

**Tillbridge Solar Project  
EN010142**

**Volume 6  
Environmental Statement  
Chapter 5: EIA Methodology  
Document Reference: EN010142/APP/6.1**

**Regulation 5(2)(a)  
Infrastructure Planning (Applications: Prescribed Forms and  
Procedure) Regulations 2009**

**April 2024  
Revision Number: 00**

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## 5. EIA Methodology

### 5.1 Introduction

- 5.1.1 This chapter of the Environmental Statement (ES) presents the approach and methodology applied to the Environmental Impact Assessment (EIA), which has been prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as 'the EIA Regulations') (Ref. 5-1).
- 5.1.2 The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) under Section 14(1)(a) and 15(2) of the Planning Act 2008 (Ref. 5-2) as an onshore generating station in England with a capacity exceeding 50 MW. As it is an NSIP, the Applicant is required under the Planning Act 2008 to apply for a Development Consent Order (DCO) to develop the Scheme.
- 5.1.3 The key elements in an EIA for an NSIP are:
- a. Iterative project design, taking feedback from consultation and environmental studies and applying feedback to the design development process on an ongoing basis throughout the EIA;
  - b. Scoping and ongoing consultation, including consideration of responses and how these are addressed as part of the EIA;
  - c. Technical environmental impact assessments, including baseline studies, input to the design process, refinement of the design, and identification and reporting of residual environmental effects;
  - d. Consultation on the Preliminary Environmental Information (PEI) Report; and
  - e. Preparation and submission of the ES.
- 5.1.4 In preparing this ES, reference has been made to the following guidance:
- a. Planning Inspectorate Advice Note 3: EIA Consultation and Notification (Ref. 5-3);
  - b. Planning Inspectorate Advice Note 6: Preparation and submission of application documents (Ref. 5-4);
  - c. Planning Inspectorate Advice Note 7: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements (Ref. 5-5);
  - d. Planning Inspectorate Advice Note 9: Rochdale Envelope (Ref. 5-6);
  - e. Planning Inspectorate Advice Note 11: Working with Public Bodies in the Infrastructure Planning Process (Ref. 5-7); and
  - f. Planning Inspectorate Advice Note 17: Cumulative Effects Assessment (Ref. 5-8).
- 5.1.5 In preparing this ES, reference has been made to the EIA Scoping Opinion received from the Secretary of State on 4 November 2022 (**Appendix 1-2** of this ES [EN010142/APP/6.2]) and the advice contained within it regarding assessment methodology, topics and presentation of the ES, together with

responses received through statutory consultation and non-statutory consultation. A table has been included within each technical chapter (**Chapters 6 to 17** of this ES [EN010142/APP/6.1]) to show how and where comments from the Scoping Opinion and statutory consultation have been addressed within the ES. Overarching comments on the EIA methodology are discussed in paragraph 5.19 and **Table 5-1** below.

5.1.6 In response to the EIA Scoping Opinion, this ES includes assessments of the following environmental topics:

- a. Chapter 6: Air Quality;
- b. Chapter 7: Climate Change;
- c. Chapter 8: Cultural Heritage;
- d. Chapter 9: Ecology;
- e. Chapter 10: Water Environment;
- f. Chapter 11: Human Health;
- g. Chapter 12: Landscape and Visual Amenity;
- h. Chapter 13: Noise and Vibration;
- i. Chapter 14: Socio-Economics and Land Use;
- j. Chapter 15: Soils and Agriculture<sup>1</sup>;
- k. Chapter 16: Transport and Access; and
- l. Chapter 17: Other Environmental Topics (see below).

5.1.7 **Appendix 1-1: EIA Scoping Report** of this ES [EN010142/APP/6.2]) concluded that several topics would not require a full chapter within the ES, however, a summary of the relevant effects and mitigation would be set out within **Chapter 17: Other Environmental Topics** of this ES [EN010142/APP/6.1]. The Scoping Opinion requested further information to support this approach. Where relevant, the additional information requested and a response to the Scoping Opinion comments are presented in **Chapter 17: Other Environmental Topics** of this ES [EN010142/APP/6.1]. In summary, **Chapter 17: Other Environmental Topics** of this ES [EN010142/APP/6.1] covers:

- a. Glint and Glare;
- b. Major Accidents and Disasters;
- c. Ground Conditions;
- d. Electromagnetic Fields<sup>2</sup>;

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<sup>1</sup>The Scoping Opinion stated that a chapter would not be required for Soils and Agriculture, but the Applicant has decided it would be prudent to include this as part of the ES to facilitate discussions on this topic with Natural England. This is explained in **Chapter 16: Soils and Agriculture** of this ES [EN010106/APP/6.1].

<sup>2</sup> Whilst the EIA Scoping Report did not identify likely significant effects in relation to electromagnetic fields, the Scoping Opinion requested that electromagnetic fields should be considered within the ES.

- e. Telecommunications, television reception and utilities; and
- f. Waste and materials.

