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and Method

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5. EIA Approach and Method

5.1 Introduction

- 5.1.1 This chapter forms part of the Environmental Statement (ES) (Volume 6 of the Development Consent Order (DCO) application) for the Norwich to Tilbury Project (the 'Project').
- 5.1.2 Environmental Impact Assessment (EIA) is a process that is used to identify and assess the likely significant effects that could occur as a result of a project and identifies appropriate mitigation measures. The EIA process informs the Project design and is taken into account by the decision-making body when determining an application for development consent.
- 5.1.3 This chapter describes the EIA process and the different documents produced at each stage of the EIA. It also describes the method used in the assessment and the assumptions on which the assessment is based.
- 5.1.4 This chapter comprises the following sections:
- Section 5.2: The EIA Process: Introduces the EIA process and gives an overview of the steps taken from scoping and baseline data gathering, to the assessment presented within the ES
 - Section 5.3: Scope of the EIA: Outlines the scope of the EIA including the technical, temporal and geographical scope
 - Section 5.4: EIA Methodology: Outlines the EIA methodology, including how the EIA has considered the Project parameters and flexibility within the assessment, and the methodology used to establish sensitivity, impact magnitude and significance. It also describes the different types of mitigation measures assumed on the Project
 - Section 5.5: Cumulative Effects: Outlines the need for a cumulative effects assessment and what has been included with the assessment
 - Section 5.6: Stakeholder Engagement: Summarises stakeholder consultation and engagement that has been undertaken to inform the EIA
 - Section 5.7: Supporting Documents: Provides a list of other documents relevant to the EIA including a list of management plans where EIA commitments are secured
 - Section 5.8: Monitoring: Outlines monitoring requirements in relation to the likely significant effects identified through the EIA process.
- 5.1.5 This chapter is supported by the following appendices:
- Appendix 5.1: National Grid's response to the EIA Scoping Opinion (document reference 6.5.A1)
 - Appendix 5.2: Scope of the Assessment (document reference 6.5.A2).

5.2 The EIA Process

Overview of the EIA Process

- 5.2.1 This section describes the methodology that has been used to assess the likely significant effects on the natural, human and built environment as a result of the Project. In accordance with the Infrastructure Planning (EIA) Regulations 2017 (the 'EIA Regulations'), assessments undertaken evaluate and identify the likely significant environmental effects arising from the proposed construction and operation (and maintenance) phases of the Project.

EIA Scoping

- 5.2.2 The first stage in the EIA process undertaken for the Project was scoping (by virtue of its nature, being classed as a Schedule 1 development under the EIA Regulations, the Project was not screened under the EIA Regulations). This defined the scope of the assessments proposed to be included within the ES. It included topics and aspects¹ that were likely to result in significant effects. It also outlined the existing baseline environment and the proposed methodology for undertaking the assessment. The output of the scoping stage was an EIA Scoping Report (document reference 6.19).
- 5.2.3 On 4 November 2022, National Grid submitted an EIA Scoping Report (document reference 6.19) to the Planning Inspectorate in accordance with the EIA Regulations. An EIA Scoping Opinion was then received on 10 December 2022 (document reference 6.20).
- 5.2.4 The EIA Scoping Opinion (document reference 6.20) was prepared by the Planning Inspectorate on behalf of the Secretary of State, after consulting the prescribed bodies and was received on 10 December 2022. The EIA Scoping Opinion (document reference 6.20) has informed the environmental topics and aspects that have been scoped into the ES (Volume 6 of the DCO application) in accordance with Regulation 14(3)(a) of the EIA Regulations.

Preliminary Environmental Information

- 5.2.5 The Project is a Nationally Significant Infrastructure Project (NSIP) and as part of the NSIP process (as defined within Section 42 of the Planning Act 2008), applicants are required to undertake statutory consultation with relevant consultees about the Project proposals. Feedback received during statutory consultation is then used to shape the final proposals within the application for development consent. As part of statutory consultation, applicants typically prepare a Preliminary Environmental Information Report (PEIR). As per Regulation 12(2) of the EIA Regulations, 2017) a PEIR must set out the information referred to in Regulation 14(2) that '*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)*'. This information is then used by consultees to inform their responses

¹ 'The Planning Inspectorate refers to 'aspects' as meaning the relevant descriptions of the environment identified in accordance with the EIA Regulations.' (Nationally Significant Infrastructure Projects - Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements (Planning Inspectorate, 2025).

to statutory consultation. A PEIR² (National Grid, 2023) for the Project was prepared for statutory consultation which commenced on 10 April 2024 (National Grid, 2024).

- 5.2.6 Further consultations were undertaken between January and April 2025. The published consultation materials for each of the 2025 consultations included 'Environmental Implications of Change' (EIC) documents. The consultations were prepared in accordance with paragraph 20 of the Planning Act 2008: Guidance on the Pre-application stage for Nationally Significant Infrastructure Projects (Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities, 2024) which states that targeted consultation (whether statutory, non-statutory or a combination of the two) '*... will not require the production of PEI provided proportionate and appropriate information on environmental implications of any changes, where necessary, is provided*'.
- 5.2.7 Further details on the consultations undertaken and the feedback received and the consultation responses from stakeholders that are relevant to the EIA, are summarised in the Consultation Report (document reference 5.1).

Environmental Statement

- 5.2.8 The ES (Volume 6 of the DCO application) presents the likely significant effects that would result if the Project was implemented, and any proposed mitigation measures. The ES (Volume 6 of the DCO application) will be taken into account by the decision-making body when determining whether to grant development consent.
- 5.2.9 In general, the assessment in the ES (Volume 6 of the DCO application) follows a receptor-based assessment approach unless specific environmental topic guidance suggests otherwise. Receptors are aspects of the environment which may be sensitive to change as a result of the Project. When deciding on which receptors to include within the ES, consideration has been given to Regulation 5(2) and Schedule 4 paragraph 4 of the EIA Regulations.
- 5.2.10 All assessment work has applied a precautionary principle and assessed a reasonable worst-case scenario. Further details can be found in Chapters 6-17 (document references 6.6 – 6.17) of the ES (Volume 6 of the DCO application).
- 5.2.11 As noted in Chapter 1: Introduction (document reference 6.1), the ES (Volume 6 of the DCO application) has been managed and compiled by experienced and competent environmental professionals retained by National Grid through their framework of approved specialist suppliers, in compliance with Regulation 14(4) of the EIA Regulations. Professional qualifications and relevant professional memberships are provided in Appendix 1.1: Competent Expert Evidence (document reference 6.1.A1).

