The Great Grid Upgrade

Sea Link

Sea Link

Volume 6: Environmental Statement

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Part 1 Introduction
Chapter 5
EIA Approach and Methodology

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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 for the Sea Link project, hereafter referred to as the 'Proposed Project'. It also describes the general approach used in the assessment and the assumptions upon which the assessment is based.

5.1.3 The remaining sections of this chapter are 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 this 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;
- Section 5.5: Cumulative (In-Combination) Effects: This outlines the need for a cumulative effects assessment and what has been included within this; and
- Section 5.6: Monitoring: This defines the requirement for and approach to monitoring in relation to the likely significant effects identified through the EIA process.

5.1.4 This chapter should be read in conjunction with:

- **Application Document 6.2.1.1 Part 1 Introduction Chapter 1 Introduction**;
- **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**; and
- **Application Document 6.2.1.6 Part 1 Introduction Chapter 6 Scoping Opinion and EIA Consultation**.

5.1.5 This chapter is supported by the following appendices:

- **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies**;
- **Application Document 6.3.1.5.B Appendix 1.5.B Inter-Project Cumulative Effects Long List**; and

- **Application Document 6.3.1.5.C Appendix 1.5.C Inter-Project Cumulative Effects Short List**.

5.2 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 Proposed 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 Proposed Project.

What is EIA?

5.2.2 EIA is the process of compiling, evaluating, and presenting information about the likely significant environmental effects, both adverse and beneficial, of a project. The assessment is designed to help produce an environmentally sympathetic project and to provide decision makers and statutory consultees with the environmental information they require during determination of an application for consent. The early detection of likely significant adverse environmental effects enables appropriate mitigation (i.e. measures to avoid, reduce or offset likely significant adverse effects) to be identified and incorporated into the design of a project, or commitments to be made, for example to environmentally sensitive construction methods and practices. The approach is iterative and has involved close working between National Grid Electricity Transmission plc (National Grid), the EIA team, and the designers.

5.2.3 Plate 5.1 illustrates the main stages in the EIA process, and the iterative nature of assessment and project design.

