

Heckington Fen Solar Park

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Environmental Statement | Volume 1: Technical Chapters

Chapter 2: EIA Methodology and Consultation

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CHAPTER 2: EIA METHODOLOGY AND CONSULTATION

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2 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY AND CONSULTATION

2.1 INTRODUCTION

2.1.1 This chapter of the Environmental Statement (ES) sets out the approach taken to the Environmental Impact Assessment (EIA) process, explaining the methodology used to prepare the technical chapters of this ES and describes its structure and content. In particular, it sets out the process of identifying and assessing the likely significant environmental effects of the Proposed Development. This chapter also includes details of the consultation undertaken and the overall approach to the assessment of the effects of the Proposed Development. Further details of topic specific methodologies, such as survey methods, are provided in the relevant ES topic chapters (**Chapters 6-18**) (document reference 6.1.6-6.1.18).

2.2 SCOPE OF ENVIRONMENTAL IMPACT ASSESSMENT

2.2.1 Scoping is the process of identifying the environmental topics that will require detailed assessment within the EIA process (establishing the scope of the assessment). Scoping is therefore an important preliminary procedure, which sets the context for the EIA process. Through scoping, the key environmental issues of concern are identified at an early stage, which permits subsequent work to concentrate on those environmental topics for which significant effects may arise as a result of a proposed development.

2.2.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017¹ as amended (hereafter referred to as the "EIA Regulations"), allow the Applicant to request that the Planning Inspectorate (on behalf of the Secretary of State) sets out its opinion (known as a Scoping Opinion) as to the issues to be addressed in the EIA process. Whilst there is no formal requirement in the EIA Regulations to seek a Scoping Opinion prior to the submission of an application, it is recognised best practice to do so.

2.2.3 On the 7th January 2022, the Applicant submitted a Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects and, where necessary, to determine suitable mitigation measures for the construction, operational and decommissioning phases of the Proposed Development. It also described those topics or sub-topics which are proposed to be scoped out of the EIA process and provided justification as to why the Proposed Development would not have the potential to give rise to significant environmental effects in these areas (see **Appendix 1.1- Heckington Fen Solar Park Scoping Report** (document reference 6.3.1.1))

2.2.4 Following consultation with the statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on the 17th February 2022 (see **Appendix 1.2- Scoping Opinion** (document reference 6.3.1.2)). This ES and EIA process has also taken into account Natural England's response which did not form part of the Secretary of State's Scoping Opinion. The Natural England's scoping response is attached at **Appendix 1.3- Natural England Scoping Response** (document reference 6.3.1.2)).

Topics Scoped in for the EIA Process

2.2.5 **Table 2.1** summarises the scope of the EIA process in the context of the requirements of Regulation 14(2) of the EIA Regulations. The environmental themes scoped into the ES are included in **Table 2.1**

¹ HMSO (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

Table 2.1: Summary of the ES Requirements (Regulation 14(2) of the EIA Regulations)

Required Information	Location within ES
(a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development;	Chapter 3: Site Description, Site Selection and Iterative Design Process (document reference 6.1.3)
(b) a description of the likely significant effects of the proposed development on the environment;	<ul style="list-style-type: none"> •Chapter 6 Landscape and Visual •Chapter 7 Residential Visual Amenity •Chapter 8 Ecology and Ornithology •Chapter 9 Hydrology, Hydrogeology, Flood Risk and Drainage •Chapter 10 Cultural Heritage •Chapter 11 Socio-Economic •Chapter 12 Noise and Vibration •Chapter 13 Climate Change •Chapter 14 Transport and Access •Chapter 15 Air Quality •Chapter 16 Land Use and Agriculture •Chapter 17 Glint and Glare •Chapter 18 Miscellaneous Issues (document reference 6.1.6-6.1.18) Cumulative effects and inter-relationship effects on the above factors are assessed under each environmental topic chapter under the headline 'Cumulative and Interactive Effects'
(c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;	
(d) 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 option chosen, taking into account the effects of the development on the environment;	Chapter 3: Site Description, Site Selection and Iterative Design Process (document reference 6.1.3)
(e) a non-technical summary of the information referred to in sub-paragraphs (a) to (d); and	Non-Technical Summary (document reference 6.4)
(f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.	Appendix 2.1 - Schedule 4 Requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended. (document reference 6.3.2.1)

Topics Scoped out of the EIA Process

2.2.6 The EIA Scoping Report (**Appendix 1.1- Heckington Fen Solar Park Scoping Report** (document reference 6.3.1.1)) concluded that several topics are not likely to cause significant effects, and therefore do not require a full chapter within the ES. **Table 2.2** describes the environmental themes scoped out of the ES.

Table 2.2: Environmental Topics Scoped out of the EIA Process

Environmental Topic	How/ Where Addressed / Reason for Scoping Out
Soil contamination	<p>There is no history of soil contamination on the Proposed Development site nor have activities taken place that would be a high risk to unknown soil contamination as the Energy Park site has always been in agricultural land use. Therefore, there is no reason to expect any form of land contamination of the Energy Park site. The land grade and soil structure of the Energy Park is considered and addressed within Chapter 16: Land Use and Agriculture (document reference 6.1.16). Additionally, Appendix 9.2- Ground Investigation Report (document reference 6.3.9.2) accompany Chapter 9: Hydrology, Hydrogeology and Flood Risk and Drainage (document reference 6.1.9) outlines the ground conditions, contamination and geotechnical testing of the Energy Park.</p>
Material Assets	<p>The EIA Regulations refer to 'material assets', including cultural heritage, architectural and archaeological aspects and landscape. The phrase 'material assets' has a broad scope, which may include an asset of human or natural origin, valued for heritage, landscape or socio-economic reasons. It is not considered that there are any further 'material assets' to those already addressed within the other EIA topics, such as Chapter 10: Cultural Heritage (document reference 6.1.10), Chapter 6: Landscape and Visual (document reference 6.1.6) and Chapter 11: Socio-Economics (document reference 6.1.11). Therefore, no separate consideration of 'material assets' is considered necessary. This approach was confirmed in Appendix 1.2- Scoping Opinion (document reference 6.3.1.2) provided by the Planning Inspectorate.</p>
Risk of Accidents and Major Disasters	<p>The nature, scale and location of the Proposed Development is not considered to be vulnerable to or give rise to significant impacts in relation to the Risk of Accidents and Major Disasters². Potential effects relating to soil conditions, surface water flooding and climate change are all considered in other EIA topics. Therefore, a standalone EIA chapter for 'Risk of Major Accidents and Disasters' was confirmed not to be included as specified in confirmed in Appendix 1.2- Scoping Opinion (document reference 6.3.1.2) provided by the Planning Inspectorate.</p> <p>During all phases of the development (construction, operation and decommissioning) the developer would implement measures to be in accordance with the relevant health and safety legislation, regulations, and industry guidance to ensure that risks are suitably controlled and managed (for instance in relation to working near to overhead power lines or electrical infrastructure).</p> <p>A draft Construction Methodology is provided in Chapter 4: Proposed Development (document reference 6.1.4), which has</p>

² No definition of 'major accidents and disasters' is provided in the EIA Regulations, however the IEMA Quality Mark Article on 'Assessing Risks of Major Accidents / Disasters in EIA' produced by WSP in 2016 provides the following definition "man-made and natural risks which are considered to be likely, and are anticipated to result in substantial harm that the normal functioning of the project is unable to cope with/rectify i.e., a significant effect."

