Fosse Green Energy

# Fosse Green Energy

EN010154

## 6.1 Environmental Statement

Chapter 15: Cumulative Effects and Interactions

VOLUME

6

Planning Act 2008 (as amended)

Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended)

18 July 2025

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulation 2009 (as amended)

Fosse Green Energy

Development Consent Order 202[ ]

# 6.1 Environmental Statement

# Chapter 15: Cumulative Effects and Interactions

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|---|---|
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# 15. Cumulative Effects and Interactions

## 15.1 Introduction

15.1.1 This chapter of the Environmental Statement (ES) addresses the potential for Cumulative Effects and Effect Interactions as a result of Fosse Green Energy (hereafter referred to as 'the Proposed Development').

15.1.2 The Cumulative Effects and Effect Interactions assessment considers the following types of effect:

a. **Effect Interactions** – these effects occur where a single receptor is affected by more than one impact associated with the Proposed Development, which have been identified as part of the assessments reported within **Chapters 6** to **14** of the ES **[EN010154/APP/6.1].** An example of an in-combination effect could be where a local resident is affected by dust, noise, and visual impacts during the construction of a project, with the overall result being a greater adverse effect on amenity than when each individual effect is considered in isolation.

b. **Cumulative Effects** – these effects occur where there is the potential for a number of developments that are reasonably foreseeable and/or consented, but not yet forming part of the baseline environment, within close proximity to the Proposed Development to lead to significant cumulative environmental effects on a shared receptor. **Chapters 6** to **14** of the ES **[EN010154/APP/6.1]** provide conclusions regarding where there are likely to be significant Cumulative Effects based on the other schemes outlined in this chapter.

15.1.3 This Chapter is supported by the following figures **[EN010154/APP/6.2]**:

a. **Figure 15-1: Zone of Influence (ZoI) Extents for Assessment of Potential Cumulative Effects**;

b. **Figure 15-2: Long List of Cumulative Developments**;

c. **Figure 15-3: Short List of Cumulative Developments**; and

d. **Figure 15-4: Solar Nationally Significant Infrastructure Projects in Relation to the Proposed Development**.

15.1.4 This Chapter is supported by the following appendix **[EN010154/APP/6.3]**:

a. **Appendix 15-A: Long List of Cumulative Developments**.

## 15.2 Legislation and Planning Policy

15.2.1 The requirement for Cumulative Effects and Effect Interactions assessments is stated in the relevant legislation as detailed below.

15.2.2 Regulation 5(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 15-1) (EIA Regulations) makes explicit

reference to the requirement for an assessment of the Effect Interactions between types of effect, and states that: *"The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors… (e) the interaction between the factors referred to in sub-paragraphs (a) to (d)"*.

15.2.3 No further guidance or requirement beyond the need for an assessment of the interrelationships between types of effect is provided.

15.2.4 In terms of Cumulative Effects, Schedule 4 Part 5 of the EIA Regulations (Ref 15-1) requires an ES to include: *"A description of the likely significant effects of the development on the environment resulting from, inter alia:… (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 … 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"*.

## National Planning Policy

15.2.5 The National Policy Statements for Energy set out the government's policy for delivery of major energy infrastructure.

**Overarching National Policy Statement for Energy (EN-1)**

15.2.6 Paragraph 4.1.5 of the Overarching National Policy Statement (NPS) for Energy (EN-1) (Ref 15-2) states that "*In considering any proposed development, in particular when weighing its adverse impacts against its benefits, the Secretary of State should take into account*:

a. *its potential benefits including its contribution to meeting the need for energy infrastructure, job creation, reduction of geographical disparities, environmental enhancements, and any long-term or wider benefits; and*

b. *its potential adverse impacts, including on the environment, and including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate or compensate for any adverse impacts, following the mitigation hierarchy*".

15.2.7 NPS EN-1 paragraph 4.1.6 goes further stating *"In this context, the Secretary of State should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels."*

15.2.8 NPS EN-1 paragraph 4.2.12 states *"applicants should set out how residual impacts will be compensated for as far as possible. Applicants should also set out how any mitigation or compensation measures will be monitored and reporting agreed to ensure success and that action is taken. Changes to measures may be needed e.g. adaptive management. The cumulative impacts of multiple developments with residual impacts should also be considered."*

15.2.9 NPS EN-1 paragraph 4.3.3 states *"the [EIA] Regulations require an assessment of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, transboundary, short, medium, and long-term, permanent and temporary, positive and negative effects at all stages of the project, and also of the measures envisaged for avoiding or mitigating significant adverse effects."*

15.2.10 NPS EN-1 paragraph 4.3.19 states that consideration should be given to *"how the accumulation of, and interrelationship between, effects might affect the environment, economy or community as a whole, even though they may be acceptable when considered on an individual basis with mitigation measures in place".*

**National Policy Statement for Renewable Energy Infrastructure (EN-3)**

15.2.11 NPS EN-3 (Ref 15-3) paragraph 2.10.26 outlines that *"applicants should consider the cumulative impacts of situating a solar farm in proximity to other energy generating stations and infrastructure."*

15.2.12 NPS EN-3 paragraph 2.10.126 states *"where a cumulative impact is likely because multiple energy infrastructure developments are proposing to use a common port and/or access route and pass through the same towns and villages, applicants should include a cumulative transport assessment as part of the ES. This should consider the impacts of abnormal traffic movements relating to the project in question in combination with those from any other relevant development. Consultation with the relevant local highways authorities is likely to be necessary."*

15.2.13 NPS EN-3 paragraph 2.10.157 details that "*the Secretary of State will consider the landscape and visual impact of any proposed solar PV farm, taking account of any sensitive visual receptors, and the effect of the development on landscape character, together with the possible cumulative effect with any existing or proposed development."*

**National Policy Statement for Energy Networks Infrastructure (EN-5)**

15.2.14 NPS EN-5 (Ref 15-4) paragraph 2.9.10 outlines *"Cumulative adverse landscape, seascape and visual impacts may arise where new overhead lines are required along with other related developments such as substations, wind farms, and/or other new sources of generation."*

## National Guidance

**National Planning Policy Framework**

15.2.15 Although the National Planning Policy Framework (NPPF) (Ref 15-5) does not contain specific policies for Nationally Significant Infrastructure Projects (NSIPs), it can still be a material consideration in decision making. Relevant paragraphs in the NPPF related to assessment of Cumulative Effects are outlined below.

15.2.16 Paragraph 50 of the NPPF states "…*arguments that an application is premature are unlikely to justify a refusal of planning permission other than in the limited circumstances where both: The development proposed is so substantial, or its cumulative effect would be so significant that to grant permission would undermine the plan-making process by predetermining decisions about the scale, location or phasing of new development that are central to an emerging plan*".

15.2.17 Paragraph 116 states *"development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios".*

15.2.18 Paragraph 165 states *"to help increase the use and supply of renewable and low carbon energy and heat, plans should: Provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts); …"*

**Planning Inspectorate's Guidance**

15.2.19 In September 2024, the Planning Inspectorate published updated guidance *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment* (Ref 15-6) which outlines a suitable assessment methodology for NSIPs. This ES chapter is based on this guidance (Ref 15-6). The methodology used for this Cumulative Effects and Effect Interactions assessment is presented in Section 15.5.

## Local Planning Policy

15.2.20 The Central Lincolnshire Local Plan (Ref 15-8), adopted in April 2023, refers to Cumulative Effects in Policy S14: Renewable Energy: "*Proposals for renewable energy schemes, including ancillary development, will be supported where the direct, indirect, individual and cumulative impacts on the following considerations are, or will be made, acceptable. To determine whether it is acceptable, the following tests will have to be met:*

a. *The impacts are acceptable having considered the scale, siting and design, and the consequent impacts on landscape character; visual amenity; biodiversity; geodiversity; flood risk; townscape; heritage assets; their settings and the historic landscape; and highway safety and rail safety; and*

b. *The impacts are acceptable on aviation and defence navigation system/communications; and*

c. *The impacts are acceptable on the amenity of sensitive neighbouring uses (including local residents) by virtue of matters such as noise, dust, odour, shadow flicker, air quality and traffic."*

## 15.3 Consultation

15.3.1 A scoping exercise was undertaken in June 2023 to establish the content, approach and method of the Environmental Impact Assessment (EIA). A request for an EIA Scoping Opinion was issued to the Secretary of State through the Planning Inspectorate in June 2023. Comments received in the EIA Scoping Opinion (**Appendix 1-B [EN010154/APP/6.3]**), and Applicant responses in relation to the Cumulative Effects and Effect Interactions assessment, are summarised in **Table 15-1**.