² <https://www.nationalgrid.com/electricity-transmission/network-and-infrastructure/infrastructure-projects/norwich-to-tilbury/document-library>

5.3 Scope of the EIA

Technical Scope

- 5.3.1 The scope of the assessment presented in Chapters 6-17 (document references 6.6 – 6.17) of the ES (Volume 6 of the DCO application) is based on what was presented within the EIA Scoping Report (document reference 6.19) which was issued to the Secretary of State on 4 November 2022. The scope was updated following receipt of the EIA Scoping Opinion (document reference 6.20) adopted by the Planning Inspectorate on behalf of the Secretary of State, after consulting prescribed bodies, which was received on 14 December 2022.
- 5.3.2 Environmental topics scoped in comprise:
- Agriculture and Soils
 - Air Quality
 - Ecology and Biodiversity
 - Contaminated Land, Geology and Hydrogeology
 - Health and Wellbeing
 - Historic Environment
 - Hydrology, Land Drainage and Flood Risk
 - Landscape and Visual
 - Noise and Vibration
 - Socio-economics, Recreation and Tourism
 - Traffic and Transport
 - Cumulative Effects.
- 5.3.3 Some environmental topics only have a few aspects scoped into the assessment or may only consider construction effects if significant operational (and maintenance) effects were scoped out at the scoping stage.
- 5.3.4 There are some environmental topics that were scoped out of requiring a standalone chapter in the ES (Volume 6 of the DCO application) within the EIA Scoping Report (document reference 6.19) such as Major Accidents and Disasters, and Climate Change. The Planning Inspectorate agreed with this approach in their EIA Scoping Opinion (document reference 6.20) but in some cases requested updated data to be provided within the ES (Volume 6 of the DCO application).
- 5.3.5 Details of what has been included within the scope of the assessments in the ES (Volume 6 of the DCO application) or justification as to why something has been scoped out, can be found in Appendix 5.2: Scope of the assessment (document reference 6.5.A2). Appendix 5.1: National Grid's response to the EIA Scoping Opinion (document reference 6.5.A1) also provides National Grid's responses to the EIA Scoping Opinion (document reference 6.20). Table 5.1 presents a summary of the environmental factors (as required in the EIA Regulations) considered within the scope of the ES (Volume 6 of the DCO application).

Table 5.1 Environmental factors considered within the scope of the ES

Environmental Factors to be considered (EIA Regulations, Regulation 5(2), and Schedule 4)	Environmental Topics
Population and human health	Chapter 10: Health and Wellbeing (document reference 6.10) Chapter 15: Socio-economics, Recreation and Tourism (document reference 6.15) Chapter 16: Traffic and Transport (document reference 6.16)
Biodiversity (flora and fauna)	Chapter 8: Ecology and Biodiversity (document reference 6.8)
Land (for example, land take)	Chapter 6: Agriculture and Soils (document reference 6.6) Chapter 9: Contaminated Land, Geology and Hydrogeology (document reference 6.9) Chapter 15: Socio-economics, Recreation and Tourism (document reference 6.15)
Soil (for example, organic matter, erosion, compaction, sealing)	Chapter 6: Agriculture and Soils (document reference 6.6) Chapter 9: Contaminated Land, Geology and Hydrogeology (document reference 6.12)
Water (for example, hydromorphological changes, quantity, and quality)	Chapter 12: Hydrology, Land Drainage and Flood Risk (document reference 6.12)
Air	Chapter 7: Air Quality (document reference 6.7)
Climate (for example, greenhouse gas emissions, impacts relevant to adaptation) and vulnerability of the Project to climate change	In terms of vulnerability of the Project to climate change, overhead lines are designed to withstand extreme weather conditions, such as high winds and ice formation on the conductors. National Grid has previously investigated whether climate change might require overhead lines to be redesigned but found there is more likely to be a reduction in the risk of ice on the wires and intense wind gusts occurring simultaneously. The vulnerability of the Project to future flooding is considered as part of the Flood Risk Assessment (FRA) (document reference 7.9). Appendix 4.1: Greenhouse Gas Assessment (document reference 6.4.A1) provides a 'simple' estimate of the Greenhouse Gases (GHG) emissions associated with the construction phase of the Project, comparing

Environmental Factors to be considered (EIA Regulations, Regulation 5(2), and Schedule 4)	Environmental Topics
	this against UK emissions to determine if the Project is likely to have a material impact on the ability of the Government to meet its carbon reduction targets.
Material assets	This topic is concerned with the interference of the Project with other infrastructure, including utilities, highways, and rail. The mitigation is to avoid the need for crossings and where these are unavoidable, to agree to the form of crossing or to divert utilities with the statutory undertaker or private enterprise. This is a construction and engineering issue, addressed as part of the description of the Project set out in Chapter 4: Project Description (document reference 6.4).
Cultural heritage (including architectural and archaeological aspects)	Chapter 11: Historic Environment (document reference 6.11)
Landscape	Chapter 13: Landscape and Visual (document reference 6.13)
The interaction between the factors listed above	Chapter 17: Cumulative Effects (document reference 6.17)
Vulnerability of the development to risks of major accidents and / or disasters	<p>The EIA Regulations require the environmental assessment to identify, describe and assess major accidents and/ or disasters.</p> <p>All potential effects were scoped out from further assessment, as there are no likely significant effects (as described in the EIA Scoping Report (document reference 6.19)). A standalone major accident and / or disasters chapter is therefore not included within this ES (Volume 6 of the DCO application). Where appropriate, relevant environmental aspects have identified the likely risks to the Project in relation to potential areas of vulnerability. For example, any flood risk concerns are considered within Chapter 12: Hydrology, Land Drainage and Flood Risk (document reference 6.12) and are addressed as part of the FRA (document reference 7.9).</p>

Temporal Scope

- 5.3.6 The EIA predicts the residual changes (effects) during the construction and operation (and maintenance) phases of the Project following the implementation of mitigation. These terms are defined in the paragraphs that follow. Decommissioning was scoped out of the assessments within the EIA Scoping Report (document reference 6.19) (and agreed within the EIA Scoping Opinion (document reference 6.20)), however, this term is also defined in the paragraphs that follow.

