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EIA Approach and Method

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Contents

5.	EIA Approach and Method	1
5.1	Introduction	1
5.2	The EIA Process	2
5.3	EIA Scoping	4
5.4	EIA Methodology	8
5.5	Cumulative (In-Combination) Effects	15
5.6	Stakeholder Engagement	15
5.7	Supporting Documents	16
5.8	Monitoring	17

5. EIA Approach and Method

5.1 Introduction

5.1.1 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 to reduce residual effects, where practicable, to a non-significant level. The EIA process informs the project design and is taken into account by the decision-making body when determining consent.

5.1.2 This chapter describes the EIA process and the different documents produced at each stage. It sets out how the technical, temporal and geographical scope has been defined on the project. It also describes the method used in the assessment and the assumptions on which the assessment is based.

5.1.3 This chapter is structured as follows:

- Section 5.2: The EIA Process: This introduces the EIA process and gives an overview of the steps taken from scoping and baseline data gathering, to the assessment presented within the Environmental Statement (ES) submitted as part of the application for development consent;
- Section 5.3: EIA Scoping: This outlines the scope of the EIA including the technical, temporal and geographical scope;
- Section 5.4: EIA Methodology: This 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 assumed on the project;
- Section 5.5: Cumulative (In-Combination) Effects: This outlines the need for a cumulative effects assessment and what has been included within this;
- Section 5.6: Stakeholder Engagement: This summarises the stakeholder engagement that has been undertaken to inform the EIA;
- Section 5.7: Supporting Documents: This provides a list of other documents that support the EIA including the list of management plans where the EIA commitments would be secured; and
- Section 5.8: Monitoring: This outlines the monitoring requirements in relation to the likely significant effects identified through the EIA process.

5.1.4 This chapter is supported by the following appendices:

- Appendix 5.1: Scope of the Assessment (**application document 6.3.5.1**);
- Appendix 5.2: Response to Consultation Feedback (**application document 6.3.5.2**);
- Appendix 5.3: Major Accidents and Disasters Scoping (**application document 6.3.5.3**); and
- Appendix 5.4: Assessment Criteria (**application document 6.3.5.4**).

5.2 The EIA Process

Overview of the EIA Process

- 5.2.1 This section describes the methodology which 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 (hereafter ‘the EIA Regulations’), the assessments undertaken evaluate and identify the likely significant environmental effects arising from the proposed construction, operation and decommissioning phases of the project.

Scoping

- 5.2.2 The first stage in the EIA process is the scoping stage. This defines the proposed scope of the assessment, including the topics and aspects that are likely to result in significant effects that would be scoped into the ES. It also outlines the existing baseline environment and the proposed methodology for undertaking the assessment. The output of the scoping stage is a Scoping Report.
- 5.2.3 In February 2013, prior to the project pause, National Grid submitted a Scoping Report to the Planning Inspectorate in accordance with the Infrastructure Planning (EIA) Regulations 2009, as amended by the Infrastructure Planning (EIA) Regulations 2012. A Scoping Opinion was received in March 2013.
- 5.2.4 Due to the time lapse since the original Scoping Report was prepared and as the former (2009) EIA Regulations had been replaced in 2017, National Grid decided to submit a revised Scoping Report (**application document 6.5.1 to 6.5.3**), which was issued to the Planning Inspectorate in May 2021. This replaced the former Scoping Report submitted to the Planning Inspectorate in February 2013.
- 5.2.5 The Planning Inspectorate published the Scoping Opinion (**application document 6.6**) in June 2021, which replaced the former Scoping Opinion issued in March 2013. The Scoping Opinion was prepared on behalf of the Secretary of State, after consulting the prescribed bodies. The Scoping Opinion has informed the topics and aspects that have been scoped into the EIA. Further details can be found in ES Appendix 5.1: Scope of the Assessment (**application document 6.3.5.1**).

Baseline Data Gathering

- 5.2.6 Data was gathered to identify the baseline (existing) environment, against which the potential environmental effects of the project are 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 measures which could be employed to avoid or reduce any significant effects.
- 5.2.7 The baseline data collation started with a desk study gathering information from existing records, survey data from prior to 2013 collected for the project, online data sets, maps and aerial photographs. Third party data sources were initially requested in spring 2021 based on the Scoping Consultation Boundary as defined in the Scoping Report (**application document 6.5.1**). Data was refreshed in summer and autumn 2022 based on the then draft Order Limits and a buffer around these. This refreshed data covers the current application Order Limits and the relevant study areas set out in each EIA topic

chapter. The ES topic chapters provide further details on the data used for the assessment and when this was sourced.

- 5.2.8 The desk study was supported by a suite of site surveys that were predominantly undertaken in 2022. These included habitat and species surveys, landscape and visual site visits, archaeological geophysical surveys, archaeological trial trenching and aerial mapping and baseline traffic data counts. The ES topic chapters and the supporting appendices provide further details on the site surveys undertaken, the methodology used and the results of these surveys.