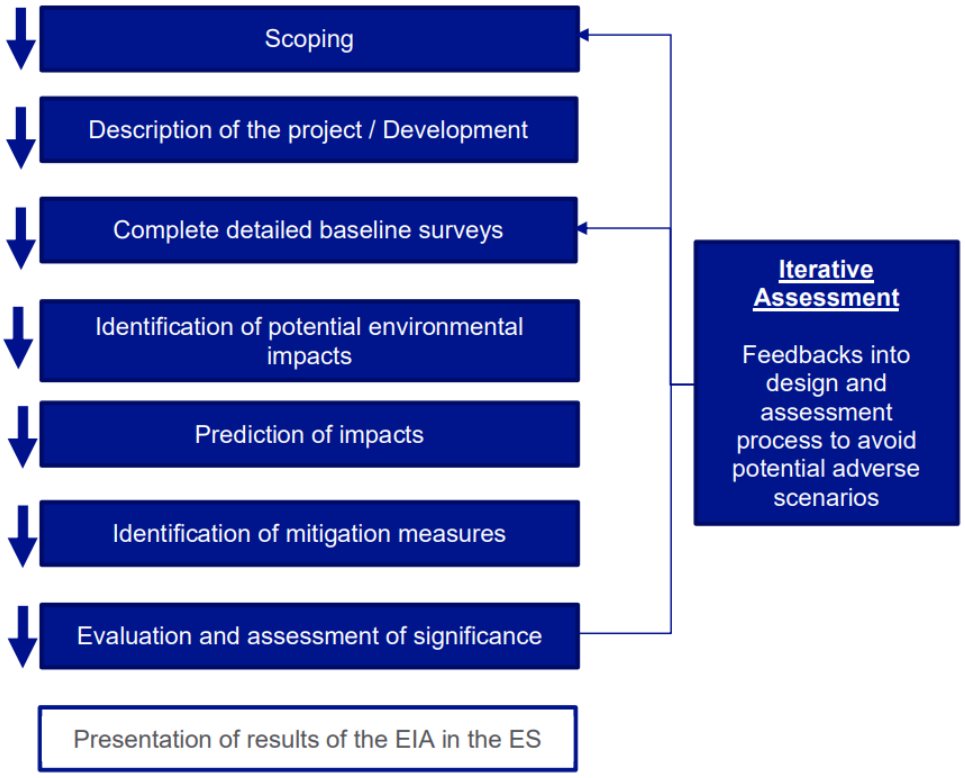

Plate 5.1 EIA process

5.2.4 Three main EIA documents are produced as part of the Development Consent Order (DCO) pre-application process:

- **EIA Scoping Report**: The Scoping Report identifies topics that are proposed to be included in the ES, and those topics where significant effects are considered unlikely, and are therefore proposed to be excluded from the ES. It also presents the data collected to inform the proposed scope, and for those topics scoped in, it sets out the proposed assessment methodology that would be used during the EIA. The Scoping Report is issued by the Planning Inspectorate to consultees for comments on the scope and methodology proposed, whose responses help inform the Scoping Opinion issued by the Planning Inspectorate on behalf of the Secretary of State.
- **Preliminary Environmental Information Report (PEIR):** The PEIR, as set out in Regulation 12(2)(b) of the EIA Regulations 2017, provides information that "*is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development.*" The PEIR is used by consultees to inform their consultation responses during the Statutory Consultation and it is issued at the same time the Statutory Consultation launches.
- **Environmental Statement (ES):** The ES presents the results of the EIA undertaken for a project. It identifies the likely significant effects that would result if a project was delivered, and any mitigation proposed to reduce those significant effects. The ES is submitted as part of the application for development consent and is considered during the decision-making process.

Overview of the EIA Scoping Stage

Overview of the Preliminary Environmental Information Stage

5.2.9 As part of the pre-application process for a development consent application, 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 PEIR, 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".* A PEIR was prepared by National Grid as part of the statutory pre-application consultation process required under sections 42 and 47 of the Planning Act 2008. The PEIR was published in October 2023, enabling consultees and interested parties to develop an informed view of the environmental effects of the Proposed Project and provide comments on that basis. Additional preliminary environmental information was published in July 2024 in support of the Targeted Consultation exercise that took place in the Summer 2024 following further technical and environmental assessments.

5.2.10 Further details on the consultation stages and the feedback received can be found in the Consultation Report (**Application Document 5.1 Consultation Report**). The consultation responses from the environmental organisations that are particularly pertinent to the EIA are summarised within the relevant ES technical chapters.

Preparation of the Environmental Statement

5.2.11 The ES presents information about the likely significant effects that would result if the Proposed Project was implemented, and any mitigation proposed 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 considered by the decision-making body when determining the consent.

5.2.12 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 (impact) 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.

5.2.13 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 Proposed Project), a reasonable worst-case scenario is assessed.

5.2.14 As noted in **Application Document 6.2.1.1 Part 1 Introduction Chapter 1 Introduction** the EIA was undertaken, managed and compiled by experienced and competent environmental professionals employed by National Grid through their framework of approved specialist suppliers.

Consideration of downstream and upstream effects

5.2.15 When interpreting the requirements of the EIA Regulations, we have also had regard to the recent judgment of the Supreme Court in R (on the application of Finch on behalf of the Weald Action Group) v Surrey County Council, with particular attention to potential upstream and downstream direct and indirect effects. The principles set out in Finch have been considered in the preparation of this Environmental Statement and the

proposed scope and methodology for each aspect, including (but not limited to) **Application Document 6.2.5.1 Part 5 Combined Chapter 1 Climate Change**. Finch was unusually a case in which the likely downstream impacts could be assessed, because it was inevitable that the oil produced would be refined and as an end product, would undergo combustion and that that combustion would produce greenhouse gases into the earth's atmosphere which could readily be calculated. On a macro level, the Proposed Project would increase capacity in the electricity network, meaning that, in theory, more electricity can be transported and used, increasing the potential for additional activities requiring electricity. It is not considered that the Proposed Project, as electricity transmission infrastructure, will be the direct or indirect cause of either upstream electricity generation or downstream electricity consumption. Rather, the Proposed Project will facilitate the transport of electricity on the network in response to an increase in electricity generation and in the demand for electricity. Hence, it will not be the direct or indirect cause of greenhouse gas emissions from upstream or downstream activities.

5.2.16 It is recognised, however, that following Finch there is some uncertainty as to what are to be regarded as the direct and indirect environmental effects of a project in relation to greenhouse gas emissions. Therefore, we have also considered the position where an increase in the capacity of the electricity network and in the potential for additional activities requiring electricity are treated as direct or indirect effects arising from the Proposed Project. Having considered various potential scenarios, we consider that in the case of Sea Link it is not possible to calculate the likely upstream or downstream direct or indirect effects. As stated, the Proposed Project would increase capacity in the electricity network, meaning that, in theory, more electricity can be transported and used, increasing the potential for additional activities requiring electricity. However, whilst information is available at a high level regarding the amount of electricity that could flow as a result of an enhanced transmission network, it is impossible to quantify the amount of either the increase, or more likely decrease, in greenhouse gases that could result from the use of that additional electricity capacity. This is because the transmission network, which is operated by NGET within England and Wales and which is provided as the connection point for electricity and demand, consists of a number of different elements including overhead lines, cables, substations and more recently, HVDC systems. NGET does not control which generators are generating electricity at any one time nor does it control which demand is connected to the system. As a result, NGET has no way of assessing where the power is generated (and by what means) or more significantly where the power is going (i.e. who will be the end user of or what the ultimate use of that electricity might be) and consequently, any related emissions arising from, or more likely being reduced, as a result of such use. This means that the end use of the electricity is unknown. It could be used in a way that reduces GHG emissions that would otherwise be emitted, for example when used to charge electric vehicles, or for powering heat pumps that replace gas central heating.