Environmental Topic	How/ Where Addressed / Reason for Scoping Out
	<p>informed the Outline Construction and Environmental Management Plan (oCEMP) (document reference 7.7) submitted with the ES accompanying the DCO application.</p> <p>Risk of fire and explosion are addressed at Chapter 18: Miscellaneous Issues (document reference 6.1.18) where information regarding the measures in place designed to minimise impacts on the environment in the event of such an occurrence are detailed. Additionally, an Outline Energy Storage Safety Management Plan (oESSMP) (document reference 7.11) has been prepared to address safety concerns around Energy Storage Systems (ESS).</p>
Human Health	<p>The possible effect on human health has been considered within the EIA process but not within a standalone chapter. It has been considered within Chapter 11: Socio-Economics (document reference 6.1.11), Chapter 12: Noise and Vibration (document reference 6.1.12), and Chapter 15: Air Quality (document reference 6.1.15) and therefore the scope of effects on Human Health have been shaped by their assessment criteria and scope of works. This approach was confirmed in Appendix 1.2- Scoping Opinion (document reference 6.3.1.2) provided by the Planning Inspectorate.</p>

Transboundary Effects

2.2.7 The EIA Regulations require consideration of transboundary effects of development on the environment. Transboundary effects are the effects of a project on the environment of another European Economic Area (EEA) member state.

2.2.8 Paragraph 3 of Schedule 3 to the EIA Regulations requires that:

'the likely significant effects of the development on the environment must be considered... taking into account - ... (c) the transboundary nature of the impact'.

2.2.9 Further, at Schedule 4, the EIA Regulations state that the ES must include:

'the description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary... effects of the development'.

2.2.10 Regulation 32 of the EIA Regulations also obligates the Secretary of State (or Planning Inspectorate on behalf of the Secretary of State) to form a view on the potential for transboundary impacts and, where relevant, consult with relevant EEA states.

2.2.11 The Scoping Opinion provided by the Planning Inspectorate outlined given the nature, scale and location of the Proposed Development, the Inspectorate does not consider that it has the potential for significant transboundary effects on the environment of any EEA State. Subsequently the Planning Inspectorate issued a Transboundary Screening Opinion at **Appendix 2.2- Heckington Fen Solar Park Transboundary Screening** (document reference 6.3.2.2) concluding,

'the likelihood of transboundary effects resulting from the Proposed Development is so low that it does not warrant the issue of a detailed transboundary screening.'

2.2.12 Other than the size of the Proposed Development, which has been reduced following consultation, the characteristics and potential impacts of the Proposed Development have not changed from those previously assessed at Scoping stage. Therefore, transboundary effects have not been considered further in this ES.

2.3 GENERAL ASSESSMENT APPROACH

2.3.1 The ES must contain the information specified in regulation 14(2) and must meet the requirements of Regulation 14(3) and 14(4). It must also include any additional information specified in Schedule 4- Information for Inclusion in Environmental Statements of the EIA Regulations at (Regulation 14(2)) which is relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.

2.3.2 This ES has been prepared to satisfy the requirements of the EIA Regulations, comprising the following information detailed in Regulation 14(2), 14(3), 14(4) and Schedule 4 of the EIA Regulations below.

2.3.3 Regulation 14(2), 14(3) and 14(4) states: -

- (2) An environmental statement is a statement which includes at least—
- (a) a description of the proposed development comprising information on the site, design, size and other relevant features of the development;
 - (b) a description of the likely significant effects of the proposed development on the environment;
 - (c) a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
 - (d) 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 option chosen, taking into account the effects of the development on the environment;
 - (e) a non-technical summary of the information referred to in sub-paragraphs (a) to (d); and
 - (f) any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.
- (3) The environmental statement referred to in paragraph (1) must—
- (a) where a scoping opinion has been adopted, be based on the most recent scoping opinion adopted (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion);
 - (b) include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment; and
 - (c) be prepared, taking into account the results of any relevant UK environmental assessment, which is reasonably available to the applicant with a view to avoiding duplication of assessment.
- (4) In order to ensure the completeness and quality of the environmental statement—
- (a) the applicant must ensure that the environmental statement is prepared by competent experts; and
 - (b) the environmental statement must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts.

2.3.4 Schedule 4 states: -

1. A description of the development, including in particular—
- (a) a description of the location of the development;
 - (b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;

(c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;

(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases).

2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.

3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.

4. A description of the factors specified in regulation 5(2) 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.

5. A description of the likely significant effects of the development on the environment resulting from, inter alia—

(a) the construction and existence of the development, including, where relevant, demolition works;

(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;

(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;

(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);

(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;

(g) the technologies and the substances used.

The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council [Directive 92/43/EEC \(1\)](#) and [Directive 2009/147/EC \(2\)](#).

6. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.

7. 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.

8. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as [Directive 2012/18/EU](#) of the European Parliament and of the Council [\(3\)](#) or Council Directive 2009/71/Euratom [\(4\)](#) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.

9. A non-technical summary of the information provided under paragraphs 1 to 8.

10. A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.

2.3.5 In preparing the ES, reference has also been made to the following government or institute guidance and has been taken into account in the EIA process:

- Planning Act 2008: Guidance on the pre-application process for major infrastructure projects (Ministry of Housing, Community and Local Government, 2015);
- Overarching National Policy Statement for Energy (EN-1) (Department of Energy and Climate Change (DECC), 2011);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (DECC, 2011);
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (DECC, 2011);
- Draft Overarching National Policy Statement for Energy (EN-1) (2021);
- Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) (2021);
- Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (2021);
- National Planning Policy Framework (2021);
- Advice Note Three: EIA Consultation and Notification (Planning Inspectorate, 2017);
- Advice Note Six: Preparation and Submission of Application Documents (Planning Inspectorate, 2020a);
- Advice Note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping (Planning Inspectorate, 2020b);
- Advice Note Nine: Using the Rochdale Envelope (Planning Inspectorate, 2018);
- Advice Note Eleven: Working with Public Bodies in the Infrastructure Planning Process
- Advice Note Twelve: Transboundary Impacts and Process (Planning Inspectorate, 2020c);
- Advice Note Seventeen: Cumulative Effects Assessment (Planning Inspectorate, 2019);
- Environmental Impact Assessment Guide to: Shaping Quality Development (IEMA, 2015);
- Environmental Impact Assessment Guide to: Delivering Quality Development (IEMA, 2016);
- Health in Environmental Impact Assessment: A Primer for a Proportional Approach (IEMA, 2017a);
- Delivering Proportionate EIA: A Collaborative Strategy for Enhancing UK Environmental Impact Assessment Practice (IEMA, 2017b);
- IEMA Guide to: Materials and Waste in Environmental Impact Assessment-Guidance for a Proportionate Approach (IEMA, 2020a);
- Major Accidents and Disasters in EIA: A Primer (IEMA, 2020b);
- Institute of Environmental Management & Assessment (IEMA) Guide: A New Perspective on Land and Soil in Environmental Impact Assessment (IEMA, 2022); and
- Institute of Environmental Management & Assessment (IEMA) Guide: Assessing Greenhouse Gas Emissions and Evaluating their Significance. 2nd Edition (IEMA, 2022).

2.3.6 Further consideration of legislative and planning policy context is documented in **Chapter 5: Planning Policy** (document reference 6.1.5) of this ES.

2.3.7 A summary of national and local planning policy relevant to each technical assessment is provided as a subsection within the relevant ES topic chapters (**Chapters 6-18**) (document reference 6.1.6-6.1.8).

2.4 DEVELOPMENT PARAMETERS AND ROCHDALE ENVELOPE

2.4.1 The development of the design of the Proposed Development has been an iterative process, based on environmental assessments and consultation with statutory and non-statutory consultees. In order to maintain flexibility in the design and layout at this stage in the process, the assessment of the Proposed Development in this Environmental Statement will adopt the Rochdale Envelope approach, as described in the PINS Advice Note 9.