5.1.8 Paragraph 4 within Schedule 4 (information for inclusion in environmental statements) of the EIA Regulations states that the ES should include ‘a description of the factors [...] likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape’. These factors are addressed within the relevant chapters listed above at paragraph 5.1.6.

## EIA specific response to consultation

5.1.9 A request for an EIA Scoping Opinion was published by the Secretary of State through the Planning Inspectorate on 30 September 2022 as part of the EIA Scoping Process. Consultation responses in relation to the introductory chapters are presented in **Table 5-1** below.

**Table 5-1: Scoping Response**

<b>Summary of matter raised</b>	<b>How has the matter been addressed?</b>	<b>Location of response</b>
<p>The Scoping Report states that one or more temporary construction compound(s) will be required. With the current wording it is not clear whether the construction compound(s) will be located within the Proposed Development’s boundary (either Principal Site or the Cable Route Corridor) and/or whether additional land will be required for the construction phase.</p>	<p>As further design work has progressed since the submission of the Scoping Report the number of temporary construction compounds and land-use during construction has been determined.</p>	<p>The land use of temporary construction compounds is described in <b>Chapter 3: Scheme Description [EN010142/APP/6.1]</b>. The location of these compounds are included on <b>Figure 3-1: Indicative Principal Site Layout</b> and <b>Figure 3-6: Indicative Construction Compound Locations [EN010142/APP/6.3]</b>.</p>
<p>The ES should show the location of any construction compound(s) on a plan and describe the land-use requirement during construction, highlighting where additional land is required on a temporary basis.</p>		

Summary of matter raised	How has the matter been addressed?	Location of response
<p>The Scoping Report sets out cable route options connecting the Principal Site to the National Grid Cottam Substation. The Applicant should demonstrate that they have explored options to share cable infrastructure with similar solar developments within the local area.</p> <p>The ES should demonstrate the effects on the environment for each option and explain the main reasons for the option chosen.</p>	<p>As further design work has progressed since the submission of the Scoping Report the options to share cable infrastructure with similar solar developments within the local area has been explored, along with the potential effects on the environment for each option.</p>	<p>This is presented in <b>Chapter 4: Alternatives and Design Evolution [EN010142/APP/6.1]</b> and the <b>Joint Report on the Interrelationship with other Nationally Significant Infrastructure Projects (NSIPs)</b> submitted alongside the DCO application <b>[EN010142/APP/7.6]</b>.</p>
<p>The Inspectorate notes the Applicant's intention to use the 'Rochdale Envelope' approach to maintain flexibility within the design of the Proposed Development. Paragraph 3.70 of the Scoping Report states that the amount of flexibility required will depend upon the progress of the design.</p> <p>The Inspectorate expects that at the point an application is made, the description of the Proposed Development will be sufficiently detailed to include the design, size, capacity, technology, and locations of the different elements of the Proposed Development. This should include the footprint and heights of the structures (relevant to existing ground levels), as well as land-use requirements for</p>	<p>As further design work has progressed since the submission of the Scoping Report the Scheme design has been refined, allowing for maximum and minimum parameters for Scheme components to be defined, as well as locations and works areas. These have been described in the ES and DCO application documents as appropriate. Each technical chapter (<b>Chapters 6 to 17</b> of this ES <b>[EN010142/APP/6.1]</b>) provides further detail regarding the parameters which are assumed as a realistic worst-case scenario for the purposes of assessment.</p>	<p>This is presented in <b>Chapter 3: Scheme Description [EN010142/APP/6.1]</b>, and supported by <b>Figure 3-1: Indicative Principal Site Layout, Figure 3-4a: Indicative Substation A Layout, Figure 3-4b: Indicative Substation A Elevation, Figure 3-5a: Indicative Substation B Layout, Figure 3-5b: Indicative Substation B Elevation, Figure 3-6: Indicative Construction Compound Locations, Figure 3-7: Access Locations and Figure 3-11: Indicative Cable Route Corridor Trenched and Trenchless Crossing Locations. [EN010142/APP/6.3]</b>.</p>

Summary of matter raised	How has the matter been addressed?	Location of response
<p>all elements and phases of the development. The description should be supported (as necessary) by figures, cross-sections, and drawings which should be clearly and appropriately referenced. Where flexibility is sought, the ES should clearly set out the maximum design parameters that would apply for each option assessed and how these have been used to inform an adequate assessment in the ES.</p>		
<p>Paragraph 3.20 of the Scoping Report states that a BESS is included within the Proposed Development. However, paragraph 3.35 of the Scoping Report implies there are multiple BESSs. It is unclear whether the Proposed Development will include one or more BESS.</p> <p>The ES should include a description of all the components of the Proposed Development.</p>	<p>The BESS will be DC-coupled, it will therefore be distributed across the Scheme and located alongside the Solar Stations, rather than an AC-coupled arrangement which is centralised in one or a few locations.</p>	<p>The BESS in the Scheme is described in <b>Chapter 3: Scheme Description [EN010142/APP/6.1]</b>. The indicative locations of the BESS are included on <b>Figure 3-1: Indicative Principal Site Layout</b>, and illustrated by <b>Figure 3-2: Indicative Solar Station and BESS Station Layout</b> and <b>Figure 3-3: Indicative Solar Station and BESS Station Elevation [EN010142/APP/6.3]</b>.</p>
<p>The Scoping Report states that the anticipated design life of the Proposed Development is 40 years. After this time, it is expected that the Proposed Development would be decommissioned, however paragraph 3.66 suggests</p>	<p>As further design work has progressed since the submission of the Scoping Report, the anticipated design life of the Scheme has increased to 60 years, with decommissioning</p>	<p>The temporal scope of the Scheme and how this affects the assessments presented in <b>Technical Chapters 6 to 17 [EN010142/APP/6.1]</b> is detailed in Section 7.1 of this chapter.</p>

