

Rosefield Solar Farm

Preliminary Environmental Information Report

Volume 1
Chapter 18: Cumulative effects

September 2024



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18. Cumulative Effects

18.1. Introduction

18.1.1. 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.

18.1.2. This chapter should be read in conjunction with the following figure presented in **Volume 2** and appendix presented in **Volume 3**:

- **Figure 18.1: Cumulative Long List Radius;**
- **Figure 18.2: Cumulative Developments within 500 m;** and
- **Appendix 18.1: Cumulative Long List**

18.1.3. 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 Regulations¹ and best practice guidance:

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

18.2. Legislative framework, planning policy and guidance

18.2.1. The preliminary assessment has been undertaken with regard to the following legislation, planning policy and guidance.

Legislation

18.2.2. Schedule 4 paragraph (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 uses of natural resources*”.

¹ The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online: <https://www.legislation.gov.uk/ukxi/2017/572/contents/made>

- 18.2.3. Regulation 5(2) of the EIA Regulations states that the ES 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 population and human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape.
- 18.2.4. Regulation 5(2)(e) of the EIA Regulations refers to the need to assess “*the interaction between those factors.*”

National planning policy

- Overarching National Policy Statement for Energy (NPS EN-1) (2023)² – provides the basis for decisions regarding nationally significant energy infrastructure. There are multiple references to cumulative assessment including paragraph 4.1.5, which requires that potential adverse impacts, 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) (2023)³ – sets out the policies relating to electricity generation from renewable sources of energy and includes multiple references to cumulative assessment. Section 2.10 gives specific consideration to solar development including assessment of cumulative impacts;
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2023)⁴ – paragraph 2.9.10 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; and

² Department for Energy Security and Net Zero. (2023). Overarching National Policy Statement for Energy (EN-1). Available online:

<https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1>

³ Department for Energy Security and Net Zero (2023). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online:

<https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3>

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

<https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5>

- National Planning Policy Framework (NPPF) (2023)⁵ - Section 49, 115, 160, 166, 191, 192 and 216 makes reference to ensuring adverse cumulative effects are addressed appropriately, particularly related to highways, landscape and visual, flood risk, ground conditions and pollution, air quality, human health and the historic environment.

Guidance

18.2.5. There is no widely accepted methodology for assessing cumulative effects. However, relevant guidance has been considered during the preparation of this preliminary assessment and will also be employed in the production of the ES, comprising guidance from the Institute of Environmental Management and Assessment (IEMA)⁶, and the assessment guidance set out in the Planning Inspectorate's Advice Note Seventeen⁷ on inter-project cumulative effects.

18.3. Intra-project combined effects

18.3.1. There is the potential for the interaction and combination of different environmental residual effects from within Rosefield Solar Farm to affect certain receptors discussed in the assessments for more than one environmental factor.

18.3.2. The approach to the preliminary assessment of interactions of environmental effects (intra-project combined 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 Rosefield Solar Farm.

18.3.3. The preliminary assessment has been based upon residual (post-additional mitigation) effects of '**slight/minor**' or greater significance only ('**negligible**' residual effects have not been considered). The preliminary assessment includes consideration of where multiple **not significant** effects could combine to become **significant**. The Study area for the

⁵ Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities (2023). National Planning Policy Framework. Available online: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁶ IEMA (2011) The State of Environmental Impact Assessment in the UK. Available online: <https://www.iema.net/download-document/236676>

⁷ Planning Inspectorate (2019) Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (Version 2). Available online: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seventeen-cumulative-effects-assessment-relevant-to-nationally-significant-infrastructure>

preliminary assessment of intra-project combined effects has been informed by the Study areas for the individual environmental factor assessments.

- 18.3.4. Preliminary consideration of the potential for intra-project combined effects between environmental factors has been undertaken to inform this PEIR and is reported in **Table 18.1** below.
- 18.3.5. A full assessment of the potential intra-project combined effects on environmental receptors 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.