Preliminary Environmental Information

- 5.2.9 The project is a Nationally Significant Infrastructure Project (NSIP). As part of the NSIP process, applicants are required to undertake consultation with relevant consultees about the project proposals. This feedback is then used to shape the final proposals within the application for development consent. As part of this, applicants are required to prepare a Preliminary Environmental Information (PEI) Report, which sets out the information that *'is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development'* (Planning Inspectorate, 2020a). This information is used by consultees to inform their responses to the Statutory Consultation. The PEI Report (National Grid, 2022b) was published alongside other project documentation and information on the National Grid website in January 2022.
- 5.2.10 A further targeted consultation was undertaken by National Grid between 8 September to 19 October 2022. Consultation material was published including a review with regards to what had changed since the original PEI Report (National Grid, 2022b). This review demonstrated that there were no new or different significant effects identified as a result of the proposed design changes presented in the targeted consultation, compared to those presented in the original PEI Report at the Statutory Consultation.
- 5.2.11 Further details on the consultation stages and the feedback received can be found in the Consultation Report (**application document 5.1**). The consultation responses from the environmental organisations that are particularly pertinent to the EIA, are summarised in ES Appendix 5.2: Response to Consultation Feedback (**application document 6.3.5.2**). This appendix also includes a summary of how National Grid has given regard to these responses during the EIA and preparation of the ES.

Preparation of the Environmental Statement

- 5.2.12 The ES presents the likely significant effects that would result if the project was implemented, and any proposed mitigation to avoid or reduce those significant effects to a non-significant level (where possible). The ES is submitted with the application for development consent and is taken into account by the decision-making body when determining consent.
- 5.2.13 In general, the EIA follows a receptor-based assessment approach unless specific environmental topic guidance dictates otherwise. Receptors are those 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 EIA, consideration was given to Regulation 5(2) and Schedule 4 paragraph 4 of the EIA Regulations 2017.

- 5.2.14 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 reasonable worst-case scenario is assessed. Further details can be found in Section 5.4.
- 5.2.15 As noted in ES Chapter 1: Introduction (**application document 6.2.1**), the EIA was undertaken, managed and compiled by experienced and competent environmental professionals employed by National Grid through their framework of approved specialist suppliers. Professional qualifications and relevant professional memberships are provided in Table 1.1 in ES Chapter 1: Introduction (**application document 6.2.1**).

5.3 EIA Scoping

Technical Scope

- 5.3.1 The scope of the assessment is based on what was presented within the Scoping Report (**application document 6.5.1**) which was published in May 2021. It has also been updated based on the responses given in the Scoping Opinion (**application document 6.6**) prepared by the Planning Inspectorate on behalf of the Secretary of State, after consulting the prescribed bodies. The full list of what has been included within the scope of the assessment or justification as to why it has been scoped out, can be found in ES Appendix 5.1: Scope of the Assessment (**application document 6.3.5.1**).
- 5.3.2 Environmental topics scoped in comprise landscape and visual, biodiversity, historic environment, water environment, geology and hydrogeology, agriculture and soils, traffic and transport, air quality and noise and vibration. Some of these topics may only have a few aspects scoped into the assessment or may only consider construction effects if significant operational effects were scoped out.
- 5.3.3 There are some topics that were scoped out of requiring a standalone chapter in the ES within the Scoping Report. The Planning Inspectorate agreed with this approach in the Scoping Opinion (**application document 6.6**) but in some cases requested updated data to be provided within the ES. These topics were major accidents, socio-economics, recreation and tourism and health and wellbeing. Further details are provided below.

Major Accidents and Disasters

- 5.3.4 Chapter 17 of the Scoping Report (**application document 6.5.1**) set out the scoping assessment for Major Accidents and Disasters. The Scoping Report concluded that there were unlikely to be significant effects in relation to either the vulnerability of the project to a major accident or disaster, or as a result of the project causing a major accident or disaster. The Planning Inspectorate agreed with this conclusion in the Scoping Opinion (**application document 6.6**) (reference ID 4.12.1 and 4.12.2).
- 5.3.5 The Planning Inspectorate noted that two major hazard pipelines had not specifically been considered and requested that an updated scoping assessment should be included within the ES to support this conclusion. In response to this, National Grid has reviewed the location of the two major hazard pipelines and has included the details within ES Appendix 5.3: Major Accidents and Disasters Scoping (**application document 6.3.5.3**).
- 5.3.6 The Planning Inspectorate also requested consideration of the presence of services, including high-pressure gas mains, to be included within the updated assessment. This had already been considered as part of the 'Human error (buried strike to existing buried services)' line within Appendix 17.1 of the Scoping Report. However, for clarity, Appendix

5.3: Major Accidents and Disasters (**application document 6.3.5.3**) has been updated to include a specific reference to risk of service strike to a major hazard pipeline.