Summary of matter raised	How has the matter been addressed?	Location of response
<p>that decommissioning is not certain.</p> <p>The ES should explain how the uncertainty around the design life of the Proposed Development has been accounted for in reaching the assessment conclusions. Any potential impacts arising from the Proposed Development should it operate beyond the 40-year timeframe should be assessed in the relevant ES aspect chapters.</p>	<p>certain after this period.</p>	

5.1.10 Statutory consultation was undertaken between 30 May 2023 and 11 July 2023, during which time the Applicant hosted a number of in-person and online events. The statutory consultation included the publication of the PEI Report, the feedback on which has been considered within this ES. An additional round of targeted consultation was completed between 14 December 2023 and 25 January 2024. Comments on the environmental aspects of the Scheme have been included within the relevant technical chapters (**Chapters 6 to 17** of this ES [EN010142/APP/6.1]) to show how and where comments from the Scoping Opinion, statutory and targeted consultations and other engagement with stakeholders have been addressed within the ES.

## Environmental Statement

- 5.1.11 This ES summarises the outcomes of the following EIA activities:
- a. Consideration of relevant local, regional, and national planning policies, guidelines, technical standards and legislation relevant to the EIA;
  - b. Development of significance criteria and specialist assessment methodologies;
  - c. Consultation with statutory and non-statutory consultees and the contents of the Scoping Opinion;
  - d. Establishing baseline conditions, including a review of secondary information, previous environmental studies, publicly available information and databases, desktop studies, and physical surveys and monitoring;
  - e. Input into the development of design including embedded mitigation;



- f. Assessment of likely impacts and effects, including modelling and calculations and professional judgement;
- g. Identification of any necessary additional mitigation or monitoring required;
- h. Determination of residual effects; and
- i. Assessment of effect interactions and cumulative effects with other schemes, plans and projects.

5.1.12 Each technical chapter follows the same structure for ease of reference, as outlined below:

- a. Introduction;
- b. Legislation and Planning Policy;
- c. Assessment Assumptions and Limitations;
- d. Assessment Methodology;
- e. Stakeholder Engagement;
- f. Baseline Conditions;
- g. Embedded Design Mitigation;
- h. Assessment of Likely Impacts and Effects;
- i. Additional Mitigation and Enhancements;
- j. Residual Effects; and
- k. References.

5.1.13 Effect interactions and cumulative effects with nearby schemes, plans and projects are set out within **Chapter 18: Cumulative Effects** of the ES [EN010142/APP/6.1].

## 5.2 Rochdale Envelope

5.2.1 As discussed in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1], detailed design has yet to be finalised for the Scheme. This is important as the technology for solar PV and Battery Energy Storage Systems (BESS) is continuing to advance and there is a need for the Applicant to maintain flexibility to meet the changing demands of the UK market, prior to construction and to enable the Applicant to adopt the most up to date technology at the point of commencement of development. The 'Rochdale Envelope' approach has therefore been applied within the EIA to ensure a robust assessment of the likely significant environmental effects of the Scheme, in accordance with the Planning Inspectorate's Advice Note 9: The Rochdale Envelope (Ref. 5-9). This involves assessing the maximum (and where relevant, minimum) parameters for the elements of the Scheme where flexibility needs to be retained, recognising that the worst-case parameter for one technical assessment may differ from another. Where this approach is applied, this has been confirmed within the relevant chapters of this ES.

5.2.2 As is relevant for each technical discipline, the worst-case parameters for the Scheme, under the Rochdale Envelope approach, have been assessed in order to predict likely worst-case overall impacts for that topic. These have been used in the assessment of significance of effects for the Scheme. Each of the technical assessments (**Chapters 6 to 17** of this ES [EN010142/APP/6.1]) describe the parameters applied in relation to the assessment. As the Scheme design has evolved, key elements of the design have been fixed (e.g. the setting back of the Order limits from residential properties and ecological receptors, where feasible.). However, flexibility has been maintained for some aspects of the Scheme within the Application. Where flexibility has been retained in the Application, any subsequent changes to design details will remain within the likely worst-case parameters assessed in this ES. Further justification for the need to retain flexibility in certain parameters is outlined in **Chapter 3: Scheme Description** of this ES [EN010142/APP/6.1].

