

Cottam Solar Project

Environmental Statement Chapter 2:

EIA Process and Methodology

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Issue Sheet

**Report Prepared for: Cottam Solar Project Ltd.
DCO Submission**

Environmental Statement Chapter 2: EIA Process and Methodology

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2 EIA Process and Methodology

2.1 EIA Process

2.1.1 EIA is the process undertaken to identify and evaluate the likely significant effects of a proposed development on the environment and to identify measures to mitigate or manage any significant negative effects. The EIA should be informed by consultation with statutory consultees, other interested bodies and members of the public. The purpose of identifying likely significant effects is to ensure decision makers are able to make an informed judgement on the environmental impacts of a proposal.

2.1.2 The key matters for ensuring a robust EIA process relating to NSIPs are:

- a) An iterative project design process, considering feedback from consultation and applying it to the design process on an ongoing basis;
- b) Scoping and ongoing consultation, including consideration of responses and how these should be addressed as part of the EIA;
- c) Technical assessments, including baseline studies, input to the design process, and identification of potential likely significant environmental effects;
- d) Proposed mitigation measures (both 'embedded' and 'additional' mitigation) where necessary, to prevent or reduce likely significant adverse effects;
- e) Consultation on the Preliminary Environmental Information Report; and
- f) Preparation of the Environmental Statement (ES).

2.1.3 Each of the technical assessments for each environmental aspect take the following approach;

- a) Description of the baseline conditions;
- b) Identification and assessment of likely effects;
- c) Identification of mitigation measures, including design changes;
- d) Assessment of potential residual effects that remain following mitigation; and
- e) Assessment of 'in-combination' effects within the Scheme to consider the interaction of different environmental effects and 'cumulative' effects when considering the Scheme along with other planned developments in the area.

General Assessment Approach

2.1.4 This ES has been prepared in accordance with and to satisfy the requirements of The Infrastructure Planning (EIA) Regulations 2017 (hereafter referred to as 'the EIA Regulations').

2.1.5 In preparing this ES, reference has been made to the following guidance:

- a) Planning Inspectorate Advice Note 3: EIA Consultation and Notification (August 2017, Version 7);
- b) Planning Inspectorate Advice Note 7: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements (June 2020, Version 7);
- c) Planning Inspectorate Advice Note 9: Rochdale Envelope (July 2018, Version 3);
- d) Planning Inspectorate Advice Note 11: Working with Public Bodies in the Infrastructure Planning Process (November 2017, Version 4); and
- e) Planning Inspectorate Advice Note 17: Cumulative Effects Assessment (August 2019, Version 2).

2.2 EIA Scoping

2.2.1 The aim of the scoping process is to identify key expected environmental issues at an early stage, to determine which elements of the Scheme are likely to result in likely significant effects on the environment and to establish the extent of survey and assessment requirements for the EIA. An effective scoping process should enable the refinement of the EIA.

2.2.2 The issues to be addressed within this ES were identified in the EIA Scoping Report **[EN010133/APP/C6.3.2.1]** (see **Appendix 2.1** of the ES) submitted to the Planning Inspectorate (PINS) in January 2022. The Secretary of State's Scoping Opinion was received in March 2022 **[EN010133/APP/C6.3.2.2]** (see **Appendix 2.2** of the ES) including the formal responses received by PINS from consultees on the EIA Scoping Report.