5.2.17 It is clear in these circumstances that, as a result of insufficient information, and the resultant uncertainty, no meaningful assessment of downstream or upstream impacts can be undertaken in relation to these matters. In these circumstances, any conclusion as to possible effects would be merely conjecture or speculation at best. On the basis that there is insufficient evidence available to found a reasoned conclusion that a possible effect is "likely", there is no requirement for that effect to be identified and assessed.

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 6.14**) submitted on the 24 October 2022. It has also been updated based on the responses given in the Scoping Opinion (**Application Document 6.15 Scoping Opinion 2022**) prepared by the Planning Inspectorate on behalf of the Secretary of State, after consulting the prescribed bodies.

5.3.2 The technical scope of assessment for each environmental aspect is detailed in the technical chapters of Parts 2-5. The technical scope also details the approach to baseline data collection and assessment methodologies.

Spatial Scope

5.3.3 The spatial scope for each environmental aspect is the area over which changes to the environment are predicted to occur because of the Proposed Project. This will depend on the nature of the potential impacts and the location of receptors that could be affected. It takes account of:

- the physical area of the Proposed Project (defined by the Order Limits as explained within **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**);
- the nature of the baseline environment (receptors); and
- the area, over which environmental impact may occur.

5.3.4 Each of the technical chapters in Parts 2-5 describes the study area to be considered, providing a clear explanation as to why that particular study area has been adopted. The spatial scope of each assessment has been refined at ES stage in response to comments from consultees, refinement of the Proposed Project or further assessment work.

Temporal Scope

5.3.5 The temporal scope considers the time period over which changes to the environment and the resultant effects are predicted to occur, and are typically defined as being either temporary or permanent:

- Permanent - these are effects that will remain even when the Proposed Project is complete, although these effects may be caused by environmental changes that are permanent or temporary.
- Temporary – these are effects that are related to environmental changes associated with a particular activity and that will cease following completion of the activity.

5.3.6 This assessment considers the programme for the Proposed Project and evaluates the environmental effects of the Proposed Project during construction, operation, maintenance, and decommissioning phases as detailed within **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Development**. These effects are compared to the situation prevailing before the Proposed Project is commenced (the current baseline), and to the situation that would prevail in the future without the Proposed Project (the projected future baseline).

5.3.7 The future baseline is the theoretical situation that would exist in the absence of the Proposed Project. This is based upon extrapolating the current baseline using technical

knowledge of likely changes to predict this (e.g. predictable changes such as climate change, changes that can be predicted based on reasonable assumptions and modelling calculations, information about other relevant developments etc.).

5.3.8 Each technical chapter in Parts 2-5 defines a baseline (current, future, or both) against which the environmental effects of the Proposed Project have been assessed. The baseline conditions assessed for each environmental topic are outlined in the technical chapters of Parts 2-4 of this ES.

5.3.9

5.4 EIA Methodology

Assessment of Effects and Determination of Significance

5.4.1 The Institute of Environmental Management and Assessment (IEMA) guidelines (2004, p11/2) (Institute of Environmental Management and Assessment, 2004) state that:

"The assessment stage of the EIA should follow a clear progression; from the characterisation of 'impact' to the assessment of the significance of the effects taking into account the evaluation of the sensitivity and value of the receptors."

5.4.2 The prediction of potential impacts has been undertaken to determine what could happen to each environmental receptor because of the Proposed Project and its associated activities. A diverse range of potential impacts have been considered within the assessment process; this has therefore required a range of prediction methods to be used including quantitative, semi-qualitative, and qualitative methods, as appropriate.

Identification of potential effects

5.4.3 The likely significant effects (beneficial and adverse) of the Proposed Project have been predicted and evaluated using appropriate evaluative techniques, many of which follow specific best practice guidelines for a particular topic. Potential effects have been identified first, in summary, as an indication of what effects could theoretically occur in the absence of mitigation (other than mitigation inherent in the design of the Proposed Project).