Socio-Economics, Recreation and Tourism

- 5.3.7 Chapter 15 of the Scoping Report (**application document 6.5.1**) set out the scoping assessment for Socio-economics, Recreation and Tourism. The Scoping Report assessed the potential for likely significant effects for different aspects, including potential effects on job creation and the availability of a local workforce, effects on tourism and recreation and amenity and also on navigation of waterways.
- 5.3.8 The Scoping Report (**application document 6.5.1**) concluded that the project would be unlikely to result in significant effects for any of the individual aspects within the Socio-economics, Recreation and Tourism chapter, when taking into account the embedded and good practice measures proposed on the project. The scoping assessment acknowledged that there could be likely significant effects when these aspects are considered cumulatively across EIA chapters (intra-project) and in combination with other proposed developments (inter-project) and noted that these would be considered as part of the cumulative effects assessment presented within the ES.
- 5.3.9 The EIA Regulations only require an assessment of the likely significant effects within the ES and the decision-making process. Therefore, in accordance with a proportionate approach to the assessment, National Grid proposed that a standalone Socio-economics, Recreation and Tourism chapter should be scoped out of the ES but that aspects would be considered within the cumulative effects assessment, where these have the potential to result in a significant effect.
- 5.3.10 The Planning Inspectorate agreed with the scoping out of aspects in relation to Socio-economics, Recreation and Tourism as a standalone chapter in the Scoping Opinion (**application document 6.6**). They identified that further baseline information was required in some areas to support this conclusion. These specific comments and the project response to them are presented in Appendix 5.1: Scope of the Assessment (**application document 6.3.5.1**) and the additional information is presented in ES Appendix 15.1: Cumulative Effects Baseline (**application document 6.3.15.1**), as it provides baseline information supporting the cumulative effects assessment presented in ES Chapter 15: Cumulative Effects Assessment (**application document 6.2.15**).
- 5.3.11 Since the publication of the Scoping Report (**application document 6.5.1**) in 2021, National Grid has undertaken discussions with the relevant planning authorities and has undertaken additional work to understand the potential effects on public rights of way (PRoW). The relevant planning authorities requested that a Transport Assessment was produced to support the application for development consent, which should include an assessment of the effects on recreation aspects including the national and regional cycle networks and PRoW. A Transport Assessment (**application document 5.7**) has been included within the application for development consent and for transparency and consistency, the national and regional cycle networks and PRoW have also been considered in ES Chapter 12: Traffic and Transport (**application document 6.2.12**).
- 5.3.12 National Grid has also produced a Socio-economics and Tourism Report (**application document 5.9**) as part of its ongoing back check and review of the potential significant effects of the project. This confirms, following a review of updated baseline information, that the conclusions presented in the Scoping Report are robust and that there are

unlikely to be significant effects on socio-economics and tourism. Therefore, these aspects remain scoped out of the ES as a standalone chapter.

Health and Wellbeing

- 5.3.13 Chapter 16 of the Scoping Report (**application document 6.5.1**) set out the scoping assessment for Health and Wellbeing. The Scoping Report concluded that the project was unlikely to result in significant effects on health and wellbeing, when taking into account the embedded and good practice measures.
- 5.3.14 The Planning Inspectorate agreed that effects relating to electric and magnetic fields (EMF) could be scoped out of the assessment, on the basis that the project would comply with the International Commission on Non-Ionizing Radiation Protection guidelines and the Department for Energy and Climate Change Codes of Practice. An EMF Compliance Report has been submitted with the application for development consent (**application document 5.2**).
- 5.3.15 The Scoping Report concluded that in relation to general health and wellbeing, the effects are related to contributory factors already considered by other environmental chapters of the ES, for example, ES Chapter 13: Air Quality (**application document 6.2.13**) and Chapter 14: Noise and Vibration (**application document 6.2.14**).
- 5.3.16 ES Appendix 15.1: Cumulative Effects Baseline (**application document 6.3.15.1**) provides the signposting to the relevant chapters and contributing technical assessments which relate to health and wellbeing along with additional baseline information requested within the Scoping Opinion (**application document 6.6**).
- 5.3.17 The Scoping Report stated that where there was the potential for an intra-project effect (i.e. where a receptor is potentially affected by more than one source of environmental impact resulting from the same development), that this would be considered within the intra-project assessment presented in the cumulative effects assessment presented in the ES. On this basis, the Scoping Report concluded that health and wellbeing would not require separate reporting in the ES. The Planning Inspectorate agreed with this conclusion in ID 4.11.4 of the Scoping Opinion (**application document 6.6**).