Table 18.1 – Preliminary assessment of intra-project combined effects

Environmental factor	Potential intra-project combined effects
Air quality	<p>Intra-project combined effects could include, for example, effects on human receptors arising from air quality (dust), visual and noise impacts. However, at this stage it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.</p>
Biodiversity	<p>The effects on biodiversity and ecology identified already account for impacts arising from the various aspects of Rosefield Solar Farm, this is presented in Chapter 7: Biodiversity. There are various adverse effects from construction works and the operational phase of the project such as visual disturbance, dust, and noise and vibration, which, in combination, increase the magnitude of effect e.g., disturbance to breeding birds, wintering birds and foraging and commuting bats. The significance of these combined effects has been accounted for in this preliminary assessment.</p> <p>Similarly, planting proposed to mitigate landscape and visual effects would have a combined effect with biodiversity enhancement proposals, as landscaping works would also increase biodiversity value of the Site and would be located in areas that will benefit existing habitats and designated sites through connectivity or buffering, and subsequently the species that these sites and habitats support. Therefore it is not considered that there would be likely significant adverse intra-project combined effects associated with this aspect of Rosefield Solar Farm.</p>

Environmental factor Potential intra-project combined effects

Cultural heritage

Intra-project combined effects could include impacts on Listed Buildings (for example, pollution or dust may impact on the historic fabric of Listed Buildings, and Listed Buildings may be residential properties where residents may be impacted by amenity) and Conservation Areas (within which residential properties may be located where residents may be impacted by amenity) and the Registered Park and Garden at Claydon which is also a tourist attraction and where visitors may be impacted by amenity. Such effects may also impact the ability to appreciate the heritage significance of the asset through changes to its setting or the contribution made to its significance by setting.

At this stage, it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

Land, soil and groundwater

Intra-project combined effects could arise, for example, from the synergy between the land, soils and groundwater assessment and the biodiversity and water assessments (presented in **Chapter 7: Biodiversity** and **Chapter 15: Water**, respectively).

The potential changes in land use would be managed and any impacts to the land, soil quality and groundwater would be mitigated by measures documented within the Outline Soil Management Plan and the Outline Landscape and Ecological Management Plan that will be submitted in support of the DCO application. Therefore it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

Landscape and visual

Some of the individual landscape features identified within this preliminary assessment (e.g. existing trees and hedgerows) also have biodiversity value and, in some cases, cultural or heritage value. When considering the significance of landscape effects on any such features, the biodiversity, cultural and heritage values associated with them have been taken into account.

The landscape provides ecosystem services beyond purely the aesthetic and when considering the significance of effects on landscape character any biodiversity, recreational, cultural or heritage values associated with the landscape have been taken into account.

It is recognised that there is the potential for the interaction and combination of residual effects identified in other environmental assessments presented in this PEIR to affect certain visual receptors discussed in **Chapter 11**. This could include, for

Environmental factor Potential intra-project combined effects

example, effects on residential receptors and/or users of public rights of way arising from visual, noise and air quality (dust) impacts. However, at this stage it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

Noise and vibration

Potential for intra-project combined effects during the construction phase resulting from noise generation, increase in dust/air emissions and increased vehicles movements on the local road links. However, at this stage it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

Population

There is potential for intra-project combined effects on the amenity of residents, businesses and users of public rights of way and community facilities to be impacted by noise, air quality, visual and traffic effects arising from the construction and operation (including maintenance) of Rosefield Solar Farm.

It is recognised that there is potential for intra-project effects associated with the potential significant heritage impacts to Clayton House (presented within **Chapter 9: Cultural Heritage**) and adverse effects on tourism and business revenue in the local area. However, at this stage it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

Transport and access

Intra-project combined effects could include impacts on public rights of way.

Conversely, the emissions from construction traffic are a source of effects for multiple receptors related to other environmental assessments, including air quality, noise and vibration, and biodiversity. However, at this stage it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

Water

Intra-project combined effects could include impacts on water receptors due to mobilisation of soils during construction. However, at this stage it is not considered that there would be likely significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

Glint and glare

Intra-project combined effects could include visual impacts on residential properties and users of public rights of way. However, at this stage it is not considered that there would be likely

Environmental factor Potential intra-project combined effects

significant intra-project combined effects associated with this aspect of Rosefield Solar Farm.

- 18.3.6. 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

- 18.3.7. 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, operational (including maintenance) and/or decommissioning phases of Rosefield Solar Farm. 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.
- 18.3.8. If there is only one type of effect on a sensitive receptor (i.e., only one environmental factor assessment 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 combined effects

- 18.3.9. A quantitative assessment of the overall significance of the intra-project combined effects on common sensitive receptors identified at Stage 1 will be undertaken, based on technical information provided in the environmental factor assessments 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.
- 18.3.10. The evaluation at the receptor level will consider:
- the magnitude of change at the common receptor;
 - previously identified sensitivity/importance/value;
 - duration and reversibility of interaction.
- 18.3.11. The focus will be on determining a change in the level of effect likely to be experienced and whether this is significant or not.

