Springwell Solar Farm

Preliminary Environmental Information Report

Volume 1
Chapter 15: Cumulative Effects

Phase 2 consultation
Springwell Energyfarm Ltd

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15. Cumulative Effects

15.1. Introduction

15.1.1. This chapter presents the approach to the cumulative effects assessment, including preliminary consideration of the potential for cumulative effects, and proposed actions to be completed as part of the ongoing EIA.

15.1.2. This chapter is intended to be read as part of the wider Preliminary Environmental Information Report (PEIR) with particular reference to **Appendix 15.1**. Cumulative effects occur as a result of several actions on an environmental receptor which may overlap or act in combination. The following types of cumulative effects have been considered in accordance with the EIA Regulations and best practice guidance:

- Intra-project combined effects – the interaction and combination of different environmental residual (post-additional mitigation) effects from within the Proposed Development affecting a receptor; and
- Inter-project cumulative effects – the combined residual (post-mitigation) effects of the Proposed Development and another project or projects on a single receptor/resource.

15.2. Legislative framework, planning policy and guidance

15.2.1. Schedule 4(5)(e) of the EIA Regulations states that the ES should include *"a description of the likely significant effects of the development on the environment resulting from… 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".*

15.2.2. Regulation 5(2) 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…..population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape. Regulation 5(2)(e) refers to the need to assess "*the interaction between those factors*".

15.2.3. Planning policy relevant to cumulative assessment includes the following:

- Overarching National Policy Statement for Energy (NPS EN-1) (2011)[1] provides the basis for decisions regarding nationally significant energy infrastructure. There are multiple references to cumulative assessment including

[1] Overarching National Policy Statement for Energy (EN-1) (2011). Available online: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure

paragraph 4.2.4 which notes that the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development, and paragraph 4.2.6 which refers to a need to consider 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.

- Draft Overarching National Policy Statement for Energy (NPS EN-1) (2023)[2] includes multiple references to cumulative assessment including paragraph 4.1.5 which requires that 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 are considered.
- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2011)[3] sets out the policies relating to electricity generation from renewable sources of energy and includes multiple references to cumulative assessment. However, solar farms are not explicitly included within the document.
- Draft National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2023)[4] - Section 3.10 gives specific consideration to solar development including assessment of cumulative impacts.
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2011)[5] - Paragraph 2.8.2 makes reference to cumulative landscape and visual impacts where new overhead lines are required along with other related developments such as substations, wind farms and/or other new sources of power generation.
- Draft National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2023)[6] - Paragraph 2.9.10 makes reference to cumulative adverse landscape and visual impacts that may arise where new overhead lines are required along with other related developments such as

[2] Draft National Policy Statement for Energy (EN-1) (2023). Available online: https://www.gov.uk/government/consultations/planning-for-new-energy-infrastructure-revisions-to-national-policy-statements
[3] National Policy Statement for Renewable Energy Infrastructure (EN-3) (2011). Available online: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure
[4] Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) (2023). Available online: https://www.gov.uk/government/consultations/planning-for-new-energy-infrastructure-revisions-to-national-policy-statements
[5] National Policy Statement for Electricity Networks Infrastructure (EN-5) (2011). Available online: 1942-national-policy-statement-electricity-networks.pdf (publishing.service.gov.uk)
[6] Draft National Policy Statement for Electricity Networks Infrastructure (EN-5) (2023). Available online: EN-5 Electricity Networks National Policy Statement (publishing.service.gov.uk)

substations, wind farms, and/or other new sources of generation.

15.2.4. There is no widely accepted methodology for assessing cumulative effects, although various best practice and guidance documents exist. Relevant guidance has been considered during the preparation of this PEIR and will also be employed in the production of the ES, including from the Institute of Environmental Management and Assessment (IEMA)[7], and the assessment guidance set out in PINS Advice Note Seventeen: Cumulative Effects Assessment[8] on inter-project cumulative effects.

15.3. Scope of the assessment

15.3.1. The scope of the cumulative assessment is as set out in the EIA Scoping Report (March 2023) and informed by the Scoping Opinion provided by PINS on behalf of the Secretary of State (see **Appendix 4.1**). A summary of the scoping opinion and response to each comment received is provided in **Appendix 4.3**. **Table 15.1** below summarises the key responses relating to the cumulative effects assessment and how these have been or will be addressed.

Table 15.1 Summary of key responses from the scoping opinion in relation to the assessment of cumulative effects

Consultee	Key matters raised	Actions in response to consultee comments
Planning Inspectorate	3.9.1 'No matters have been proposed to be scoped out the assessment'.	Noted.
Planning Inspectorate	3.9.2 'The study areas, methodologies (including other projects included in the assessment) particularly with respect to impacts on 'best and most versatile' (BMV) agricultural land and landscape, should be agreed with the statutory consultation bodies and any exclusions should be clearly justified and explained with reference to PINS Advice Note 17: Cumulative effects assessment.'	Discussions with North Kesteven District Council and Lincolnshire County Council in relation to study areas and methodology for cumulative effects assessment (including agreement on the list of other projects) will be undertaken as part of the ongoing EIA process. In particular, consideration will be given to the adoption of a wider more regional level study area for the cumulative

[7] Institute of Environmental Management and Assessment (IEMA) (2011). The State of Environmental Impact Assessment in the UK. Available online: 2011-State-of-EIA-IEMA.pdf
[8] Planning Inspectorate (2019). Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (Version 2). Available online: Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects | National Infrastructure Planning (planninginspectorate.gov.uk)/