## 5.3 Determining the Baseline Conditions

- 5.3.1 In order to predict the potential environmental effects of the Scheme, it is important to determine the baseline environmental conditions that currently exist within the Order limits and surrounding area, in the absence of any development.
- 5.3.2 Detailed, environmental baseline information has been collected and the methodology for the collection process is detailed within each technical chapter of the ES. The baseline information has been gathered from various sources, including:
- a. Online/digital resources;
  - b. Data searches, e.g. Historic Environment Record;
  - c. Baseline site surveys; and
  - d. Environmental information submitted in support of other planning applications for developments in the vicinity.
- 5.3.3 Consideration has also been given to how the baseline conditions would evolve in the absence of the Scheme, known as the 'future baseline', in respect of both natural changes and any planned developments.

## 5.4 Development Design, Impact Avoidance and Mitigation

- 5.4.1 The design process for the Scheme has been heavily influenced by the findings of early environmental appraisals and the EIA process. The Scheme has had several measures incorporated into the design to avoid or minimise environmental impacts. The key aspects where the design has evolved are described in **Chapter 4: Alternatives and Design Evolution** of this ES [EN010142/APP/6.1]. These include measures needed for legal compliance, as well as measures that implement the requirements of good practice guidance documents. The assessment has been undertaken on the basis that these measures are incorporated in the design and construction practices (i.e., they are 'embedded mitigation').

- 5.4.2 Embedded mitigation is detailed within the technical chapters of the ES and, if relevant for the construction phase, included in the **Framework Construction Environmental Management Plan (CEMP)** submitted alongside the DCO application [EN010142/APP/7.8]. Embedded mitigation is secured through the Requirements of the DCO.
- 5.4.3 Where likely significant effects are identified as part of the assessment, consideration has been given to any 'additional mitigation' over and above the embedded mitigation that may be required to mitigate any significant adverse effects. The residual effects (after the implementation of additional mitigation) have then been assessed and are presented in each topic chapter. Significant residual effects are also summarised in **Chapter 19: Summary of Significant Environmental Effects** of this ES [EN010142/APP/6.1]. Where sufficient embedded mitigation has been incorporated into the design, it may not be necessary to propose additional mitigation.
- 5.4.4 Where a likely significant effect has been identified, requirements for monitoring have been proposed within the relevant technical chapter in line with the EIA Regulations, where practicable. In addition, where feasible, environmental enhancements – which are improvements to the environment that are not required to reduce or mitigate adverse effects – have been embedded in the Scheme design.
- 5.4.5 Mechanisms for securing all environmental mitigation and monitoring measures are set out within the standalone **Environmental Mitigation and Commitments Register** [EN010142/APP/6.5] submitted with the Application.

## 5.5 Assessment of Construction and Decommissioning Effects

- 5.5.1 The assessment of construction and decommissioning effects has been undertaken based on existing knowledge, techniques and equipment. A 'reasonable worst-case' scenario has been used with respect to the envisaged construction methods, location (proximity to sensitive receptors), phasing and timing of construction activities.
- 5.5.2 As described above, the assessment of construction and decommissioning effects assumes the implementation of standard good practice measures, for example the use of dust suppression measures on haul roads, using containers with 110% capacity to store fuel and other chemicals onsite, etc. The purpose of this is to focus on Scheme-specific effects, rather than generic construction effects that can be easily addressed using standard good practice mitigation measures. Construction and decommissioning assumptions, including what has been assumed in terms of good practice measures, have been set out within the ES, the **Framework CEMP** [EN010142/APP/7.8], and the **Framework Decommissioning Environmental Management Plan (DEMP)** submitted alongside the DCO application [EN010142/APP/7.10] respectively. The ES identifies and assesses construction and decommissioning effects that are likely to remain after these mitigation measures are in place.

## 5.6 Spatial Scope: Geographical Area

- 5.6.1 The technical chapters of this ES (**Chapters 6 to 17, [EN010142/APP/6.1]**) describe their spatial scope, including their rationale for determining the specific area within which the assessment is focussed. The Study Areas are a function of the nature of the impacts and the locations of potentially affected environmental resources or receptors. Justification for the spatial scope considered appropriate for each topic is documented in their respective chapter (**Chapters 6 to 17, [EN010142/APP/6.1]**).

### Transboundary Effects

- 5.6.2 Schedule 4, Part 5 of the EIA Regulations requires a description of likely significant transboundary effects on any other European Economic Area (EEA) State to be provided. Guidance for the consideration of transboundary effects is provided in the Planning Inspectorate's Advice Note 12: Development with significant transboundary impacts consultation (Ref. 5-10).
- 5.6.3 At Scoping stage, a Transboundary Effects Screening Matrix was produced, which assessed the likelihood of transboundary effects. The original assessment is provided in Appendix A of **Appendix 1-1** of this ES **[EN010106/APP/6.2]**. The assessment at Scoping stage concluded that the Scheme is not likely to have significant effects beyond the jurisdiction of the United Kingdom.
- 5.6.4 Since the Scoping stage, the Scheme design has been refined in line with the description provided in **Chapter 4: Alternatives and Design Evolution** of this ES **[EN010142/APP/6.1]**. Other than the size of the Scheme, which has been reduced, the characteristics and potential impacts of the Scheme have not changed from those previously assessed at Scoping stage. Therefore, transboundary effects have not been considered further in this ES.