## Table 15-1: Comments Received in the EIA Scoping Opinion

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| Planning Inspectorate | The Cumulative Effects assessment within the ES should not be limited by the current proposed 5km search area used to identify potential projects for the assessment. The Applicant should seek to agree an appropriate study area, methodology for the Cumulative Effects assessment and the list of projects that should be assessed with relevant consultation bodies. This should include but not be limited to consideration of other solar farm developments coming forward in the local area. Developments considered in the Cumulative Effects assessment should also be presented on an appropriate figure in the ES for ease of reference. | In discussion with North Kesteven District Council, an agreed shortlist of cumulative developments and an agreed study area have been developed, as presented in **Table 15-8** of this Chapter. This includes the identification of those developments, including other solar farm developments, considered to form part of the future baseline (i.e. completed and operational) and those that have the potential to be concurrent with the construction of the Proposed Development. A 10km search radius has been used to obtain the long list of cumulative schemes, therefore the assessment of Cumulative Effects has not been limited to 5km. Further details on the methodology for the Cumulative Effects Assessment is presented in **Chapter 5: EIA Methodology and Consultation** of this ES **[EN010154/APP/6.1]** |
| North Kesteven District Council | With reference to cumulative BMV/ALC considerations, the ES should reference the other Lincolnshire solar energy NSIP schemes referred to elsewhere in this response. The situation is a moving picture as new proposals come forward from time to time. | A Cumulative Effects assessment is presented in the relevant sections of the technical environmental chapters (**Chapters 6-14 [EN010154/APP/6.1]**) and is summarised in **Section 15.5** of this Chapter with consideration given to other Lincolnshire solar energy NSIP schemes where relevant. **Figure 15-4 [EN010154/APP/6.2]** presents solar NSIPs in Lincolnshire in relation to the Proposed Development. |
| Natural England | The Environmental Statement should include in-combination/cumulative assessment Cumulative Effects. We acknowledge Section 6.6 which notes that a review of other developments will be undertaken, following the identification of a 'zone of influence' (ZOI) of 5km. The approach to in-combination | Cumulative effects and interactions are considered in this Chapter of the ES and the assessments have been reviewed and updated for the ES. **Figure 15-1 [EN010154/APP/6.2]** presents the Zone of Influence |

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| | assessment appears suitable and will consider impacts from other development up to 5km away. The list at Paragraph 6.6.12 and the project named at 6.6.13 of other development' at Paragraphs to be included in the assessment of Cumulative Effects should be reviewed and updated as necessary. | (Zol) extents for assessment of potential Cumulative Effects. |

15.3.2 Further consultation in response to formal pre-application engagement was undertaken through the Preliminary Environmental Information (PEI) Report, issued in October 2024. **Table 15-2** outlines the statutory consultation responses relating to the Cumulative Effects and Effects Interactions assessment and how these have been addressed throughout the ES. The **Potential Main Issues for Examination [EN010154/APP/7.11]**, **Consultation Report [EN010154/APP/5.1]** and **Consultation Report Appendices [EN010154/APP/5.2]** provide further detailed responses, as relevant, to the feedback received during statutory consultation.

## Table 15-2: Responses to the Statutory Consultation for Cumulative Effects and Interactions

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| Lincolnshire County Council | We do reiterate the point raised regarding the likelihood of intermittent replacement of equipment, which could be akin to construction. So potentially there could be multiple construction phases. We agree that it is difficult to sequence when other developments will be constructed and decommissioned.<br>But with this in mind, there could be significant periods of construction for the study area and the wider landscape as different developments reach operation at different timescales. Given the local road network within the study area and the rural character of this network (for example soft verges) multiple developments constructed over a significant period of time could amplify the effects significantly and diminish the effects of mitigation measures to minimise effects. | During the operational phase of the Proposed Development, various solar infrastructure components will likely require refurbishment or replacement, however wholescale removal, reconstruction or replacement of solar PV infrastructure would not be undertaken in a single year and would be staggered over several years. Any renewal and removal, reconstruction, refurbishment or replacement of faulty or broken equipment would be phased and programmed in stages to maintain the electrical export to the National Grid and would therefore be significantly less intensive than construction. See **Chapter 3: The Proposed Development [EN010154/APP/6.1]** and the **Framework Operational Environmental Management Plan (OEMP) [EN010154/APP/7.8]** for further details. Site-wide equipment replacement will be infrequent and of shorter duration than the construction period. It therefore has a lower potential for Cumulative Effects than the construction phase. |
| Anglian Water | Entry 13 refers to the Anglian Water pipeline from Lincoln to Grantham. AWS considers that the two projects would not have significant cumulative impacts as the AWS pipeline construction will be completed in or about September 2026, before the Fosse Green project could receive consent.<br>AWS considers the AWS Swinderby WRC should be listed in the Fosse Green projects list of foreseeable projects for assessment by Fosse Green. A further 17 AWS investment projects planned for 2025 to 2030 (AMP8) are within or near to the Fosse Green project sites.<br>AWS notes that entry 95 includes utility diversions. | The list of cumulative impacts has been updated within this Chapter of the ES. **Section 15.4** presents details of the long list and shortlisting process.<br>All cumulative developments within the Zone of Influence, for which there is an active planning application at the time of writing, have been accounted for in the Cumulative Effects assessment, presented within **Chapters 6-14** of the ES **[EN010154/APP/6.1]**. There is currently no active planning application for the Swinderby Water Treatment Works. This was discussed during a meeting held with Anglian Water on 29 April 2025 and it was confirmed that an acceptable approach is to omit those Anglian Water developments without an active Planning Application. |

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| Lincolnshire County Council | Cumulative effects are considered from paragraph 5.8.12, the methodology follows Planning Inspectorate's guidance Advice on Cumulative Effects Assessments (Ref 5-6), this is a four stage approach.<br>We welcome this approach and accept its robustness and appropriateness in assessing the cumulative effect on landscape and visual amenity. | This comment is noted and this approach has been taken forwards as the approach for the Cumulative Effects Assessment presented within the ES. |
| North Kesteven District Council | We recommend that developments in the short and long list of potential sites where there may be Cumulative Effects should be shown in an appropriate figure in the ES for ease of reference, as recommended in the PINS Scoping Opinion (ID2.1.8).<br>We have reviewed both the long and short list set out Chapter 15 and Appendix 15-A. The following sites require updating as follows:<br>Long list sites · Row 10 and 44 - 18/1045 – delete, built out · Row 12 18/1346/EIA SCR – delete, replaced by 23/0628/OUT approved · Row 13 - 18/1560/EIA SCO - keep in project but scoping can be deleted as works underway · Row 22 - 19/0987/RESM – delete, scheme built out · Row 23 - 19/1083/FUL delete, scheme built out · Row 35 - 21/0279/FUL delete, scheme built out · Row 45 - 22/0043/RESM delete, scheme built out · Row 51 - add 24/0888/VARCON; amendment to the RESM scheme and recently granted planning permission · 22/1405/OUT – delete, refused planning permission and subsequent appeal withdrawn · Row 59 - 22/1785/FUL delete, scheme built out<br>Short list sites · P12 18/1346/EIASCR as above replaced by 23/0628/OUT (P30) · P26 as above please account for – 24/0888/VARCON; amendment to the RESM scheme and recently granted planning permission at St Modwen Park | The Long and Short List of cumulative developments has been updated taking into account the comments provided during the Statutory Consultation and has been prepared and consulted upon with North Kesteven District Council and Lincolnshire County Council. The process for defining the Long and Short Lists is outlined in Paragraphs 15.5.8 to 15.5.18 of this Chapter.<br>The Long List is presented in **Appendix 15-A: Long List of Cumulative Developments [EN010154/APP/6.3]** and the Short List of cumulative developments is presented in **Table 15-8**of this Chapter.<br>Locations of the cumulative developments are shown on **Figure 15-2: Location of Long List of Cumulative Developments [EN010154/APP/6.2]** and **Figure 15-3: Location of Short List of Cumulative Developments [EN010154/APP/6.2].**<br>Both authorities have reviewed the lists and provided feedback which was incorporated into the assessment. Consultation on the Long and Short Lists of cumulative developments with North Kesteven District Council and Lincolnshire County Council was undertaken in February 2025. The cut-off date for inclusion of developments on the Long and Short Lists presented in this ES was 09 May 2025. An exception to this was made for any proposed developments that were requested for inclusion within the ES by the local authorities. |