Consultee	Key matters raised	Actions in response to consultee comments
		assessment of BMV agricultural land.
Lincolnshire County Council	Traffic and Transport – 'This chapter of the ES should also consider potential cumulative construction effects (and where relevant operational effects) associated with other large-scale and NSIP scale projects including Triton Knoll, Viking Link, Heckington Fen Solar Park (including works to Bicker Fen Substation), Beacon Fen Energy Park, Temple Oaks Renewable Energy Park and the Lincolnshire Reservoir depending on the timeframes of those projects. The assessment should also consider Town and Country Planning Act 1990 projects including the Sleaford West and potentially the Sleaford South SUEs (A17/A15 corridor), along with the Lincoln South East Quadrant (SEQ) SUE which sits alongside parts of the A15 and B1188.'	The list of potential other projects that may cumulatively affect traffic receptors will be considered as part of the ongoing EIA process, including availability of traffic data, relevant overlap with construction programme and overlap with the study area.
	'The Council disagrees that NSIP projects must lie within the ZoI of the development which is based on the study area for each environmental factor considered in the EIA. The County is currently subject of several other NSIP projects and these all need to be taken into account in terms of potential cumulative effects in particular in respect of LVIA and impacts on BMV agricultural land. Of particular relevance are the following: West Burton Solar Project;	The proposed methodology, including the use of a relevant Zone of Influence (ZoI) for each environmental factor, is based on PINS Advice Note Seventeen. In relation to BMV agricultural land, consideration will be given to the adoption of a wider more regional level study area for cumulative assessment. The list of projects within the ZoI for BMV agricultural land will be agreed with North

Consultee	Key matters raised	Actions in response to consultee comments
	Cottam Solar Project; Gate Burton Energy Park; Heckington Fen Solar Park; Mallard Pass Solar Park; Temple Oaks Renewable Energy Park; Tillbridge Solar Project; Beacon Fen Energy Park; Lincolnshire Reservoir.'	Kesteven District Council and Lincolnshire County Council.
Natural England	'Natural England would like to note the significant number of Solar projects currently proposed in Lincolnshire and the East Midlands. These projects include Cottam Solar Project, West Burton Solar Project, Tillbridge Solar Project, Heckington Fen Solar Park, Gate Burton Solar Project, Mallard Pass Solar Project. As such, it is important that all possible cumulative impacts from these projects on the environment are considered within the ES.'	Consideration will be given to the adoption of a wider more regional level study area for cumulative assessment in relation to BMV agricultural land. The ZoI for cumulative assessment of other factors is as specified in **Table 15.2**.
North Kesteven District Council	Traffic and Transport: 'This should include cumulative construction (and where relevant operational) effects associated with Triton Knoll, Viking Link, Heckington Fen Solar Park (including works to Bicker Fen Substation), Beacon Fen Energy Park, Temple Oaks solar and the Lincolnshire Reservoir depending on the timeframes of those projects. Town and Country Planning Act 1990 projects requiring cumulative assessment of transport effects include the Sleaford West and potentially the Sleaford South SUEs (A17/A15 corridor), along with the Lincoln South East Quadrant (SEQ) SUE which	The list of potential other projects that may cumulatively affect traffic receptors will be considered, including availability of traffic data, relevant overlap with construction programme and overlap with the study area.

Consultee	Key matters raised	Actions in response to consultee comments
	sits alongside parts of the A15 and B1188.'	
	Traffic and Transport: 'Some cumulative transport impacts associated with construction phases might occur across the North Kesteven and South Kesteven/Rutland solar NSIP schemes depending on respective project timescales and construction traffic routeing.'	The list of potential other projects that may cumulatively affect the traffic receptors will be considered, including availability of traffic data, relevant overlap with construction programme and overlap with the study area.
	Land, Soils and Groundwater: 'For the avoidance of doubt the Council suggests that cumulative effects associated with BMV agricultural land impacts (i.e. in relation to 'Land, soils and groundwater') should as a minimum include all of the NSIP solar projects in Lincolnshire at Heckington Fen Solar Park, Beacon Fen Energy Park, Tillbridge Solar, Temple Oaks, Cottam, West Burton, Gate Burton and Mallard Pass along with BMV agricultural land impacts associated with the Lincolnshire Reservoir.'	Consideration will be given to the adoption of a wider more regional level study area for cumulative assessment of BMV agricultural land. The list of projects within the ZoI for BMV agricultural land will be agreed with North Kesteven District Council and Lincolnshire County Council.
West Lindsey District Council	'It is imperative that any Environmental Impact Assessment clearly considers within its structure the cumulative effect of Springwell Solar Farm with these other solar farm projects and any other solar Farms in Central Lincolnshire such as the Fiskerton Solar project, which is an extant development, with consent to expand. There are questions as to how all these developments taken together will affect Central Lincolnshire's character, as	Consideration will be given to the adoption of a wider more regional level study area for cumulative assessment. The list of projects within the ZoI for BMV agricultural land will be agreed with North Kesteven District Council and Lincolnshire County Council. The ZoI for cumulative assessment of other factors is as specified in **Table 15.2**.

Consultee	Key matters raised	Actions in response to consultee comments
	traditional rural Lincolnshire Countryside.'	