## 5.7 Temporal Scope: Timescales and Assessment Years

### Construction Phase Effects

- 5.7.1 For the purposes of the assessment, the construction phase effects are those effects that result from activities during enabling works, construction, and commissioning activities. This covers sources of effects such as construction traffic, noise and vibration from construction activities, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, and the visual intrusion of plant and machinery on site. Some aspects of construction-related effects will last for longer than others. For example, impacts related to earth moving are likely to be relatively short in duration compared with the construction of energy infrastructure and landscaping activities, which are likely to persist throughout the entire construction period (although the intensity and location of these activities will vary over the course of construction).

## Operational Phase Effects

- 5.7.2 Operational effects are the effects that are associated with operational and maintenance activities during the generating lifetime of the Scheme. This includes the effects of the physical presence of the energy infrastructure and its operation, use and maintenance, including ad hoc replacement of components that have malfunctioned or ceased to be effective. Timescales associated with these enduring effects are as follows:
- a. **Short term** – endures for up to 12 months;
  - b. **Medium term** – endures for 1-5 years;
  - c. **Long term** – endures for more than 5 years;
  - d. **Reversible Long-Term Effects** – long-term effects, which endure throughout the lifetime of the Scheme, but which cease once the Scheme has been decommissioned; and
  - e. **Permanent Effects** – effects which cannot be reversed following decommissioning (e.g. where buried archaeology is permanently removed during construction).

## Decommissioning Phase Effects

- 5.7.3 Decommissioning effects are changes resulting from activities beginning and ending during the decommissioning stage. This covers sources of effects such as decommissioning site traffic, noise and vibration from decommissioning activities, dust generation, site runoff, mud on roads, risk of fuel/oil spillage, and the visual intrusion of plant and machinery on site, for example. Typically, decommissioning phase effects are similar in nature to the construction phase, although may be of shorter duration and slightly less intensity.
- 5.7.4 Decommissioning phase effects are set out and assessed in each of the technical chapters.

## Assessment Years

- 5.7.5 The assessment considers the environmental impacts of the Scheme at key stages in its construction, operation and decommissioning.
- 5.7.6 The 'existing baseline' date is 2023 since this is the period in which the baseline studies for the EIA are being undertaken. As described above, 'future baseline' conditions are also predicted for each assessment scenario, whereby the conditions anticipated to prevail at a certain point in the future (assuming the Scheme does not progress) are identified for comparison with the predicted conditions with the Scheme. This can include the introduction of new receptors and resources into an area, or new development schemes that have the potential to change the baseline, where these form committed developments. Committed developments are those with current planning permission or that are allocated in adopted development plans.
- 5.7.7 The assessment scenarios that are being considered for the purposes of the EIA (and considered in this ES) are as follows:

- a. Existing Baseline (2023) – this is the existing conditions; and
- b. Future Baseline (No Development) – this is the principal baseline against which each phase is assessed, taking into account any changes between the existing baseline and the year when construction is expected if the Scheme was not developed. It is common for the future baseline to be the same as the existing baseline if there are no planned changes to the land management or surrounding area, in which case the assessment is based on changes relative to the existing conditions.

5.7.8 These assessment years are explained below.

- a. Construction (2026) (With Development):
  - i. The construction phase is anticipated to be a minimum of 24 months and a maximum of 36 months. The peak construction year for the purpose of the EIA is anticipated to be 2026; this assumes commencement of construction in late 2025 and that the Scheme is built out rapidly over a 24-month period, with all sites constructed concurrently. In this scenario, construction is assumed to be completed by the end of 2027. A construction period of 24-months is considered to be the likely worst case from an environmental assessment perspective for the majority of the environmental topics because it compresses the potential impacts into a shorter duration and represents the greatest impact on sensitive receptors. A lengthened construction phase would likely result in a lower magnitude of environmental impacts on sensitive receptors. Where a longer duration of the construction period is, however, deemed to represent a worse effect, this is stated in the relevant technical ES chapters and the assessment presented in those chapters assumes a longer duration (as appropriate).
- b. Operation (2027) (With Development):
  - i. This is the opening year of the Scheme; this assumes that the Scheme will be operational by the end of 2027.
- c. Decommissioning (2088):
  - i. The design life of the Scheme is 60 years and decommissioning will commence thereafter. The decommissioning assessment is high level and qualitative.

5.7.9 A Future Year assessment of 2043 has also been considered for landscape and visual amenity, in accordance with industry guidance, to allow for consideration of impacts with vegetation planting matured (i.e. 15 years into the operational phase, during summertime conditions).

