIA Scoping Opinion (Ref 1.5) published by the Secretary of State in September 2023.

1.4.6 This PEIR identifies which effects may be potentially significant. These potentially significant effects will be taken forward through the EIA process and additional mitigation may be identified as the design develops further. Therefore, potential likely significant effects identified at this preliminary stage may later be found to be not significant when reported in the ES, following completion of the mitigation strategy.

1.5 Structure of this PEIR

1.5.1 The structure of this PEIR is outlined below in Table 1.1. The PEIR is presented in four volumes: Volume 1 (main text); Volume 2 (figures); Volume 3 (appendices); and Volume 4 (Photomontages). A separate Non-Technical Summary (NTS) is also provided.

Table 1.1 - Structure of this PEIR

Chapter	Content
Non-Technical Summary (NTS)	The NTS provides a concise description of the Project. Its purpose is to provide succinct information, in a non-technical language, about the Project, the alternatives considered, environmental baseline, assessment methodology, mitigation, and preliminary environmental effects.
Volume 1	
Chapter 1 Introduction	An introduction to the Project and the purpose and structure of this PEIR.

Chapter	Content
Chapter 2 Regulatory and Planning Context	Sets out an overview of the legislation and policy relevant to the Project.
Chapter 3 Project Need and Alternatives	An outline of the reasonable alternatives considered for the Project.
Chapter 4 Description of the Project	A description of the Project including permanent features and associated temporary construction works. It describes the general characteristics of the Project and outlines areas of uncertainty in relation to design parameters and construction techniques.
Chapter 5 PEIR Approach and Method	A general description of the methodology that is proposed for the EIA of the Project, including definition of temporal durations, the approach to mitigation, and a description of the assessment methodology that has been used for this PEIR.
Chapter 6 Landscape	Each chapter provides: • the regulatory and planning context specific to the topic area; • responses to the Scoping Opinion (Ref 1.5) and relevant consultation and engagement undertaken to date; • the PEIR approach and methods; • the relevant baseline environment; • any mitigation including embedded, control and management measures and additional mitigation measures relied on in undertaking the preliminary assessment; and • preliminary assessment of effects.
Chapter 7 Visual	
Chapter 8 Ecology	
Chapter 9 Ornithology	
Chapter 10 Cultural Heritage	
Chapter 11 Water Environment	
Chapter 12 Geology and Hydrogeology	
Chapter 13 Agriculture and Soils	
Chapter 14 Traffic and Transport	
Chapter 15 Air Quality	
Chapter 16 Noise and Vibration	
Chapter 17 Socio-economics, Recreation and Tourism	
Chapter 18 Health and Wellbeing	
Chapter 19 Climate Change	
Chapter 20 Substations and Associated Works	A preliminary assessment of the environmental effects of the proposed Birkhill Wood and new High Marnham Substations.
Chapter 21 Cumulative Effects	A description of the other projects and developments that are known about at the time of undertaking the preliminary assessment that

Chapter	Content
	could have cumulative effects with the Project. These are described and considered in the preliminary inter-project cumulative effects assessment.
Volume 2 Figures	Provides the Figures that support Volume 1
Volume 3 Appendices	Provides the Appendices that support Volume 1
Volume 4 Photomontages	Provides photomontages

1.6 Other Assessments

1.6.1 In addition to the EIA, the preparation of the application for development consent for the Project requires other standalone assessments to be carried out to meet the requirements of other policy and legislation, such as The Conservation of Habitats and Species Regulations 2017(as amended) (Ref 1.6) Where appropriate the individual topic chapters in this PEIR outline where the findings of one of these standalone assessments have been drawn upon when carrying out the preliminary assessments or will be drawn upon as part the final assessments presented in the ES.

1.7 Net Gain Commitments

1.7.1 Although not a statutory requirement for Nationally Significant Infrastructure Project applications that are submitted to the Planning Inspectorate prior to November 2025, National Grid has committed to delivering 10% Net Gain in environmental value including as a minimum 10% Biodiversity Net Gain (BNG) across all its construction projects, including this Project, in line with the Environment Act 2021 (Ref 1.7).

1.7.2 Biodiversity Net Gain is a way of making sure the habitat for wildlife is in a measurably better state than it was before development. It requires a minimum 10% gain calculated using the government's Biodiversity Metric. BNG must be managed, monitored and reported on to the Local Planning Authority for 30 years. From November 2025 BNG will become mandatory for NSIP projects consented under the Planning Act 2008 (Ref 1.2).

1.7.3 Where possible National Grid will deliver BNG through partnerships and seek to provide value-added BNG with wider benefits to communities, including access to nature, and help deliver national and local policies on health and wellbeing, environmental awareness, education, skills and jobs to ensure best value for money from consumer-funded BNG.

1.7.4 National Grid has already begun talking to landowners within several areas, where habitat enhancement and creation might be most beneficial, to explore what opportunities there might be. National Grid are in early discussions with national conservation and environmental organisations to create partnerships to deliver BNG in ways that provide enduring benefit to communities

1.8 Competence

1.8.1 Regulation 14(4) of the EIA Regulations (Ref 1.3) 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.

1.8.2 This PEIR has been prepared and coordinated by environmental consultancies by competent experts working within consultancies that have extensive experience in undertaking and reporting EIAs for NSIPs and other major developments.

1.8.3 Several of these consultancies are accredited members of the Institute of Environmental Management and Assessment's 'EIA Quality Mark' – a voluntary scheme allowing organisations that lead the coordination of EIAs in the UK to make a commitment to excellence in their EIA activities, and have this commitment independently reviewed.

1.8.4 A Statement of Competence (SoC) will be included within the ES, outlining the relevant expertise or qualifications of the experts who have prepared the ES for the Project.

1.9 References

Ref 1.1 H.M. Government (1989). Electricity Act 1989. [online]. Available from https://www.legislation.gov.uk/ukpga/1989/29/contents (Accessed December 2024)

Ref 1.2 H.M. Government (2008). Planning Act 2008. [online]. Available from: https://www.legislation.gov.uk/ukpga/2008/29/contents (Accessed December 2024)

Ref 1.3 H.M. Government (2017). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 [online]. Available from: https://www.legislation.gov.uk/uksi/2017/572/regulation/31/made (Accessed December 2024)

Ref 1.4 Gov.uk (2020). Nationally Significant Infrastructure Projects Advice Note Seven: Environmental Impact Assessment: Process, preliminary environmental information and environmental statements (June 2020). [online]. Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements - GOV.UK (Accessed December 2024)

Ref 1.5 Planning Inspectorate (2023). Scoping Opinion: Proposed North Humber to High Marnham September 2023. [online]. Available from https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN020034/EN020034-000009-EN020034%20North%20Humber%20to%20High%20Marnham%20-%20Scoping%20Opinion.pdf (Accessed December 2024)

Ref 1.6 H.M. Government (2017). The Conservation of Habitats and Species Regulations 2017. [online]. Available from: https://www.legislation.gov.uk/uksi/2017/1012/contents (Accessed December 2024)

Ref 1.7 H.M. Government (2021). Environment Act 2021. [online]. Available from: https://www.legislation.gov.uk/ukpga/2021/30/contents (Accessed December 2024)

Ref 1.8 H.M. Government (1990). Town and Country Planning Act 1990 [online] Available from https://www.legislation.gov.uk/ukpga/1990/8/data.pdf (Accessed December 2024)

Ref 1.9 National Grid (2023). North Humber to High Marnham Environmental Impact Assessment Scoping Report. [online]. Available at: https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN020034/documents [Accessed December 2024].

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