15.4. Intra-project combined effects

15.4.1. The approach to the preliminary assessment of interactions of environmental effects (intra-project effects) has considered the changes in baseline conditions at common sensitive receptors (i.e. those receptors that have been identified as experiencing likely significant effects by more than one environmental factor) due to the Proposed Development. The preliminary assessment has been based upon residual (post-additional mitigation) effects of **'**slight/minor' or greater significance only ('negligible' residual effects will not be considered). The preliminary assessment includes consideration of where multiple non-significant effects could combine to become significant. The study area for the preliminary assessment of intra-project effects has been informed by the study areas for the individual factor assessments.

15.4.2. Preliminary consideration of the potential for intra-project effects has been undertaken to inform this PEIR and is reported within each of the environmental factor chapters (**Chapters 5-14**). A full assessment of the potential intra-project effects will be undertaken and detailed within the ES. This will include a summary of the impact interactions and will set out how each of the environmental factor assessments have considered and assessed secondary effects arising as a result of the direct impacts from other environmental factors.

15.4.3. The full assessment of intra-project combined effects, to be presented in the ES, will be undertaken using a two-stage approach:

Stage 1 – Screening

15.4.4. Screening will be undertaken to determine whether a sensitive receptor is exposed to more than one type of residual (post-additional mitigation) effect during the construction, operation and decommissioning phases of the Proposed Development. Those common sensitive receptors exposed to two or more types of residual (post-additional mitigation) effects with significance of 'slight/minor' or greater, will be taken forward to Stage 2 of the assessment.

15.4.5. If there is only one type of effect on a sensitive receptor (i.e. only one technical chapter has identified effects on that sensitive receptor), then it will be considered that there are no potential intra-project combined effects and the sensitive receptor will not be taken forward to Stage 2 of the assessment.

Stage 2 – Assessment of intra-project combine effects

15.4.6. A quantitative assessment of the overall significance of the cumulative effects on common sensitive receptors identified at Stage 1 will be undertaken based on technical information provided in the technical chapters and supporting appendices as well as professional judgement. Given that the types of effects may be very different in some cases, a quantitative assessment may not be possible, and it may be necessary to apply professional judgement in determining the significance of each individual effect.

15.4.7. The evaluation at the receptor level will consider: the magnitude of change at the common receptor; previously identified sensitivity; duration and reversibility of interaction. The focus will be on determining a change in the level of effect likely to be experienced and whether this is significant or not.

15.5. Inter-project cumulative effects

15.5.1. The ES will include an assessment of the potential effects of the Proposed Development in the context of other developments, as detailed below, to determine the cumulative effects that may result from the Proposed Development and the other development(s) on the same receptor or environmental factor.

15.5.2. The approach to the assessment of inter-project effects will consider the deviation from the baseline conditions at common sensitive receptors as a result of changes brought about as a result of the Proposed Development in combination with one or more other existing development and/or approved developments. The assessment of the inter-project effects will be based upon the residual (post-additional mitigation) effects that have been identified in the various factor assessments for the Proposed Development, as well as available environmental information for the other existing development and/or approved developments.

15.5.3. In accordance with PINS Advice Note Seventeen[9], the identification of other existing development and/or approved developments comprises two clear stages as follows:

- Stage 1: establish a long list of other existing development and/or approved developments based on appropriate spatial and temporal limits.
- Stage 2: apply a clear rationale to establish a shortlist of other existing development and/or approved developments which, in combination with the Proposed Development, have the potential to result in a significant cumulative effect for inclusion within the assessment.

[9] Planning Inspectorate Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (2019). Available online: Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects | National Infrastructure Planning (planninginspectorate.gov.uk)

15.5.4. For the purposes of this preliminary assessment, Stages 1 and 2 have been completed in order to identify a preliminary short list of other existing development and/or approved developments to inform a high level overview of potential cumulative effects.

Stage 1: Long list methodology

15.5.5. In accordance with PINS Advice Note Seventeen, the first task in establishing the long list of relevant 'other existing development and/or approved development(s)' is to determine the 'search area'. For the purposes of this preliminary assessment, the 'search area' has been determined by affording consideration to the Zone of Influence (ZoI) for each environmental factor assessed within this PEIR.

15.5.6. The ZoI for each environmental factor is defined as the spatial area over which an effect is likely to be experienced. The ZoI for each environmental factor has been identified based on the extent of the likely effects as identified as the study area in each of the individual environmental factor chapters (**Chapters 5-14**), whilst also reflecting any additional area over which cumulative effects may occur for particular cumulative scenarios (e.g. sequential cumulative visual effects on users of linear routes).

15.5.7. The environmental factor-specific study areas presented in **Chapters 5-14**, and appropriate justifications for these study areas, are provided below in **Table 15.2**.

Table 15.2 Zone of Influence for each Environmental Factor

Environmental Factor	Zone of Influence	Justification
Biodiversity	2km from the Site (extended to 10km in certain circumstances)	Background data searches for statutory and non-statutory designated sites and protected species records focus on the Site and a 2km buffer, extended to 10km for Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites. Therefore, the Site and 2km surrounding is considered to be the ZoI.
Air quality	250m from the Site	Based on the Institute of Air Quality Management (IAQM) construction dust guidance (IAQM, 2023)[10], the study area for sensitive human receptors for demolition, earthworks and general construction activities is up to 250m from the Site boundary. For trackout[11] activities, the study area is up to 50m

[10] Institute of Air Quality Management. Guidance on the assessment of dust from demolition and construction. (2023). Available online: construction-dust-2014.pdf (iaqm.co.uk)
[11] Trackout is defined as the transport of dust and dirt from the construction/demolition sites onto public road network, where it may be deposited and then re-suspended by vehicles using the network.