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| | The National Grid Navenby Substation will need to be included within the long list and, given that the solar farm application relies on the substation for grid connection, this should also be included in the short list. This is a significant omission.<br>This approach has been taken by the Springwell Solar Farm DCO which was submitted on 20 November 2024. | In determining which of the developments should be shortlisted for cumulative assessment, a minimum level of information is necessary. In accordance with the Planning Inspectorate's guidance *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment* (Ref 15-6), generally only developments with at least an EIA Scoping Report or ES available shall be considered for shortlisting. However, exceptions to this may be made, as set out in **Paragraph 15.5.17 and 15.5.18** of this Chapter. Due to the distance, scale and nature of the development and potential for construction phases to overlap, the prospective application for the proposed National Grid substation near Navenby is acknowledged in the Cumulative Effects Assessment shortlist (ID105) presented in this Chapter (Table 15-8) and is assessed as relevant within the ES. It should be noted that a full Planning Application and sufficient environmental information is not available at this time to allow for a detailed, quantitative Cumulative Effects Assessment to be undertaken. However, a qualitative cumulative assessment is still undertaken (where relevant) based upon the information available at this time, in line with the assessment methodology presented in **Section 15.4** and **Section 15.5** of this Chapter. |
| NKDC | A DCO for Springwell Solar Farm has now been submitted and awaits acceptance by PINS. | An updated assessment of Springwell Solar Farm is included in the Cumulative Effects Assessments presented within **Chapters 6-14** of the ES. Springwell Solar Farm is referred to as ID63. |
| LCC | The shortlist of cumulative developments as listed within table 15-6, has been reviewed, LCC currently do not consider this to be adequate. Only three other NSIP projects have been listed, there are several other NSIP applications currently proposed or consented within Lincolnshire, whilst the principal sites are located outside of the proposed ZOI wider implications, particularly traffic and transport may have some interactivity and cumulative impact. Consideration should be given to the | The short list of cumulative developments has been updated for the ES and has been developed in liaison with North Kesteven District Council and Lincolnshire County Council. This has included consideration of all historic planning applications as relevant (including quarry sites in the locality) in establishing the final short list of cumulative developments relevant to the Proposed Development. The agreed short list of cumulative developments is provided in **Section 15.5** of this Chapter. It should be noted that the |

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| | geographical scale of all the other NSIP projects within Lincolnshire and in adjacent authority areas. The cumulative assessment and the impact of this proposal cumulatively with these other projects should be kept under review. | proposed National Grid Substation near Navenby (cumulative scheme ID 105) and Springwell Solar Farm (cumulative scheme ID 63) are both included on the agreed short list of cumulative developments for consideration within this ES as relevant. |
| LCC | LCC notes that consideration has been given to the quarry sites in close proximity to the proposed scheme, such as Swinderby Airfield, Whisby and Norton Bottoms. It is however noted that these sites have been assessed in terms of individual ancillary planning applications rather than the overall impact each of these industrial quarry operations will have on the locality in conjunction with the proposed solar farm. These quarry sites are large operations, the original planning applications for these sites were granted some time ago, as a result, these overarching applications have fallen outside of the search parameters for the cumulative assessment. LCC considers that this is an oversite as the planning permissions for these sites are still active and later ancillary applications have been picked up, assessed, and appointed on the shortlist for cumulative development. | |
| LCC | Of relevance to large scale solar development in Lincolnshire, the applicants attention is drawn to the interrelationship report entitled 'Joint Report on Interrelationships between Nationally Significant' that has been jointly prepared by the developers of the Cottam, West Burton, Gate Burton and Tillbridge solar schemes and can be viewed on the National Infrastructure Planning website under the relevant applications.<br>The ES will need to take into account the Cumulative Effects of construction and operation of the new Navenby substation with the Fosse Solar Energy development under the relevant topic areas as well as in the overall cumulative assessment. The | |

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| | substation will be a permanent feature and not decommissioned at the end of the project period (60 years) unlike the 'temporary' solar development. Therefore, the ES will need to make a clear distinction between those impacts which it might view as temporary and those which would be permanent. There are also likely to be interactions between other developments that will be seeking to connect into the Navenby substation such as the Springwell solar scheme. | |
| South Kesteven District Council | There are currently several large scale solar park proposals being considered across the South Kesteven District Council, Lincolnshire and adjoining authorities.<br>SKDC would request that the cumulative impacts of a loss of agricultural land, and in particular that considered to be best and most versatile land is considered across the county. | The Applicant acknowledges that there is the potential for Cumulative Effects as a result of the combined impact of the Proposed Development with other solar schemes proposed in the area. This Chapter addresses the potential for Cumulative Effects and Effect Interactions as a result of the Proposed Development. **Chapter 12: Socio-Economics and Land Use [EN010154/APP/6.1]** considers the potential for Cumulative Effects to occur in relation to the loss of BMV agricultural land across the County of Lincolnshire and assesses all Solar NSIPs in Lincolnshire. This assessment concludes that the cumulative effect on agricultural land associated with the Proposed Development remains not significant when considered at the County level. |
| Carlton le Moorland Parish Council | The Council has reservations over the suitability of the site proposed and the detrimental effect on the environment. In particular:<br>• The size of the proposed site, particularly when combined with the impact of other similar proposals in the area, will result in a long-term loss of large amounts of valuable agricultural land with consequential adverse effects on food security and environmental biodiversity. | It is recognised that there are concerns relating to the potential for the Proposed Development to impact upon agricultural production. This is considered in **Chapter 12: Socio-Economics and Land Use [EN010154/APP/6.1].** The Applicant has sought to minimise the use of BMV land, and the Proposed Development is not considered to have an impact on food security. Further detail on how the Proposed Development has been sited is provided in **Chapter 4: Alternatives and Design Evolution [EN010154/APP/6.1].** |

| Consultee | Summary of Opinion/Consultation | Response and location of where this is addressed in the ES |
|---|---|---|
| | | It is acknowledged that there is the potential for Cumulative Effects as a result of the combined impact of other the Proposed Development with other solar schemes proposed in the area. This Chapter addresses the potential for Cumulative Effects and Effect Interactions as a result of the Proposed Development. **Chapter 12: Socio-Economics and Land Use [EN010154/APP/6.1]** assesses the cumulative impact of solar NSIPs within Lincolnshire on BMV with no significant Cumulative Effects on soils having been identified. |

15.3.3 A Long and Short List of cumulative developments has been prepared and been consulted upon, with the final list agreed with North Kesteven District Council and Lincolnshire County Council. The process for defining the Long and Short Lists is outlined in **Paragraphs 15.5.9** to **15.5.19** of this Chapter. The Long List is presented in **Appendix 15-A: Long List of Cumulative Developments [EN010154/APP/6.3]** and the Short List of cumulative developments is presented in **Table 15-8** of this Chapter. Locations of the cumulative developments are shown on **Figure 15-2: Long List of Cumulative Schemes [EN010154/APP/6.2]** and **Figure 15-3: Short List of Cumulative Schemes [EN010154/APP/6.2]**.