## 5.8 General Assessment Methodology

5.8.1 The evaluation of the significance of an effect is important; it is the significance that determines the resources that should be deployed in avoiding or mitigating a significant adverse effect, or conversely, the actual value of a beneficial effect. Where it has not been possible to quantify effects, qualitative assessments have been carried out based on available

knowledge and professional judgment. Where uncertainty exists, this has been noted in the relevant topic chapter where assumptions are stated.

- 5.8.2 Details relating to the specific assessment methodologies of individual technical topics are provided in the technical chapters of this ES. Generally, each technical chapter of the ES follows a five-stage approach, as set out below. In some cases, technical chapters may deviate from the below approach where specific technical guidance requires a different methodology. Where this is the case, this is clearly identified in relevant technical chapters, as appropriate.

### **Stage 1: Determining the value / sensitivity of the receptor or environmental resource**

- 5.8.3 The technical chapters define the baseline conditions against which the likely significant environmental effects of the Scheme are determined and identify receptors and environmental resources that may be impacted. Each receptor and/or environmental resource has been assigned a value on the basis of its importance or sensitivity to potential impacts, according to the methodology set out in the relevant technical chapter.
- 5.8.4 The sensitivity, value or importance of a resource or receptor is normally derived from:
- a. Designated status within the land use planning system;
  - b. Reference to standards in environmental assessment guidance;
  - c. The number of individual receptors, such as residents;
  - d. An empirical assessment on the basis of characteristics such as rarity or condition; and
  - e. Its ability to absorb change.
- 5.8.5 The terminology that has been used to categorise the sensitivity of resources/receptors is as follows:
- a. High;
  - b. Medium;
  - c. Low; and
  - d. Very Low.

### **Stage 2: Determining the magnitude and attributes of impacts**

- 5.8.6 The technical chapters have identified the potential impacts of the Scheme during the construction, operational and decommissioning phases. The magnitude of the impact or scale of change in comparison to baseline conditions has been determined in line with the topic specific methodology, while taking into account any embedded mitigation that forms an inherent part of the Scheme or is considered as standard practice or a legislative requirement for managing commonly occurring environmental effects (defined as 'tertiary mitigation' by IEMA (Ref. 5-11)).

- 5.8.7 Where it has not been possible to quantify impacts, qualitative assessments have been carried out, based on expert opinion and professional judgement, and this is identified within the relevant technical chapter. Where uncertainty exists, this is also set out in the relevant technical chapter.
- 5.8.8 The terminology that has been used to categorise the magnitude of impact is as follows:
- a. High;
  - b. Medium;
  - c. Low; and
  - d. Very Low.

### **Stage 3: Classification of the effect significance**

- 5.8.9 The evaluation of the significance of an effect is an important step in the EIA process, as it is the significance of an effect that, in the case of an adverse effect, determines the extent of avoidance or mitigation required or, for beneficial effects, determines the value of that effect.
- 5.8.10 In general, the technical chapters have classified the effect significance of the Scheme by considering the sensitivity/value of the receptor or environmental resource against the magnitude of impact.
- 5.8.11 The significance of effects has been determined by reference to criteria for each assessment topic. Specific significance criteria for each technical discipline have been developed, giving due regard to the following:
- a. Extent and magnitude of the impact (described as high, medium, low and very low);
  - b. Effect duration (see paragraph 5.7.2), and whether effects are temporary, reversible or permanent;
  - c. Effect nature (whether direct or indirect, reversible or irreversible, beneficial or adverse);
  - d. Whether the effect occurs in isolation, is cumulative or interacts with other effects;
  - e. Performance against any relevant environmental quality standards; and
  - f. Sensitivity of the receptor (described as high, medium, low and very low).
- 5.8.12 Each technical topic has its own method for classifying effects, based on industry standards, accepted criteria and legislation, where applicable. For example, the Air Quality Dust Impact Assessment uses a classification method based on Institute of Air Quality Management (IAQM) guidance (Ref. 5-12). For issues where definitive quality standards are not available, significance has been based on the following considerations:
- a. Local, district, regional or national scale or value of the resource affected;
  - b. Number of receptors affected;



- c. Sensitivity of these receptors; and
  - d. Duration of the effect.
- 5.8.13 For consistency, the following terminology has been used throughout the ES to characterise effects:
- a. **No Effect** – No positive and/or negative influence from the Scheme;
  - b. **Adverse** – Detrimental or negative effects to an environmental resource / receptor;
  - c. **Beneficial** – Advantageous or positive effect to an environmental resource / receptor; or
  - d. **Negligible** – Imperceptible effects to an environmental resource / receptor. This can be adverse or beneficial.
- 5.8.14 When addressing the duration of an effect, the following terminology has been used:
- a. **Temporary** – Short, medium or long-term (e.g. a short-term temporary effect relates to an activity with a duration from several weeks to a few months, a medium-term temporary effect estimated to be several months to a year and long-term estimated to be several years);
  - b. **Reversible** – long-term effects, which endure throughout the lifetime of the Scheme, but which cease once the Scheme has been decommissioned; and
  - c. **Permanent** – Effects that are non-reversible, generally associated with the complete and operational Scheme.
- 5.8.15 Where adverse or beneficial effects are identified, these will be against the following scale:
- a. **Minor** – slight, very short, or highly localised effect of no significant consequence;
  - b. **Moderate** – noticeable effect (by extent, duration or magnitude) which may be considered significant; and
  - c. **Major** – considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability, legislation, policy or standards; considered significant.
- 5.8.16 A generic example of how the classification of effect might be undertaken is given in **Table 5-2** below. Where topic-specific classification of effect significance has been applied, this is set out in the relevant technical chapter.