Construction Phase

- 5.3.7 The construction phase effects are those that are likely to occur during construction of the Project. They include effects resulting from the activities associated with the construction and installation of the new overhead line, underground cables, Cable Sealing End (CSE) compounds, East Anglia Connection Node (EACN) Substation, Tilbury North Substation, connection works into the existing Norwich Main Substation and a substation extension at the existing Bramford Substation, third-party works and the removal of existing 400 kV, 275 kV and 132 kV overhead lines. Construction phase effects also include those associated with temporary works such as the temporary haul roads, temporary construction compound areas and work activities such as piling; and removal of the temporary works and reinstatement of hedgerows and other features.
- 5.3.8 As described in Chapter 4: Project Description (document reference 6.4), the construction schedule assumes that construction would commence in 2027, subject to the grant of development consent.

Operational (and Maintenance) Phase

- 5.3.9 The operational (and maintenance) phase effects are those that are likely to occur as a result of the presence, operation and maintenance of the Project. For example, landscape and visual effects associated with the existence of the overhead line in the landscape or effects associated with workers inspecting or undertaking routine maintenance to the electricity line.
- 5.3.10 For the purpose of the ES (Volume 6 of the DCO application), it has been assumed that the operational (and maintenance) phase would start in 2031 after the construction of the Project, which is proposed to commence in 2027 and continue for four years through to 2031 (including demobilisation).

Decommissioning

- 5.3.11 As described in Chapter 4: Project Description (document reference 6.4), there are no current plans to decommission the Project. While the design life³ of the Project is currently at least 40 years, this is likely to be significantly extended given the probable increase in electricity demand in the future and the typical life of some components being longer than 40 years.
- 5.3.12 It is expected that if future proposals for decommissioning were to come forward, they would be subject to separate consenting procedures, including environmental assessment of the proposed activities, and taking account of the baseline as it exists at the time of decommissioning.

³ Anticipated lifespan of the Project elements

Temporal Scales Used to Characterise Duration of Effects

- 5.3.13 Environmental assessment uses defined temporal scales to characterise the duration of potential effects. 'Short term' is used in some topic sections to reflect the transient nature of the construction works. For the purposes of assessment, the following definitions are applied (unless defined differently in the specific environmental topic chapters to remain consistent with recognised assessment methodologies):
- Short term: This is assumed to be up to 2032 which covers construction plus one-year reinstatement
 - Medium term: This is assumed to be 2033 to 2048 which is based on year 2-15 post construction
 - Long term: This is assumed to be 2049 onwards and is used to describe effects with a duration that extends longer than 15 years post construction.
- 5.3.14 The temporal nature of effects means that the effect could be different to the phase in which the effects occur. For example, effects as a result of vegetation clearance during construction may be felt for several years after construction has been completed, prior to any replanted habitats maturing. For the purposes of the EIA, the effects are described under the phase within which the impact arises, i.e., construction in relation to the vegetation loss example above.

Geographical Scope

- 5.3.15 The Order Limits encompass the land required permanently and temporarily to build and operate the Project. The Order Limits comprise the maximum working width to construct the Project, including for example, the temporary construction compounds, road access points, the land required for permanent above and below ground features, and rights of access, both temporary during construction and permanent for maintenance.
- 5.3.16 The Order Limits include the Limits of Deviation (LoD) which, as noted in Chapter 4: Project Description (document reference 6.4), represent the dimensions within which the final Project alignment and associated features could be installed. The EIA assumes that the alignment could lie anywhere with the LoD (unless restricted as detailed in the Outline Code of Construction Practice (CoCP) (document reference 7.2)) and takes a reasonable worst-case approach when undertaking the assessment. This allows for deviations while ensuring that the EIA remains robust. The individual Study Areas within each environmental topic chapter⁴ within the EIA are based on the distance over which an effect is likely to occur. Each Study Area is defined in each of the environmental topic chapters and varies between topics. Study Areas also vary within topic chapters between the construction and operational (and maintenance) phases. For example, direct physical effects may only occur within the construction footprint; effects on water quality at crossings may extend further downstream than upstream; the visual effects of the works may occur over a longer distance.

⁴ The geographical area that is analysed to assess the potential environmental, social, and economic effects of a proposed project or development.

5.4 EIA Methodology

Current and Future Baseline

- 5.4.1 Data was gathered to identify the baseline (existing) environment, against which the potential environmental effects of the Project were assessed. Establishing the baseline conditions of a defined Study Area allows an accurate understanding of the type and sensitivity of receptors within the receiving environment. Understanding the baseline conditions also assists in the identification of the most appropriate mitigation measures which can be used to avoid or reduce any significant effects.
- 5.4.2 The baseline data collation started with a desk study gathering information from existing records, online datasets, maps and aerial photographs. Third-party data sources were initially requested in 2022 based on the 'Scoping Report Corridor'⁵ as defined in the EIA Scoping Report (document reference 6.19). Data was refreshed in 2023 based on the then draft Order Limits. Data was then refreshed again in 2024/2025 and cover the Order Limits and the relevant Study Areas set out in each environmental topic chapter. The environmental topic chapters provide further details on the data used for the assessment and when this was sourced.
- 5.4.3 The desk study was supported by a suite of site surveys that were predominantly undertaken in 2022, 2023 and 2024. These included habitat and species surveys, landscape and visual site visits, archaeological geophysical surveys, archaeological trial trenching and aerial mapping and baseline traffic count data. The environmental topic chapters and the supporting appendices provide further details on the site surveys undertaken, the methodology used and the results of these surveys.
- 5.4.4 Given the size and scale of the Project, some ecology and biodiversity surveys and intrusive archaeological investigations have continued in 2025 for completeness to strengthen the already robust baseline survey information gathered in 2022, 2023 and 2024. Further details of survey information gathered in 2025 that is not included within this ES (Volume 6 of the DCO application), is presented in Chapter 8: Ecology and Biodiversity (document reference 6.8) and Chapter 11: Historic Environment (document reference 6.11) together with when survey information will be available⁶.
- 5.4.5 The environmental topic chapters include a description of the future baseline, which describes the future theoretical baseline situation that would exist in the absence of the Project. It is typically based on extrapolating the current baseline using professional judgement (e.g. habitat change over time) to predict the environmental conditions at a defined and relevant point in the future. For example, the environmental conditions against which future changes can be predicted include climate change, consented developments and other factors including predicted population and traffic growth.
- 5.4.6 Each environmental topic chapter presents the future baseline where it is considered likely that the baseline would change in the absence of the Project. Where no