2.4.2 The Proposed Development, which has been the subject of this EIA, is described in more detail within **Chapter 3: Site Description, Site Selection and Iterative Design Process** (document reference 6.1.3) and **Chapter 4: Proposed Development** (document reference 6.1.4). Together, these contain the parameters and controls defining those aspects of the Proposed Development capable of having significant environmental effects, as defined in the EIA Regulations.

2.4.3 Where flexibility is required, guidance produced by the Planning Inspectorate with regard to the use of the 'Rochdale Envelope' approach³ has therefore been applied within the EIA to ensure a robust assessment of the likely significant environmental effects of the Proposed Development. This involves assessing the maximum (and where relevant, minimum) parameters, size (footprint, width, and height relative to above ordnance datum (AOD)), technology, and locations of the different elements of the Proposed Development for the elements where flexibility needs to be retained, recognising that the worst-case parameter for one technical assessment may differ from another.

2.4.4 Any assumptions made regarding the maximum design scenarios have been identified in each of the topic chapters and have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group.

2.4.5 To assist with the interpretation of the Rochdale Envelope, an accompanying Indicative Site Layout has been created to provide a visual representation against the set worst-case parameters, and the EIA process has assessed against **Figure 2.1- Indicative Site Layout** (document reference 6.2.2). The maximum parameters that have been used for the purpose of the ES assessment are set out in **Chapter 4: Proposed Development** (document reference 6.1.4).

2.4.6 Since the PEIR, environmental assessments have progressed and **Figure 2.1- Indicative Site Layout** (document reference 6.2.2) accompanying the DCO application has been amended to allow for mitigation through design in the Proposed Development. Details of the design progression of the indicative site layout is within **Chapter 3: Site Description, Site Selection and Iterative Design Process Development** (document reference 6.1.3).

2.4.7 The matters encapsulated within **Figure 2.1-Indicative Site Layout** (document reference 6.2.2) and detailed in in **Chapter 4: Proposed Development** (document reference 6.1.4) include:

- Structure heights within the Proposed Development, above and below ground works along the Cable Route Corridor and National Grid Bicker Fen Substation Extension works;

³ Planning Inspectorate's Advice Note 9: The Rochdale Envelope (Planning Inspectorate, 2018, version 3)

- Land Use – Habitat Enhancement Areas, Solar Panels, Energy Storage System, Onsite Substation, existing utilities and landforms such as drains and ditches;
- Access points from the highway to the Proposed Development, Cable Route Corridor and National Grid Bicker Fen Substation Extension works; and
- Onsite Facilities – Permissive Path and Community Orchard (to be accessed via agreement).

2.4.8 As is relevant for each technical discipline, alternative designs under the Rochdale Envelope approach have been assessed, in order to predict worst-case overall impacts. These have been used in the assessment of significance of effects. Each of the **Chapters 6 to 18** (document reference 6.1.6-6.1.18) describe the parameters applied in relation to the particular discipline. As the Proposed Development design has evolved, key elements of the design have been fixed. However, flexibility has been maintained for some aspects of the Proposed Development for the DCO application. Where flexibility has been retained in the Application, any changes to design parameters will remain within the likely worst-case envelope. Justification for the need to retain flexibility in certain parameters is outlined in **Chapter 3: Site Description, Site Selection and Iterative Design Process** (document reference 6.1.3).

2.4.9 To further assist with the assessment, an **Outline Design Principles** (document reference 7.1) has been developed that will guide (within the parameters) the size, type and colour of elements of the Proposed Development. The **Outline Design Principles** (document reference 7.1) will help secure design mitigation and has taken account of mitigation that has been identified through the EIA process.

2.5 EIA ASSESSMENT METHODOLOGY

2.5.1 The content of the ES is based on the following:

- Review of the baseline situation through existing information, including data, reports, site surveys and desktop studies;
- Specific consultations with appropriate bodies.
- Consideration of the relevant local, regional and national planning policies, guidelines and legislation relevant to the EIA such as the National Policy Statements (EN1⁴, EN3⁵ and EN5⁶), Draft National Policy Statements (EN1⁷, EN3⁸ and EN5⁹), National Planning Policy Framework (NPPF)¹⁰ and accompanying 'live' document National Planning Practice Guidance (NPPG), and the statutory extant and emerging development plan policies;
- Consideration of technical standards for the development of significance criteria and specialist assessment methodologies;
- Consideration of potential sensitive receptors;

⁴ Department of Energy & Climate Change, (2011); Overarching National Policy Statement for Energy (EN-1)

⁵ Department of Energy & Climate Change, (2011) Overarching National Policy Statement for Renewable Energy Infrastructure (EN-3)

⁶ Department of Energy and Climate Change (2011) Overarching National Policy Statement for Electricity Networks Infrastructure (EN-5)

⁷ Department for Business, Energy and Industrial Strategy (2021) Draft National Policy Statement for Energy (EN-1).

⁸ Department for Business, Energy and Industrial Strategy (2021) Draft National Policy Statement for Renewable Energy Infrastructure (EN-3).

⁹ Department for Business, Energy and Industrial Strategy (2021) Draft National Policy Statement for Electricity Networks Infrastructure (EN-5)

¹⁰ Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework

- Identification of likely significant environmental effects and an evaluation of their duration and magnitude;
- Expert opinion and professional judgement;
- Modelling and calculations; and
- Identification of any necessary additional mitigation or monitoring required.

2.5.2 Each topic chapter provides details of the methodology for baseline data collection and the approach to the assessment of effects. Each environmental topic has been considered by a specialist in that area.

2.5.3 Each topic chapter defines the scope of the assessment within the methodology section, together with details of the study area, desk study and survey work undertaken.

2.5.4 Environmental effects have been evaluated with reference to definitive standards and legislation where available. Where it has not been possible to quantify effects, assessments have been based on available knowledge and professional judgement.

2.6 STRUCTURE OF THE TECHNICAL CHAPTERS

2.6.1 Throughout the EIA process, the likely significant environmental effects of the Proposed Development has been assessed. The information which has informed the EIA process has generally been set out in the following way:

- 1) **Executive Summary** – short overview summarising the key effects of the chapter;
- 2) **Introduction** – to introduce the topic under consideration, state the purpose of undertaking the assessment and set out those aspects of the Proposed Development material to the topic assessment;
- 3) **Assessment Approach** – to describe the method and scope of the assessment undertaken and responses to consultation in relation to method and scope in each case pertinent to the topic under consideration;
- 4) **Consultation**- a description of the consultation feedback from the Scoping Opinion and Section 42 responses with commentary on how any issues raised has been considered and addressed in relation to the Proposed Development;
- 5) **Baseline Conditions** – a description of the baseline conditions pertinent to the topic under consideration including baseline survey information;
- 6) **Assessment of Likely Significant Effects** - identifying the likely effects, evaluation of those effects and assessment of their significance, considering the construction, operational and decommissioning phases and direct and indirect effects;
- 7) **Mitigation and Enhancement** - describing the mitigation strategies for the significant effects identified and noting any residual effects of the proposals;
- 8) **Cumulative and In-combination Effects** - consideration of potential cumulative and in-combination effects with those of other developments;
- 9) **Summary** – a non-technical summary of the chapter, including baseline conditions, likely significant effects, mitigation and conclusion; and
- 10) **Summary of Effects, Mitigation and Residual Effects Table** – a table summarising the significance of effects with the Proposed Development in place, mitigation and/or enhancement measures if applicable, and residual effects of the Proposed Development with mitigation and/or enhancement in place.