15.3.4 Both authorities have reviewed and agreed the lists and provided feedback which was incorporated into the assessment. Consultation on the Long and Short Lists of cumulative developments with North Kesteven District Council and Lincolnshire County Council was undertaken in February 2025. The cut-off date for inclusion of developments on the Long and Short Lists presented in this ES was 09 May 2025. An exception to this was made for any proposed developments that were requested for inclusion within the ES by the local authorities.

## 15.4 Assessment Methodology

15.4.1 There is no standard method for assessing Cumulative Effects and Effect Interactions. Therefore, a combination of professional judgement and established guidance has been used to define an appropriate scope for the assessment. The Planning Inspectorate's guidance *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment* (Ref 15-6) was published in September 2024 and supersedes the Planning Inspectorate's *Advice Note 17 Cumulative Effects Assessment* (Ref 15-7). The current guidance has been used to inform the scope of the assessment and to assist with the identification of relevant developments to be included within the assessment.

### Effect Interactions

15.4.2 The assessment of Effect Interactions is based on the methodology described in **Chapter 5: EIA Methodology and Consultation [EN010154/APP/6.1]** and considers the potential for several direct or indirect effects arising from different aspects of the Proposed Development to give rise to a combined effect on a single receptor. There are no specific, relevant guidelines on how the assessment of Effect Interactions should be undertaken, and so the assessment has been undertaken on a qualitative basis using the conclusions of the individual assessments presented within **Chapters 6–14 [EN010154/APP/6.1]** and relying on professional judgement.

15.4.3 The significance of Effect Interactions upon the environmental receptors and resources has been determined using professional judgement, with input provided from those responsible for the production of the individual topic assessments (**Chapters 6–14 [EN010154/APP/6.1]**).

15.4.4 Only adverse or beneficial residual effects classified as minor, moderate, or major in the individual technical topic assessments will be considered in relation to potential Effect Interactions. Residual effects classified as negligible are excluded from the assessment of the Effect Interactions as, by virtue of their definition, they are considered to be imperceptible and are unlikely to lead to a significant in-combination effect.

15.4.5 The receptors or resources which may experience Effect Interactions are identified in **Table 15-3** below.

15.4.6 Where more than one effect (of minor significance or above) on a particular receptor/resource has been identified, the potential for Effect Interactions has been assessed in **Section 15.5**.

## Table 15-3: List of Sensitive Receptors and the Potential for Effect Interactions

| Category | Description | Potential effects | Potential for Effect Interaction |
|---|---|---|---|
| Community facilities | Users of community facilities neighbouring the Proposed Development. | Noise and vibration, socio-economics and land use, traffic and transport, and landscape and visual effects. | Yes – there is potential for Effect Interactions to arise on community facilities as a result of combined noise and vibration, socio-economic, traffic and transport and landscape and visual effects. These Effect Interactions are assessed within **Table 15-4** and **Table 15-5.** |
| Residential properties | Existing neighbouring residential properties within the immediate vicinity of the Proposed Development. | Noise and vibration, socio-economics and land use, traffic and transport and landscape and visual effects. | Yes – there is potential for Effect Interactions to arise on residential properties as a result of combined noise and vibration, socio-economic, traffic and transport and landscape and visual effects. These Effect Interactions are assessed within **Table 15-4** and **Table 15-5.** |
| Business premises | Nearby businesses and their workers. | Noise and vibration, socio-economics and land use, traffic and transport and landscape and visual effects. | Yes – there is potential for Effect Interactions to arise on business premises as a result of combined noise and vibration, socio-economic, traffic and transport and landscape and visual effects. These Effect Interactions are assessed within **Table 15-4** and **Table 15-5.** |
| Local highway network | Users of local roads surrounding the Proposed Development. | Traffic and transport, and landscape and visual effects. | Yes –there is potential for Effect Interactions to arise as a result of combined traffic and transport and landscape and visual effects. |
| Public transport network | Users of local public transport network (i.e., buses, rail). | Traffic and transport, and landscape and visual effects. | No - the effects on public transport users is anticipated to be negligible. There is therefore limited potential for Effect Interactions on the public transport network. |

| Category | Description | Potential effects | Potential for Effect Interaction |
|---|---|---|---|
| Non-motorised user routes | Users of footways, public rights of way and bridleways. | Traffic and transport, socio-economics and landscape and visual effects. | Yes - There is potential for Effect Interactions to arise as a result of combined traffic and transport, socio-economics and landscape and visual effects. |
| Ecology | Ecological receptors and habitats in the local and regional area including protected species and designated habitats. | Noise and vibration, ecology and nature conservation, and water environment effects. | Yes (although noting that ecology assessments inherently already cover combined effects of dust, noise and pollution on individual ecological receptors). This assessment is therefore included within **Chapter 8: Ecology and Nature Conservation [EN010154/APP/6.1]** and is not assessed further in **Table 15-4** and **Table 15-5**. |
| Heritage assets | Built heritage assets, such as Conservation Areas, Scheduled Monuments, Registered Parks and Gardens, Listed buildings and locally listed buildings and buried heritage assets. | Cultural heritage effects, Air quality effects, noise and vibration effects and landscape and visual effects. | Yes. Landscape and visual and noise and vibration effects on the setting of built heritage assets is already considered within **Chapter 7: Cultural Heritage [EN010154/APP/6.1]** and is therefore not assessed further in **Table 15-4** and **Table 15-5**. |
| Landscape character areas | Geographical areas which have readily identifiable characteristics | Noise and vibration, traffic and transport, and landscape and visual effects. | No. Although there is potential for Effect Interactions to arise as a result of combined traffic and transport, air quality, noise and vibration and landscape and visual effects, following a review of the assessments presented within this ES, effects of minor magnitude and above have only been reported for landscape and visual amenity on Landscape character areas. Effects from noise and vibration and traffic and transport have not been identified during the |

| Category | Description | Potential effects | Potential for Effect Interaction |
|---|---|---|---|
| | | | assessment presented within the ES. Therefore, due to the limited potential for effects, a notable Effect Interaction on landscape character areas is not anticipated. |
| Surface water features and surface water bodies | The quality of water and hydromorphology of features such as rivers, streams, ditches and catchments. | Ecology and nature conservation effects, and water environment effects. | No. Although there is potential for Effect Interactions to arise as a result of combined ecology and nature conservation and water environment effects, following a review of the assessments presented within this ES, no residual effects of minor magnitude and above have been reported for either topic on surface water features and surface water bodies. Therefore, a notable Effect Interaction is not anticipated. |
| Groundwater resources | Water contained within the soils beneath the Site and in the local area, including Secondary A and Secondary (undifferentiated) aquifers. | Water environment effects. | No. Groundwater is not affected by any other environmental or social parameters. |
| Climate | The global climate | Climate change effects. | No. Climate is not affected by any other environmental or social parameters. |

### Cumulative Effects

15.4.7 The Cumulative Effects assessment is based on the methodology described in **Chapter 5: EIA Methodology and Consultation** of this ES **[EN010154/APP/6.1]**. This has been developed in accordance with the Planning Inspectorate's guidance *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment* (Ref 15-6), which identifies a four-stage approach, which has been adopted for this assessment and is summarised in **Plate 15-1**.


**Plate 15-1: Staged Approach to the Cumulative Assessment**

## 15.5 Assessment

### Effect Interactions

15.5.1 There is potential for both adverse and beneficial Effect Interactions associated with the Proposed Development, for example, adverse combined noise and visual impacts on receptors that are located in close proximity to the Proposed Development during the construction phase. The combined effects of different environmental impacts from the Proposed Development on a single receptor are determined when the environmental assessments for the separate environmental topics have been completed.

15.5.2 An exercise which outlines the effects on receptors or receptor groups has been undertaken to determine the potential for Effect Interactions and therefore any combined effects.