Environmental Factor	Zone of Influence	Justification
		from the edge of the roads likely to be affected by trackout. The study area for sensitive ecological receptors for demolition, earthworks and general construction activities is up to 50m from the Site boundary. For trackout activities, the study area is up to 50m from the edge of the roads likely to be affected by trackout.
Cultural heritage	10km from the Site	The ZTVs presented in **Figures 9.5-9.9** demonstrate that any visibility of the Proposed Development, including the Springwell Substation, would be limited to a maximum distance of 5km from the Site. In theory, there could be in combination effects to heritage assets within this distance of the Site as a result of other developments of a similar height within 5km of the asset and the ZoI for cultural heritage is therefore set at 10km from the Site.
Climate	Not applicable (global)	Greenhouse Gas (GHG) emissions are inherently cumulative, where the sensitive receptor is the global climate. As such, it is not possible to define a ZoI for the assessment of cumulative effects on GHG emissions.
Landscape and visual	10km from the Site	The ZTVs presented in **Figures 9.5-9.9** demonstrate that any visibility of the Proposed Development, including the Springwell Substation, would be limited to a maximum distance of 5km from the Site. In theory, sequential cumulative visual effects on users of linear routes (e.g. roads or long distance recreational footpaths) could be influenced by developments beyond the ZoI of the Proposed Development itself. In order to consider this scenario, the ZoI for the cumulative LVIA is set at 10km from the Site.
Land, soils and groundwater (excluding BMV agricultural land)	1km from the Site	1km buffer has been considered with regard to identifying land, soil and groundwater related receptors that could be impacted by the construction,

Environmental Factor	Zone of Influence	Justification
		operation and/or decommissioning of the Proposed Development.
Noise and vibration	300m from the Site (for construction and decommissioning) Approximately 1km from the Site (for operation)	The study area for the construction and decommissioning phase assessments considers noise and vibration sensitive receptors that are located within 300m of the Site boundary. This has been determined based on the guidance set out in BS 5228-1: 2009+A1: 2014, BS 5228-2: 2009+A1: 2014[12] and DMRB 'LA 111 - Noise and Vibration[13]. For the assessment of operational phase noise levels, the study area extends out to the nearest or most exposed noise sensitive receptors to the Site boundary.
Traffic and transport	Extent of the local road network including: B1202 B1188 B1191 A15	Extent of the local road network affected by the construction, operation and decommissioning phases, as well as any identified sensitive receptors. This study area has been identified assuming that all construction traffic routes to the Proposed Development will follow these links for access.
Water	1km from the Site	A 1km study area has been considered with regard to identifying hydrological features and surface water related receptors that could be impacted by the construction, operation and/or decommissioning of the Proposed Development.

15.5.8. With reference to **Table 15.2** above, the overall combined 'search area' for the long list of relevant 'other existing development and/or approved development(s)' has been based on the largest ZoI in terms of distance, which in this case is **10km**. However, and notwithstanding the above, consideration is being afforded to the adoption of a wider more regional level study area for cumulative assessment in relation to BMV agricultural land (as noted in **Table 15.1**). Therefore, the long list of other existing development and/or approved development(s) may be updated within the ES as required to reflect the agreed ZoI for BMV agricultural land.

[12] BSI Standards Publication BS 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites. Part 1- Noise. Available online: untitled (warrington.gov.uk)
[13] Design Manual for Roads and Bridges. LA 111 Noise and Vibration (2020). Available online: cc8cfcf7-c235-4052-8d32-d5398796b364 (standardsforhighways.co.uk)

15.5.9. Following the adoption of the 10km ZoI, a planning application search was undertaken to identify other existing development and/or approved developments within the 10km ZoI, using the planning portals of North Kesteven District Council, Lincolnshire County Council and PINS.

15.5.10. The 10km ZoI extends from the 'bounding circle' surrounding the Site boundary of the Proposed Development, as presented on **Figure 15.1**. The central National Grid Reference point of other existing development and/or approved developments has been used to determine their location, in the absence of an application boundary in GIS format.

15.5.11. Only the following types of other existing developments and/or approved developments have been considered for inclusion on the long list, as the Applicant considers that any development that does not fall within these types would not likely give rise to a significant cumulative effect:

- Employment developments;
- Residential developments of 10+ dwellings;
- Minerals and waste applications;
- NSIP developments[14];
- Transport infrastructure developments (trunk roads or motorways only); and
- Energy infrastructure developments.

15.5.12. Furthermore, of the development types listed above, only those that meet one or more of the following criteria have been included on the long list (in accordance with the 'Tier 1' and 'Tier 2' descriptions in Table 2 of Advice Note Seventeen):

- Projects that are under construction but that will not be completed prior to the Proposed Development commencing (N.B. in accordance with Table 2 of PINS Advice Note Seventeen, other projects that are expected to be completed before construction of the Proposed Development, and the effects of those projects have been fully determined within their respective applications, are considered as part of the baseline);
- Projects with planning permission within the last five years[15] (whether under the Planning Act 2008 or other regimes), but not yet implemented;
- Submitted applications (whether under the Planning Act 2008 or other regimes), but not yet determined;

[14] As defined by the Planning Act 2008 (as amended)
[15] A five-year period is considered a reasonable time period to capture all other existing development and/or approved developments that still have the potential to be built. Developments with planning permission older than five years will likely have been built or will not likely be built at all.

- Projects on the Planning Inspectorate's Programme of Projects where an EIA Scoping Report has been submitted, but for which an application has not yet been submitted.