18.4. Inter-project cumulative effects

- 18.4.1. The ES will include an assessment of the potential effects of Rosefield Solar Farm in the context of other existing development and/or approved development(s), as detailed below, to determine the cumulative effects that may result from Rosefield Solar Farm and the other existing development and/or approved development(s) on the same receptor or environmental factor.
- 18.4.2. The approach to the assessment of inter-project cumulative effects will consider the deviation from the baseline conditions at common sensitive receptors as a result of changes brought about as a result of Rosefield Solar Farm in combination with one or more other existing development and/or approved developments. The assessment of the inter-project cumulative effects will be based upon the residual (post-additional mitigation) effects that have been identified in the various environmental factor assessments for Rosefield Solar Farm, as well as available environmental information for the other existing development and/or approved developments.
- 18.4.3. In accordance with the Planning Inspectorate's Advice Note Seventeen⁸, 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 short list of other existing development and/or approved developments which, in combination with Rosefield Solar Farm, have the potential to result in a significant cumulative effect for inclusion within the assessment.
- 18.4.4. 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 developments and/or approved developments to inform a high level overview of potential inter-project cumulative effects.

Stage 1: Long list methodology

- 18.4.5. In accordance with the Planning Inspectorate's Advice Note Seventeen, the first task in establishing the long list of relevant other existing

⁸ Planning Inspectorate (2019) Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (Version 2). Available online: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seventeen-cumulative-effects-assessment-relevant-to-nationally-significant-infrastructure>

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 (Zol) for each environmental factor assessed within this PEIR.

- 18.4.6. The Zol for each environmental factor is defined as the spatial area over which an effect is likely to be experienced. The Zol 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 assessments (**Chapters 6 to 16**), 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).
- 18.4.7. The environmental factor-specific Study areas presented in **Chapters 6 to 16**, and appropriate justifications for these Study areas, are provided below in **Table 18.2**.

Table 18.2 – Zone of influence for each environmental factor

Environmental factor	Study area	Justification
Air quality	250 m from the Site boundary and 50 m from the edge of the roads likely to be affected by trackout.	Based on the Institute of Air Quality Management (IAQM) construction dust guidance (IAQM, 2024) ⁹ , the Study area for sensitive human receptors for demolition, earthworks and general construction activities is up to 250 m from the Site boundary. For trackout ¹⁰ activities, the Study area is up to 50 m 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 50 m from the Site boundary. For trackout activities, the Study area is up to 50 m from the edge of the roads likely to be affected by trackout.

⁹ Institute of Air Quality Management. Guidance on the assessment of dust from demolition and construction. (2024). Available online: [construction-dust-2024.pdf \(iaqm.co.uk\)](https://www.iaqm.co.uk/construction-dust-2024.pdf).

¹⁰ 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	Study area	Justification
Biodiversity	2 km from the Site boundary (extended to 10 km in certain circumstances)	Background data searches for statutory and non-statutory designated sites and protected species records focus on the Site and a 2 km buffer, extended to 10 km for Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites.
Cultural heritage	10 km from the Site boundary	The ZTVs presented in Figure 10 in Volume 3 Appendix 9.1 demonstrates that any visibility of the Rosefield Solar Farm would be limited to a maximum distance of 5 km from the Site boundary. 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 5 km of the asset and the Study area for cultural heritage is therefore set at 10 km from the Site boundary.
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 Study area for the assessment of cumulative effects on GHG emissions.
Landscape and visual	10 km from the Site boundary	The ZTVs presented in Figure 11.7 – 11.14 in Volume 2 demonstrate that any visibility of Rosefield Solar Farm could potentially extend beyond 6 km 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 Study area of Rosefield Solar Farm itself. In order to consider this scenario, the Study area for the cumulative assessment is set at 10 km from the Site boundary. It is considered that sequential cumulative visual effects on users of linear routes at greater distances would be no greater than negligible due to the considerable separation distances.
Land, soils and groundwater	1 km from the Site boundary	A 1 km Study area has been considered with regard to identifying land, soil and