Approach to mitigation

5.4.4 After the identification of the potential effects, consideration has been given to how those potential effects could be addressed. This is referred to as mitigation.

5.4.5 The mitigation hierarchy is a stepped process that helps development projects to address potentially adverse impacts on the environment. When developing the Proposed Project, the following steps have been considered:

- Avoidance: the first step of the mitigation hierarchy comprises measures taken to avoid creating impacts from the outset, such as careful spatial placement of infrastructure away from receptors, or timing construction sensitively to avoid their disturbance;
- Minimisation: these are measures taken to reduce the duration, intensity and/or extent of impacts that cannot be completely avoided;
- Rehabilitation/restoration: The aim of this step is to improve degraded or removed ecosystems following exposure to impacts that cannot be completely avoided or minimised; and
- Offsetting: where relevant and appropriate to the specific impact, these measures aim to compensate for any residual, adverse impacts after full implementation of the previous three steps of the mitigation hierarchy.

5.4.6 Each topic chapter of the ES has identified proposed mitigation measures that are required to address potential significant adverse effects of the Proposed Project, following the mitigation hierarchy. Mitigation has been categorised as follows:

- **Embedded Measures**: are those that are intrinsic to and built into the design. They include the avoidance of potential receptors, such as designated sites, through sensitive routeing, siting and design.
- **Control and Management Measures:** These are good practice measures that are included within the Code of Construction Practice (CoCP) and other control and management plans such as the use of road sweepers and the implementation of measures to control silt-laden runoff during construction.
- **Additional Mitigation Measures:** These are measures over and above embedded measures, for example anything that has been added to the design purely to mitigate an effect such as ecological mitigation land (for example the area of acid grassland in Suffolk).

5.4.7 As consent for the Proposed Project will be sought through a DCO, all three categories of mitigation as described above will be the subject of a DCO requirement and will therefore be secured; this means there will be a legal requirement to implement them. In addition, as most potential effects will be mitigated through a combination of embedded measures and control and management measures, no assessment of likely significant effects has been undertaken prior to the application of these measures as this would result in substantial repetition within the document.

Assessing Effects and Determining Residual Significance

5.4.8 There is no statutory definition of what constitutes a ‘significant’ effect within the EIA Regulations and whilst the determination of the significance of effects is important to informing the decision-making process, defining what is significant is not a simple task. The process typically involves consideration of two aspects of a potential effect, namely

the sensitivity and/or value of the receptor or resource, and the magnitude of the impact on the receptor/resource.

5.4.9 The significance of the residual effects has been determined by reference to criteria for each assessment topic. Specific significance criteria have been used for each technical discipline, though all give due regard to the following:

- the scale of the impact;
- the duration and frequency of the impact, and whether effects are temporary, revisable, or permanent;
- the nature of the effect (whether direct or indirect, reversible or irreversible, beneficial or adverse);
- whether the effect occurs in isolation, is cumulative, or will interact with other effects;
- performance against any relevant environmental quality standards;
- the sensitivity of the receptor; and
- compatibility with environmental policies.

5.4.10 Each technical chapter of this ES includes a description of the proposed approach to determining the significance of effects, including if and how professional judgement has been applied.

Magnitude of impact

5.4.11 General criteria for defining the magnitude of an impact, or change, are set out in Table 5.1. Key factors that influence this include:

- scale of change – the scale of change refers to the degree of change to or from the baseline environment caused by the impact being described;
- spatial extent - the extent of an impact is the full area over which the impact occurs; and
- duration and frequency – the duration is a measure of how long the impact is expected to last. Impacts may be characterised as short term (usually up to five years), medium term (usually between five and 15 years) and long term (usually more than 15 years). Durations may vary between different topics due to the nature of the receptors/effects or based on specific topic guidelines. Frequency refers to how often the impact would occur; it may be continuous or periodic.

Table 5.1 Impact magnitude criteria

Magnitude	General criteria
Large	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 and/or its quality; extensive restoration; major improvement of attribute quality.

Magnitude	General criteria
Medium	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	Adverse: Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. Beneficial: Some benefit to, or in addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk or negative impact occurring.
Negligible	Adverse: Very little loss of detrimental alteration to one or more characteristics, features or elements. Beneficial: Very little benefit to or positive addition of one or more characteristics, features or elements.

Sensitivity and value of the receptor

The sensitivity of a receptor or feature is characterised by its vulnerability to change and its ability to recover. The value of a receptor or feature reflects its overall importance and the value placed on it by society; this may be reflected by its level of statutory or policy protection or else a value may be attributed through consultation and the application of professional judgement. Criteria for defining the sensitivity and/or value of a receptor are set out in

5.4.12 Table 5.2. Characterisation of the receptor is achieved by balancing out of these three considerations to determine the receptor's sensitivity.