15.5.13. The Applicant's interpretation of last bullet point above is that this solely relates to NSIPs. However, the Applicant has chosen to widen this particular criterion to include projects screened as EIA development under other regimes where an EIA Scoping Report has been submitted, but for which an application has not yet been submitted.

15.5.14. It should be noted that with reference to 'Tier 3' descriptions in Table 2 of PINS Advice Note Seventeen, the following other existing development and/or approved development(s) have not been considered for inclusion in the long list, as none of the below will have sufficient environmental assessment information freely and publicly available to inform the inter-project cumulative effects assessment, nor are any of the below considered by the Applicant to be 'existing development and/or approved development':

- Projects on the Planning Inspectorate's Programme of Projects where an EIA Scoping Report has not been submitted;
- Projects that have been identified in the relevant Development Plan(s) (and emerging Development Plans); and
- Projects identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

15.5.15. The Applicant's interpretation of first bullet point above is that this solely relates to NSIPs. However, the Applicant has chosen to widen this particular criterion to include projects screened as EIA development under other regimes where an EIA Scoping Report has not been submitted.

15.5.16. The long list of other existing development and/or approved development(s) is provided in **Appendix 15.1**. This long list will be kept under review and agreed with North Kesteven District Council and Lincolnshire County Council prior to the completion of the ES to allow for a robust assessment of cumulative effects.

15.5.17. It should be noted that several other existing developments and/or approved developments have not met the above criteria and have therefore not been included in the long list. This includes a large residential development north of Ruskington (20/0391/FUL), located within 0.5km from the Site, which is currently under construction and assumed to be operational by 2026. Therefore, in accordance with PINS Advice Note Seventeen, this has been considered as part of the baseline.

Stage 2: Shortlist methodology

15.5.18. Following the formation of the long list, the eligible other existing development and/or approved developments identified have been through further assessment (Stage 2) to establish a short list of other existing development and/or approved developments which, in combination with the Proposed Development, have the potential to result in significant cumulative effects.

15.5.19. The criteria used to determine whether to include or exclude an existing development and/or approved development on the shortlist reflects the process established by PINS Advice Note Seventeen and has regard to relevant policy and guidance documents and consultation with the appropriate statutory consultation bodies (particularly the local planning authority). PINS Advice Note Seventeen states that the criteria should address the following:

- *"**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 programme, to establish whether there is overlap and any potential for interaction.*
- ***Scale and nature of 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 development. Statutory definitions of major development and EIA screening thresholds may be of assistance when considering issues of scale.*
- ***Other factors:** 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 CEA shortlisting process may be documented using Matrix 1 (Appendix 1)* (N.B. **Appendix 15.1** adopts the structure and format of Matrix 1)*. 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."*

15.5.20. PINS Advice Note Seventeen suggests that professional judgement may also be used to supplement the threshold criteria and in order to avoid excluding 'other existing development and/or approved development' that is:

- *"Below the threshold criteria limits but has characteristics likely to give rise to a significant effect; or*
- *Below the threshold criteria limits but could give rise to a cumulative effect by virtue of its proximity to the proposed NSIP* [i.e. the Proposed Development]".

15.5.21. PINS Advice Note Seventeen also notes *"Similarly, professional judgement could be applied to support excluding 'other existing development and/or approved development' that exceeds the thresholds but may not give rise to discernible effects. All of the 'other existing development and/or approved development' considered should be documented and the reasons for inclusion or exclusion should be clearly stated*."

15.5.22. Taking the above into consideration, the other existing development and/or approved developments on the long list has been reviewed against the following criteria to form the shortlist of other existing development and/or approved developments:

- **Criteria 1**: The other existing development and/or approved development has a construction, operational and/or decommissioning phase that overlaps with any phase of the Proposed Development;
- **Criteria 2**: The other existing development and/or approved development and the Proposed Development share common sensitive receptors/resources which are assessed and described in the supporting environmental documentation, and have the potential to be significantly affected by the combination of the other existing development and/or approved development and the Proposed Development; and
- **Criteria 3**: The other existing development and/or approved development has sufficient environmental assessment information freely and publicly available to inform the inter-project cumulative effects assessment. The assessment of each existing development and/or approved development on the shortlist will be proportionate to the environmental assessment information available (N.B: An attempt will not be made to assess the potential environmental effects of any other development to inform the inter-project cumulative effects assessment. If there is an existing development and/or approved development that it is known will be progressed but has insufficient environmental assessment information, it still may be prudent to consider it in the inter-project cumulative effects assessment. This might take the form of listing the project and why it hasn't been considered in detail, or the potential cumulative effect could be discussed at a high level (qualitatively) using professional judgement).

15.5.23. Where an existing development and/or approved development meets all of the above criteria, it has been included on the 'short list'

and will be taken forward for further consideration in the assessment. The 'short list' is detailed below in **Table 15.3**. This short list will be kept under review and agreed with North Kesteven District Council and Lincolnshire County Council prior to the completion of the ES to allow for a robust assessment of cumulative effects.

15.5.24. It should be noted that whilst the Applicant recognises that Fosse Green Energy (application reference EN010154) and Heckington Fen Solar Park (application reference EN010123) fall outside of the 10km ZoI, they have been included in the short list as both are very close to the edge of the 10km ZoI and both projects are similar in nature to the Proposed Development. Therefore, in the interests of transparency, the Applicant considers that it would be inappropriate to exclude them.