2.2.3 Key issues raised in the Scoping Opinion are summarised at the start of each technical chapter of this ES and have been considered during the EIA process. In response to the Scoping Opinion and through further discussion with PINS, the EIA and this ES include assessments for the following environmental aspects:

Chapter 7. Climate Change

Chapter 8. Landscape and Visual Impact

Chapter 9. Ecology and Biodiversity

Chapter 10. Hydrology, Flood Risk and Drainage

Chapter 11. Ground Conditions and Contamination

Chapter 12. Minerals

Chapter 13. Cultural Heritage

Chapter 14. Transport and Access

Chapter 15. Noise and Vibration

Chapter 16. Glint and Glare

Chapter 17. Air Quality

Chapter 18. Socio-Economics and Tourism and Recreation

Chapter 19. Soils and Agricultural Circumstances

Chapter 20. Waste

- 2.2.4 Notably, at the time of the scoping process the Applicant proposed separate EIA Chapters for Built Heritage and Archaeology. It has subsequently been agreed with PINS to present the assessment of these aspects in a combined Cultural Heritage Chapter (Chapter 13).
- 2.2.5 In addition, at the scoping stage the Applicant proposed to present Soils and Agricultural Circumstances within the Socio Economics and Tourism and Recreation Chapter. It has subsequently been agreed with PINS to have separate Chapters (18 and 19 respectively) for these aspects.
- 2.2.6 The EIA Scoping Opinion confirmed that several aspects did not require a full chapter within the ES because they were not considered likely to give rise to significant effects. These aspects are described in Chapter 21 (Other Environmental Aspects), these being the following aspects: Human Health; Electromagnetic Fields; Major Accidents and Disasters; Telecommunication, Utilities and Television; and Light Pollution.

2.3 Rochdale Envelope

- 2.3.1 The Scheme that is the subject of this ES has been assessed adopting a Rochdale Envelope approach to provide flexibility in the DCO Application, to address uncertainties in the Scheme design and to allow for the most up to date technology possible to be utilised at the time of construction.
- 2.3.2 In order to establish parameters for assessment within the Rochdale Envelope, a set of 'Concept Design Parameters and Principles' have been established **[EN010133/APP/C7.15]**. The use of the Rochdale Envelope approach and the Concept Design Parameters and Principles are discussed in greater detail in Chapter 4 of the ES, (Scheme Description) **[EN010133/APP/C6.2.4]**.
- 2.3.3 In addition to the Concept Design Parameters and Principles, an Illustrative Layout Plan has been produced for each of the Solar Array Sites to provide a visual representation of a tangible example of a scheme that could be constructed (based on the Concept Design Parameters). The Illustrative Layout Plans enable a robust assessment of likely significant environmental effects to be undertaken within this ES, for aspects where the nature of the assessment methodology requires a specific level of detail, namely the landscape and visual, cultural heritage, and noise assessments. The Illustrative Layout Plans (Figures 4.1 – 4.8) are provide as part of Chapter 4 of the ES.
- 2.3.4 In addition to the Illustrative Layout Plans, the Cable Route Corridor which will accommodate the cable circuits connecting the Solar Array Sites to the POC has been defined on the Location Plan which indicates the Order Limits. This allows for

environmental constraints to be identified within (and beyond) this area of land, construction solutions proposed and the significant environmental effects assessed.

- 2.3.5 The approach to the Rochdale Envelope is described further in Chapter 4 of the ES, Scheme Description.

2.4 Assessment of Impacts

- 2.4.1 Each of the technical assessments for the environmental aspects has been undertaken using the following approach:

Baseline Conditions

- 2.4.2 In order to evaluate likely significant environmental effects, existing baseline conditions have been identified through a combination of desktop and physical surveys, and monitoring. This involves the Scheme Sites as well as the surrounding area. Once the baseline conditions have been established, this is used to assess the sensitivity of receptors on and near the Scheme and what changes may take place during the construction, operation and decommissioning of the Scheme. Any effects on these receptors is assessed in full in the ES.

- 2.4.3 The data collected to establish the baseline conditions has been gathered from a variety of sources, including the following:

- a) Physical surveys and monitoring;
- b) Publicly accessible records and databases; and
- c) Environmental survey information that has been submitted for other development in the area.