2.7 TERMINOLOGY

2.7.1 To ensure consistency of terminology used when distinguishing different areas within the Order Limits, definitions of terms are broadly defined below. Further details of

the site description, Proposed Development and operational components can be found in **Chapter 3: Site Description, Site Selection and Iterative Design Process** (document reference 6.1.3) and **Chapter 4: Proposed Development** (document reference 6.1.4) of this ES:

- a. Proposed Development: areas within the Order limits that are proposed for the ground mounted solar photovoltaic (PV) electricity generation, energy storage facility (also known as Energy Storage System (ESS)), underground cable route to, and above and below ground works at, the National Grid Bicker Fen Substation, and any associated ancillary infrastructure, including temporary construction compounds and security fencing- see **Figure 2.3: Proposed Development**;
- b. Energy Park: area within the Order limits that are proposed primarily for the ground mounted solar photovoltaic (PV) electricity generation and energy storage facility inclusive of the Onsite Substation and Energy Storage System (ESS)- see **Figure 1.3: Energy Park Boundary**;
- c. Cable Route Corridor: area within the Order limits that are proposed for the grid connection cable between the Onsite Substation and the National Grid Bicker Fen Substation and the new point of connection at National Grid Bicker Fen Substation- see **Figure 3.5: Indicative Cable Route**;
- d. Off-site Cable Route Corridor: a subsection area of the Cable Route Corridor within the Order limits for the proposed grid connection cable between the Energy Park boundary and the new point of connection at National Grid Bicker Fen Substation- see **Figure 3.5: Indicative Cable Route**;
- e. National Grid Bicker Fen Substation Extension Works: area within the Order limits for an extension to the National Grid Bicker Fen Substation required for the new electrical equipment necessary to connect the electricity generated by the Proposed Development into the National Grid infrastructure system- see **Figure 4.26: 400kV Bicker Fen NG Substation Layout & Section Details**;
- f. Habitat Enhancement Areas: areas within the Order limits that are proposed for green infrastructure, habitat creation, and a community orchard- see **Figure 4.1e: Proposed Ecological Enhancements for Operational Energy Park**;

2.7.2 Heckington Fen Solar Park, as the project title for the draft Development Consent Order document, is interchangeably referenced as Heckington Fen Energy Park within the ES documentation as the Proposed Development includes an energy storage element. Heckington Fen Solar Park, or Heckington Fen Energy Park, encompasses all components within the Proposed Development.

2.7.3 The Energy Park for the purpose of the EIA process and ease of reference, has been divided into a series of numbered fields based on the Energy Park's historical field system for agricultural use. The plan showing the field numbering system is provided at Figure 1.4- Field Plan (document reference 6.2.1).

2.7.4 For further details of key terms of the Proposed Development and key terms specific to technical chapters, see **Chapter 20: Glossary** (document reference 6.2.20).

2.8 DETERMINING THE BASELINE CONDITIONS

2.8.1 The existing and likely future environmental conditions in the absence of the Proposed Development are known as 'baseline conditions'. Each topic-based chapter includes a description of the current (baseline) environmental conditions. The baseline

conditions that currently exist within the Order limits and within the identified study area form the basis of the assessment, enabling the likely significant effects to be identified through a comparison with the baseline conditions.

2.8.2 Consideration has been given to how the baseline conditions would evolve in the absence of the Proposed Development, known as the 'future baseline'.

2.8.3 The consideration of future baseline conditions has also taken into account the likely effects of climate change, as far as these are known at the time of writing. This has been based on information available from the UK Climate Projections project, developed by the Met Office and Environment Agency (Met Office, 2018), which provides information on plausible changes in climate for the UK.

2.8.4 Topic authors have also considered other factors relevant to identification of future baseline conditions, such as trends in population size of protected species or changes in socio-economic conditions over time.

2.9 ASSESSMENT YEARS

2.9.1 The approach to assessment has incorporated the use of identified assessment years to allow for evaluation of the likely effects during the phased construction process, operation and decommissioning of the Energy Park. The following assessment years have been used to inform this ES:

- Existing Baseline (2021/22) – this is the principal baseline against which environmental effects has been assessed in which the baseline studies for the EIA are being undertaken. Some survey work has taken place in 2021, hence the spread in years for the existing baseline;
- Future Baseline (No Development) in 2026, 2027, 2067. These assessment years are explained below.
- Construction (2026) (With Development): – The peak construction years for the purpose of the EIA is anticipated to be 2026/27; this assumes commencement of construction in 2026 and that the Proposed Development is built out over a 30-month period. Site preparation works could take place in 2025 on-site. This is a likely worst case from a traffic generation point of view because it compresses the trip numbers into a shorter duration and represents the greatest impact on the highway network. A lengthened construction phase would likely result in lower traffic, air quality and noise impacts; therefore, the likely worst-case scenario has been assessed within the ES.
- Operation (2027) (With Development): – This is the opening year of the Proposed Development; this assumes that the Proposed Development will be operational during 2027 and is determined by the timeframe National Grid has stated within their Grid Offer for completion of the connection at Bicker Fen Substation.
- Decommissioning (2067/2068) – this is the proposed year when the design life of the Proposed Development has been achieved, albeit the assessment will be high level and qualitative and the operational life may extend beyond this date. It is proposed that the solar park and energy storage will be operational for 40 years.

2.10 DETERMINING SIGNIFICANCE OF EFFECTS

2.10.1 The purpose of the EIA is to identify the likely 'significance' of environmental effects (beneficial or adverse) arising from a Proposed Development. In broad terms, environmental effects are described as:

- Adverse – detrimental or negative effects to an environmental resource or receptor;
- Beneficial – advantageous or positive effect to an environmental resource or receptor; or
- Negligible – a neutral effect to an environmental resource or receptor.

2.10.2 Most predicted effects are either positive or negative and are described as such. However, in some cases it is appropriate to identify that the interpretation of a change is a matter of 'subjectivity'.

2.10.3 Effects are considered against three phases of the development; the construction phase, operational phase and decommissioning phase.

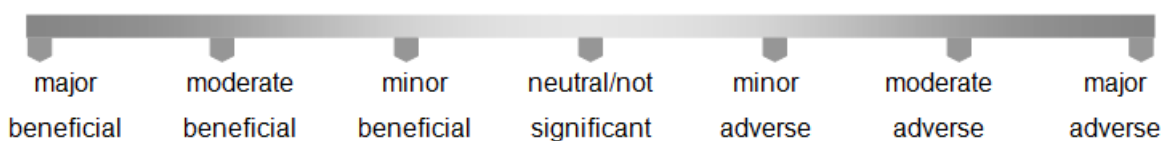
2.10.4 The construction phase effects are those effects that result from activities during enabling works, construction, and commissioning activities. This covers sources of effects such as construction traffic, noise and vibration from construction activities, dust generation, site runoff, mud on roads, 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.

2.10.5 Operational effects are the effects that are associated with operational and maintenance activities during the generating lifetime of the Proposed Development. This includes the effects of the physical presence of the energy infrastructure, and its operation, use and maintenance. The temporal scope of environmental effects is stated where known. Timescales associated with these enduring effects are as follows:

- Temporary – these are likely to be related to a particular activity and will cease when the activity finishes. The terms 'short-term' 'medium term' 'long-term' may also be used to provide further clarification.
 - Short term – a period of months, up to one year;
 - Medium term – a period of more than one year, up to five years; and
 - Long term – a period of greater than five years.
- Permanent – this typically means an unrecoverable change.