Table 15.3 Shortlist of other existing development and/or approved development

Application Reference	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI?
20/0029/FUL	Town and Country Planning Act 1990	Erection of 329 no. dwellings, formulation of new access points from Sleaford Road and Dunston Road, provision of new internal access roads, and, provision of new sustainable drainage infrastructure	0.37km North East	Approved – Operation proposed for 2026	Yes
EIA/37/22	Town and Country Planning Act 1990	Proposed construction of an Anaerobic Digestion Plant and associated infrastructure	2km North East	Pre-application (scoping opinion received) – Construction year unknown	Yes
23/0390/EIASCO	Town and Country Planning Act 1990	Navenby Heath 400MW Battery Storage Development	2km NW	Pre-application (scoping opinion received) – Construction year unknown	Yes
EN010151	Planning Act 2008	Beacon Fen Energy Park	7.45km South East	Pre-Application – Construction is anticipated to start in 2026 (subject to consent) Operation timeframe - 60 years	Yes

Application Reference	Planning regime	Brief description	Distance from the Proposed Development	Status	Within 10km ZoI?
EN010154	Planning Act 2008	Fosse Green Energy	11.24km NW	Pre-Application - Construction anticipated to commence 2031. Operation expected to commence 2033.	No
EN010123	Planning Act 2008	Heckington Fen Solar Park	12.97km SE	Examination - Construction will commence, at the earliest, in the Spring 2025 for 30 months. Earliest operation Autumn 2027.	No

15.5.25. Where developments have been discounted from the shortlist, they will continue to be monitored to ensure that any changes to those projects are identified and their omission from the shortlist is reassessed prior to undertaking the cumulative assessment for the ES.

Stage 3: Information gathering

15.5.26. The other existing development and/or approved developments that form part of the shortlist are subject to a review of environmental information, where available, including details of:

- Location;
- Programme, including construction, operation and decommissioning;
- Baseline data;
- Effects arising from such other developments; and
- Proposed design.

Stage 4: Assessment

15.5.27. An initial review of short-listed projects has been undertaken to inform a high level overview of potential cumulative effects for the purposes of this preliminary assessment (see **Section 15.6** below). A further review will be undertaken to inform the full cumulative assessment to be reported in the ES. Should significant cumulative effects be identified, consideration will be given to additional mitigation to avoid, prevent, reduce or, if possible, offset any identified significant adverse cumulative effects

15.5.28. There is no formal guidance on the criteria for determining significance of cumulative effects. For the full assessment to be presented in the ES, the following principles will be considered when assessing the significance of inter-project effects, in accordance with PINS Advice Note Seventeen and in consideration of any mitigation measures required to avoid, prevent, reduce or, if possible, offset any identified significant adverse cumulative effects:

- Is there an inter-project effect on any receptors/resources;
- The duration and frequency of the effects;
- The nature of the receptors/resources affected;
- How the impacts identified combine to affect the condition of the receptor/resource;
- The probabilities of the impacts occurring in relation to each other in such a way so as to produce a cumulative effect, considering the extent and duration of the impact change;
- The ability of the receptor/resource to absorb further impacts; and

- Is the level of effect different to that considered at the project level and is the cumulative effect significant or not.

15.6. Preliminary inter-project cumulative assessment

15.6.1. This section presents a high-level overview of potential cumulative effects based on the short-listed projects presented in **Table 15.3**. Discussions with North Kesteven District Council and Lincolnshire County Council in relation to agreement on study areas and methodology for cumulative effects assessment (including agreement on the list of other projects) will be undertaken as part of the ongoing EIA process and will inform the full assessment of cumulative effects to be reported within the ES.

Air Quality

15.6.2. There are no developments on the short list that lie within the ZoI for air quality (250m) and therefore there is considered to be no potential for cumulative air quality effects.

Biodiversity

15.6.3. There is one approved residential development (20/0029/FUL) *c.* 15ha in size, one proposed anaerobic digestion plant (EIA/37/22) *c.* 8ha in size and one proposed battery storage scheme (23/0390/EIASCO) *c.* 12ha in size, within 2km from the Proposed Development. The main adverse effects of these developments are likely to be habitat loss and disturbance (e.g. noise, householders cats/dogs and lighting which may affect bats). All these developments are proposed on agricultural land, which is a habitat similar to the Site, and therefore similar ecological receptors will likely be affected. The developments are relatively small in comparison to the Proposed Development; however, they could have a combined effect of habitat loss on ground nesting birds and foraging bats. It is assumed that these developments will be subject to the respective mitigation plans agreed with the relevant authorities, and that adverse effects on ecological receptors would be mitigated with no significant effect. It is envisaged that there will be minimal residual impact from the Proposed Development and therefore cumulative effects from the above applications are anticipated to be low.

15.6.4. There are three nationally significant solar farm developments proposed in the area: Beacon Fen Energy Park (c. 7.5km south east); Foss Green Energy (c. 11km north west) and Heckington Fen Solar Park (c. 13km south east) which are at pre-application stage, pre-application approved or pre-examination stages respectively. The three solar development proposals are fairly similar to the Proposed Development in terms of size, temporal scale, nature of development and likely effects on ecological receptors. The main adverse effects of these solar developments is likely to be habitat loss and disturbance during the construction phase. Operational phase works are anticipated to be relatively low impact and habitat creation/restoration or enhancement, assumed to be carried out

after construction, is likely to have some beneficial effects. If construction works for all these developments are carried out at the same time or within an overlapping timeframe with the Proposed Development, then the potential effects of habitat loss and disturbance may be amplified for species such as ground nesting or wintering birds, which use the wider area and may use the different sites as 'stepping stones' for nesting or foraging habitat.