- 2.4.4 The methods of data collection have been discussed with the relevant statutory and non-statutory consultees as appropriate, and this engagement and consultation has been on-going up to submission of the DCO Application. Consideration has also been given to how the baseline conditions will evolve, (the 'future baseline') over the period during which the Scheme is proposed to be constructed, operated and decommissioned.

Spatial Scope

- 2.4.5 The topic chapters in the ES describe and justify the spatial scope of each assessment, including the rationale for determining the specific area within which an assessment is focussed, referred to as 'study areas'. These study areas are usually defined by the nature of potential impacts and the locations of potentially affected environmental resources or receptors.

Temporal Scope: Assessment Years

- 2.4.6 *Construction Phase.* For the purposes of the assessment, the two year construction phase effects are effects that are anticipated to result from activities during site preparation / enabling works, construction, and commissioning activities e.g. effects such as construction traffic, noise and vibration from construction activities, dust

generation, site runoff, mud on roads, and the visual intrusion of plant and machinery on site. Some aspects of construction will last longer than others.

- 2.4.7 *Operational Phase.* These are effects associated with operation and maintenance activities during the generating lifetime of the Scheme, including the effects of the physical presence of the solar arrays and their use and maintenance. Timescales associated with these effects are defined in each relevant aspect chapter. In EIA terms, effects are defined as short term (lasts for up to 12 months); medium term (lasts for 1 - 5 years); long term (more than 5 years); reversible long-term effects (long-term effects, which last for the lifetime of the Scheme, but which cease once it has been decommissioned; and permanent effects (those which cannot be reversed following decommissioning).
- 2.4.8 *Decommissioning Phase.* Effects are those arising from activities for the duration of the decommissioning stage (which for the purposes of the assessment is expected to take between 12 and 24 months) and will likely be short term e.g. site traffic, noise and vibration from decommissioning activities, dust generation, site runoff etc.
- 2.4.9 *Assessment Years.* The EIA will consider the environmental impacts of the Scheme at all three stages described above. The operational period for the Scheme is anticipated to be approximately 40 years and this time period has been assessed in this ES.
- 2.4.10 The 'existing baseline' year for assessment will be 2021 as this is the date on which baseline studies for the project were commenced. A future baseline is also considered within the ES for certain assessments. The future baseline considers factors that will change the current baseline, without the Scheme proceeding. Committed developments are one factor that can influence the future baseline (these 'committed developments' are defined as those that currently have the benefit of planning permission or are allocated in adopted development plans). The potential effects of the Scheme are considered against both the current baseline and the future baseline in the EIA where relevant.
- 2.4.11 The assessment scenarios that have been considered for the purposes of the EIA are:
- a) Existing Baseline 2021.
 - b) Main construction works 2024 – 2026. More detailed consideration of the main construction works durations for the Solar Array Sites and Cable Route Corridor are set out in Chapter 4.
 - c) 'Shared Cable Route Corridor' construction works (notably, where part of the Gate Burton Energy Project cable route and West Burton Solar Project cable route will fall within the cable corridor that also accommodates the Scheme's cable). A five year period has been taken into account in the EIA (to 2029) as a worst case cumulative scenario, to consider the environmental effects of the combined and sequential construction of these cables (albeit the Cottam cables from Cottam 1 to the POC is expected to be constructed by 2026).

- d) Operation 2026. It has been assumed for the purposes of the EIA that the Scheme will be operational by end of Q4 2026.
- e) Decommissioning 2066. This would be the year when decommissioning of the Scheme would commence and has been based on a typical 40-year operational lifetime for solar projects. It has therefore been assumed for the purposes of the EIA that the Scheme will be decommissioned in approximately 2066 (albeit the DCO will not specify a specific decommissioning date).
- f) A future year of 2041 (15 years post opening of the Scheme) will be considered for the landscape and visual assessment i.e. 15 years after planting which is the typical period for the maturation of landscape planting.