⁵ The preferred corridor in the Corridor and Preliminary Routing and Siting Study (National Grid, 2022) (referred to within the EIA Scoping Report (document reference 6.19) as the 'Scoping Report Corridor')

⁶ Note that although reference is made to 'further environmental information' within relevant environmental topic chapters in the ES (Volume 6 of the DCO application), this term is not being used as the term of art defined in Reg 3(1) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. The nearest equivalent under Reg 3(1) would be 'any other information'.

changes to the baseline environment in the absence of the Project are expected, this is also stated.

Parameters and Flexibility

- 5.4.7 As noted in Chapter 1: Introduction (document reference 6.1), the Project is an NSIP and Order Limits have been defined to encompass the land required temporarily to build the Project and permanently, to operate (and maintain) the Project. The Order Limits include LoD, which represent the maximum lateral, locational or vertical flexibility for infrastructure, such as the overhead line, pylons, CSE compounds and underground cables. This allows for adjustment to the final positioning of Project features to avoid localised constraints or unknown or unforeseeable issues that may arise. The assessment presented within the ES (Volume 6 of the DCO application) is based on the design and LoD (explained within Chapter 4: Project Description (document reference 6.4) shown on the Works Plans (document reference 2.3).
- 5.4.8 The assessment presented within Section 7 (Residual Effects) of each environmental topic chapter identifies the likely significant effects based on a reasonable worst-case scenario. This assessment is based on the construction method described in Chapter 4: Project Description (document reference 6.4) and shown on Figure 4.1: Proposed Project Design (document reference 6.4.F1).

Sensitivity Testing

- 5.4.9 The environmental topic chapters consider sensitivity testing / flexibility in design that may be adopted to see if there would be new or different significant environmental effects. Sensitivity testing / flexibility in design is assessed within Section 9 of each environmental topic chapter (Chapters 6 – 16 (document references 6.6 to 6.17) and includes:
- Assessment of an alternative construction schedule: Each environmental topic chapter provides an assessment to determine if the environmental effects would be different if the construction programme was extended or delayed
 - Flexibility in Design:
 - Flexibility within the LoD, for example changes to the location or height of permanent features, such as pylons, within the LoD (other than where locations of specific pylons are committed to, as detailed within the Outline CoCP (document reference 7.2)
 - Flexibility within the Order Limits, for example, there are elements of the Project where a design scenario has been identified. Further details are presented in Table 4.4 of Chapter 4: Project Description (document reference 6.4) as to how each element has been assessed within the ES (Volume 6 of the DCO application).

Assumptions and Limitations

- 5.4.10 Other general assumptions that have been made in the EIA within each environmental topic chapter are as follows:
- The current reported baseline is considered to be the existing state as recorded at the time when baseline surveys were completed

- Information provided by third parties, including publicly available information and databases, is correct at the time of publication and/or specific dates provided.

5.4.11 Further assumptions relevant to each environmental topic are outlined within Section 4 (EIA Approach and Methods) of each environmental topic chapter.

Significance

5.4.12 Regulation 5(2) of the EIA Regulations states that *‘the EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors: (a) population and human health, (b) biodiversity, (c) land, soil, water, air and climate, (d) material assets, cultural heritage and the landscape; and e) the interaction between the factors referred to in sub-paragraphs (a) to (d)’*.

5.4.13 Schedule 4 paragraph 5 of the EIA Regulations requires a description of the likely significant effects of the development on the environment.

5.4.14 Each environmental topic chapter outlines how significance has been assessed⁷. However, the assessment of significance is typically based on a three-step process⁸. The first step assigns sensitivity or an inherent value to a receptor. Sensitivity is how easily the receptor is affected by change; value is a measure of its inherent worth. Table 5.2 provides broad definitions of sensitivity or value. The sensitivity or value of aspects specific to that topic is defined in each topic chapter.

Table 5.2 Value and sensitivity criteria

Value/Sensitivity	General Criteria
Very high	Very high importance, or rarity on an international scale and very limited potential for substitution; very sensitive to change or has very little capacity to accommodate change.
High	High importance, or rarity on a national scale and limited potential for substitution; and/or sensitive to change or has little capacity to accommodate change.
Medium	Medium or high importance, or rarity on a regional scale and limited potential for substitution; and/or moderately sensitive to change, or moderate capacity to accommodate change.
Low	Low value or importance on a local scale; not particularly sensitive to change or has considerable capacity to accommodate change.
Negligible	Abundant, or very low importance and rarity on a local scale; resistant to or has a considerable capacity to accommodate change.

⁷ The Historic Environment assessment includes consideration of the assessment of harm in the context of the National Planning Policy Framework and NPS (EN-1). Further information is included in Appendix 11.7: Assessment of Harm (document reference 6.11.A7)

⁸ This is drawn from Table 3.2N, Table 3.4N and Table 3.8.1 in the Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (National Highways *et al.*, 2020). Whilst the DMRB was initially established for assessment of roads and bridges, it is widely adopted as appropriate for other major linear developments.