2.10.6 Decommissioning effects are changes resulting from activities beginning and ending during the decommissioning stage. This covers sources of effects such as decommissioning site traffic, recycling of solar PV panels, 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 of slightly less intensity.

2.10.7 It is proposed that the significance of environmental effects (adverse, negligible/neutral or beneficial) would be described in accordance with the following 7-point scale:-



2.10.8 Significance reflects the relationship between two factors:

- The magnitude or severity of an effect (i.e., the actual change taking place to the environment); and

- The sensitivity, importance or value of the resource or receptor.

2.10.9 The broad criteria for determining magnitude are set out in **Table 2.3**.

Table 2.3: Degrees of Magnitude and their Criteria

Magnitude of Effect	Criteria
High	Total loss or major/substantial alteration to elements / features of the baseline (pre-development) conditions such that the post development character / composition / attributes will be fundamentally changed.
Medium	Loss or alteration to one or more elements / features of the baseline conditions such that post development character / composition / attributes of the baseline will be materially changed.
Low	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible / detectable, but the underlying character / composition / attributes of the baseline condition will be similar to the pre-development.
Negligible	Very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable, approximating to a 'no change' situation.

2.10.10 The sensitivity of a receptor is based on the relative importance of the receptor using the scale in **Table 2.4**.

Table 2.4: Degrees of Sensitivity and their Criteria

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

2.10.11 Placement within the 7-point significance scale would be derived from the interaction of the receptor's sensitivity and the magnitude of change likely to be experienced (as above), assigned in accordance with **Table 2.5**, whereby effects assigned a rating of Major or Moderate would be considered as 'significant'.

Table 2.5: Degrees of Significance

Magnitude of Change	Sensitivity of Receptor			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible
Medium	Major	Moderate	Minor to Moderate	Negligible
Low	Moderate	Minor to Moderate	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

2.10.12 The above magnitude and significance criteria are provided as a guide for specialists to categorise the significance of effects within the ES. Where discipline-specific methodology has been applied that differs from the generic criteria above, this is clearly explained within the given chapter under the heading of Assessment Approach.

2.10.13 As can be seen from **Table 2.5** when an environmental effect is assessed as having a major or moderate degree of significance it is deemed to be "significant". These are the shaded cells in **Table 2.5**.

2.10.14 When such a significant effect occurs consideration of mitigation solutions or enhancements to minimise the effect (which can include design alterations) are considered. Once these mitigations and enhancements have been assessed the degree of significance may decrease to minor/moderate, minor or negligible.

2.11 ADDRESSING UNCERTAINTY IN ASSESSMENT

2.11.1 There is some degree of inherent uncertainty within the EIA process, in relation to factors such as future improvements to construction and design, the potential effects of climate change on existing receptors and in terms of the margin of error within forecasting or modelling tools. In all cases, where uncertainty exists, or where difficulties have been encountered, this has been identified within the relevant chapter of the ES, together with details of the measures that have been taken to reduce uncertainty as far as reasonably practicable. As the EIA process progresses, the degree of uncertainty is anticipated to reduce.

2.11.2 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.

2.11.3 Where modelling tools have been used within the topic assessments, care has been taken to ensure that the tool selected is appropriate for the assessment, taking into account topic-specific good practice and guidance. Calibration has been used to ensure a reasonable degree of accuracy in measurements. Topic chapters within the ES set out measures taken to address any uncertainty with regard to modelling inputs and outputs and any assumptions made.

2.12 MITIGATION

2.12.1 The EIA Regulations (Regulation 14(2)(c)) require that where significant effects are identified 'a description of any feature of the Project, or measures envisaged in order to avoid, prevent or reduce or, if possible, offset any likely significant adverse effects on the environment' should be provided.

2.12.2 The development of mitigation measures is part of the iterative EIA process. Therefore, measures are under consideration throughout the EIA process in response to the findings of initial assessments. The Proposed Development has had several measures incorporated into the concept design to avoid or minimise environmental impacts. In some cases, these measures may result in enhancement of environmental conditions.

2.12.3 Where mitigation measures are proposed that are specific to an environmental theme (i.e. ecological measures incorporated into the landscaping strategy etc) and incorporated into the design, these are also outlined within **Chapter 3: Site Description, Site Selection and Iterative Design Process** (document reference 6.1.3) and highlighted within the relevant technical chapter.

2.12.4 Where the assessment of the Proposed Development has identified potential for significant adverse environmental effects, the scope for mitigation of those effects has been considered and is outlined in the appropriate technical chapter. It is assumed that such measures would be subject to appropriate Development Consent Order (DCO) requirements.

2.12.5 Where the effectiveness of the mitigation proposed has been considered uncertain, or where it depends upon assumptions of operating procedures, then data and/or professional judgement has been introduced to support these assumptions.

2.12.6 The topic chapters included in this ES consider the following mitigation types:

- measures included as part of the Proposed Development design (sometimes referred to as mitigation by design or embedded mitigation)- this type of mitigation can best be described as modifications to the location or design of the development made during the design phase that are an inherent part of the Proposed Development and do not require additional action to be taken. Examples include amendments to site layout and massing to reduce visual effects, or identifying a key habitat or feature that should remain unaffected by the development's layout and operation;
- measures proposed to avoid effects occurring or to minimise environmental effects, and are not included within the design (referred to as additional mitigation); and
- measures proposed that bring additional benefits to the Proposed Development but are not necessary to make the development acceptable (referred to as enhancements).

2.12.7 Standard measures and the adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects, or to ensure realisation of beneficial effects, are assumed to have been incorporated into the design of the Proposed Development and the methods of its construction from the outset.

2.12.8 As the EIA process has progressed, further work in relation to mitigation measures has been undertaken and informed the design of the Proposed Development for which development consent is sought. This is reflected in the ES. The draft DCO has been developed to be consistent with the measures identified in the ES and any draft management plans, in order to ensure consistent implementation of the measures identified through the EIA process.

Residual Effects

2.12.9 Once mitigation measures are identified, effects are re-assessed taking account of the proposed mitigation applied and examination of residual effects i.e., the overall predicted (likely) effects of the Development.

2.12.10 Each technical chapter contains a description of the effectiveness of the proposed mitigation measures. An explanation of why an effect cannot be reduced by the implementation of mitigation measures has been provided where impacts are identified as still having a significant effect on the receptor taking into account any mitigation that can be applied to it.

2.13 CUMULATIVE AND IN-COMBINATION EFFECTS

2.13.1 Cumulative effects are assessed under two types of relationships:

- 1) Inter-project effects: the combined effects of development schemes which may on an individual basis be insignificant but, cumulatively, have significant effect - for example, noise, dust and visual on one particular assessment; and
- 2) In-combination project effects: the combined effect of individual effects (for example noise, airborne dust or traffic) on a single receptor, but which together represent a significant cumulative effect.

Legislative Policy and Context

2.13.2 With respect to inter-project cumulative effects, the EIA Regulations state that consideration should be given to,

"...other existing and/or approved projects taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources..."

(Schedule 4, paragraph 5(e)) in relation to cumulative effects. No further guidance or requirement beyond the need for the requirement for an assessment of the interrelationships between types of effect is provided.

2.13.3 This is also re-iterated in the Overarching National Policy Statement for Energy EN-1 (DECC, 2011) stating that:

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

2.13.4 Schedule 4 Part 1 of the EIA Regulations requires:

"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:

- **The existence of the development;**
- **The use of natural resources;**
- **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.”**

2.13.5 In-combination effects arise where effects from one environmental element bring about changes in another environmental element. Examples of types of interactive effects may include, for example effects of water discharges on ecology or effects of landscaping on ecology. The potential for such effects are reviewed in the technical chapters of the ES.