**Table 5-2: Classification of Effect Significance**

Sensitivity value of resource / receptor	or Magnitude of impact			
	High	Medium	Low	Very Low
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible

Sensitivity value of resource / receptor	or Magnitude of impact			
	High	Medium	Low	Very Low
Low	Moderate	Minor	Negligible	Negligible
Very Low	Minor	Negligible	Negligible	Negligible

5.8.17 Following the classification of an effect, clear statements have been made within the topic chapters as to whether that effect is significant or not significant. Residual effects found to be ‘moderate’ or ‘major’ are deemed to be ‘significant’ and therefore important and relevant to the decision-making process. Effects found to be ‘negligible’ or ‘minor’ are considered to be ‘not significant’ and not material to the decision-making process, although they may be matters of local concern.

### Stage 4: Identifying additional mitigation measures, as necessary

5.8.18 Where possible, mitigation has been incorporated into the Scheme as part of the iterative design process (i.e. primary and tertiary mitigation, as defined by IEMA). Where major or moderate adverse effects are predicted after this mitigation has been taken into account, additional measures have been identified to avoid, further mitigate, or remedy those effects. As defined by IEMA, these measures are classed as ‘secondary mitigation’ and may be secured by the DCO for the Scheme.

5.8.19 All mitigation measures, whether primary, tertiary or secondary, are described within the relevant technical chapters. Construction mitigation measures are collated and presented within the **Framework CEMP** submitted alongside the DCO application [EN010142/APP/7.8]. Operational and decommissioning mitigation measures have been presented in a **Framework Operational Environmental Management Plan (OEMP)** submitted alongside the DCO application [EN010142/APP/7.9] and **Framework DEMP** submitted alongside the DCO application [EN010142/APP/7.10], respectively, which have been prepared as part of the ES to accompany the Application, alongside an updated Framework CEMP.

### Stage 5: Identifying residual effects

5.8.20 Following the identification of any additional mitigation measures, if required, the residual effects of the Scheme are classified. Residual effects found to be of moderate or major significance are deemed to be likely significant effects. Effects found to be negligible or minor are considered to be not significant. Significance of effects has been considered when applying topic specific guidance. The residual likely significant effects are summarised within **Chapter 19: Summary of Significant Environmental Effects** of this ES [EN010142/APP/6.1].

5.8.21 Generic definitions for the classification of effects are shown in **Table 5-3**.

**Table 5-3: Generic descriptions for classification of effects**

<b>Effect</b>	<b>Generic Description</b>
Major	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 which are unique and which, if lost, cannot be replaced or relocated.
Moderate	These effects are likely to be important at a local scale and on their own could have an influence on decision making.
Minor	These effects may be raised as local issues and may be of relevance in the detailed design of the project but are unlikely to be critical in the decision-making process.
Negligible	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.

5.8.22 The technical chapters of this ES highlight ‘residual’ effects, which are those effects that remain following the implementation of suitable mitigation measures and classify these in accordance with the effect classification terminology set out above.

5.8.23 It should be noted that some technical disciplines may utilise different criteria when undertaking assessments due to differences in industry accepted guidelines and specifications. Where this is the case, the technical topic discusses how the assessment methodology or classification of effects differs for the general EIA methodology as described in this section and provide justification.

## **5.9 Interaction and Accumulation of Effects**

5.9.1 In accordance with the EIA Regulations, ‘cumulative effects’ associated with the Scheme have been considered as part of this ES. These are effects that result from incremental changes caused by other past, present or reasonably foreseeable actions together (i.e. cumulatively) with the Scheme.

5.9.2 For the cumulative impact assessment, two types of impact are considered:

- a. The combined effect of individual impacts from the Scheme, for example noise or pollutants on a single receptor (these are referred to as ‘effect interactions’); and
- b. The combined effects of several development schemes which may, on an individual basis be insignificant but, cumulatively with the Scheme, have a new or different likely significant effect (these are referred to as ‘cumulative effects’).

- 5.9.3 Further detail on the assessment methodology and the outcomes of the effect interactions and cumulative effects assessment is provided in **Chapter 18: Cumulative Effects and Interactions** of this ES [EN010142/APP/6.1].
- 5.9.4 Other solar Nationally Significant Infrastructure Projects (NSIPs) within the local area have progressed through to submission of their applications at the time of writing this ES, including the Gate Burton, West Burton and Cottam Solar projects. At the ES stage for the Scheme, the DCO application information for the three projects mentioned above was drawn upon and relevant assessments updated. A **Joint Report on the Interrelationship with other NSIPs** submitted alongside the DCO application [EN010142/APP/7.6].