Environmental factor	Study area	Justification
(excluding BMV agricultural land)		groundwater related receptors that could be impacted by the construction, operation (including maintenance) and/or decommissioning of Rosefield Solar Farm.
Noise and vibration	<p>300 m from the Site boundary (for construction and decommissioning phases). All road links used for construction traffic. Approximately 1 km from the Site boundary (for the operational (including maintenance) phase)</p>	<p>The Study area for the construction and decommissioning phase assessments considers noise and vibration sensitive receptors that are located within 300 m of the Site boundary. This has been determined based on the guidance set out in BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014¹¹.</p> <p>The influence of cumulative traffic flows during the construction phase will consider all road links to be used by Rosefield Solar Farm.</p> <p>For the assessment of cumulative operational (including maintenance) phase noise levels, a 1 km Study area buffer from the Site boundary has been adopted. Beyond this distance, the contribution of noise emissions is unlikely to be significant.</p>
Population	<p>500 m 'Study area' extending from the Site boundary in all directions whilst also including the full area of the Site itself.</p>	<p>This Study area is in line with Design Manual for Roads and Bridges LA 112¹². The assessment of cumulative effects will be based on this same Study area.</p>

¹¹ 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 \(warrington.gov.uk\)](http://warrington.gov.uk).

¹² Design Manual for Roads and Bridges (2019). LA 112 Population and Human Health. Available at: <https://www.standardsforhighways.co.uk/tses/attachments/1e13d6ac-755e-4d60-9735-f976bf64580a?inline=true>

Environmental factor	Study area	Justification
Traffic and transport	Extent of the local road network including: A41, Station Road / Dewes Lane, Snake Lane / Fiddlers Field, Claydon Road and Granborough Road.	Extent of the local road network affected by the construction, operation (including maintenance) and decommissioning phases, as well as any identified sensitive receptors. This Study area has been identified assuming that all construction traffic routes to Rosefield Solar Farm will follow these links for access.
Water	1 km from the Site boundary	A 1 km Study area has been considered with regard to identifying hydrological features and surface water related receptors that could be impacted by the construction, operation (including maintenance) and/or decommissioning of Rosefield Solar Farm.
Glint and glare	1 km from the Site boundary for residential dwellings and roads. 10 km from the Site boundary for aviation receptors. 500 m from the Site boundary for railway signals and drivers.	There is little formal guidance with regard to the maximum distance at which glint and glare should be assessed. However, based on industry best practice and professional judgement, a 1 km distance from the Site boundary has been used for ground based receptors (including residential dwellings and roads), a 10 km distance for aviation receptors, and 500 m for railway signals and drivers for the operational (including maintenance) phase.

18.4.8. 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 Zol (Study area) in terms of distance, which in this case is 10 km, which is the Study area for internationally designated sites for the preliminary biodiversity assessment (refer to **Chapter 7**), cultural heritage (see **Chapter 9**), landscape and visual (see **Chapter 11**) and glint and glare (see **Chapter 16**).

18.4.9. Following the adoption of the 10 km Zol, a planning application search was undertaken to identify other existing development and/or approved developments within the 10 km Zol, using the planning portals of

Buckinghamshire Council, Cherwell District Council and the Planning Inspectorate.

- 18.4.10. The 10 km Zol extends from the ‘bounding circle’ which surrounds the Site boundary of Rosefield Solar Farm, as presented in **Figure 18.1** in **Volume 2**, to ensure all other existing development and/or approved developments within 10 km of Rosefield Solar Farm were identified. 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.
- 18.4.11. 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, unless otherwise specified:
- Employment developments;
 - Residential developments of 10+ dwellings;
 - Minerals and waste applications;
 - Industrial developments;
 - NSIP developments¹³;
 - Transport infrastructure developments (trunk roads or motorways only); and
 - Energy infrastructure developments.
- 18.4.12. 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 the Planning Inspectorate’s Advice Note Seventeen):
- Projects that are under construction but that will not be completed prior to Rosefield Solar Farm commencing (N.B. in accordance with Table 2 of the Planning Inspectorate’s Advice Note Seventeen, other projects that are expected to be completed before construction of Rosefield Solar Farm, and the effects of those projects have been fully determined within their respective applications, are considered as part of the baseline);

¹³ As defined by the Planning Act 2008 (as amended). Available online: <https://www.legislation.gov.uk/ukpga/2008/29/contents>

- Projects with planning permission within the last five years (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; and
- 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.

18.4.13. The Applicant's interpretation of the 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.

18.4.14. It should be noted that with reference to 'Tier 3' descriptions in Table 2 of the Planning Inspectorate's Advice Note Seventeen, the following other existing development and/or approved development(s) have not been considered for inclusion in the long list. 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.