Temporal Scope

- 5.3.18 The EIA predicts the changes (effects) during the construction, operation and decommissioning phases of the project. These terms are defined below.

Construction Phase

- 5.3.19 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 installation of the overhead line, underground cables, cable sealing end (CSE) compounds, grid supply point (GSP) substation and the removal of 132kV and 400kV overhead lines. Construction phase effects also includes effects associated with the temporary works such as temporary overhead lines, temporary access routes, temporary construction compound areas and work activities such as piling. It also includes removal of the temporary works and reinstatement of hedgerows and other features.
- 5.3.20 As set out in ES Chapter 4: Project Description (**application document 6.2.4**), the baseline construction schedule assumes that the GSP substation is constructed in advance of granting of the development consent order (DCO) using planning approval

granted under the Town and Country Planning Act (planning reference 22/01147/FUL). This assumes that work would commence in spring 2023 at the GSP substation. The remaining components of the project, including the removal of the 132kV overhead line and the construction of the new 400kV overhead line and underground cables, would commence in autumn 2024, subject to the granting of development consent.

Operational Phase

- 5.3.21 The operational 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 overhead line in the landscape or impacts associated with workers inspecting or undertaking routine maintenance to the electricity line.
- 5.3.22 The operational phase would commence after construction has been completed. Under the baseline construction schedule assessed within the ES topic chapters, it is assumed that operation would commence in 2028.

Decommissioning

- 5.3.23 As described in Section 4.10 of ES Chapter 4: Project Description (**application document 6.2.4**), there are no current plans to decommission the project. While the design life 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.
- 5.3.24 Requirement 12 of the draft DCO (**application document 3.1**) states that '*in the event that, at some future date, the authorised development, or part of it, is to be decommissioned, a written scheme of decommissioning must be submitted for approval by the relevant planning authority at least six months prior to any decommissioning works*'. Further details on decommissioning and the likely significant effects associated with this are set out in Section 4.10 of ES Chapter 4: Project Description (**application document 6.2.4**).

Temporal Scales Used to Characterise Duration of Effects

- 5.3.25 The environmental assessment uses defined temporal scales to characterise the duration of potential effects. For the purposes of assessment, the following definitions are applied unless otherwise defined within the topic chapter:
- **Short term:** This is used to describe effects that would occur during construction and up to five years following construction, which covers reinstatement and the implementation of mitigation and enhancements;
 - **Medium term:** This is used to describe effects that would extend into the period between 5 and 15 years post construction. This is aligned with the landscape and visual assessment which uses 15 years as the timescale for when vegetation would have sufficiently established; and
 - **Long term:** This is used to describe effects that would extend longer than 15 years post construction or which are considered to be irreversible.
- 5.3.26 The temporal nature of effects 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 a number of years after construction has been completed, before any replanted habitats have matured. For the purposes of the EIA, the effects are described under the

phase within which the impact arises (i.e. in the above example, vegetation loss removed during construction is assessed as part of the construction phase).

Geographical Scope

- 5.3.27 The application documents identify the Order Limits for the project. These encompass the land required temporarily to construct and permanently to operate the project. The Order Limits comprise the maximum extent of the project components and therefore the topic-specific study areas are generally based on an area that extends out from the Order Limits. Further details on the Order Limits can be found in ES Chapter 4: Project Description (**application document 6.2.4**).
- 5.3.28 When considering the geographical scope of the assessment, consideration has been given to the distance over which an effect is likely to occur. For example, direct physical impacts could occur within the construction footprint; impacts on water quality at crossings could extend further downstream than upstream; and the visual impact of the project may occur over a long distance. Therefore, the study areas vary between topics and the phase of the project, depending on the nature of the effects and extent of the likely significant effects. The study areas used for the assessment are defined in each of the topic chapters (**application documents 6.2.6 to 6.2.15**).

5.4 EIA Methodology

Parameters and Flexibility

- 5.4.1 As noted in ES Chapter 1: Introduction, 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 the project. The Order Limits include Limits of Deviation (LoD), which represent the maximum locational flexibility for permanent 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 LoD are shown on the Work Plans (**application document 2.5**).
- 5.4.2 The assessment presented within sections 6 to 10 of each ES topic chapter identifies the likely significant effects based on a reasonable worst case. This assessment is based on the construction method described in ES Chapter 4: Project Description (**application document 6.2.4**) and the Proposed Alignment that is shown on Figure 4.1: The Project (**application document 6.4**). However, it should be noted that the permanent aspects of the project, including pylon locations, are not fixed and could be located anywhere within the LoD, as defined on the Work Plans (**application document 2.5**).

Sensitivity Testing

- 5.4.3 As noted above, the assessment presented within sections 6 to 10 of each ES topic chapter is based on the Proposed Alignment. The assessment is also based on the baseline construction schedule (see ES Appendix 4.2: Construction Schedule (**application document 6.3.4.2**)), which assumes that the GSP substation is constructed in advance of granting of the DCO using planning approval granted under the Town and Country Planning Act.