15.5.3 **Table 15-4** below summarises the potential Effect Interactions during the construction and decommissioning phases (which are assumed to have the same impacts).

15.5.4 **Table 15-5** summarises the potential Effect Interactions during the operation and maintenance phase. Effects of negligible significance have not been considered in the assessment, as by their nature it is not considered likely that they would have the potential to interact with other impacts to cause an Effect Interaction.

15.5.5 Where no potential Effect Interactions are listed in **Table 15-4** and **Table 15-5** for a sensitive receptor or resource listed as having the potential for Effect Interactions in **Table 15-3**, this is because the assessment did not identify any effects from more than one source., Therefore there have been no Effect Interactions identified for that specific receptor or resource.

## Table 15-4: Potential Effect Interactions during the Construction and Decommissioning Phases

| Sensitive Receptor (Refer to Table 15-3) | Description of Residual Effects | Effect Interaction | Additional Mitigation Proposed |
|---|---|---|---|
| Residential properties, business premises and community facilities | **Visual:** Minor to major adverse visual effects (magnitude of effect varying by receptor) associated with views of construction activity.<br>**Traffic and Transport**: Minor adverse transport effects associated with severance, pedestrian delay, driver delay, non-motorised user amenity, road safety and large loads.<br>**Socio-Economics:** Minor adverse socio-economic effects associated with the impact of construction of the Proposed Development on amenity of residents, business premises and users of community facilities.<br>**Noise and Vibration**: Significant noise effects associated with increased noise and vibration as a result of construction activity at some specific noise sensitive receptors. | There is the potential for significant Effect Interactions on residential properties, business premises and community facilities as a result of the combined impact of visual, transport and access, socio-economic and noise and vibration. However, these effects would be temporary, occurring only during the construction and decommissioning phases. Effect Interactions would be slightly lower during the decommissioning phase than construction phase due to matured vegetation screening the Proposed Development. The potential effect interaction is not anticipated to be of a greater magnitude than the significance of these effects in isolation. The minor adverse traffic and transport and socio-economics effects are not considered likely to add to the landscape and visual or noise and vibration effects in a way that it would substantially change the perception of the effect of the Proposed Development. Similarly, although some receptors with adverse effects from landscape and visual changes may also experience noise and vibration impacts, these impacts are temporary and | No additional mitigation is proposed beyond that described in **Chapter 10: Landscape and Visual [EN010154/APP/6.1]**, **Chapter 11: Noise and Vibration [EN010154/APP/6.1]**, **Chapter 12: Socio-Economics and Land Use [EN010154/APP/6.1]** and **Chapter 13: Traffic and Transport [EN010154/APP/6.1]**. |

| Sensitive Receptor (Refer to Table 15-3) | Description of Residual Effects | Effect Interaction | Additional Mitigation Proposed |
|---|---|---|---|
| | | transient, with the worst case impacts assessed only experienced at a particular receptor for a few months, after which the construction phasing will move elsewhere in the DCO Site. | |
| Users of the surrounding road network | **Visual:** minor to moderate adverse visual effects (moderate adverse visual effects on users of Clay Lane, and Bassingham Road) associated with views of construction activity.<br>**Traffic and Transport:** Minor adverse transport effects associated with severance, pedestrian delay, driver delay, non-motorised user amenity, road safety and large loads. | No significant Effect Interactions are expected. There is potential for increased loss of amenity where receptors experience multiple impacts, however, these would be temporary, only occurring during construction and decommissioning phases. Effect Interactions would be slightly lower during the decommissioning phase than the construction phase due to the matured vegetation screening the Proposed Development. | No additional mitigation is proposed beyond that described in **Chapter 10: Landscape and Visual [EN010154/APP/6.1]** and **Chapter 13: Traffic and Transport [EN010154/APP/6.1]**. |
| Users of Public Right of Way LL\|BooG\|2/2 | **Visual**: Moderate adverse visual effects associated with views of construction activity.<br>**Traffic and Transport**: Minor adverse transport affects associated with severance. | There is the potential for significant Effect Interactions on users of PRoW LL\|BooG\|2/2 during the construction and decommissioning phase as a result of the combined impact of visual and traffic and transport effects. However, these effects would be temporary, occurring only during the construction and decommissioning phases. Effect Interactions would be slightly lower during the decommissioning phase than construction phase due to matured vegetation screening the Proposed | No additional mitigation is proposed beyond that described in **Chapter 10: Landscape and Visual [EN010154/APP/6.1] and Chapter 13: Traffic and Transport [EN010154/APP/6.1].** |

| Sensitive Receptor (Refer to Table 15-3) | Description of Residual Effects | Effect Interaction | Additional Mitigation Proposed |
|---|---|---|---|
| | | Development. The potential effect interaction is not anticipated to be of a greater magnitude than the significance of these effects in isolation. The minor adverse traffic and transport are not considered likely to add to the landscape and visual effects in a way that it would substantially change the perception of the effect of the Proposed Development. | |

### Table 15-5: Potential Effect Interactions during the Operational Phase

| Receptor | Description of Potential Effect Interactions | Effect Interaction | Additional Mitigation Proposed |
|---|---|---|---|
| Residential properties, business premises and community facilities | **Noise**: minor adverse noise effects associated with increased noise as a result of operational activity (BESS and maintenance activity) at specific noise sensitive receptors.<br>**Landscape and visual:** minor to moderate adverse landscape and visual effects (magnitude of effect varying by receptor) during Year 1, and minor to moderate landscape and visual amenity effects at Year 15 associated with views of the Proposed Development. | There is the potential for significant Effect Interactions as a result of the combined impact of noise and vibration and landscape and visual amenity on residential properties, business premises and community facilities. The duration of these effects is long-term but reversible following decommissioning of the Proposed Development and the combined effect is not anticipated to be of a greater magnitude than the significant visual and noise and vibration effects in isolation. The landscape and visual effect will also reduce from Year 1 to Year 15 as the proposed planting matures. | No additional mitigation is proposed beyond that described in **Chapter 10: Landscape and Visual [EN010154/APP/6.1]** and **Chapter 11: Noise and Vibration [EN010154/APP/6.1].** |

## Cumulative Effects

15.5.6 The assessment of Cumulative Effects arising from the Proposed Development together with other proposed schemes is based upon a review of current submitted planning and DCO applications as well as a study of planning policy documents.

15.5.7 Cumulative Effects are generally unlikely to arise unless other development sites are in close proximity to the Proposed Development. However, the nature of potential effects and the actual distance at which two developments cumulatively impact a receptor depends on the nature of the impact (e.g. cumulative landscape and visual effects could occur for the Proposed Development at a greater distance than noise and vibration effects).

15.5.8 The Cumulative Effects assessment for the Proposed Development has been completed, following a staged approach (the Cumulative Effects assessment stages are described in **Paragraph 15.4.7** and within **Chapter 5: EIA Methodology and Consultation [EN010154/APP/6.1]**) and is focused on the identification of relevant developments and land allocations within the Zone of Influence (ZoI) which have the potential to generate significant Cumulative Effects.

### Stage 1: Establishing the Long List of Other Developments

15.5.9 Given the scope and scale of the Proposed Development, the Stage 1 activities focused on establishing the Proposed Development's likely ZoI associated with each of the environmental topic areas being assessed within the EIA. **Table 15-6** sets out the ZoI identified within each environmental topic, which is in line with industry guidance and standards for assessment. The ZoI extents for each environmental topic are also shown in **Figure 15-1: ZoI Extents [EN010154/APP/6.2]**.