Assessment of likely effects

- 2.4.12 The significance of impacts within the environmental aspect chapters is evaluated with reference to definitive standards, accepted criteria, technical guidance or legislation where these exist, for each technical study. Where it is not possible to quantify impacts, and where a qualitative or semi-qualitative assessment is made, a logical framework for the assessment is provided.
- 2.4.13 Where guidance is available for defining sensitivity and magnitude (whether from professional guidance or government publications or bespoke definitions agreed with stakeholders) this is referred to. If such sources are available but have not been used then a justification for not using these are given.
- 2.4.14 Specific significance criteria definitions for impacts have been developed, giving due regard to both sensitivity of the receptor and magnitude of the effect.
- 2.4.15 Example definitions of the different sensitivity levels for a generic receptor are given in Table 2.1 below.

Table 2.1: Example Definitions of the Different Sensitivity levels for Receptors

Sensitivity	Definition
High	The receptor or resource has little ability to absorb the change without fundamentally altering its present character or it is of international or national importance.
Medium	The receptor or resource has moderate capacity to absorb the change without significantly altering its present character or is of high and more than local (but not national or international) importance.
Low	The receptor or resource is tolerant of change without detrimental effect, is of low or local importance.
Negligible	The receptor or resource can accommodate change without material effect, is of limited importance.

- 2.4.16 The methodology for determining the impact magnitude will be assessed using the following generic criteria:

Table 2.2: Magnitude Criteria

Magnitude	Definition
Major	The total loss or major change/substantial alteration to key elements/features of the baseline (pre-development) conditions, such that the post development character/composition/attributes will be fundamentally changed.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions, such that post development character/composition/attributes of the baseline will be materially changed.
Minor	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character/composition/attributes of the baseline conditions will be similar to the pre-development circumstances/situation.
Negligible	Very little change from baseline conditions. The change will be barely distinguishable and approximating to a non-change situation.
Neutral	No change from baseline conditions.

2.4.17 The general matrix to determine effects is shown below:

Table 2.3: Degrees of Significance

Sensitivity	High	Medium	Low
Magnitude			
High	Major	Major/Moderate	Moderate
Medium	Major/Moderate	Moderate	Moderate/Minor
Low	Moderate	Moderate/Minor	Minor
Negligible	Moderate/Minor	Minor	Negligible
Neutral	Neutral	Neutral	Neutral

2.4.18 Following the classification of an effect, clear statements will be made within the topic chapters as to whether that effect is significant or not significant. As a rule, major and moderate effects are generally considered to be significant, whilst minor and negligible effects are considered to be not significant. However, professional judgement will be applied, including taking account of whether the effect is permanent or temporary, its duration / frequency, whether it is reversible, and / or its likelihood of occurrence.

2.5 In-combination and Cumulative effects

2.5.1 In accordance with the EIA Regulations, 'cumulative effects' have been considered in each aspect chapter.

In-combination effects

2.5.2 The in-combination effects which have been assessed are:

- a) The combination of individual environmental effects on receptors when considered together (for example, the combined effects of noise, dust and visual effects on a particular receptor);
- b) The likely significant effects resulting from the combination of individual environmental aspects on receptors when considered together (for example, the combined effects of climate change on ground conditions);
- c) The combination of different elements of the construction works required for the Scheme on a particular receptor for example, the in-combination effects of the construction of the cable route and the energy storage facilities at the same time; and
- d) The combined effects of the four Solar Array Sites (i.e. Cottam 1, 2, 3a and 3b).