- Vulnerability – the vulnerability of the receptor relates to its capacity to accommodate change i.e., the tolerance/intolerance of the receptor to change.
- Recoverability – the ability of the receptor to return to the baseline state.
- Importance - the importance of the receptor or feature is a measure of the value assigned to that receptor based on biodiversity and ecosystem services, social value and economic value. Importance of the receptor is also defined within a geographical context, whether it is important internationally, nationally, or locally.

Table 5.2 Sensitivity criteria

Value/Sensitivity	General Criteria
Very High	Very high importance and rarity, valued at an international level and limited potential for recovery or substitution.
High	High importance and rarity, valued at a national level and limited potential for recovery or substitution.
Medium	Medium importance and rarity, valued at a regional level, some potential for recovery or substitution.
Low	Low or medium importance and rarity, valued at a local level, good potential for recovery or substitution.
Negligible	Very low importance and rarity, valued at a local level, easy to replace.

Evaluating the significance of effects

5.4.13 Having established the magnitude of change and sensitivity of the receptor, the significance of an effect can be assessed. To aid transparency in the assessment process, the matrix shown in Plate 5.2 will be used as the basis for assigning significance to an effect; however, the identification of significance typically requires the application of professional judgement. As an illustration, a high sensitivity receptor subject to a large magnitude of change would experience a major significance effect, and a low sensitivity receptor subject to a small magnitude of change would experience a minor or negligible significance effect.

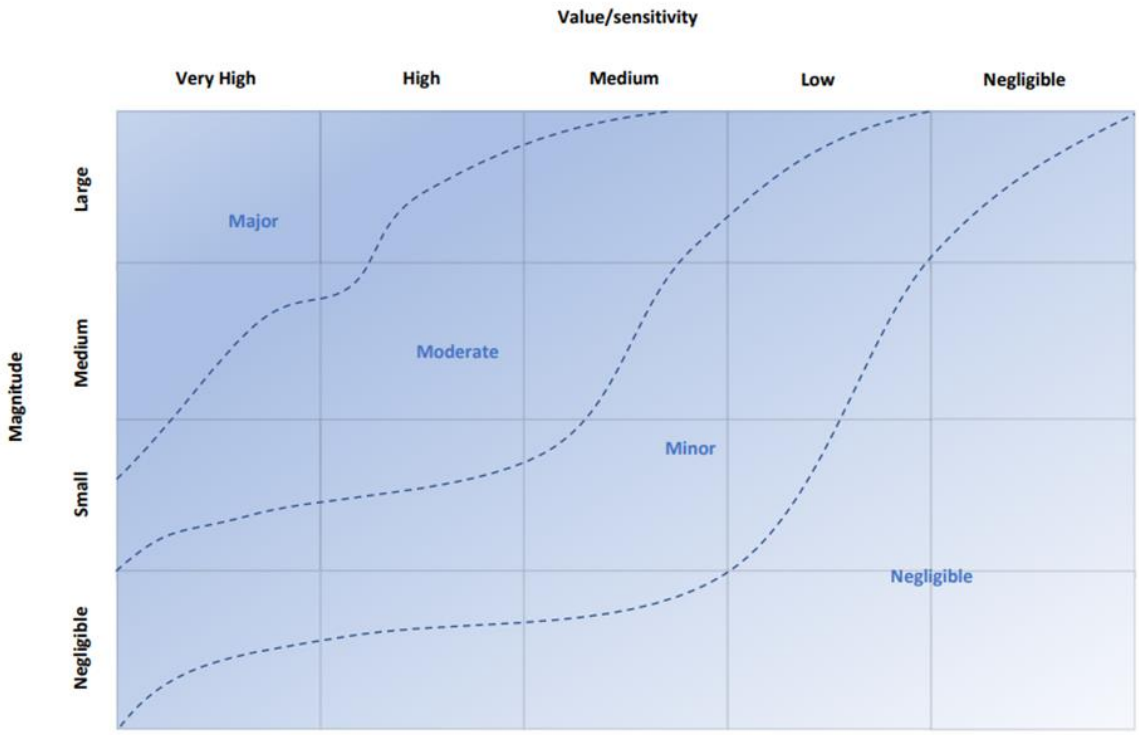

Plate 5.2 Basis of assigning significance

5.4.14 Each of the specialist disciplines will apply magnitude and sensitivity criteria that best suit the topic area, and for some topics these may be defined in industry guidelines.