**Table 15-6: ZoI extents for assessment of potential Cumulative Effects**

| Environmental Topic | Zone of Influence (ZoI) |
|---|---|
| Climate Change | Not applicable as the global climate is the ZoI considered (**Chapter 6: Climate Change [EN010154/APP/6.1]**). |
| Cultural Heritage | 1km from the DCO Site for non-designated heritage assets and 3km from the DCO Site for designated heritage assets (see **Chapter 7: Cultural Heritage [EN010154/APP/6.1]**). |
| Ecology | Statutory sites of international nature conservation value within 10km of the DCO Site[1].<br>Statutory designated national nature conservation sites, Ancient Woodland and other notable habitats and records of protected or notable species within 2km of the DCO Site (**Chapter 8: Ecology and Nature Conservation [EN010154/APP/6.1]**). |

[1] There are no statutorily designated sites within 10km of the DCO Site. The closest European site is Birklands and Bilhaugh Special Area of Conservation, which is approximately 23km from the DCO Site.

| Environmental Topic | Zone of Influence (ZoI) |
|---|---|
| Water Environment | Up to 1km from the DCO Site (**Chapter 9: Water Environment [EN010154/APP/6.1]**). |
| Landscape and Visual Amenity | Up to 2km from the DCO Site (**Chapter 10: Landscape and Visual Amenity [EN010154/APP/6.1]**). |
| Noise and Vibration | Up to 500m from the DCO Site (**Chapter 11: Noise and Vibration [EN010154/APP/6.1]**). |
| Socio-Economics | Up to 2km from the DCO Site (**Chapter 12: Socio-Economics and Land use [EN010154/APP/6.1]**). |
| Land Use and Soils | The DCO Site. However, as the soil receptor is perceived to be a national resource, the assessment of Cumulative Effects on soils has considered solar Nationally Significant Infrastructure Projects (NSIPs) across the entirety of Lincolnshire. The solar NSIPs considered are shown on **Figure 15-4: Solar NSIPs in Lincolnshire [EN010154/APP/6.2]** |
| Traffic and Transport | Transport Study Area as shown in **Figure 13-1: Transport Study Area [EN010154/APP/6.2]** (**Chapter 13: Traffic and Transport [EN010154/APP/6.1]**). |
| Air Quality | Up to 250m for dust and emissions from the DCO Site or within 50m of the routes used by construction vehicles on the public highway, and up to 500m from the Site entrance(s) (**Chapter 14: Other Environmental Topics [EN010154/APP/6.1]**, Section 14.2). |
| Glint and Glare | Up to 1km from the DCO Site (see **Chapter 14: Other Environmental Topics [EN010154/APP/6.1]**, Section 14.3). |
| Ground Conditions | Up to 500m from the DCO Site (see **Appendix 14-C: Phase 1 Preliminary Risk Assessment [EN010154/APP/6.3]**, Section 14.4). |
| Materials and Waste | A ZoI for materials and waste is not set in the cumulative assessment since a detailed cumulative assessment is not conducted for all materials and waste for the reasons outlined in **Chapter 14: Other Environmental Topics**, Paragraph 14.5.67 **[EN010154/APP/6.1]**) – this is due to Waste Planning Authorities accounting for additional provision of waste as a result of local development within their Waste Management Plans. This therefore does not need to be duplicated as part of the Cumulative Effects Assessment process. |
| Major Accidents and Disasters | 10km from the DCO Site (**Chapter 14: Other Environmental Topics [EN010154/APP/6.1]**, Section 14.6). |
| Telecommunications and Utilities | The DCO Site Boundary (**Chapter 14: Other Environmental Topics [EN010154/APP/6.1]**, Section 14.7). |
| Electromagnetic Fields | The DCO Site (**Chapter 14: Other Environmental Topics [EN010154/APP/6.1]**, Section 14.8). |

15.5.10 A 10km search area was used to establish the Long List of Other Developments. A search for the following types of development was completed by reviewing relevant planning databases held by the Planning Inspectorate, North Kesteven District Council, Newark and Sherwood District Council, Lincolnshire County Council, and Nottinghamshire County Council:

a. Development currently under construction, approved applications which have not yet been implemented (covering the past five years and taking account of those that received planning consent over three years ago and are still valid but have not yet been implemented), or developments that have been registered with the council or relevant determining authority, and which meet one of the below criteria (b) to (e);

b. Listed on the National Infrastructure Planning Programme of Projects within 10km of the DCO Site;

c. Applications for EIA development within 5km of the DCO Site;

d. Other, non-EIA applications for ground based solar and/or BESS development within 5km of the DCO Site; and

e. Other schemes that do not meet the above criteria but which the Applicant wishes to include or a statutory stakeholder specifically requests is included. This may include development allocations identified in the relevant Development Plan (and emerging Development Plans) for example, which are aspirational but have not yet reached pre-application or application stage.

15.5.11 Each development within the Long List of Other Developments was reviewed to determine its status at the time of undertaking the assessment (9 May 2025) and was assigned a final status and tier, as described in **Table 15-7**, informed by the Planning Inspectorate's guidance *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment* (Ref 15-6).

**Table 15-7: Tier Status Criteria**

| Tier | Stage |
|---|---|
| Tier 1 | Under Construction |
| | Permitted application(s), whether under the Planning Act 2008 or other regimes, but not yet implemented;<br>Submitted application(s) whether under the Planning Act 2008 or other regimes, but not yet determined.<br>All refusals subject to appeal procedures not yet determined. |
| Tier 2 | Projects in the Planning Inspectorate's Programme of Projects. |
| Tier 3 | Projects in the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted. |
| | Identified in the relevant development plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there will be limited information on the relevant proposals. |

**Decreasing level of detail likely to be available**

| Tier | Stage |
|---|---|
| | Identified in other plans and programmes (as appropriate) which set the framework for future developments consents/approvals, where such a development is likely to come forward. |

15.5.12 The Long List of Cumulative Developments is presented in **Appendix 15-A** of the ES **[EN010154/APP/6.1].**

**Stage 2: Establishing a Short List of Other Developments**

15.5.13 This stage involves reviewing the Long List of Other Developments to identify those to be taken forward (shortlisted) into the cumulative assessment. This short list of cumulative developments is provided in **Table 15-8**.

15.5.14 The shortlisting process involves the application of inclusion/exclusion criteria and is informed by the professional judgement of the environmental specialists undertaking the EIA and through engagement with the relevant local authorities.

15.5.15 Developments and projects that are already in existence, i.e., those which are completed and operational, have been considered to form part of the environmental baseline conditions within which the Proposed Development will be implemented (and are treated as such within the EIA).

15.5.16 Similarly, where other developments are expected to be completed prior to construction of the Proposed Development, and where effects of those projects are fully determined, these have been considered within the environmental baseline adopted in the EIA.

15.5.17 In determining which of the developments should be shortlisted, a minimum level of information is necessary. In accordance with the Planning Inspectorate's guidance *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment* (Ref 15-6), generally only developments with at least an EIA Scoping Report or ES available shall be considered for shortlisting (**Table 15-7**).

15.5.18 However, exceptions to this may be made. For example, if any non-EIA development is identified in close proximity, large in scale and/or particularly sensitive, this will also be considered for shortlisting, with particular reference to solar development, given the presence of the Proposed Development and other solar NSIPs in close proximity.

**Stage 3: Gathering Information**

15.5.19 This stage involved reviewing the available information relating to the shortlisted developments to establish the details of their likely environmental effects.

15.5.20 This considered factors including: the ZoI of environmental topics assessed; the planned timescales for construction, operation and (where relevant) decommissioning; and details of their potential for likely significant effects.

### Stage 4: Assessment

15.5.21 Those developments which meet the criteria set out in the above stages have been incorporated into the cumulative assessment. This involved identifying where effects are likely to occur and assessing the significance of those effects on environmental receptors and resources, taking into account mitigation measures.

An assessment has been undertaken for Stages 3 and 4 and is included in the relevant topic chapters (**Chapters 6–14** of the ES **[EN010154/APP/6.1]**).