Cumulative effects

- 2.5.3 This ES gives consideration to the cumulative effects of the Scheme which will consist of the combined effects of the Scheme with other significant and relevant committed developments within the vicinity of the Scheme.
- 2.5.4 PINS Advice Note 17 identifies a four-stage approach to the assessment of cumulative effects which will be followed. In summary the following process has been undertaken:
- Stage 1 - Establish the Zone of Influence (ZOI) for each environmental aspect considered within the ES;
- Stage 2 - Identify the 'other existing development and/or approved development' which fall into those ZOI and assign a level of certainty to them, subject to the level of detail that is available;
- Stage 3 - Establish a shortlist of projects through the use of threshold criteria to ensure any projects which could have significant cumulative effects are taken forward as part of the assessment; and
- Stage 4 - Information gathering of the shortlisted projects. The information should be secured through a number of sources including LPA websites, PINS (if relevant), statutory bodies and relevant applicants/developers.
- 2.5.5 As reported in the Preliminary Environmental Information Report (PEIR) the ZOI for topic chapters was established and a 'Long List' of potential cumulative developments identified. Within the PEIR, each topic chapter identified those developments which had the potential to have, in combination with the Scheme, environmental effects on sensitive receptors. This was consulted on as part of the statutory consultation.
- 2.5.6 The Long List of Cumulative Schemes has been updated since the PEIR was published and is included at **Appendix 2.3** of the ES [EN010133/APP/C6.3.2.3]. This list has informed the short list presented within each technical chapter of this ES,

which for each technical discipline is topic specific, and based on their own methodology and justification, including:

- a) The scale of the other developments;
- b) The developments that fall within the ZOI of each environmental aspect; and
- c) If there is the potential for any temporal overlap between the Scheme and other developments.

2.5.7 Information relating to committed developments has been collected from the appropriate source including online LPA application portals, PINS or directly from the applicant / developer.

2.5.8 The approach for determining the significance of any cumulative effect is based upon the criteria presented in Section 2.4 above. Where there are minor, moderate, or major effects associated with the Scheme and there exists the potential for these to be affected by impacts from other developments, a statement is made in the relevant technical chapter on whether the cumulative effect is different to the residual effect associated with the Scheme. Where the cumulative effect differs to the residual effect, the chapter clarifies whether the cumulative effect is anticipated to be significant or not significant.

2.5.9 Notable substantial NSIP projects in close proximity to the Scheme are:

- a) West Burton Solar Project (currently subject to an EIA Scoping Opinion (March 2022 and Statutory Consultation Summer 2022. Working broadly to the same timescales as the Scheme);
- b) Gate Burton Energy Park (EIA scoping opinion issued December 2021 and Statutory Consultation Summer 2022);
- c) Tillbridge Solar (EIA Scoping opinion issued by PINS November 2022).

2.5.10 These projects and other potentially substantial committed developments are shown on the cumulative sites plan at **Figure 2.1** [EN010133/APP/C6.4.2.1] of this Chapter.

Shared Cable Corridor Route

2.5.11 Part of the Gate Burton Solar Park cable route and West Burton Solar Project cable route will be within the cable corridor that also accommodates the Scheme's cable. The cumulative environmental effects of the simultaneous or sequential construction of these cables has been assessed in this ES. This is in order to seek to minimise potential environmental effects and identify the benefits of combined construction activities.

2.5.12 Given the proximity of the proposed schemes and a common grid connection area, the Applicant and the developers of the Gate Burton Solar Park and West Burton Solar Project have worked collaboratively on design development and environmental avoidance mitigation to maximise opportunities for reducing overall environmental and social effects, in particular on communities in proximity to the

grid connection corridor and on known ecological and archaeologically sensitive areas adjacent to the River Trent.

2.5.13 The installation of common elements that will accommodate three cable connections in the future would provide the potential for environmental and community benefit by substantially reducing the amount of disturbance and levels of construction activity in the area. The three schemes are shown on the cumulative sites plan at **Figure 2.1**, and the Shared Cable Corridor is identified on the Works Plans [EN010133/APP/C2.4] and described in detail in Chapter 4 of the ES. The collaborative approach has facilitated the ability to reduce environmental impacts through:

- a) Provision of reduced numbers of construction accesses;
- b) Common construction routing options to grid connection working areas;
- c) Common construction compound and compound set up;
- d) Topsoil strip in sections and storage;
- e) Mark-out trench alignment;
- f) Excavation and installation of jointing pits;
- g) Use of common jointing pit dimensions;
- h) Installation of launch and exit pits for the River Trent directional drill;
- i) Trench excavation and placement of protective layer;
- j) Installation of cable ducts, either laid within the trench or via directional drill;
- k) Trench and jointing pit backfill and reinstatement.