2.13.6 Planning Inspectorate Advice Note Seventeen (Planning Inspectorate, 2019) provides a clear and systematic approach to cumulative effects which forms the basis of the cumulative effects assessment for the Proposed Development. The approach consists of a four-stage process which is further described below.

2.13.7 In relation to the assessment of inter-relationships, the Planning Inspectorate Rochdale Envelope Advice Note Nine (Planning Inspectorate, 2018), states that the assessment should: **‘...ensure that the assessment of the worst case scenario(s) addresses impacts which may not be significant on their own but could become significant when they inter-relate with other impacts alone or cumulatively with impacts from other development (including those identified in other aspect assessments).’**

Inter-project Cumulative Effects Assessment Approach

2.13.8 The EIA considers cumulative effects of the Proposed Development in combination with the environmental effects of other existing and/or approved developments on sensitive receptors identified through the EIA process. The scope of cumulative assessment includes identification of a long list of development within the appropriate Zone of Influence (ZoI) for each topic discipline, which forms the basis of the search area for the cumulative effects assessment. The cumulative effects assessment has drawn upon the method as set out within Advice Note Seventeen (Cumulative Effects Assessment), as published by PINS in August 2019.

2.13.9 **Table 2.6** identified the four-stage process to assess cumulative effects:

Table 2.6: Summary of the four-stage process for cumulative effect assessment

Cumulative Effect Assessment Stage	Description of Stage
Stage 1	Establish the National Significant Infrastructure Project’s Zone of Influence and identify long list of ‘other developments’.
Stage 2	Identify shortlist of ‘other developments’ for Cumulative Effects Assessment.
Stage 3	Information gathering of the ‘other developments’.
Stage 4	An assessment of the likely cumulative effects. Mitigation measures are identified (where appropriate) where an adverse cumulative effect is identified. The apportionment of effect between the Proposed Development and the ‘other developments’ is considered, e.g., whether the contribution to the effect is demonstrably related to one development or whether there is an equal contribution from either development.

Stage 1

Establishing the long list

2.13.10 A review of other developments has been undertaken, initially encompassing a 'Zone of Influence' defined by the environmental topic specialists to prepare a long list of 'other developments'.

2.13.11 The long list of other existing and/or approved development has been established using the tiered approach in accordance with Planning Inspectorate's Advice Note Seventeen: Cumulative Effects Assessment (Planning Inspectorate, 2019) Table 2- Assigning certainty to 'other existing development and/or approved development'.

2.13.12 Developments included in the initial long list are based on the following criteria:

1. Large-scale development currently under construction;
2. Approved applications which have not yet been implemented;
3. Large-scale submitted applications not yet determined;
4. Refused large-scale applications, subject to appeal procedures not yet determined;
5. On the National Infrastructure Planning Programme of Projects;
6. Development identified in the relevant Development Plan (and emerging Development Plans); and
7. Development identified in other plans and programmes which set the framework for future development consents/approvals where such development is reasonably likely to come forward.

2.13.13 Criteria are developed and applied to filter developments which may be excluded from the initial long list, having regard to the size and spatial influence of each development. Reasons are identified for inclusion or exclusion from cumulative assessment. This long list was collated prior to finalisation of the ES chapter, as required, and was up to date as of end of December 2022.

2.13.14 Where 'other developments' are completed before construction of the Proposed Development the effects from them should be considered as part of the baseline and are considered as part of both the construction and operational assessment.

Zone of Influence

2.13.15 The 'Zone of Influence' for each environmental topic area has been identified based on the extent of likely effects as identified as the study area in each of the individual topic chapters (**Chapters 6 – 18** (document reference 6.1.6-6.1.18)) of this ES. The 'Zone of Influence' has been identified in line with industry specific guidance along with professional judgement and knowledge of the local area relevant to each environmental topic area. The identified 'Zone of Influences' are presented in **Table 2.7** below for the scoped in topic chapters.

Table 2.7: Zone of Influence Identified for the Cumulative Effects Assessment

Environmental Topic		Zone of Influence
Landscape and Visual		Landscape and visual receptors: 3km from Order limits
Residential Amenity	Visual	Residential Visual Amenity receptors: 1km from Order limits
Ecology and Ornithology		<ul style="list-style-type: none"> • Internationally designated sites: 10km from Order limits • Nationally designated sites: 5km from Order limits • Locally designated sites: 5km from Order limits

Environmental Topic	Zone of Influence
	<ul style="list-style-type: none"> Protected species records: 5km from Order limits Surveys – most surveys limited to Order limits boundary and immediate vicinity but will extend to 500m for great crested newt (GCN) ponds and winter bird survey will include adjacent fields where access allows.
Hydrology, Hydrogeology, Flood Risk and Drainage	Hydrological and hydrogeological receptors within a 5km radius from the Order limits, based on the hydrological and hydrogeological connectivity of water bodies located in the vicinity of the Proposed Development.
Cultural Heritage	Cultural Heritage receptors: 5km from Order limits
Socio-Economic	North Kesteven District Council, Boston Borough Council and Lincolnshire County Council
Noise and Vibration	<ul style="list-style-type: none"> 250m from Energy Park Boundary 1km from Energy Park Substation 500m from Cable Route Corridor
Climate Change	Climate change influence determined by identified receptors and their subsequent study areas in individual scoped in topic chapters.
Transport and Access	Extent of the local road network affected by the construction and decommissioning phases, as well as any identified sensitive receptors (A17)
Air Quality	5km from Order limits
Land Use and Agriculture	Order limits and adjoining agriculture land where relevant. Due regard has been given to the implication of land use and agriculture in a Lincolnshire-wide context for completeness
Glint and Glare	5km from Order limits

2.13.16 **Appendix 2.3- Cumulative Sites Long List and Shortlist** (document reference 6.3.2.3) presents the identified long list of existing and/or approved developments within the search area and sets out the threshold criteria applied to identify the shortlist of existing and/or approved developments for each environmental topic.

Stage 2

2.13.17 There is no formal guidance on the size of a ‘Study Area’ when considering the cumulative impact of a development. Factors such as topography of a landscape can affect the extent of a visual envelope for cumulative or sequential views; flight lines for birds moving from a roosting to a feeding ground could affect the cumulative impact on ecology. As a result, consideration was given to the known environmental constraints on and around the Proposed Development to determine what factors could affect extent of cumulative sites.

2.13.18 To ensure that the cumulative assessment is proportionate a threshold criterion has been applied to the long list in order to establish a shortlist. The criteria ensures that only other existing and/or approved development, which is likely to result in significant cumulative effects, is taken forward to the assessment stage. The threshold criteria used considers the following factors based on Advice Note 17 to ensure the shortlisting process is proportionate:

- Temporal scope: **“The applicant may wish to consider the relative construction, operation and decommissioning programmes of the ‘other existing development and/or approved development’ identified in the ZOI together with the NSIP programme, to establish whether there is overlap and any potential for interaction.”;**

- Scale and nature of the development: **“The applicant may wish to consider whether the scale and nature of the ‘other existing development and/or approved development’ identified in the ZOI are likely to interact with the proposed NSIP. Statutory definitions of major development and EIA screening thresholds may be of assistance when considering issues of scale”;**
- Other factors such as, nature and capacity of the receiving environment, source-pathway-receptor approach: **“The applicant should consider whether there are any other factors, such as the nature and/ or capacity of the receiving environment that would make a significant cumulative effect with ‘other existing development and/or approved development’ more or less likely and may consider utilising a source-pathway receptor approach to inform the assessment”;**
- Documentation: **“The shortlisting process may be documented using Matrix 1 (Appendix 1) [to Advice Note 17]. The reasons for excluding any development from further consideration should be clearly recorded. This will provide decision makers, consultation bodies and members of the public with a clear record of ‘other existing development and/or approved development’ considered and the applicant’s decision making process with respect to the need for further assessment”;** and
- Professional judgement.