18.4.15. Consideration has also been given to other existing developments and/or approved developments that have been identified through consultation with stakeholders including National Grid and Buckinghamshire Council. For example, the expansion of East Claydon Substation does not meet the above criteria; however, as it is integral to the development of Rosefield Solar Farm, a preliminary assessment has been included within this chapter.

18.4.16. The long list of other existing development and/or approved developments is provided in **Appendix 18.1** in **Volume 3**. This long list will be kept under review and agreed with Buckinghamshire Council prior to the completion of the ES to allow for a robust assessment of cumulative effects. The information provided in **Appendix 18.1** is accurate as of 30 July 2024.

Stage 2: Short list methodology

- 18.4.17. Following the formation of the long list, the eligible other existing developments 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 Rosefield Solar Farm, have the potential to result in significant cumulative effects.
- 18.4.18. The criteria used to determine whether to include or exclude an existing development and/or approved development on the short list reflects the process established by the Planning Inspectorate's Advice Note Seventeen and has regard to relevant policy and guidance documents and consultation with the appropriate statutory consultation bodies (particularly Buckinghamshire Council). The Planning Inspectorate's 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 Cumulative Effects Assessment shortlisting process may be documented using Matrix 1 (Appendix 1) (N.B. Appendix 18.1 in Volume 3 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.”**
- 18.4.19. The Planning Inspectorate's 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. Rosefield Solar Farm]”.*

18.4.20. The Planning Inspectorate’s 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.”*

18.4.21. Taking the above into consideration, the other existing development and/or approved developments on the long list have been reviewed against the following criteria to form the short list 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 Rosefield Solar Farm;
- **Criteria 2:** The other existing development and/or approved development and Rosefield Solar Farm 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 Rosefield Solar Farm;
- **Criteria 3:** The other existing development and/or approved development has sufficient environmental assessment information freely and publicly available (including traffic flows) to inform the inter-project cumulative effects assessment. The assessment of each existing development and/or approved development on the short list will be proportionate to the environmental assessment information available (N.B: An attempt will not be made to determine the potential environmental effects of another 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).

- 18.4.22. The Applicant notes that the Planning Inspectorate has agreed that transport and access matters are treated differently due to the temporary nature of traffic effects. Therefore, for transport and access only, consideration will only be afforded to other existing development and/or approved developments that have been determined.
- 18.4.23. 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 18.3**. This short list will be kept under review and agreement sought with Buckinghamshire Council prior to the completion of the ES to allow for a robust assessment of cumulative effects. Note that the identification numbers in the first column of **Table 18.3** correspond with those in **Appendix 18.1** in **Volume 3**.

Table 18.3: Short list of other existing development and/or approved development

ID	Application reference	Planning regime	Brief description	Distance from Rosefield Solar Farm	Status
0	N/A	Town and Country Planning Act 1990	Expansion of the existing East Claydon National Grid Substation	Located within the bounding circle as outlined in Figure 18.1 and Figure 18.2 in Volume 2	Pre-application
1	19/00983/APP Tuckey Farm	Town and Country Planning Act 1990 Buckinghamshire Council	Ground mounted solar farm, ancillary infrastructure and associated works including the diversion of public rights of way and landscape planting	Located within the bounding circle as outlined in Figure 18.1 and Figure 18.2 in Volume 2	Approved
2	23/03875/APP Rookery Farm	Town and Country Planning Act 1990 Buckinghamshire Council	Development of a battery energy storage system (BESS), connected directly to the national grid with associated infrastructure including access, drainage, and landscaping	Located within the bounding circle as outlined in Figure 18.1 and Figure 18.2 in Volume 2	Pending decision
3	Hybrid Bill	High Speed Rail Act 2017	High Speed Rail 2 ('HS2')	Located within the bounding circle as outlined in Figure 18.1 and Figure 18.2 in Volume 2	Approved – Construction ongoing