5.4.4 Section 11 of each ES topic chapter covers sensitivity testing that has been undertaken to identify if there would be any new or different significant effects that may occur through the application of flexibility that is allowed for within the draft DCO compared to the assessment undertaken in the previous sections. The sensitivity testing presented in Section 11 of each topic chapter includes the assessment of the alternative construction schedule and flexibility in design, as described below.

Alternative Construction Scenario

5.4.5 The sensitivity testing presented in Section 11 of each topic chapter, identifies whether constructing under the alternative scenario, as described in ES Appendix 4.2: Construction Schedule (**application document 6.3.4.2**), would result in any new or different significant effects to those assessed in sections 6 to 10 of each ES topic chapter.

Flexibility in Design and Construction

5.4.6 The sensitivity testing presented in Section 11 of each topic chapter assesses potential differences that could result from the application of flexibility that is allowed for within the draft DCO (**application document 3.1**), regarding the design or construction method, to identify whether this would result in new or different significant effects to those assessed in sections 6 to 10 of each ES topic chapter. This includes:

- Flexibility in trenchless crossings, for example change to the drilling direction or assumed technique;
- Flexibility in construction method, for example changes to methodology for foundations e.g. if the piling that is assumed in the baseline assessment is not required; and
- Flexibility within the Order Limits, for example changes to the location, orientation, height or depth of permanent features, such as pylons, within the parameters of the LoD.

5.4.7 Further details on the baseline parameters and assumptions and the flexibility that could be applied, for example through the LoD, can be found in Section 4.2 of ES Chapter 4: Project Description (**application document 6.2.4**).

Assumptions and Limitations

5.4.8 Other general assumptions that have been made within the EIA are as follows:

- The current reported baseline is considered to be the existing state as recorded in 2022, the time when the majority of baseline surveys were completed; and
- Information provided by third parties, including publicly available information and databases, is correct at the time of publication.

5.4.9 Further assumptions are discussed in Section 4 of each of the topic chapters of this ES.

Current and Future Baseline

5.4.10 The ES topic chapters (**application documents 6.2.6 to 6.2.15**) 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.

- 5.4.11 The ES topic chapters have presented the future baseline where it is considered likely that the baseline would change in the absence of the project. Where no changes to the baseline environment in the absence of the project are expected, this is also stated.

Significance

- 5.4.12 Regulation 5(2) of the EIA Regulations 2017 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; 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 2017 requires a description of the likely significant effects of the project on the environment.
- 5.4.14 The assessment of the significance of effects for the majority of topics is based on a three-step process, as set out in the following paragraphs. Any departure from this methodology is described within the topic chapters.

Sensitivity of Receptors

- 5.4.15 The first step assigns sensitivity or inherent value to a receptor. Sensitivity is how easily the receptor is affected by change, and value is a measure of its inherent worth. Table 5.1 provides broad definitions of sensitivity or value. This is based on Table 3.2N in the Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (Highways England *et al.*, 2020b). Whilst the DMRB was initially established for assessment of roads and bridges, it is widely adopted as appropriate for other major developments. Appendix 5.4: Assessment Criteria (**application document 6.3.5.4**) outlines the sensitivity and value tables that have been used in the assessment for each ES topic chapter.

Table 5.1 – Value and Sensitivity Criteria (based on Highways England* *et al.*, 2020b)

Value/Sensitivity	General Criteria
Very high	Very high importance and rarity, international scale and very limited potential for substitution.
High	High importance and rarity, national scale and limited potential for substitution.
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution.
Low	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

* Note: Highways England was renamed National Highways in August 2021

Magnitude of Impacts

- 5.4.16 The second step of the assessment is to determine the magnitude of potential change. This is the scale of the change caused to the baseline conditions due to an impact from the project. The influence of impact duration (including reversibility) is considered as part of the determination of magnitude.
- 5.4.17 Table 5.2 presents the generalised magnitude criteria based on DMRB LA 104 (Highways England *et al.*, 2020b). Appendix 5.4: Assessment Criteria (**application document 6.3.5.4**) outlines the magnitude tables that have been used in the assessment for each ES topic chapter.