- 5.4.15 The second step of the assessment determines the likely magnitude of the potential impact. This is the scale of the change caused to the baseline conditions considering both the degree of change from the baseline conditions and the duration and/or reversibility of the effect. The assessment of magnitude takes into consideration all embedded mitigation, standard mitigation and additional measures adopted as described in Chapter 4: Project Description (document reference 6.4) and within the Outline CoCP (document reference 7.2) respectively. Table 5.3 presents generalised magnitude criteria. Specific magnitude criteria is defined within each environmental topic chapter.

Table 5.3 Magnitude criteria

Magnitude	General Criteria
Large / Major	Adverse: Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. Beneficial: Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality.
Medium / Moderate	Adverse: Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements. Beneficial: Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality.
Small / Minor	Adverse: Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (or more) key characteristics, features or elements. Beneficial: Minor benefit to, or addition of, one (or more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring.
Very small / Negligible	Adverse: Very minor loss or detrimental alteration to one or more characteristics, features or elements. Beneficial: Very minor benefit to, or positive addition of, one or more characteristics, features or elements.
No change	Adverse or beneficial: No change from baseline conditions.

- 5.4.16 Typically, the third step, in the process, the significance of an effect on a receptor, is considered in relation to the sensitivity or value of the receptor and the magnitude of the potential impact. Assigning significance in EIA is subjective, particularly where the assessment is qualitative rather than quantitative. To aid transparency in the assessment process, the matrix shown in Table 5.4 is used as the basis for assigning significance to an effect. A highly sensitive receptor subject to a large magnitude of change would suffer a major effect. A low sensitivity receptor with a medium magnitude of change would suffer a minor effect.
- 5.4.17 Professional judgement is also used when allocating significance. This is of relevance where the assessment is based on a qualitative approach and the significance of effect is a matter of judgement rather than a quantified outcome. Explanatory text is provided to explain how professional judgement, where used, has determined the significance value. Where the matrix indicates that two or more levels of significance are possible, professional judgement is applied to determine the level of significance.

- 5.4.18 The assessment of significance also includes the reasoned analysis setting out the rationale for the value, magnitude, and significance of effect.

Table 5.4 Matrix of significance

Value/Sensitivity of Receptor	Magnitude of Change			
	Large / Major	Medium / Moderate	Small / Minor	Very Small / Negligible
Very High / High	Major	Major	Moderate	Minor / Negligible
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor / Negligible	Negligible	Negligible	Negligible

- 5.4.19 The influence of impact duration on the overall significance of effect is also considered as part of the determination of magnitude and sensitivity to change.
- 5.4.20 Under Regulation 18(3) of the EIA Regulations, the likely significant effects of the Project on the environment must be reported in the ES. A significant effect in relation to the EIA Regulations on the Project is taken to mean one of moderate or major adverse or beneficial significance, and which would be considered material in determining the DCO application. While the effects of minor or negligible significance are not considered to be significant effects on the environment, they are reported to acknowledge that there would be some differences from the baseline conditions.

Approach to Mitigation and Enhancement

Mitigation Hierarchy

- 5.4.21 The mitigation hierarchy is a stepped process that helps development projects to address potentially adverse effects on the environment. National Policy Statement (NPS) EN1 (DESNZ, 2024) states ‘... *the applicant must set out information on the likely significant environmental, social and economic effects of the development, and show how any likely significant negative effects would be avoided, reduced, mitigated or compensated for, following the mitigation hierarchy*’. The EIA Regulations (14(2)(c)) also requires an ES to include ‘*a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment*’.
- 5.4.22 The mitigation hierarchy has been applied to the Project throughout the iterative design process and with the following considered:
- **Avoid** – the first step of the mitigation hierarchy comprises mitigation measures taken to avoid creating effects from the outset, such as careful spatial placement of infrastructure away from receptors, or timing construction sensitively to avoid their disturbance
 - **Prevent** – these include measures to remove the effect at source or disrupt the impact pathway – such as adopting standard pollution prevention techniques in line with good practice to prevent watercourses becoming polluted

- **Reduce** – these are measures taken to reduce the duration, intensity and/or extent of effects that cannot be completely avoided for example landscape planting around the permanent assets such as at the CSE compounds and the proposed new EACN Substation and Tilbury North Substation
- **Offset (sometimes referred to as compensate)** – where relevant and appropriate to the specific effect, these measures aim to compensate for any residual, adverse effects after full implementation of the previous three steps of the mitigation hierarchy an example is individual tree replacement at a 3:1 ratio with some inside the Order Limits where space allows and some outside of the Order Limits.

- 5.4.23 As part of offsetting within the mitigation hierarchy, NPS EN1 (DESNZ, 2024) (paragraph 4.2.12) states *‘Applicants should set out how residual impacts will be compensated for as far as possible. Applicants should also set out how any mitigation or compensation measures will be monitored and reporting agreed to ensure success and that action is taken.’*
- 5.4.24 It is important to note that the emerging Draft NPS EN1 (DESNZ, 2025) (paragraph 4.2.25) provides further clarity with the addition of the following sentence *‘Compensation, by definition, does not reduce an adverse effect resulting from a development’.*
- 5.4.25 The application of the mitigation hierarchy in the context of EN-1 and EN-5 is further set out in the Planning Statement (document reference 5.6).
- 5.4.26 Offsetting (compensation) is further defined in the Outline LEMP (document reference 7.4).

Embedded, Standard and Additional Mitigation Measures

- 5.4.27 Each topic chapter of the ES has identified proposed mitigation measures (which could fall under ‘Avoid’, ‘Prevent’ or ‘Reduce’) that are required to address potential significant adverse effects of the Project, following the mitigation hierarchy. Mitigation is categorised as follows:
- Embedded Mitigation Measures: are those that are intrinsic to and built into the design of the Project
 - Standard Mitigation Measures: comprising management activities and techniques that would be implemented throughout construction of the Project to limit effects through adherence to good site practices. These are included in the Outline CoCP (document reference 7.2)
 - Additional Mitigation Measures: mitigation measures over and above embedded and standard mitigation measures to reduce environmental effects. This includes, but is not limited to, mitigation required for protected species.
- 5.4.28 Further detail is included within Chapter 4: Project Description (document reference 6.4).
- 5.4.29 Mitigation measures have been defined within each environmental topic chapter and where relevant to construction and post-construction are detailed in the:
- Outline CoCP (document reference 7.2) secured by Requirement 4 in the draft DCO (document reference 3.1)

- Outline Construction Traffic Management Plan (CTMP) (document reference 7.3) secured by Requirement 4 in the draft DCO (document reference 3.1)
- Outline Public Rights of Way (PRoW) Management Plan (document reference 7.6) secured by Requirement 4 in the draft DCO (document reference 3.1)
- Outline Archaeological Mitigation Strategy and Outline Written Scheme of Investigation (document reference 7.5) secured by Requirement 5 in the draft DCO (document reference 3.1).