## 5.10 Structure of the Technical Chapters

- 5.10.1 Each technical chapter (**Chapters 6 to 17** of this ES [EN010142/APP/6.1]) follows the same structure for ease of reference, as outlined in **Table 5-4**.

**Table 5-4: Structure of technical chapters**

<b>Section heading</b>	<b>Description</b>
Introduction	The introduction provides a brief summary of what is considered in the chapter and provides any relevant background information.
Legislation and Policy	This section includes a short summary of applicable legislation and policy plans (whether formalised or draft) at the local, regional and national level. This section refers to a specific legislation and policy appendix for more information.
Assessment Assumptions and Limitations	This section outlines any key assumptions and limitations for each topic.
Assessment Methodology	The methods used in undertaking the topic-specific technical study are outlined in this section, with references to published standards, guidelines, guidance and relevant significance criteria.  The significance of residual effects has been determined by reference to topic-specific effect significance criteria. Topic-specific effect significance criteria and standards/guidance from which they are derived are explained and definitions of minor, moderate and major (adverse or beneficial) and negligible effects are given.
Stakeholder Engagement	This section describes the consultation that has been undertaken for each technical chapter with relevant statutory consultees and other bodies. This includes consultation responses received as part of the EIA scoping process, including from the EIA Scoping Opinion,

<b>Section heading</b>	<b>Description</b>
	<p>as well as other discussions that have taken place to refine the scope of the assessment.</p> <p>Summarises the topic specific responses which were received following statutory consultation (which ran from 30 May 2023 to 11 July 2023), as well as how and where the comments have been addressed.</p> <p>Describes any additional consultation undertaken.</p>
<b>Baseline Conditions</b>	<p>This section describes the baseline conditions within the Site and the surrounding area with reference to the results of desk-based studies, site visits and surveys, modelling, consultation and a review of relevant planning policy (or a combination of these, as appropriate). Consideration is also given to the future baseline environmental conditions for the area.</p>
<b>Embedded Design Mitigation</b>	<p>This section sets out design and management measures that will avoid, prevent, reduce or offset significant environmental effects. These include primary and tertiary mitigation measures, as defined by IEMA. Examples include:</p> <ul style="list-style-type: none"> <li>• Core design measures and principles followed;</li> <li>• Application of standard construction management controls or similar;</li> <li>• Consideration of appropriate building massing and design;</li> <li>• Incorporation of landscaping features within the design;</li> <li>• Incorporation of sustainable drainage features within the design; and</li> <li>• Management and monitoring requirements set out within any plans submitted with the planning application.</li> </ul>
<b>Assessment of Likely Impacts and Effects</b>	<p>This section identifies the likely environmental effects resulting from the Scheme, both during the construction and decommissioning phases and once the Scheme is operational. The effects of the Scheme are assessed against the existing baseline. This section describes each identified effect with reference to the sensitivity of receptors and the magnitude of change.</p>
<b>Additional Mitigation and Enhancements</b>	<p>Where significant adverse effects are identified (despite environmental design and management measures having been adopted), additional mitigation measures are identified to avoid or reduce the adverse impacts. This section describes the mitigation measures that the Applicant will implement to avoid or reduce adverse effects and enhance the beneficial effects associated with</p>

<b>Section heading</b>	<b>Description</b>
	the Scheme. These measures can relate to any of the key phases of the Scheme: design, construction, completion / operation and decommissioning.
Residual Effects	Effects arising as a result of the Scheme and which remain following the implementation of all mitigation measures are referred to as residual effects. These are presented and discussed.

## 5.11 References

- Ref. 5-1. HMSO (2017). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
- Ref. 5-2. HMSO (2008). The Planning Act 2008.
- Ref. 5-3. Planning Inspectorate (PINS) (2017a). Advice Note Three: EIA Notification and Consultation.
- Ref. 5-4. PINS (2023). Advice Note Six: Preparation and submission of application documents.
- Ref. 5-5. PINS (2020). Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements.
- Ref. 5-6. PINS (2018). Advice Note Nine: Rochdale Envelope.
- Ref. 5-7. PINS (2017b). Advice Note Eleven: Working with public bodies in the infrastructure planning process.
- Ref. 5-8. PINS (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects.
- Ref. 5-9. PINS (2018); Advice Note 9: Using the Rochdale Envelope.
- Ref. 5-10. PINS (2020); Advice Note 12: development with significant transboundary impacts consultation.
- Ref. 5-11. IEMA (2016). Environmental Impact Assessment Guide to: Delivering Quality Development.
- Ref. 5-12. Environmental Protection UK & Institute of Air Quality Management (2017). Land-Use Planning & Development Control: Planning for Air Quality.
- Ref. 5-13. European Commission (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.