ID	Application reference	Planning regime	Brief description	Distance from Rosefield Solar Farm	Status
4	TWA/18/APP/04	Buckinghamshire Council	East West Rail	Located within the bounding circle as outlined in Figure 18.1 and Figure 18.2 in Volume 2	Ongoing
5	CM/0016/21 Calvert Solar Park	Town and Country Planning Act 1990 Buckinghamshire Council	Application for the construction of solar array / solar park comprising of ground mounted solar PV panels and associated works	Located within the bounding circle as outlined in Figure 18.1 and Figure 18.2 in Volume 2	Pending decision
6	21/02851/AOP Grendon Prison	Town and Country Planning Act 1990 Buckinghamshire Council	Outline planning application with all matters reserved except for access, layout, and scale for the construction a new category C prison (up to 67,000 sqm GEA) within a secure perimeter fence together with access, parking, landscaping and associated engineering works	1.7 km (see Figure 18.2 in Volume 2)	Approved (following appeal)
9	21/04112/OUT	Town and Country Planning Act 1990	Outline application for the erection of up to 65 dwellings, including up to 8 live-work	8.2 km	Approved (appeal)

ID	Application reference	Planning regime	Brief description	Distance from Rosefield Solar Farm	Status
		Cherwell District Council	dwellings (use class sui generis), public open space, access, infrastructure and demolition of existing buildings (all matters reserved except principle means of access from Station Road)		
10	22/03873/F	Town and Country Planning Act 1990 Cherwell District Council	Installation and operation of a renewable energy generating station comprising ground-mounted photovoltaic solar arrays and battery-based electricity storage containers together with a switchgear container, inverter/transformer units, site access, internal access tracks, security measures, access gates, other ancillary infrastructure and landscaping and biodiversity enhancements	8.3 km	Refused In appeal period
11	24/00949/F	Town and Country Planning Act 1990	Siting of battery storage facility; substation for the connection of the BESS to the grid; ancillary	9 km	Pending decision

ID	Application reference	Planning regime	Brief description	Distance from Rosefield Solar Farm	Status
		Cherwell District Council	equipment; security fencing; landscaping and vehicular access alterations.		
12	21/03558/OUT	Town and Country Planning Act 1990 Cherwell District Council	Outline application for residential development for up to 250 dwellings including affordable housing and ancillary uses including retained Local Wildlife Site, public open space, play areas, localised land remodelling, compensatory flood storage, structural planting and access	9.4 km	Approved
13	21/01224/OUT	Town and Country Planning Act 1990 Cherwell District Council	Outline planning application for Automotive Experience Quarter comprising Commercial, Business and Services uses (Class E), Light Industrial (Class B2), Local Community and Learning Uses (Class F) and vehicle circuits (Sui Generis) with all matters reserved aside from that of access)	9.6 km	Approved

ID	Application reference	Planning regime	Brief description	Distance from Rosefield Solar Farm	Status
14	15/00314/AOP	Town and Country Planning Act 1990 Buckinghamshire Council	Outline planning application with all matters reserved except for access for a mixed-use sustainable urban extension on land to the south west of Milton Keynes to provide up to 1,855 mixed tenure dwellings, an employment area, a neighbourhood centre, and a primary and secondary school.	9.7 km	Approved

18.4.24. Where other existing developments and/or approved developments have been discounted from the short list, they will continue to be monitored to ensure that any changes to those developments are identified and their omission from the short list is reassessed prior to undertaking the cumulative assessment for the ES.

Stage 3: Information gathering

18.4.25. The other existing developments and/or approved developments that form part of the short list will be subject to a review of environmental information, where available, including details of:

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

Stage 4: Assessment

18.4.26. A full cumulative assessment will be reported in the ES. Should likely 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.

18.4.27. 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 cumulative effects, in accordance with the Planning Inspectorate's 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 cumulative 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.

18.5. Preliminary inter-project cumulative assessment

18.5.1. This section presents a high-level overview of potential cumulative effects based on the short-listed other existing and/or approved developments presented in **Table 18.3**. Detailed assessment of inter-project cumulative effects will be included within the ES.

Air quality

18.5.2. With respect to air quality, potential inter-project cumulative effects could include additional construction dust impacting on receptors within 250 m of the Site boundary and cumulative construction traffic along the same route that construction traffic from Rosefield Solar Farm will take. However, at this stage of the assessment, construction details of other developments are not available therefore, a worse case assumption has been presented.

18.5.3. The following other existing and/or approved developments have the potential to have cumulative effects on air quality (see **Figure 18.2** in **Volume 2**):

- National Grid East Claydon Substation Extension;
- Proposed solar farm at Tuckey Farm (19/00983/APP);
- HS2 (and associated applications);
- East West Rail;
- Grendon Prison (21/02851/AOP); and
- Rookery Farm BESS (23/03875/APP).