5.4.30 Environmental mitigation that relates to the permanent assets is detailed in the Outline CoCP (document reference 7.2) and the Outline Landscape and Ecological Management Plan (LEMP) (document reference 7.4) secured by Requirement 4 of the draft DCO (document reference 3.1).

Enhancement

5.4.31 NPS EN1 (DESNZ, 2024) details that projects should also not only mitigate effects following the mitigation hierarchy, but they should also consider whether there are any opportunities for enhancement. Enhancement proposed as part of the Project comprises:

- Biodiversity Net Gain (BNG) - the Project is committed to delivering at least 10% BNG – further detail can be found within the BNG Report (document reference 7.1) (*Note: enhancement relates to the 10% net gain with wider environmental and societal benefits only*)
- Environmental measures contributing towards the natural beauty, special qualities, and key characteristics of Protected Landscapes – further detail can be found within National Landscapes (an Area of Outstanding natural Beauty (AONB)) – Duty to Seek to Further the Purposes Report (s85 Countryside and Rights of Way Act 2000) (document reference 5.10).

Assessment of Residual Effects

5.4.32 Residual effects are those that are predicted to remain after the proposed additional mitigation measures have been implemented. Potential significant effects prior to mitigation measures being implemented are not reported in this ES (Volume 6 of the DCO application) unless guidance relevant to the environmental topic chapter requires potential effects to be reported prior to mitigation. This approach was agreed at the scoping stage. Residual effects are described in Section 7 of each environmental topic chapter, where new or different significant effects are anticipated through the flexibility provided in the DCO these are reported in Section 9 of each environmental topic chapter.

Structure of the Environmental Topic Chapters

5.4.33 The outcomes of the EIA process are presented within each environmental topic chapter. The topic chapters are generally structured as follows:

- Section 1: Introduction – provides a summary of what the chapter covers and signposts supporting appendices and figures where applicable
- Section 2: Key Regulatory and Planning Policy Context – provides a summary of the topic-specific policy and guidance that is relevant to the Project

- Section 3: Scope of the Assessment – provides a summary of the scope of the environmental topic chapter
- Section 4: EIA Approach and Methods – provides a summary of the data sources used to gain an understanding of the existing baseline environment and the methodology adopted for undertaking the assessment
- Section 5: Baseline Conditions – describes the characteristics of the baseline conditions for the defined Study Area and identifies the receptors/features which have the potential to be impacted. This section also reports on the future baseline
- Section 6: Proposed Mitigation – presents details of any embedded, standard or additional mitigation that have been identified to prevent, reduce or offset likely significant effects during construction and/or operation (and maintenance)
- Section 7: Residual Effects – identifies the anticipated residual effects of the Project following the implementation of mitigation measures for both construction and operation (and maintenance)
- Section 8: Monitoring – outlines the monitoring requirements in relation to the likely significant effects identified through the EIA process
- Section 9: Sensitivity Testing – provides a summary of the assessment undertaken to identify new or different significant effects that could occur as a result of the application of flexibility that is allowed for within the draft DCO (document reference 3.1).

5.5 Cumulative Effects

- 5.5.1 The likely significant cumulative effects of the Project, including inter-project cumulative effects with other projects, are presented in Chapter 17: Cumulative Effects (document reference 6.17). Effects are categorised as either intra-project or inter-project effects:
- Intra-project cumulative effects: when a receptor is affected by more than one type of environmental effect from the same development. For example, a residential property may be subject to air quality, noise and visual effects
 - Inter-project cumulative effects: when a receptor is affected by the Project and at least one other proposed development. For example, the Project and another proposed development within the same sensitive landscape, leading to more significant landscape and visual effects than if the developments were considered in isolation.
- 5.5.2 Further information on the scope of this assessment is included in Chapter 17: Cumulative Effects (document reference 6.17).

5.6 Stakeholder Engagement

- 5.6.1 Stakeholder engagement has formed a key part of the Project development since its inception. In accordance with the Planning Act 2008, supporting guidance and good practice, National Grid has undertaken consultation with relevant bodies and the feedback received has informed the development of the EIA.

- 5.6.2 National Grid has undertaken two rounds of non-statutory consultation (2022 and 2023), one round of statutory consultation in 2024 and further consultations in 2025. During the 2024 statutory consultation, National Grid held fourteen public information events along the route, and six webinars. Further details on the consultation events can be found in the Consultation Report (document references 5.1A and 5.1B).
- 5.6.3 National Grid has also undertaken a number of environmental and thematic meetings with environmental organisations to gather information about the baseline environment, scope of the assessment and potential effects and mitigation. Details of these meetings are listed within Section 3 (Scope of the Assessment) of each environmental topic chapter (document references 6.6 - 6.17).
- 5.6.4 An overview of the statutory consultation and how this has informed the development of the Project is provided in the Design Development Report (document reference 5.15). The Consultation Report (document reference 5.1) also outlines how non-statutory and further consultations have informed the development of the Project.
- 5.6.5 The Consultation Report (document reference 5.1) includes a summary of the responses received from environmental bodies during non-statutory consultations, statutory consultations and further consultations and how National Grid has given due regard to this feedback when undertaking the EIA and preparing the DCO application.