5.4.15 Following the classification of an effect using this methodology, a clear statement will then be made as to whether that effect is significant or not significant. Major and moderate effects are typically considered to be significant, whilst minor and negligible effects are considered not to be significant. However, professional judgement will also be applied in reaching conclusions as to the significance of effects. Typical definitions for the classification of effects are shown in Table 5.3.

Table 5.3 Generic significance description

Significance	General criteria	Significant effect
Major	A large and detrimental change to a valuable/sensitive receptor; likely exceeding an accepted (often legal) threshold. A large and beneficial change, resulting in improvements to the baseline result in previously poor conditions being replaced by new legal compliance or a major contribution being made to national targets.	**Yes**

Significance	General criteria	Significant effect
	These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features that are unique and which, if lost, cannot be replaced or relocated.	
Moderate	A medium scale change that, although not beyond an accepted threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy, rather than legal statute. These effects, if adverse, are likely to be important at a regional or local scale and on their own could have a material influence on decision making. A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets (e.g. UK Biodiversity Action Plan (BAP) targets) are contributed to.	**Yes (typically)**
Minor	A small change that, whilst adverse, does not exceed legal or planning policy thresholds. A small positive change, but not one that is likely to be a key factor in the overall balance of issues. These effects may be raised as local issues and may be of relevance in the detailed design of a project but are unlikely to be critical in the decision making process.	**No**
Negligible	A very small change that is so small and unimportant that it is	**No**

Significance	General criteria	Significant effect
	considered acceptable to disregard. Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error, these effects are unlikely to influence decision making, irrespective of other effects.	

Defining Residual Significance

5.4.16 Residual effects are those that are predicted to remain after the proposed additional mitigation measures have been implemented.

5.4.17 The generic significance of effect descriptions that have been applied to the assessments within this ES are set out in Table 5.4.

Table 5.4 Generic significance effects descriptions

Significance	Indicative description
Significant	Large adverse changes that will exceed accepted (often legal) thresholds, to a medium scale change which may exceed accepted thresholds or lead to a breach of planning policy. Large beneficial changes, leading to improvements to the baseline resulting in previously poor conditions being replaced by new legal compliance or major contribution being made to national targets, ranging to a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets are contributed to. Consideration should be given to the type and sensitivity of affected receptors and the scale of the impact and its resulting effect.
Not significant	A small change that, whilst adverse, does not exceed legal or guideline standards and is unlikely to breach planning policy, ranging to a very small scope change that is so small and unimportant that it is considered acceptable to disregard.

	A small positive change, but not one that is likely to be a key factor in the overall balance of issues. Consideration should be given to the type and sensitivity of affected receptors and the scale of the impact and its resulting effect.

The Rochdale Envelope Approach

5.4.18 Major infrastructure projects, such as linear infrastructure projects for underground cables, overhead lines and above ground installations, such as converter stations, typically need some flexibility to be maintained for detailed design and construction, if conditions are found that would otherwise prevent or delay construction. Examples can include previously unknown archaeological assets or poor ground conditions on cable routes and to allow for detailed design of the converter station by a specialist manufacturer post consent. To accommodate such issues a flexible approach to design parameters is used within the EIA process, and this is typically referred to as the 'Rochdale Envelope', and it allows for a realistic worst-case assessment to be undertaken.

5.4.19 By developing a realistic worst-case scenario in response to maximum or sometimes minimum technical and engineering parameters, as well as the emerging findings of the EIA and feedback from stakeholders, it is possible to strike a balance between the level of design information needed for the purpose of EIA and the application for consent, while still retaining the level of design flexibility needed as the Proposed Project moves into detailed design and construction.

5.4.20 The EIA process aids and informs the design process and supports the identification of a design 'freeze' that is flexible enough to accommodate change in future stages, but not so flexible that it either cannot be assessed, or it could over-state or unnecessarily amplify the potential environmental impacts of the Proposed Project.

5.4.21 To accommodate unexpected issues in the routeing and siting of infrastructure, for example when more detailed ground investigation information is available, or even during construction, a spatial tolerance has been applied to allow small changes to the location of linear elements of the infrastructure be made; the extent of this tolerance is known as the 'limits of deviation' (LoD), and the Order Limits that are being applied for encompass the LoD. Both the Order Limits and the LoD are illustrated on **Application Document 2.5.1 Work Plans – Suffolk** for the Suffolk Onshore Scheme, **Application Document 2.5.2 Work Plans – Kent** for the Kent Onshore Scheme and **Application Document 2.5.3 Work Plans – Offshore** for the Offshore Scheme.