15.6.5. Providing the above schemes adequately mitigate for their individual effects and no significant effects are identified then the potential for cumulative effects is limited. The possibility of a collaborative regional approach to mitigate any adverse effects and/or enhance beneficial effects may be considered by the respective applicants.

15.6.6. The significance of cumulative effects from the identified solar projects will be assessed further in the ES as designs are progressed and further surveys completed.

Climate

15.6.7. Greenhouse gas (GHG) emissions are inherently cumulative, as all emissions have the same impact on the same ultimate receptor (i.e. the global climate). Most developments result in the release of GHGs, and consequently have the potential to result in a cumulative effect. The impact of these emissions is climate change, or global warming, caused by the radiative forcing effects of GHGs in the atmosphere. The affected receptor is the global climate and all the ecosystems and biomes that depend on it.

15.6.8. As the receptor is not geographically constrained it is not appropriate to undertake a conventional cumulative effects assessment. Consideration of cumulative GHG emissions is inherent within the preliminary GHG assessment undertaken as part of this PEIR **(see Chapter 7: Climate)**, as the emissions of the Proposed Development are assessed within the context of local and UK carbon budgets.

Cultural Heritage

15.6.9. The approved residential development (20/0029/FUL) is an extension of Metheringham to the north and there would be no in combination views with the Proposed Development. No significant cumulative effects on heritage assets are anticipated with this development.

15.6.10. The proposed anaerobic digestion plant and associated infrastructure (EIA/37/22) is located on the former RAF Metheringham site and the local planning authority (Lincolnshire County Council) has requested that heritage be scoped into the assessment. At a maximum height of 25.5m, there could be cumulative effects on assets to the north of the Site.

15.6.11. The proposed Navenby Heath battery storage development north of Green Man Road, Navenby (23/0390/EIASCO) is at an early

stage of development; the local planning authority has asked that cultural heritage to be scoped into the EIA. With a proposed maximum height of 2.9m, the storage units could result in cumulative effects on assets to the northwest of the Site.

15.6.12. The Beacon Fen Energy Park NSIP proposal is located sufficiently far from the nearest assets that are predicted to be affected by the Proposed Development that significant cumulative effects are considered unlikely.

15.6.13. The Fosse Green Energy and Heckington Fen Solar Park NSIP proposals are both located outside of the ZOI for cultural heritage and significant cumulative effects are therefore considered unlikely.

Landscape and Visual

15.6.14. The approved residential development (20/0029/FUL) is essentially an extension of an existing settlement resulting in extremely localised landscape and visual effects. Any effects associated with 20/0029/FUL would be restricted to the far (northern) side of Metheringham, some distance from the Site. There would be no visibility of the scheme in combination with any views of the Proposed Development. No significant cumulative landscape or visual effects are anticipated with this development.

15.6.15. The proposed Navenby Heath battery storage development north of Green Man Road, Navenby (23/0390/EIASCO) is located 2km to the north of the Proposed Development and both schemes may give rise to locally significant effects on landscape character and visual receptors lying between the two sites. If both schemes were constructed in tandem, it is likely that the cumulative landscape and visual effects in this tract of the landscape would be greater than if either project was constructed in isolation. At the current time, insufficient detail is available regarding the Navenby Heath project to provide a judgement about the likely significance of the cumulative effects arising between these two projects. However, assuming a worst case scenario for both projects, it is possible that a significant cumulative landscape and visual effect may arise.

15.6.16. The solar and energy storage element of the Fosse Green Energy NSIP is located in the vale west of the Lincoln Cliff and would have no visual connection with the Proposed Development, although indicative grid connection corridor options extend to the A15 north of Springwell. At this time, insufficient information is available regarding the nature of the grid connection from the Fosse Green Energy proposal to form a judgement on likely significant cumulative effects, but it is possible that cumulative landscape and visual effects could arise north of the Site. Further consideration will be given to any additional information that becomes available to inform the cumulative effects assessment to be reported in the ES.

15.6.17. The Beacon Fen Energy Park and Heckington Fen Solar Park NSIP proposals are both located some considerable distance away from the Proposed Development in a different landscape character area (the Fens) and there would be no visual connection with the

Proposed Development. No significant cumulative landscape or visual effects are anticipated with either development.

Land, Soils and Groundwater

15.6.18. The ZoI for land, soil and groundwater (excluding BMV agricultural land), identified in **Table 15.2**, is 1km. There is one approved residential development (20/0029/FUL) within 1km of the Site. There is potential for temporary construction related accidental spills to have a combined effect on groundwater receptors. However, it is assumed that the proposed residential development will be subject to the respective mitigation plans agreed with the relevant authorities, and that adverse effects on groundwater receptors would be mitigated and not be significant. In view of this, the probabilities of significant cumulative effects occurring on groundwater is anticipated to be low. No interaction of impact on soils would be expected between the Proposed Development and the approved residential development.

15.6.19. The residential development (20/0029/FUL) that has been consented, comprises permanent, irreversible development of land on the edge of Metheringham. For this site, a significant cumulative loss of BMV land in the context of the BMV land available in Lincolnshire is not anticipated.

15.6.20. Beacon Fen Energy Park, Fosse Green Energy and Heckington Fen Solar Park are NSIP solar developments and therefore have the potential for cumulative effects from the use of BMV land, assuming they are all consented. There is limited data currently available on the total area of BMV land use for Beacon Fen Energy Park and Fosse Green Energy. However, based on an indicative calculation based on publicly available information for Heckington Fen Solar Park and assuming half of the land within the boundary of Beacon Fen Energy Park and Fosse Green Energy comprises BMV land, this would equate to approximately 2,059ha of BMV land use, including the current area of BMV land within the Proposed Development Site.