5.7 Supporting Documents

Other Reports and Assessments

- 5.7.1 The application for development consent includes the following documents which have informed the assessment and should be read in parallel:
- Electric and Magnetic Field (EMF) Compliance Report (document reference 7.8): This provides an assessment and conclusions of the likely significant health and environmental effects of EMFs associated with the construction and operation (and maintenance) of the Project
 - Habitats Regulations Assessment Report (document reference 5.3): This provides the Stage 1: Screening and Stage 2: Appropriate Assessment in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended) as to whether the Project affects the protected features of a European designated site
 - Statutory Nuisance Statement (document reference 5.4): This sets out the potential of the Project to cause statutory nuisance (as defined in Section 79(1) of the Environmental Protection Act 1990) and the measures that have been incorporated to mitigate any such potential nuisances
 - Flood Risk Assessment (document reference 7.9): This sets out how the Project has considered flood risk both in terms of designing the Project to be resilient to flooding and how it avoids affecting flood risk elsewhere
 - Water Framework Directive Assessment (document reference 7.10): This sets out the relevant water bodies, together with an assessment of any effects that the Project may cause in relation to these bodies and their objectives for reaching good ecological status or potential

- Transport Assessment (document reference 7.11): This sets out the assessment that has been undertaken in relation to the effect of the Project on the strategic and local road networks. It also includes the effects on Non-Motorised Users (NMU) (such as walkers, cyclists and horse riders) both on the road network and also on PRoW
- Photomontages (document reference 7.12): The photomontages help illustrate what the Project may look like during operation (and maintenance)
- Consents and Licences Required Under Other Legislation (document reference 5.5): This sets out at a high level the consents needed to construct the Project and how the consents would be obtained.

Management Plans

5.7.2 The application for development consent includes the following management plans, which provide the securing mechanisms for embedded mitigation measures, good practice mitigation measures and additional mitigation measures identified throughout the EIA process. These are secured through Requirement 4 of the draft DCO (document reference 3.1):

- Outline CoCP (document reference 7.2): This provides further details on how environmental effects and risks would be managed during construction, including measures to reduce effects to water and soil, and effects resulting from waste and dust. The Outline CoCP (document reference 7.2) includes a number of environmental control plans as appendices, which comprise:
 - Outline Site Waste Management Plan
 - Outline Soil Resource Plan
 - Outline Dust Management Plan
 - Outline Stakeholder Communications Plan
 - Outline Noise and Vibration Management Plan
 - Outline Flood Warning and Evacuation Plan
 - Outline Greenhouse Gas Reduction Strategy
- Outline Construction Traffic Management Plan (document reference 7.3): This provides details on the measures proposed to avoid or reduce effects from the Project on the road network during construction
- Outline LEMP (document reference 7.4): This provides details on how vegetation would be retained and protected during construction and how vegetation would be reinstated following construction, including the aftercare and maintenance that is proposed
- Outline Archaeological Mitigation Strategy and Outline Written Scheme of Investigation (WSI) (document reference 7.5): This document sets out the scope, guiding principles and methods for the planning and implementation of essential archaeological mitigation works associated with the design and construction of the Project

- Outline PRow Management Plan (document reference 7.6): This provides details on the measures proposed to avoid or reduce effects from the Project on PRow during construction.

5.8 Monitoring

- 5.8.1 Regulation 25(3) of the EIA Regulations introduced a requirement on the Secretary of State to consider whether it would be appropriate to impose monitoring of any significant adverse effects on the environment from a Project where a 'subsequent consent' (as defined in regulation 3) is to be granted. Section 8 (Monitoring) of each environmental topic chapter summarises the need for monitoring on the Project, where applicable. Further details of the proposed monitoring are set out in the Outline CoCP (document reference 7.2) (where relevant) and the Outline LEMP (document reference 7.4).

Abbreviations

Abbreviation	Full Reference
CoCP	Code of Construction Practice
CSE	Cable Sealing End
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DMRB	Design Manual for Roads and Bridges
EACN	East Anglia Connection Node
EIA	Environmental Impact Assessment
EIC	Environmental Implications of Change
ECP	Environmental Control Plans
EMF	Electric and Magnetic Field
ES	Environmental Statement
FRA	Flood Risk Assessment
GHG	Greenhouse Gases
IEMA	Institute of Environmental Management and Assessment
kV	Kilovolt
LEMP	Landscape and Ecological Management Plan
LoD	Limits of Deviation
NMU	Non-Motorised User
NSIP	Nationally Significant Infrastructure Project
PEIR	Preliminary Environmental Information Report
PRoW	Public Right of Way
WSI	Written Scheme of Investigation

Glossary

Term	Description
Additional Mitigation Measures	Comprises measures over and above embedded and standard mitigation measures to reduce environmental effects. This would include, but not be limited to, mitigation required for protected species.
Alignment	The proposed overhead line and underground cable route
Outline Archaeological Mitigation Strategy and Outline Written Scheme of Investigation	Sets out the scope, guiding principles and methods for the planning and implementation of additional archaeological mitigation works associated with the construction of the Project.
Archaeological Trial Trenching	Intrusive mechanical excavation to determine the presence, extent, level of survival and potential significance of buried archaeological remains.
Biodiversity	The variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems.
Cable Sealing End	Structures used to transfer transmission circuits between underground cables and overhead lines
Cable Sealing End compound	Electrical infrastructure used as the transition point between overhead lines and underground cables. A compound on the ground acts as the principal transition point.
Code of Construction Practice	A code of construction practice sets out the standards and procedures to which a developer (and its contractors) must adhere in order to manage the potential effects of construction works.
Construction Traffic Management Plan	Plan detailing the procedures, requirements and standards necessary for managing the traffic effects during construction of the Project so that safe, adequate and convenient facilities for local movements by all transport modes are maintained throughout the construction process.
Contaminated Land	Land where a substance or contaminant which is in or under the land, has the potential to cause significant harm or the significant possibility of significant harm to human health, property or protected species; or significant pollution or the significant possibility of significant pollution to controlled waters.
Cumulative Effects	The assessment of the effect on the environment which results from the incremental effect of an action when added to other past, present or reasonably foreseeable actions regardless of what agency or person undertakes such actions. Cumulative effect can result from individually minor but collectively significant actions taking place over a period of time.