Biodiversity

18.5.4. With respect to biodiversity, the following receptors have been identified as having the potential to experience inter-project cumulative effects when considering the other existing and/or approved developments detailed in **Table 18.3**:

- Foraging and commuting bats;
- Roosting bats;
- Black and brown hairstreak butterfly;
- Ground nesting birds; and
- Wintering birds.

18.5.5. These receptors are likely to experience the following inter-project cumulative effects:

- Habitat loss (land take);
- Habitat fragmentation (including connectivity);
- Incidental mortality of species; and
- Disturbance effects (comprising light, noise and visual disturbance).

18.5.6. The following other existing and/or approved developments have the potential to result in inter-project cumulative effects relating to the biodiversity receptors and impacts outlined above (see **Figure 18.2** in **Volume 2**):

- National Grid East Claydon Substation Extension;
- Proposed solar farm at Tuckey Farm (19/00983/APP);
- Grendon Prison (21/02851/AOP);
- Rookery Farm BESS (23/03875/APP);
- HS2 (and associated applications); and
- East West Rail.

18.5.7. The other existing and/or approved developments detailed in **Table 18.3** that are not listed above are considered unlikely to result in inter-project cumulative effects on biodiversity receptors. This is due to a number of reasons, including the distance of the other existing and/or approved developments from Rosefield Solar Farm, poor habitat connectivity, and the mitigation measures outlined for each of these other existing and/or approved developments that will likely result in no or negligible effects on biodiversity receptors.

Climate

18.5.8. GHG emissions are a unique type of impact that demands consideration in a different manner to the other types of impact. GHG emissions are inherently cumulative; no specific impact location or magnitude can be attributed to a particular emission and all emissions have the same impact on the same ultimate receptor. The impact 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.

18.5.9. Emissions from nearby and associated developments will have a cumulative effect with those from any GHG-emitting activity both nationally, and indeed globally. Therefore, aligned with IEMA guidance¹⁴, it is not appropriate to consider the effects of GHG emissions from specific other existing and/or

¹⁴ Institute of Environmental Management and Assessment (2022) Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available online:

<https://www.iema.net/preview-document/assessing-greenhouse-gas-emissions-and-evaluating-their-significance>

approved developments in the nearby area, as there is no basis for selecting any particular development over any other. However, consideration will be afforded to the National Grid East Claydon Substation within the ES.

Cultural heritage

- 18.5.10. With respect to cultural heritage, the following other existing and/or approved developments has the potential to result in inter-project cumulative effects with Rosefield Solar Farm as a result of changes to the wider landscape setting of Grade II listed Finemerehill House (NHLE 1117815) and the contribution this makes to its significance:
- HS2 (and associated applications)
- 18.5.11. Other existing and/or approved developments detailed in **Table 18.3** that are not listed above are considered unlikely to result in inter-project cumulative effects on cultural heritage receptors. This is due to a number of reasons, including the distance of the other existing and/or approved developments from Rosefield Solar Farm and the lack of invisibility or other connections with the heritage assets in the area.

Land, soil and groundwater

- 18.5.12. With respect to land, soil and groundwater, the only receptors for which potentially significant effects have been predicted are soil and agricultural land. Where soil of Grade 3a (good quality) is present, a slight or moderate significance of effect was identified during the construction phase for Rosefield Solar Farm. Given the assumption that several of the other existing and/or approved developments, as listed below, will result in the sterilising of soil resources to some degree, these other existing and/or approved developments have the potential to result in inter-project cumulative effects relating to soil and agricultural land when this resource is considered on a local level (i.e. within Buckinghamshire) (see **Figure 18.2** in **Volume 2**):
- National Grid East Claydon Substation Extension;
 - Proposed solar farm at Tuckey Farm (19/00983/APP);
 - HS2;
 - East West Rail;
 - Rookery Farm BESS (23/03875/APP);
 - Calvert Landfill Solar Park (CM/0016/21); and
 - BESS facility (24/00949/F).

Landscape and visual

- 18.5.13. With respect to landscape and visual, the following other existing and/or approved developments have the potential to result in inter-project cumulative

effects as a result of changes to landscape and/or visual amenity (see **Figure 18.2 in Volume 2**):

- National Grid East Claydon Substation Extension;
- Proposed solar farm at Tuckey Farm (19/00983/APP);
- HS2 (and associated applications);
- East West Rail;
- Grendon Prison (21/02851/AOP); and
- Rookery Farm BESS (23/03875/APP).