2.13.19 The Scoping Opinion response from the Planning Inspectorate (**Appendix 1.2** (document reference 6.3.1.2)) stated that the search area for cumulative sites should not just consider a search area for the Energy Park, but also a search area for the Proposed Development (Cable Route Corridor and above and below ground works at National Grid Bicker Fen Substation) due to the need for improvement works at Bicker Fen Substation to allow for the connection of the Energy Park to the grid system.

2.13.20 The Planning Inspectorate also made the request that other NSIP schemes should be considered within the cumulative assessment to determine whether regional scale likely significant effects could occur with other large scale solar projects. These NSIP schemes consist of those within Lincolnshire and Rutland County Council areas.

2.13.21 Following on from the Scoping Opinion and Section 42 Responses the shortlist for ‘other developments’ has been reviewed and the list of sites to be considered within the EIA has been expanded. The list is presented in three tiers as defined by Advice Note 17. Cumulative developments are grouped into tiers, reflecting the likely degree of certainty attached to each development, with Tier 1 being the most certain (permission granted, or application submitted), Tier 2 being at EIA Scoping stage, and Tier 3 least certain and most likely to have limited publicly available information to inform assessments (e.g., proposals for which the Planning Inspectorate or Local Planning Authority has been notified, but for which no details have been provided).

2.13.22 A new South Lincolnshire Reservoir as a Strategic Regional Water Solution is currently being proposed by Anglian Water and Water Resources East. A Preliminary Feasibility Assessment for the South Lincolnshire Reservoir was undertaken in July 2021. The location of the new reservoir was revealed in September 2022 approximately 7.7km west of the Proposed Development. Although the scheme does not fall under Tier 1, 2 or 3 list of projects to be cumulatively considered pursuant to Advice Note 17, it has been deemed necessary to include with the shortlist for consideration due to the size, nature and location of the scheme.

2.13.23 The cumulative assessment within the ES considers the following sites:

Table 2.8: Details of Shortlist Cumulative Schemes

	Name of Scheme	LPA	NSIP	Reference Number	Size of Scheme	Distance from Application Site
Tier 1 Sites						
1	Vicarage Drove – Approved	BBC ¹¹	No	B/21/0443	49.9MW	c. 4.5km south of the Energy Park Site at its closest point but adjacent to the proposed extension to the substation at Bicker Fen
2	Land West of Cowbridge Road, Bicker Fen, Boston-Full Planning Application awaiting decision	BBC SHC ¹²	No	B/22/0356 H04-0849-22	49.9MW	c. 5.3km south of the Energy Park Site at its closest point to main site, but adjacent to the site boundary cable route
3	Land to the North of White Cross Lane – Approved	NKDC	No	19/0863/FUL	32MW	c. 8.4km west of the Energy Park Site at its closest point
4	Land South of Gorse Lane, Silk Willoughby – Approved	NKDC	No	19/0060/FUL	20MW	c. 11km west of the Energy Park Site at its closest point
5	Boston Alternative Energy Facility	PINS-BBC	Yes	EN010095	50MW + (NSIP)	c. 11.7km west of the Energy Park Site at its closest point
6	Mallard Pass Solar Farm	PINS - SKDC ¹³	Yes	EN010127	50MW + (NSIP)	c.33.2km south-west of the Energy Park Site at its closest point
Tier 2 Sites						
7	Outer Dowsing Offshore Wind (Generating Station)	PINS-		EN010130	Up to 1.5GW	c. 390m east to the onshore scoping boundary for indicative grid connection search area
8	Temple Oaks	PINS - SKDC, NKDC, BBC, SHC	Yes	EN010126	50MW + (NSIP)	c.18.4 km south-west of the Energy Park Site at its closest point
9	West Burton Solar Project	PINS - BDC ³ & WLDC	Yes	EN010132	50MW + (NSIP)	c.41.3km north-west of the Energy Park Site at its closest point
10	Cottam Solar Project	PINS - BDC ¹⁴ & WLDC	Yes	EN010133	50MW + (NSIP)	c. 43.6km north-west of the Energy Park Site at its closest point

¹¹ Boston Borough Council¹² South Holland District Council¹³ South Kesteven District Council¹⁴ Bassetlaw District Council and West Lindsey District Council

	Name of Scheme	LPA	NSIP	Reference Number	Size of Scheme	Distance from Application Site
11	Tillbridge Solar Project	PINS-BDC & WLDC	Yes	EN010142	50MW + (NSIP)	c. 47.9km north-west of the Energy Park Site at its closest point
12	Gate Burton Energy Park	PINS – BDC ³ & WLDC	Yes	EN010131	50MW + (NSIP)	c.48.6km north-west of the Energy Park Site at its closest point
Tier 3 Sites						
13	Land at Ewerby Thorpe – Screening	NKDC	No	14/1034/EIASCR	28MW	c. 4.1km north-west of the Energy Park Site at its closest point
14	Land at Little Hale Fen-Screening	NKDC ¹⁵	No	21/1337/EIASCR	49.9MW	c. 4.6km north-east of the Energy Park Site at its closest point
Unregistered						
15	South Lincolnshire Reservoir	PINS	Yes	TBC	TBC	c. 7.7km west of the Energy Park Site at its closest point

2.13.24 These cumulative sites are shown on **Figure 2.2a- Cumulative Plan - Shortlisted (Regional Context)** and **Figure 2.2b- Cumulative Sites- Shortlisted (Local Context)** (document reference 6.2.2).

2.13.25 The cumulative shortlist of 'other developments' was made available to all technical teams undertaking the EIA for consideration in the individual assessment of cumulative effects, presented in the technical chapters. Within each technical chapter detail is provided as to which cumulative developments have been assessed.

2.13.26 Where schemes have been discounted, they will continue to be monitored to ensure that any changes to those schemes are identified and their omission from the shortlist is reassessed.

Stage 3

2.13.27 A desk study search of the environmental information available for each of the 'other developments' has been undertaken. This included searching on Local Planning Authorities and the Planning Inspectorate websites. The information gathered has been used to identify the likely significant cumulative effects. In ongoing consultations with Lincolnshire County Council, North Kesteven District Council and Boston Borough Council, requests have been made to determine if there are any other schemes, which may not be in the wider public domain, which should be included within the cumulative assessment to try and ensure that the list of 'other developments' is robust.

Stage 4

2.13.28 The assessment of likely cumulative effects will be undertaken to an appropriate level of detail commensurate with the information available on other existing and/or approved developments within each technical chapter of the ES. Measures will be set out envisaged to reduce or avoid any identified significant adverse cumulative effects and, where appropriate, any proposed monitoring arrangements.

¹⁵ North Kesteven District Council

2.13.29 The assessment within each topic chapter includes a list of those developments considered to have the potential to generate a cumulative effect together with the Proposed Development. The assessment does not aim to assign significance levels (such as negligible, minor, moderate or major) for the identified effects. Instead, the assessment is used to identify where there is the potential for cumulative effects to occur and to provide details of whether cumulative effects are likely to be significant or not. A statement is made as to whether the cumulative effect would be worse or better than the effects predicted for the Proposed Development alone, whether the cumulative effects have the potential to be more significant than the effects of the Proposed Development alone and, if so, whether this would be adverse or beneficial.