Term	Description
Development Consent Order	A statutory instrument which grants consents and other rights to build a Nationally Significant Infrastructure Project, as defined by the Planning Act 2008.
Disaster	A disaster is a man-made/external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident.
Electric and Magnetic Fields	All equipment that generates, distributes or uses electricity produces Electric and Magnetic Fields (EMFs), and EMFs also occur naturally. Electric fields are created by differences in voltage: the higher the voltage, the stronger the resultant field. Magnetic fields are created when electric current flows: the greater the current, the stronger the magnetic field.
Embedded design measures	Mitigation measures are those that are intrinsic to and built into the design of the Project.
Environmental Impact Assessment (EIA)	An assessment of the likely effects of a development project on the environment, which is reported in an Environmental Statement that is publicised and consulted on and taken into account in the decision on whether a project should proceed.
Environmental Statement (ES)	The main output from the EIA process, an ES is the report required to accompany an application for development consent (under the Infrastructure Planning (EIA) Regulations 2017) to inform public and stakeholder consultation and the decision on whether a project should be allowed to proceed. The EIA Regulations set out specific requirements for the contents of an ES for Nationally Significant Infrastructure Projects.
Environmental topic	A subject area covered within the EIA, for example landscape and visual or biodiversity.
Flood Risk Assessment	A flood risk assessment is an assessment of the risk of flooding, particularly in relation to residential, commercial and industrial land use. In England and Wales, the Environment Agency requires a Flood Risk Assessment (FRA) to be submitted alongside planning applications in areas that are known to be at risk of flooding.
Greenhouse gases	Greenhouse gases refer to a number of chemicals in the Earth's atmosphere such as carbon dioxide (CO ₂), methane (CH ₄), and nitrous oxide (N ₂ O).
Habitats Regulations Assessment	The process by which plans and projects are assessed as to whether they are likely to have a significant effect on a European site, either alone or in combination with other plans or projects, under the Conservation of Habitats and Species Regulations 2017 (as amended).
Haul Roads	A route used by construction traffic within the Order Limits to access a working area from a site access point.

Term	Description
Kilovolt	1,000 volts.
Limits of Deviation	LoD allow for adjustment to the final positioning of the permanent infrastructure, for example, to avoid localised constraints or unknown or unforeseeable issues that may arise. This could include previously unidentified poor ground conditions requiring a pylon to be moved slightly for geotechnical reasons, such as ground stability. The horizontal LoD define the parameters within which the position on the ground of proposed permanent infrastructure may deviate from the position shown on the plans. This applies to both linear (for example overhead line and underground cables) and non-linear (for example the EACN Substation and CSE compounds) proposed infrastructure. Vertical LoD limit the maximum vertical height, or the depth below ground, of any new infrastructure.
Major Accidents	A major accident is an event that threatens immediate or delayed serious environmental effects to human health, welfare and/or the environment and requires the use of resources beyond those of the client or its appointed representatives (i.e., contractors) to manage. Major accidents can be caused by disasters resulting from both man-made and natural hazards.
Mitigation	The action of reducing the severity and magnitude of change (impact) to the environment. Measures to avoid, reduce, remedy or compensate for significant adverse effects.
National Landscape (an Area of Outstanding Natural Beauty)	Formally designated under the National Parks and Access to the Countryside Act of 1949 to protect areas of the countryside of high scenic quality that cannot be selected for National Park status due to their lack of opportunities for outdoor recreation (an essential objective of National Parks). As of November 2023, all AONBs became 'National Landscapes'. This reflects ambitions for the areas to play a key part in the international '30 by 30' commitment (to protect and conserve a minimum of 30% of land and sea for biodiversity by 2030).
Nationally Significant Infrastructure Project	Typically a large-scale development of national importance that requires development consent from the Secretary of State, under the Planning Act 2008.
Order Limits	The maximum extent of land within which the authorised development may take place.
Outline Written Scheme of Investigation	Sets out the steps that need to be taken to mitigate the predicted effects on archaeology, geo-archaeology and historic landscape heritage assets.
Overhead line	Conductor (wire) carrying electric current, strung from pylon to pylon.
Preliminary Environmental Information Report	Information that has been compiled by the applicant to support statutory consultation held in advance of submitting an application for development consent. The Preliminary Environmental Information Report should contain information reasonably required for the consultation bodies to develop an informed view of the likely significant

Term	Description
	environmental effects of the development and any associated development.
Public Right of Way (PRoW)	A footpath, bridleway or byway accessible to all members of the public.
Pylon	Structures that support the overhead line (conductors).
Receptor	The physical resource or user group that would respond to an effect e.g. somebody or something adversely affected by a pollutant.
Residual effects	The consequence of an 'effect' of construction, operation and decommissioning of the proposed development after mitigation measures have been applied.
Scoping	Scoping is the process of determining the content and extent of matters that should be covered in the Environmental Impact Assessment.
Scoping Report	Report determining the content and extent of matters that should be covered in the Environmental Impact Assessment.
Sensitivity	A term applied to specific receptors, combining judgements of the susceptibility of the receptors to the specific type of change or development proposed and the value related to that receptor.
Significance	A measure of the importance or gravity of the environmental effect, defined by significance criteria specific to the environmental topic.
Species	A group of living organisms consisting of similar individuals capable of exchanging genes or interbreeding.
Standard mitigation measures	Comprise management activities and techniques would be implemented throughout construction of the Project to limit effects through adherence to good site practices.
Statutory consultation	The formal period of public consultation, prior to deciding an application for development consent.
Substation	Substations are used to control the flow of power through the electricity system. They are also used to change (or transform) the voltage from a higher to lower voltage to allow it to be transmitted to local homes and businesses.
Transport Assessment	Transport Assessment is a comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be taken to deal with the anticipated transport effects of the Project. It is separate to Chapter 16: Traffic and Transport (document reference 6.16).
Underground Cable	An insulated conductor carrying electric current designed for underground installation. Underground cables link together two Cable Sealing End compounds.

Term	Description
Water Framework Directive	The Water Framework Directive (2000/60/EC) commits European Union member states to achieve good qualitative and quantitative status of all water bodies. It is transposed into law in England and Wales via The Water Environment (Water Framework Directive) (England and Wales) 2017 Regulations, which were retained via the European Union (Withdrawal) Act 2018.

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