## Table 15-8: Shortlist of Cumulative Developments

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| 5[2] | 15/1347/OUT<br>Associated applications: 24/0456/RESM (ID96) / 22/0174/RESM (ID46) / 21/0276/RESM/ 22/1478/RESM (ID56) | [redacted] | Erection of up to 1,100 dwellings and 150 care/retirement units (C2/C3), the formation of a roundabout to Camp Road, A46 junction improvement works, public open spaces and associated service infrastructure (outline with means of access)<br>Associated applications:<br>- Reserved matters application for construction of private access road to Sheepwalks Farm pursuant to outline application 15/1347/OUT-Erection of up to 1,100 dwellings and 150 care/retirement units (C2/C3), the formation of a roundabout to Camp Road, A46 junction improvement works, public open spaces and associated service infrastructure (outline with means of access)<br>- Reserved matters application for the erection of 154 dwellings (Cell 6) with layout, scale, appearance, landscaping and access to be considered pursuant to outline planning application 15/1347/OUT | 123m | 1 | Approved | Due to the location, scale and nature of development and potential overlap in construction phases. |

[2] Accounts for ID56 shown in **Appendix 15-A: Long List of Cumulative Developments**

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | - Erection of up to 1,100 dwellings and 150 care/retirement units (C2/C3), the formation of a roundabout to Camp Road, A46 junction improvement works, public open spaces and associated service infrastructure (outline with means of access) (Resubmission of 20/1659/RESM)<br>- Application for approval of reserved matters for 181 dwellings (Cells 2a, 3a and 3b) comprising details of appearance, landscaping, layout and scale pursuant to Outline Planning Permission 15/1347/OUT<br>- Erection of up to 1,100 dwellings and 150 care/retirement units 1(C2/C3), the formation of a roundabout to Camp Road, A46 junction improvement works, public open spaces and associated service infrastructure (outline with means of access)<br>- Application for the approval of reserved matters for 182 dwellings (cells 1a, 1b and 1c) comprising details of appearance, landscaping, layout and scale pursuant to Outline Planning Permission 15/1347/OUT<br>- Erection of up to 1,100 dwellings and 150 care/retirement units (C2/C3), the | | | | |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | formation of a roundabout to Camp Road, A46 junction improvement works, public open spaces and associated service infrastructure (outline with means of access) | | | | |
| 8 | 18/0760/OUT / 21/1045/RESM | [redacted] | Residential development of up to 144 dwellings and associated works (outline with means of access) / Reserved matters application for the erection of 144 no. dwellings and associated works with details of internal access road layout, appearance, landscaping, layout & scale pursuant to outline permission 18/0760/OUT | 1,006m | 1 | Approved | Due to the scale and nature of development and potential overlap in construction phases. |
| 12 | 18/1346/EIASCR | [redacted] | Outline for 150-200 dwellings - Screening Opinion | 1,683m | 3 | Screening Opinion | Due to the scale and nature of development and potential overlap in construction phases. |
| 13 | 18/1560/EIASCO | [redacted] | Development of a 55km potable water pipeline from Lincoln to Grantham with associated infrastructure including partially buried 20 million litre bulk potable water storage tank, 3km | 0 | 1 | Scoping Opinion | Due to the location, scale and nature of development and potential |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | connecting pipeline to Anglian Water (AWS) site at Bracebridge Heath (Bracebridge Spur), connecting sections of pipeline to the existing Central Lincs Trunk Main, partially buried 3million litre break tank and the erection of 3 pumping stations (the Grantham Resilience Pipeline Project). | | | | overlap in construction phases. |
| 33 | 20/1523/FUL | St Modwen Development Ltd | Hybrid planning application consisting of full planning permission for Phase 4 - the erection of four units comprising uses E, B2 and B8 with associated access, car parking and landscaping and outline permission with all matters reserved for phases 5 to 7 consisting of the proposed erection of commercial units comprising use classes E, B2 and B8 | 615m | 1 | Approved | Due to the location and nature of development and potential overlap in construction phases. |
| 34[3] | 20/1736/RESM | Countryside Properties (UK) Ltd | Residential development of 70 no. affordable dwellings (Cell 2B). Reserved Matters application comprising details of appearance, landscaping, layout and scale pursuant to outline planning permission 15/1347/OUT<br>- Erection of up to 1,100 dwellings and 150 care/retirement units (C2/C3), the | 257m | 1 | Approved | Due to the location, scale and nature of development and potential overlap in construction phases. |

[3] ID34 is the reserved matters application for ID65 (planning allocation NK/WSH/002)

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | formation of a roundabout to Camp Road, A46 junction improvement works, public open spaces and associated service infrastructure (outline with means of access) | | | | |
| 37 | 21/1245/FUL | Patrick Dean Ltd | Installation of a 100.3kW ground mounted solar PV installation comprising of 264 solar panels. | 942m | 1 | Approved | Due to the location and nature of development and potential overlap in construction phases. |
| 49 | 22/0520/FUL | [redacted] | Installation of a ground based solar PV array (approximately 6kW) | 364m | 1 | Approved | Due to the location and nature of the development. |
| 52 | 22/0899/FUL | [redacted] | Proposed hybrid planning application for the proposed Elsham to Lincoln Pipeline Scheme (potable water supply) with full planning consent sought for a proposed 57 kilometre pipeline between Elsham and Lincoln, a 1.5 kilometre spur at Welton and associated above ground infrastructure at Elsham; and outline consent for associated above ground | 5,700m | 1 | Approved | Due to the scale and nature of the development and potential for construction phases to overlap. |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | infrastructure at Welton with all matters reserved except for access. | | | | |
| 54[4] | 22/1376/FUL | [redacted] | Erection of 148 dwellings with associated outbuildings/garages and landscaping/open space and affordable housing and including conversion of existing (retained) building to shop and offices | 1,314m | 1 | Approved | Due to the location, scale and nature of the development and potential for construction phases to overlap. |
| 58[5] | 22/1785/FUL | [redacted] | Erection of 18 no. affordable houses with associated infrastructure | 528m | 1 | Approved | Due to the location and nature of the development. |
| 63 | EN010149 | Springwell Energy Farm Limited | Springwell Solar Farm is a proposed new solar farm with battery storage and supporting grid connection infrastructure in North Kesteven, Lincs. | 0m | 2 | Pre-Application | Due to the distance, scale and nature of the development. |
| 86[6] | 25/0491/FUL | [redacted] | Erection of 400MW Battery Storage Development incorporating 324no. Containerised Battery Storage Units, | 0m | 1 | Application | Due to the location, scale and nature of |

[4] ID 54 is a full planning application for ID64 (development allocation NK/SWI/006)
[5] ID 58 is the full application for ID68 (development allocation NK/BAS/007)
[6] ID86 also covers longlist ID97 (screening opinion for ID86 full planning application)