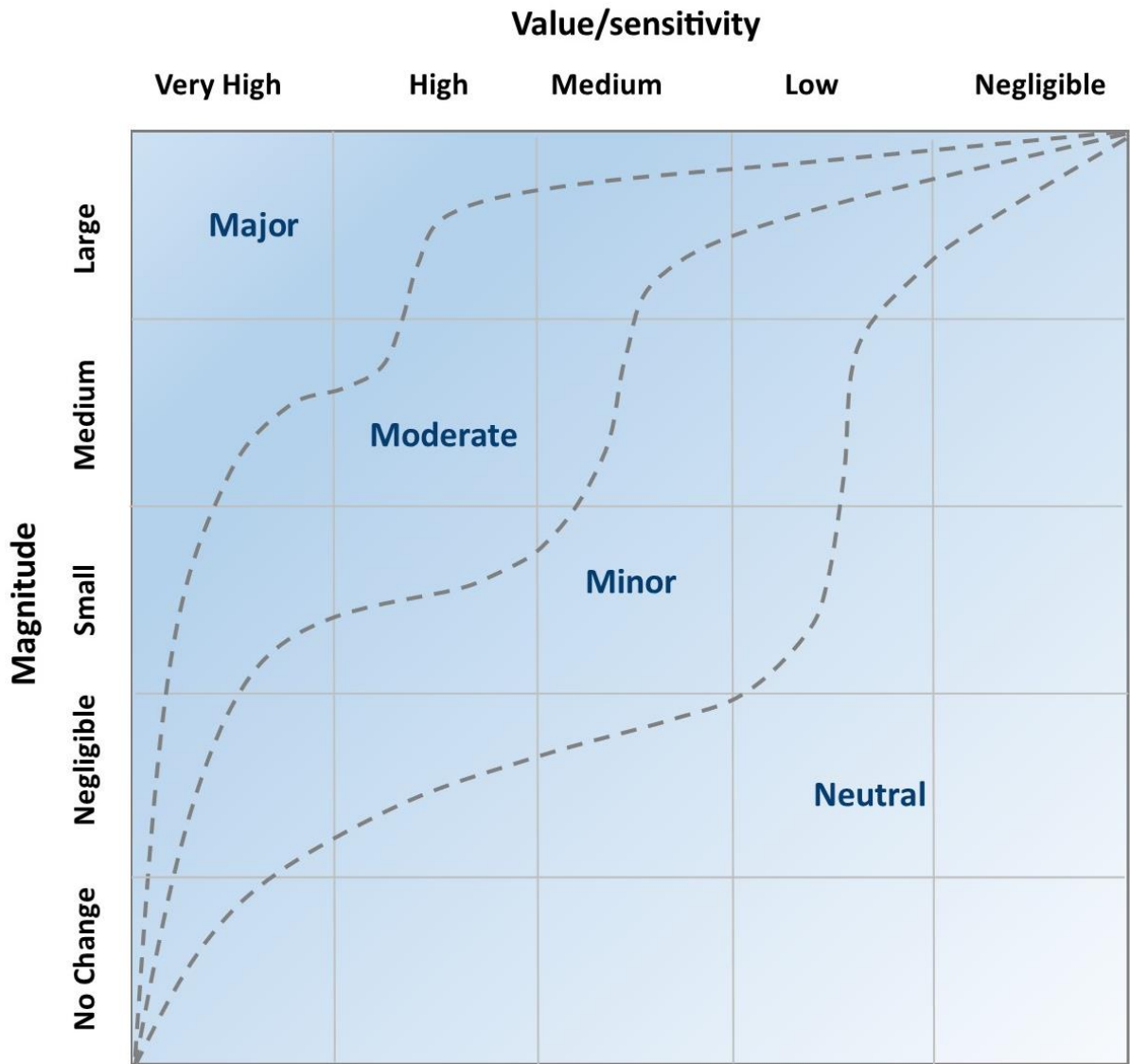
Table 5.2 – Magnitude Criteria (based on Highways England *et al.*, 2020b)

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

Significance of Effect

- 5.4.18 As the third step in the process, the likely significance of effect is considered as a function of the sensitivity or value of the receptor, and the magnitude of the potential change on it. To aid transparency in the assessment process, the matrix shown in Illustration 5.1 has been used as the basis for assigning potential significance to an effect. As an illustration, a high sensitivity receptor subject to a large magnitude of change would experience a major or moderate significance effect, and a low sensitivity receptor subject to a small magnitude of change would experience a minor or neutral significance effect.

Illustration 5.1 – Matrix of Significance



5.4.19 Professional judgement has been used when assigning significance. This is of particular relevance where the assessment is based on a qualitative approach and the significance of effect is a matter of judgement. Where this applies, explanatory text has been provided to explain how professional judgement has determined the significance assigned.

5.4.20 Under the EIA Regulations 2017, the likely significant effects of the project on the environment must be reported in the ES. The EIA Regulations 2017 do not define what constitutes a significant effect, however this is typically taken to be a moderate or greater adverse or beneficial significance. Effects of neutral or minor significance are not considered to be significant effects on the environment but reflect that there may be some differences from the baseline conditions.