2.13.30 **Chapter 19: Summary** (document reference 6.1.19) provides a summary of the Inter-Project Cumulative Effects in **Table 19.4** to provide clarity.

In-Combination Cumulative Effects Assessment Approach

2.13.31 As set out in Section 2.13 'Legislative Policy and Context' of the ES, the Planning Inspectorate Advice Note 17: Cumulative Effects Assessment (Planning Inspectorate, 2019) has formed the basis of assessing cumulative effects between the Proposed Development and other developments. The advice note does not however provide any guidance on assessing effect interactions resulting from different types of effects generated by the Proposed Development having an in-combination effect on the same receptors.

2.13.32 Guidance prepared by Hyder Consulting for the European Commission¹⁶ defines effect interactions, differentiating them from cumulative effects between the Proposed Development and other developments, and provides some high-level guidance on how the results of the assessment should be presented. The assessment methodology presented below is based on this high-level guidance with professional judgement applied to inform the details of the methodology.

2.13.33 The approach to assessing effect interactions has followed a three-stage process, as outlined in the following paragraphs.

Stage 1- Topic-specific Assessment of Likely Significant Effects

2.13.34 The Assessment of Likely Significant Effects is presented in each of the individual environmental topic chapters and comprises the individual assessments of residual effects on receptors across the construction, operation and decommissioning phases of the Proposed Development. The mitigation by design, additional mitigation and enhancements proposed in technical chapters is assumed to be implemented before consideration of the in-combination cumulative effects. Therefore, residual effects identified in **Chapters 6 to 18** (document reference 6.1.6-6.1.18) of this ES have been considered.

Stage 2- Identification of Receptors

2.13.35 Stage 2 identifies 'receptor groups' found within the technical chapters that require further assessment for in-combination effects. Not every individual receptor assessed within technical chapters is assessed, but rather but rather potentially sensitive 'receptor groups' are identified through the EIA process. Only receptors that are expected to incur more than one potential effect have been included in the assessment.

¹⁶Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions, Hyder Consulting UK Limited, 1999

2.13.36 Receptors predicted to be affected by only a single effect are excluded because there is considered to be no potential for in-combination effects to take place. It should be noted that uncertainty in the assessment of effects, for most of the technical chapters in this ES, is dealt with by making conservative, or worst-case, assumptions.

Stage 3- In-Combination Effect Assessment

2.13.37 An assessment is made of the potential for in-combination effects to arise for identified receptor groups for the construction, operation and decommissioning phase of the Proposed Development. This involves the assessment of the scope for all effects to interact, spatially and temporally, to create inter-project effects on a receptor group.

2.13.38 Where the in-combination effects of the Proposed Development would likely lead to a change in the significance of effects at a receptor group, when compared with considering these impacts in isolation, the in-combination effect would be determined as Significant.

2.13.39 Where the in-combination effects of the Proposed Development are likely to not lead to a change in the significance of effects at a receptor group, when compared with considering these impacts in isolation, the in-combination effect would be determined as Not Significant.

2.13.40 **Chapter 19: Summary** (document reference 6.1.19) provides a summary of the In-Combination Cumulative Effects in **Tables 19.5-19.6** to provide clarity.

2.14 GENERAL ASSUMPTIONS AND LIMITATIONS

2.14.1 The principal assumptions that have been made and any limitations that have been identified in preparing this ES are set out below:

- All of the principal land uses adjoining the Proposed Development remain as present day, except where redevelopment proposals have been granted planning consent. In those cases, it is assumed the redevelopment proposals will be implemented or would but for the development being implemented;
- Information received from third parties is complete and up to date;
- The design, construction and completed stages of the Proposed Development will satisfy legislative requirements; and
- Requirements will be attached to the DCO with regards to "mitigation", where considered necessary to make the development acceptable.

2.15 CONSULTATION

2.15.1 The consultation process is described in the **Consultation Report** (document reference 5.1) that accompanies the DCO application. That document sets out the consultation activities undertaken, including with the EIA "consultation bodies" (as defined in Regulation 3 of the EIA Regulations), the responses received, and explains where the comments have been addressed in the Application, or regard has been had to the comments by the Applicant.

2.15.2 The approach to public consultation is captured within the Statement of Community Consultation (SoCC). Consultation under Section 47 of the Planning Act took place in accordance with the SoCC published beforehand by the Applicant. The SoCC made clear that the Proposed Development constituted EIA development.

2.15.3 As set out in the **Consultation Report** (document reference 5.1), from October 2021 and throughout the pre-application phase to the time of writing, the Applicant has

engaged with the Planning Inspectorate (PINS), the local community and a range of statutory and non-statutory consultees and stakeholders.

Main Consultation Activities

EIA Scoping

2.15.4 On the 7th January 2022, the Applicant submitted a request to the Secretary of State under Regulation 8 of the EIA Regulations for an EIA scoping opinion, in which the matters that should be considered in the EIA are formally identified (see **Appendix 1.1 - Heckington Fen Solar Park Scoping Report** (document reference 6.3.1.1)).

2.15.5 The Scoping Opinion was provided by the Secretary of State on the 17th February 2022 and took account of representations by statutory bodies and other consultees.

Statutory Consultation- Section 42 and 47

2.15.6 Subsequently, the Applicant undertook statutory consultations on its proposals for the Proposed Development in accordance with the requirements of the Planning Act 2008 and the EIA Regulations as follows:

- Consultation as required by Section 42 of the Planning Act 2008 with statutory consultees including, relevant statutory bodies, local authorities, landowners and other interested parties on the Preliminary Environmental Information Report (PEIR);
- Consultation as required by Sections 47 and 48 of the Planning Act 2008 with the local community and the wider public (with a copy of the section 48 notice sent to "consultation bodies");
- Consultation as required by Sections 49 of the Planning Act 2008 to take account of any relevant responses received to the consultation and publicity that is required by Sections 42, 47 and 48.

2.15.7 The statutory consultation for the Proposed Development was held over a nine-week period between the 30th June 2022 and September 1st 2022 to enable the public to review the draft proposals and provide feedback.

2.15.8 A Preliminary Environmental Information Report (PEIR) was prepared for that consultation which was published with the consultation on the 30th June 2022. The purpose of a PEIR is to enable the local community and other consultees to understand the likely environmental effects of the Proposed Development so as to inform their responses to the consultation.

2.15.9 Further targeted consultation was held between 11 November 2022 and 18 December 2022 to seek feedback on aspects of the Proposed Development that had been amended as a result of design development. The reasons behind this further targeted consultation are described in the **Consultation Report** (document reference 5.1) submitted as part of the DCO Application.

2.15.10 The comments received in response to the statutory and targeted consultation exercises have been used to produce the **Consultation Report** (document reference 5.1) in accordance with Section 37 of the Planning Act 2008, which is included as part of the DCO application. The **Consultation Report** accompanies the application and summarises the views and comments received and outlines how regard has been had to those comments in the Proposed Development design and EIA.

2.15.11 Technical consultation responses, and where these have influenced the development and assessment of the project, is detailed in each technical chapter of the ES.

Meetings with Statutory Consultees and Stakeholders

2.15.12 A series of meetings has been undertaken with a range of statutory and non-statutory consultees and stakeholders with an interest in the Proposed Development. Feedback received at these meetings has been considered in the Development design. Where relevant, the meetings are referred to in the relevant technical chapters of this ES. These meetings are also reported in the Consultation Report.

Statements of Common Ground

2.15.13 The Applicant will endeavour to agree Statements of Common Ground (SoCG) on certain key technical issues to aid the Planning Inspectorate in understanding where there is agreement or outstanding points of discussion with stakeholders.