5.4.22 In addition, some flexibility is likely to be required for non-linear aspects of the Proposed Project, for example the layout of converter stations. Design parameters are therefore applied to state the maximum dimensions and potential locations within the compound.

5.4.23 The principles and assumptions in respect of the LoD, in ensuring that the assessment is robust and considers a realistic worst case for the final built project, are set out below.

5.4.24 PlNS Advice Note Nine (Planning Inspectorate, 2018) provides guidance on how to deal with flexibility of this type as follows:

"*The Rochdale Envelope assessment approach is an acknowledged way of assessing a Proposed Development comprising EIA development where uncertainty exists and necessary flexibility is sought*."

"*If, in the course of preparing an ES, it becomes clear that it will not be possible to specify all the details of the Proposed Development, the ES must explain why and how this has been addressed. The ES will need to establish the relevant parameters for the purposes of the assessment. Where this approach is adopted the assessments in the ES should be undertaken on the basis of the relevant design parameters applicable to the characteristics of the Proposed Development included within the DCO. The assessment should establish those parameters likely to result in the maximum adverse effect (the worst case scenario) and be undertaken accordingly to determine significance*".

5.4.25 This approach uses what is referred to as the 'Rochdale Envelope', after the legal cases which established its precedent (R. v Rochdale MBC ex parte Milne (No. 1) and R. v Rochdale MBC ex parte Tew [1999] and R. v Rochdale MBC ex parte Milne (No. 2) [2000]). Where a Rochdale Envelope approach has been used for a particular component of the Proposed Project, this is highlighted in the following sections.

5.4.26 The Rochdale Envelope approach is critical to the routeing of linear energy infrastructure; to allow for changes to be made post consent, in particular in order to avoid unforeseen ground conditions or archaeology. The proposed route of the linear infrastructure is therefore subject to LoD which will provide a necessary and proportionate degree of flexibility as to the final alignment of the Proposed Project. It is important to note that the area within which construction activity can take place may be wider than the LoD in places but will be within the Order Limits.

Assumptions and Limitations

5.4.27 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 2023 and 2024, 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.

5.4.28 Further assumptions and limitations are discussed in Section 3 of each of the technical chapters of this ES.

Basis of Assessment

5.4.29 Each of the technical chapters in this ES include a section, which sets out the assumptions that have been made in respect of the design flexibility maintained within the Proposed Project.

5.4.30 To take account of the flexibility allowed for in the Proposed Project, consideration has been given to the potential for the effects to be of greater or different significance should any of the permanent or temporary infrastructure elements be moved within the LoD or design parameters that are explained in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**.

Assessment Scenarios

Suffolk Onshore Scheme

5.4.31 The following scenarios with regards to Friston Substation have been considered within each of the technical assessment chapters in Part 2:

- Friston Substation is installed under the current consent secured by Scottish Power Renewable (SPR) as explained in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**; or
- Friston Substation is built as part of the Proposed Project as explained in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**.

5.4.32 The following options with regards to the proposed bridge over the River Fromus have been considered within each of the technical assessment chapters in Part 2:

- Option 1 - A bridge height of up to 6 m (from the ground level at the abutment to the top of the parapet) with 62 m long approach ramps; and
- Option 2 - A bridge height of up to 4 m (from the ground level at the abutment to the top of the parapet) with 42 m long approach ramps.

5.4.33 Section 5 in each technical chapter in Part 2 details whether these scenarios are relevant to the technical assessment, and if so, how they have been assessed and any specific assumptions made in relation to alternative scenarios.

Kent Onshore Scheme

5.4.34 There are no assessment scenarios considered as part of the Kent Onshore Scheme. The assessment considers the Proposed Project's parameters as described in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**.

Offshore Scheme

5.4.35 There are no assessment scenarios for the Offshore Scheme. The assessment considers the parameters of Proposed Project only as stated in **Application Document 6.2.1.4 Part 1 Introduction Chapter 4 Description of the Proposed Project**.

Sensitivity Test

5.4.36 Under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026. Consideration has been given to how sensitive the assessment is to the specific construction year assessed i.e. whether the preliminary effects reported would be any different if the works were to commence in any year up to year five.

5.5 Cumulative Effects

5.5.1 When undertaking an assessment of the environmental effects of a project, it is necessary to consider how various effects may interact, and also how the effects of the Proposed Project could accumulate with the effects of other developments proposed within the same zone of influence.

Intra-Project Effects

5.5.2 Intra-project cumulative effects (sometimes referred to as combined or interactive effects) occur where a single receptor is affected by more than one source of effect or aspect of a project. An example of an intra-project effect would be where a local community is affected by dust, noise, and traffic disruption during the construction of a project, with the result being a greater level of nuisance than each individual effect alone.