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | 54no. transformer/inverter blocks and 8 back up auxiliary transformers, 4no. storage containers for spare parts etc, substation comprising 4-6no. switchgear units, a control room and a HV compound with 2 Step-up Transformers, associated access tracks, inverter, switchgear substations, boundary treatments and CCTV - Request for Scoping Opinion | | | | the development. |
| 87 | EN010162 | Great North Road Solar Limited | Solar photovoltaic array generating station, battery energy storage system and grid connection infrastructure, with a maximum generation capacity of 800MW. | 8,800m | 2 | Pre-Application | Due to the scale and nature of the development. |
| 88 | EN010159 | One Earth Solar Farm | The project comprises the construction of a Solar Farm and collated Battery Energy Storage System (BESS) that would allow for the generation, export and storage of electricity exceeding 50 MW. The project include works to facilitate the construction, operation, maintenance and decommissioning of a solar photovoltaic (PV) array electricity generating facility and BESS including PV modules and mounting structures, on-site supporting equipment including inverters, transformers and switchgears, on-site | 8,172m | 2 | Pre-Application | Due to the scale and nature of the development. |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | substations and underground cabling to connect to the National Grid substation, associated infrastructure including fencing, drainage and storage containers and biodiversity and landscaping enhancement measures, together with temporary development during the construction phase. | | | | |
| 89 | PL/0055/23 | Lincolnshire County Council | To install a solar PV array development and associated infrastructure to generate electricity for the operation of Swinderby Quarry plant machinery and site offices. | 500m | 1 | Approved | Due to the location, scale and nature of the development. |
| 90 | 23/0628/OUT | Cemex Uk Properties Ltd | Residential development of up to 120 no. dwellings (outline with all matters reserved) | 1,839m | 1 | Awaiting decision | Due to the scale and nature of the development and potential for construction phases to overlap. |
| 95 | PL/0087/23 | Lincolnshire County Council | For construction of the North Hykeham Relief Road (NHRR) between the A46 Hykeham Roundabout and the A15 Sleaford Road Roundabout at the end of the Lincoln Eastern Bypass, with | 800m | 1 | Approved | Due to the location, scale and nature of the development |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | junctions at South Hykeham Road, Brant Road and Grantham Road. The Proposed Scheme will comprise 8km of dual all-purpose carriageway with a 70mph speed limit (120kph design speed) and associated structures, earthworks, drainage, street lighting, traffic signals, utility diversions and installations, pipeline diversion, temporary materials processing, landscaping, and highway features | | | | and potential for construction phases to overlap. |
| 98 | EIA/02/04 | Tarmac Trading Limited | For variation of conditions 2, 28 and 29 under planning permission 14/0385/CCC - to enable a proposed revision of the restoration scheme and a change to the silt management arrangements approved at Whisby Quarry | 599m | 3 | Screening Opinion | Due to the distance of the development, the potential for construction phases to overlap and request for inclusion by Lincolnshire County Council. |
| 99 | EIA/03/24 | Conrad Energy | For the installation of floating Solar PV arrays plus terrestrial based ancillary infrastructure and equipment, cable route and access | 499m | 3 | Screening Opinion | Due to the scale and nature of the development and potential |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | | | | | for construction phases to overlap. |
| 101 | 24/0075/EIASCR | Forepower Lincoln 250 Limited | Erection of 240MW Battery Storage Development incorporating approximately 75no. inverter skids, approximately 75 no. battery skids, approximately 4no. switchrooms, DNO equipment compound, CCTV Security Cameras, internal access road and DNO access road Request for Screening Opinion | 840m | 3 | Screening Opinion | Due to the scale and nature of the development and potential for construction phases to overlap. |
| 102 | 24/0959/FUL | Ministry of Defence | Erection of a new office and training building, together with associated ancillary buildings, access (including the provision of a haul road), parking, landscaping, and all other associated works (e.g. the erection of boundary fences, external lighting, drainage, installation of a ground-mounted solar panel array and solar electrical substation as well as associated engineering, and ground modelling work). | 3,627m | 1 | Awaiting decision | Due to the scale and nature of the development and potential for construction phases to overlap. |
| 103 | EN0110016 | Leoda Solar Farm Limited | Leoda Solar - Ground-mounted solar electricity generating station with a targeted gross output of 500 to 600 | 0 | 3 | Pre-Application | Due to the distance, scale and nature of |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | Megawatts (MW) and associated grid connection infrastructure. | | | | the development and potential for construction phases to overlap. |
| 104 | PL/0097/17 | Breedon Southern Limited | To extend Norton Bottoms Quarry for the extraction of sand and gravel, together with the retention of all existing ancillary operations for the duration of the extended operations to provide a single consolidated consent for the entire site and a revised restoration strategy | 2,538m | 1 | Granted | Due to the scale and nature of the development. |
| 105 | 24/1080/EIASCR | [redacted] / NGET | Erection of new 400kv Air Insulated Switchgear (AIS) substation and associated development (proposed National Grid substation near Navenby) | 0 | 3 | Screening | Due to the distance, scale and nature of the development and potential for construction phases to overlap. |
| 106 | PL/0002/25 | Daniel Charles Aggregates Ltd | For use of an additional area of the quarry for the recycling of | 6,090m | 1 | Registered | Due to the scale and |

| Longlist ID | Application reference | Applicant | Description | Distance from the Proposed Development (m) | Tier | Status | Justification for inclusion |
|---|---|---|---|---|---|---|---|
| | | | construction, demolition and excavation wastes (part retrospective) | | | | nature of the development. |
| 108 | 25/0533/FUL | NATPower | Brant Energy Storage Scheme | 0 | 1 | Pre-Application | Due to the distance, scale and nature of the development and potential for construction phases to overlap. |

### Cumulative Effects Assessment

15.5.22 An assessment of the Cumulative Effects of the Proposed Development along with these other developments (**Table 15-8**) is presented in each technical chapter (**Chapters 6** to **13 [EN010154/APP/6.1]**) and throughout **Chapter 14: Other Environmental Topics [EN010154/APP/6.1]**.

15.5.23 Within the majority of technical chapters, no likely significant effects have been identified through the Cumulative Effects assessment where they were not already predicted for the Proposed Development in isolation.

15.5.24 The landscape and visual cumulative assessment takes an additional approach by considering the effects of each individual cumulative scheme brought forward in isolation, in addition to the Proposed Development. Some significant adverse Cumulative Effects are identified on Landscape and Visual Amenity receptors (**Chapter 10: Landscape and Visual Amenity [EN010154/APP/6.1**], however the significance of effect attributed to the Proposed Development alone is not increased when considering these other developments alongside the Proposed Development, as reported in **Chapter 10: Landscape and Visual Amenity [EN010154/APP/6.1]**. The following significant Cumulative Effects are anticipated for Landscape and Visual receptors, where the magnitude of effect is higher than that of the Proposed Development in isolation. During construction:

a. **Major Adverse (significant)** landscape Cumulative Effects on the North Kesteven District landscape sub-area Witham and Brant Vales due to the noticeable increase in extent over which changes to the landscape character would be perceived during construction. Additionally, changes are anticipated to the visual amenity of users of the Viking Way (PRoW Cole/2/1 and BooG/2/2) as a result of the Proposed Development together with ID95 Application Reference: PL/0087/23, North Hykeham Relief Road, resulting in a **Major adverse** effect which is significant.

b. **Moderate Adverse (significant)** landscape Cumulative Effects on the North Kesteven landscape sub-area Limestone Heath due to the noticeable increase in extent over which changes to the landscape character would be perceived during construction as a result of the Proposed Development together with ID63 Application Reference: EN010149, Springwell Energy Farm and ID103 Application Reference: EN0110016, Leoda Solar Farm, resulting in a **Moderate adverse** effect which is significant.

15.5.25 During operation (year 15) it is considered there would be no notable difference between the landscape and visual effects of the Proposed Development, and the cumulative landscape and visual effects of the Proposed Development.

15.5.26 Although not possible to predict at this stage, the effects of decommissioning of the Proposed Development are likely to be similar to, but less than the effects experienced during construction, albeit with the benefit of established perimeter planting.

15.5.27 It is acknowledged that there may be the potential for beneficial Cumulative Effects associated with biodiversity net gain (BNG) across the county of Lincolnshire due to the number of solar projects in the county which would each be required to commit to at least 10% BNG from Spring 2026.

## 15.6 References

Ref 15-1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Ref 15-2 Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1).

Ref 15-3 Department for Energy Security and Net Zero (2023). National Policy Statement for Renewable Energy Infrastructure (EN-3).

Ref 15-4 Department for Energy Security and Net Zero (2023). National Policy Statement for Electricity Networks Infrastructure (EN-5).

Ref 15-5 Ministry of Housing, Communities and Local Government (2023). National Planning Policy Framework.

Ref 15-6 The Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment

Ref 15-7 The Planning Inspectorate (2019). Advice Note 17: Cumulative effects assessment relevant to nationally significant infrastructure projects (version 2). Available at: https://infrastructure.planninginspectorate.gov.uk/legislation-andadvice/advice-notes/advice-note-17/

Ref 15-8 Lincolnshire County Council (2023). Central Lincolnshire Local Plan. Lincolnshire County Council, Lincoln.

Ref 15-9 The Planning Inspectorate (n.d.). National Infrastructure Planning Database. Available at https://infrastructure.planninginspectorate.gov.uk/projects/

Ref 15-10 The Planning Act 2008.