2.5.14 The assessment of cumulative effects of the Shared Cable Corridor considers two scenarios:

- a) Cumulative Scenario 1: Construction of all three projects cable ducts at the same time; with the cables then subsequently pulled through separately, at the time of construction for each individual project. An 18 month construction duration has been assumed for this (which would see it them completed by 2026).
- b) Cumulative Scenario 2: Construction of all three projects' ducts and cables sequentially. A 5 year construction duration has been assumed for this which could see the final construction works completed by 2029.

2.5.15 Both scenarios assume haul road, bridges and compounds remain in place for each construction duration, and are then removed.

2.6 Mitigation Measures

2.6.1 Paragraph 7 of Schedule 4 of the EIA Regulations notes that an ES should include "A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent,

to which significant adverse effects on the environment are avoided, prevented, reduced or offset and should cover both the construction and operational phases.”

- 2.6.2 Mitigation measures specified can relate to both methods of construction or particular design elements that are to be incorporated within the completed Scheme.

Embedded Mitigation

- 2.6.3 The design process for the Scheme has been influenced by the findings of early environmental appraisals, the EIA process, engagement with key stakeholders and public consultation and numerous measures have been incorporated into the design to avoid, minimise, or mitigate environmental impacts. This approach, including the design evolution is described in Chapter 5 of the ES (Alternatives and Design Evolution **[EN010133/APP/C6.2.5]**).
- 2.6.4 Measures include those in respect of relevant policy, as well as measures that implement the requirements of good practice guidance. The initial assessment has been undertaken on the basis that these measures are incorporated in the design and construction practices. This is termed 'embedded mitigation'.
- 2.6.5 Embedded mitigation measures for the construction phase are set out in the Outline Construction Environmental Management Plan (CEMP) **[EN010133/APP/C7.1]** and ES Construction Traffic Management Plan **[EN010133/APP/C6.3.14.2]**, including measures such as construction and exclusion zones in relation to retained vegetation, ensuring tidy working areas, storing topsoil in accordance with good practice measures.
- 2.6.6 Implementation of embedded mitigation relied upon in the assessment will be secured by ensuring measures are described in Schedule 1 of the DCO (namely the 'Works' or the works packages (see draft DCO submitted with the Application **[EN010133APP/C3.1]**) or through the DCO 'requirements'.

Additional Mitigation

- 2.6.7 Consideration has been given to any 'additional mitigation' over and above the embedded mitigation that may be required to mitigate effects that cannot be fully mitigated through construction techniques and the design of the Scheme.
- 2.6.8 Each topic chapter describes the mitigation and explains how any additional mitigation will be secured (either via a specific DCO requirement or via a management strategy, plan, or document secured by a DCO requirement). A summary of this is presented in the ES.
- 2.6.9 The residual effects (after the implementation of mitigation) have then been assessed and are presented in each topic chapter.

Consideration of Alternatives

- 2.6.10 Regulation 14(2)(d) of the EIA Regulations requires an ES to include *“a description of the reasonable alternatives studied by the applicant, which are relevant to the*

proposed development and its specific characteristics, and an indication of the main reasons for the options chosen, taking into account the effects of the development on the environment”.

- 2.6.11 In addition, PINS Advice Note 7 states that a good ES is one that *“explains the reasonable alternatives considered and the reasons for the chosen option taking into account the effects of the Proposed Development on the environment”.*
- 2.6.12 Alternatives in respect of site selection, alternative cable routes and alternative design options are reported in **Chapter 5** of the ES.