Mitigation

5.4.21 After initial consideration of the significance of effects of the project, consideration has been given to how those significant effects could be avoided, reduced or offset. This is referred to as mitigation. The Institute for Environmental Management and Assessment

(IEMA) has produced guidance (IEMA, 2015 and IEMA, 2016) which describes three different types of mitigation that are typically described in EIA. The approach outlined in the IEMA guidance is designed to streamline the EIA and to make the process proportionate and focused on the likely significant effects material to the decision.

5.4.22 The project is adopting a similar approach to the assessment and uses the following terminology:

- Embedded measures (described as primary or inherent in IEMA (2016)): This includes things that are intrinsic to and built into the design and are given an 'EM' prefix in the ES. They include the removal of the existing 132kV line between Burstall Bridge and Twinstead Tee (EM-P02) and commitments to use underground cables in Section E (EM-E01) and parts of Section G (EM-G02). The embedded measures are listed within Table 2.1 of the Register of Environmental Actions and Commitments (REAC) (**application document 7.5.2**);
- Additional mitigation (described as secondary or foreseeable in IEMA (2016)): This is additional mitigation identified through the assessment process that is required to offset or reduce a likely significant effect. These are given an 'EIA' prefix in the ES. It includes additional planting required to filter and soften views and additional measures to reduce noise in specific locations. The additional mitigation is listed within Table 3.1 of the REAC (**application document 7.5.2**); and
- Good practice measures (described as tertiary or inexorable in IEMA (2016)): These are typically actions that would occur with or without input from the EIA feeding into the design process. These include actions that would be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects. These are outlined within the Code of Construction Practice (CoCP) (**application document 7.5.1**);

5.4.23 Embedded and good practice measures are committed to and therefore assumed to be in place prior to undertaking the assessment of likely significant effects, in accordance with the IEMA guidance (2015 and 2016). The ES refers to embedded measures and good practice 'measures' to differentiate them from any additional mitigation requirements identified during the EIA process to avoid or reduce a likely significant effect.

5.4.24 The Construction and Environmental Management Plan (CEMP) (**application document 7.5**) provides the securing mechanism for the embedded measures, good practice measures and additional mitigation. The CoCP forms Appendix A to the CEMP and the REAC is in Appendix B of the CEMP. The CEMP and its appendices are secured through Requirement 4 of the draft DCO (**application document 3.1**).

Residual Effects

5.4.25 Residual effects are those that are predicted to remain after the proposed additional mitigation measures have been implemented. These are described in Section 10 of each ES topic chapter and also in Section 11, where new or different significant effects are anticipated through the application of flexibility provided in the DCO.

Structure of the Topic Chapters

5.4.26

The outcomes of the EIA process are presented within the ES in topic chapters. The topic chapters are generally structured as follows:

- Section 1: Introduction – provides a summary of what the chapter covers and signposts to supporting appendices and figures where applicable;
- Section 2: Regulatory and Planning Policy Context – provides a summary of the ES 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 ES topic chapter and cross references to Appendix 5.1: Scope of the Assessment (**application document 6.3.5.1**), which contains the full scope of the assessment;
- Section 4: 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. It also describes embedded measures and good practice measures which have been identified through the iterative EIA process that are relevant to the ES topic chapter;
- Section 5: Baseline Environment – describes the characteristics of the baseline environment for the defined study area and identifies the receptors/features which have the potential to be impacted;
- Section 6: Likely Significant Effects During Construction (Without Mitigation) – presents and discusses the findings of the impact assessment in relation to construction activities in the absence of any additional mitigation;
- Section 7: Likely Significant Effects During Operation (Without Mitigation) – presents and discusses the findings of the impact assessment in relation to operation of the project in the absence of any additional mitigation;
- Section 8: Proposed Mitigation During Construction – provides details of any additional mitigation measures that have been identified to prevent, reduce or offset likely significant effects during construction;
- Section 9: Proposed Mitigation During Operation – provides details of any additional mitigation measures that have been identified to prevent, reduce, or offset likely significant effects during operation;
- Section 10: Residual Significant Effects (With Mitigation) – identifies the anticipated effects of the project following the implementation of any additional mitigation measures for both construction and operation;
- Section 11: 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 (**application document 3.1**); and
- Section 12: Conclusion – provides a summary of the outputs of the assessment, including the overall significant effects of the project on the environment for that topic.

5.5 Cumulative (In-Combination) Effects

5.5.1 The likely significant cumulative effects of the project, including inter-project cumulative effects with other projects, are presented in ES Chapter 15: Cumulative Effects Assessment (**application document 6.2.15**). 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 impact from the same development. For example, a residential property may be subject to air quality, noise and visual impacts; and
- 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 The Planning Inspectorate requested in the Scoping Opinion (**application document 6.6**) that it be made clear which projects form part of the project baseline and those that are included in the cumulative effects assessment. National Grid has identified other developments that have been or are likely to have been constructed before the project commences construction and therefore form part of the future baseline of the project in the ES topic chapters. These developments are listed in Table 3.7 of ES Appendix 15.1: Cumulative Effects Baseline (**application document 6.3.15.1**).