15.6.21. At this time, provision of a detailed breakdown on area of land which is BMV for this development is not possible due to a lack of data. This development will be considered in further detail within the ES, if this information is publicly available.

15.6.22. The area of BMV agricultural land within Lincolnshire is estimated to be more than 380,000ha, as identified in **Chapter 10: Land, Soils and Groundwater**, based on the provisional mapping, In this context, the Beacon Fen Energy Park, Fosse Green Energy and Heckington Fen Solar Park developments alongside the Proposed Development will use approximately 0.005% of the regional BMV land resource.

15.6.23. In addition, it should be noted that these solar developments are considered to be largely reversible resulting in a limited permanent loss of BMV land. Therefore, in the context of the regional BMV land resource, a significant cumulative effect from the use of BMV land

of these developments is not anticipated and it is anticipated that mitigation will be put in place for these developments to ensure ongoing agricultural practices are considered. A further review will be undertaken to inform the full cumulative effects assessment to be reported in the ES.

15.6.24. With respect to potential cumulative effects on BMV agricultural land, consideration will be afforded to the adoption of a wider more regional level study area for cumulative assessment. The list of projects within the ZoI for BMV agricultural land will be agreed with North Kesteven District Council and Lincolnshire County Council as part of the ongoing EIA.

Noise and Vibration

15.6.25. Of those developments listed in **Table 15.3**, The Fosse Green Energy NSIP proposal is considered to be the nearest, with fixed plant infrastructure considered to be located at sufficient distance from the Proposed Development in order to have a negligible impact on the sensitive receptors considered. No significant operational phase impacts are likely from the Proposed Development, and hence cumulative effect is also considered not significant.

15.6.26. It is noted that the indicative Grid Connection Corridor of the Fosse Green Energy NSIP options extend to the A15 north of the Proposed Development. At this time, insufficient information is available regarding the nature of the construction related impacts although it is expected that the construction works would be subject to their own respective mitigation plans which would have been agreed with the regulatory agencies. In view of this, the cumulative impact is considered not significant. Due to different timescales, decommissioning phase cumulative effects are also considered to be not significant.

15.6.27. Metheringham Anaerobic Digestion Plant, which is located 2km north east of the Proposed Development, is considered at sufficient distance to not give rise to cumulative effects during the operational phase. It is expected that the construction works would be subject to their own site specific mitigation measures in order to render potential cumulative effects as not significant.

15.6.28. The Beacon Fen Energy Park and Heckington Fen Solar Park NSIP proposals are considered not significant due to their considerable distance from the Proposed Development.

15.6.29. The proposed Navenby Heath battery storage development is c.3km away from the nearest sensitive receptors considered as part of the Proposed Development; this is considered a sufficient distance to ensure potential cumulative effects are not significant.

15.6.30. Overall, inter-project cumulative effects on noise and vibration sensitive receptors, common to the Proposed Development and other developments, are considered to be not significant.

Traffic and Transport

15.6.31. As noted in **Chapter 12: Traffic and Transport**, due to the extent of baseline information currently known and the maturity of the design of the Proposed Development, this PEIR reports only partial assessment of likely significant traffic and transport effects. The assessment of pedestrian delay; amenity; fear and intimidation; driver delay and highway safety will be reported within the ES once further baseline information has been obtained and the design of the Proposed Development has progressed.

15.6.32. Given this, consideration of cumulative effects on traffic and transport will also be reported within the ES. As noted in **Table 15.1**, the list of other developments that may cumulatively affect traffic receptors will be considered as part of the ongoing EIA process, including availability of traffic data, relevant overlap with construction programme and overlap with the study area. Discussions with North Kesteven District Council and Lincolnshire County Council to agree on the list of other developments will be undertaken as part of the ongoing EIA process.

Water

15.6.33. The ZoI for water, as identified in **Table 15.2,** is 1km. There is one approved residential development (20/0029/FUL) within 1km of the Site. There is potential for temporary construction related accidental spills and/or silt runoff to have a combined effect on surface water receptors. However, it is assumed that the proposed residential development will be subject to the respective mitigation plans agreed with the relevant authorities, and that adverse effects on surface water receptors would be mitigated and not be significant. In view of this, the probabilities of significant cumulative effects occurring on surface water during construction is anticipated to be low.

15.7. Difficulties and uncertainties

15.7.1. The assessment of inter-project cumulative effects is limited to publicly available information obtained from the relevant planning applications on the North Kesteven District Council, Lincolnshire County Council and PINS planning portals. For the purposes of this preliminary assessment, only an initial review of the short list projects has been undertaken to inform a high level overview of potential cumulative effects. Further review will be undertaken to inform the full cumulative assessment to be reported in the ES.

15.8. Further work to inform the ES

15.8.1. The long list and short list of other existing development and/or approved developments presented within this chapter have not been finalised and agreed at this stage. Further consultation with North Kesteven District Council and Lincolnshire County Council to agree the final short list for inclusion in the ES will be undertaken. Any other developments that are identified will be considered as

part of the long list and a decision will be taken in accordance with the methodology detailed in **Section 15.5** to determine whether a particular development will be included in the short list. An assessment cut-off date will be reported within the ES, as advised in PINS Advice Note Seventeen.

Springwell
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