5.5.3 Schedule 4 of the EIA Regulations states that an ES should include:

Paragraph 19:

"*A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter relationship between the above factors*."

Paragraph 20:

"*A description of the likely significant effects of the development on the environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:*

(a) The existence of the development;

(b) The use of natural resources;

(c) The emission of pollutants, the creation of nuisances and the elimination of waste, and the description by the applicant of the forecasting methods used to assess the effects on the environment."

5.5.4 In line with this requirement, a description of the likely significant intra-project cumulative effects is included in the ES in:

- **Application Document 6.2.2.13 Part 2 Suffolk Chapter 13 Suffolk Onshore Scheme Intra-Project Cumulative Effects**;
- **Application Document 6.2.3.13 Part 3 Kent Chapter 13 Kent Onshore Scheme Intra-Project Cumulative Effects**; and
- **Application Document 6.2.4.11 Part 4 Marine Chapter 10 Intra-Project Cumulative Effects**.

5.5.5 The methodology for how intra-project cumulative effects have been assessed within this ES is provided in **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies**.

Inter-Project Effects

5.5.6 Inter-project cumulative effects occur where a receptor is affected by two or more projects at the same time, potentially amplifying the overall effect. Individually the effects may not be significant, but when considered together could create a significant cumulative effect.

5.5.7 In addition to paragraph 20 for the EIA Regulations described above, the Overarching National Policy Statement for Energy (NPS EN-1) states the following in relation to requirements for the assessment of cumulative effects:

"*When considering cumulative effects, the Environmental Statement (ES) should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other developments (including projects for which consent has been sought or granted, as well as those already in existence)*".

5.5.8 The Planning Inspectorate Advice Note Seventeen (Planning Inspectorate, 2024) provides a methodology for assessing inter-project cumulative effects. It provides guidance about the type and scale of other developments that should be considered in the assessment of cumulative effects with other projects.

5.5.9 An assessment of inter-project cumulative effects is provided within this ES in:

- **Application Document 6.2.2.13 Part 2 Suffolk Chapter 13 Suffolk Onshore Scheme Inter-Project Cumulative Effects**;
- **Application Document 6.2.3.13 Part 3 Kent Chapter 13 Kent Onshore Scheme Inter-Project Cumulative Effects**; and
- **Application Document 6.2.4.11 Part 4 Marine Chapter 11 Inter-Project Cumulative Effects**.

5.5.10 The methodology for how inter-project cumulative effects have been assessed within this ES is provided in **Application Document 6.3.1.5.A Appendix 1.5.A Cumulative Effects Assessment Methodologies**.

5.5.11 The long list of projects initially considered for inclusion in the inter-project cumulatively effects assessment is presented in **Application Document 6.3.1.5.B Appendix 1.5.B Inter-Project Cumulative Effects Long List**. The final 'short list' of other projects that have been taken forward in the inter-project cumulative effects assessment is presented in **Application Document 6.3.1.5.C Appendix 1.5.C Inter-Project Cumulative Effects Short List**.

5.6 Monitoring

5.6.1 Schedule 4, Paragraph 7 of the EIA Regulations states that, where appropriate, the ES should include a description of any proposed monitoring arrangements where likely significant residual effects have been identified. The monitoring requirements will be detailed within the ES topic chapters to include clear and proportionate objectives for monitoring, the parameters to be monitored, the methodology proposed for the monitoring, a timescale for implementation, identification of the party who will be responsible for the monitoring, and an outline of the remedial actions to be undertaken should results be adverse.

5.7 Structure of the Technical Chapters

5.7.1 Each of the technical chapters within **Volume 6 Parts 1 – 4** are structured as follows:

- Introduction.
- Regulatory and Planning Context.
- Scoping Opinion and Consultation.

- Approach and Methodology.
- Basis of Assessment.
- Study Area.
- Baseline Conditions.
- Proposed Project Design and Embedded Mitigation.
- Assessment of Impacts and Likely Significant Effects.
- Additional Mitigation and Enhancement Measures.
- Residual Effects and Conclusion.
- Sensitivity Testing.
- References.

5.8 References

Institute of Environmental Management and Assessment. (2004). *Guidelines for Environmental Impact Assessment.*

Planning Inspectorate. (2018). *Planning Inspectorate Advice Note Nine: Rochdale Envelope*. Retrieved from https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-nine-rochdale-envelope/.

Planning Inspectorate. (2024). *Planning Inspectorate Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects*. Retrieved from https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-17/.

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National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

Registered in England and Wales
No. 4031152
nationalgrid.com