5.6 Stakeholder Engagement

5.6.1 Stakeholder engagement has formed a key part of the project development since its inception back in 2009. In accordance with the Planning Act 2008 and best practice, National Grid has undertaken consultation with relevant bodies and the feedback received has informed the development of the EIA.

5.6.2 Since the project pause, National Grid has undertaken three main consultation events, which were held in spring 2021 (non-statutory consultation), early 2022 (Statutory Consultation) and autumn 2022 (Targeted Consultation). Further details on the consultation events can be found in the Consultation Report (**application document 5.1**).

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. These have included the following thematic meetings for the following topics:

- Landscape and Visual Thematic Meetings: involving the relevant planning authorities, Dedham Vale Area of Outstanding Natural Beauty (AONB) and Stour Valley Partnership and Natural England;
- Biodiversity Thematic Meetings: involving the relevant planning authorities, Natural England, Suffolk and Essex Wildlife Trusts and the Royal Society for the Protection of Birds;
- Historic Environment Thematic Meetings: involving the relevant planning authorities and Historic England; and
- Traffic and Transport Thematic Meetings: involving the relevant planning authorities and National Highways.

- 5.6.4 An overview of this consultation and how this has informed the development of the project is provided in the Consultation Report (**application document 5.1**). ES Appendix 5.2: Response to Consultation Feedback (**application document 6.3.5.2**) includes a summary of the key responses received from environmental bodies and how National Grid has given due regard to this feedback when undertaking the EIA.

5.7 Supporting Documents

- 5.7.1 This section describes the other documents that should be reviewed alongside the EIA.

Other Reports and Assessments

- 5.7.2 The application for development consent includes the following documents which sit alongside the EIA:
- Electric and Magnetic Field Compliance Report (**application document 5.2**): This provides an assessment and conclusions of the likely significant health and environmental effects of EMF associated with the construction, operation and decommissioning of the project;
 - Habitats Regulation Assessment Report (**application document 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;
 - Statement of Statutory Nuisance (**application document 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 (**application document 5.5**): This sets out how the project has considered flood risk on the project both in terms of designing the project to be resilient to flooding and how it avoids impacting on flood risk elsewhere;
 - Water Framework Directive Assessment (**application document 5.6**): 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 (**application document 5.7**): This sets out the assessment that has been undertaken in relation to project impacts on the strategic and local road networks. It also includes the impacts on walkers, cyclists and horse riders both on the road network and also on PRow;
 - Photomontages (**application document 5.8**): The photomontages help illustrate what the project may look like during operation;
 - Socio-Economics and Tourism Report (**application document 5.9**): This sets out a summary of the baseline environment for socio-economics and tourism and reaffirms the scoping assessment that the project is unlikely to have a significant effect on these receptors and confirms that this should remain scoped out of the ES; and
 - Arboricultural Impact Assessment (**application document 5.10**): This presents the arboricultural survey results and the potential impacts of the project on trees.

Management Plans

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

- Construction Environmental Management Plan (CEMP) (**application document 7.5**): This provides further details on how environmental impacts and risks would be managed during construction, including measures to reduce effects to water and soil, and effects resulting from waste and dust. The CEMP includes:
 - Appendix A: CoCP (**application document 7.5.1**), which includes the good practice measures that would be undertaken during detailed design and construction; and
 - Appendix B: REAC (**application document 7.5.2**), which includes the embedded measures and the additional mitigation that has been identified to avoid or reduce a significant environmental effect.
- Construction Traffic Management Plan (**application document 7.6**): This provides details on the measures proposed to avoid or reduce impacts from the project on the road network and PRow during construction;
- Materials and Waste Management Plan (**application document 7.7**): This provides further details on the measures that have been taken and would be taken to reduce consumption of raw materials and increase use of secondary or recycled materials. It also sets out how the project intends to implement the waste hierarchy and to reduce waste being sent to landfill;
- Landscape and Ecological Management Plan (LEMP) (**application document 7.8**): 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;
- Archaeological Framework Strategy (**application document 7.9**): This provides the principles for the scope of pre-application archaeological desk based and field surveys and the proposed outline scope for post-application field surveys and archaeological mitigation strategy should development consent be granted; and
- Outline Written Scheme of Investigation (**application document 7.10**): This outlines the aims, objectives, broad methodologies and process by which the programme of archaeological mitigation would be delivered. It includes a provisional plan of the extent and location of archaeological mitigation to be undertaken pre- and during construction.

5.8 Monitoring

5.8.1 The EIA Regulations 2017 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. ES Chapter 16: Environmental Management and Mitigation (**application document 6.2.16**) summarises the need for monitoring on the project. Further details of the proposed monitoring are set out in the LEMP (**application document 7.8**).

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