18.5.14. These other existing and/or approved developments are located within the Zone of Theoretical Visibility (ZTV) for Rosefield Solar Farm and could give rise to locally significant effects on landscape character and visual receptors lying between the proposed sites. If the projects were constructed in tandem, it is likely that the cumulative landscape and visual effects in the tracts of the landscape described would be greater than if the projects were constructed in isolation. Therefore, assuming a worst case scenario, it is possible that significant cumulative landscape and visual effects may arise.

Noise and vibration

18.5.1. With respect to noise and vibration, the following other existing and/or approved developments have the potential to result in inter-project cumulative effects (see **Figure 18.2 in Volume 2**):

- National Grid East Claydon Substation Extension;
- Rookery Farm BESS (23/03875/APP);
- Proposed solar farm at Tuckey Farm (19/00983/APP);
- HS2 (and associated applications); and
- East West Rail.

18.5.2. From the other existing and/or approved developments listed above, the operational phase noise levels generated by the National Grid East Claydon Substation Extension and Rookery Farm BESS have the potential to act cumulatively with Rosefield Solar Farm at a limited number of sensitive receptors within the Study area. As a result, it is possible that a significant inter-project cumulative noise effect may arise during the operational (including maintenance) phase. Construction phase inter-project cumulative effects are not expected at receptors common to these three developments.

18.5.3. The proposed solar farm at Tuckey Farm is located to the north-east of the Rosefield Solar Farm (see **Figure 18.2 in Volume 2**). Based on the location and layout of Tuckey Farm solar farm, it is not anticipated that the proposed noise emitting plant/equipment will make a significant inter-project cumulative noise

contribution at the sensitive receptors in the vicinity of Rosefield Solar Farm. On this basis, significant inter-project cumulative effects are not anticipated.

- 18.5.4. HS2 is located to the south-west of Parcel 1 and Parcel 2 of Rosefield Solar Farm (see **Figure 18.2** in **Volume 2**) and as a result, there is potential for inter-project cumulative noise levels. For noise sensitive receptors in the vicinity of Parcel 1 and Parcel 2, the predicted operational (including maintenance) phase noise levels from Rosefield Solar Farm are predicted to be considerably lower than the noise generated by HS2; on this basis, significant inter-project cumulative effects are not anticipated.
- 18.5.5. Given the separation distance from East West Rail and the predicted Rosefield Solar Farm noise levels at receptors north of Parcel 1, it is not anticipated that there will be any significant inter-project cumulative effects.

Population

- 18.5.6. The only receptor identified in the preliminary population assessment (**Chapter 13**) for Rosefield Solar Farm that may experience any level of effect is public rights of way, in which there is the potential for a **slight adverse** and **moderate adverse** effects. As a result of a diversion to the existing public right of way at Field E11, the residual effect is **slight adverse**. The diversion proposed south west of Shrubs Wood is of such a distance that there may be a **significant** effect. None of the other existing and/or approved developments in **Table 18.3** are anticipated to lead to any changes to the public right of way network within the defined Study area or within 1 km of Site boundary. Therefore, no inter-project cumulative effects are expected.
- 18.5.7. There is potential for a cumulative impact on agricultural business however, this will be assessed in detail in the ES once further information is available.

Transport and access

- 18.5.8. The addition of cumulative traffic flows will increase the baseline traffic level that Rosefield Solar Farm traffic will be measured against. As such, the percentage impact of construction traffic on the Study area network will be reduced.
- 18.5.9. The cumulative review will consider overall road link capacity. However, the potential impact of other existing and/or approved developments together with Rosefield Solar Farm construction traffic is highly unlikely to affect network capacity.
- 18.5.10. The access route for Rosefield Solar Farm is not shared with the other existing and/or approved developments listed in **Table 18.3** and as such, there are unlikely to be further inter-project cumulative effects within the Study area. Should this situation change, any inter-project cumulative effects can be managed through the Outline Construction Traffic Management Plan. The Outline Construction Traffic Management Plan will be submitted in support of the DCO application. A Construction Traffic Management Plan would be

secured pursuant to the DCO as a requirement, and in accordance with the outline plan.

Water

- 18.5.11. With respect to water, the other existing and/or approved developments listed in **Table 18.3** are considered unlikely to result in inter-project cumulative effects with Rosefield Solar Farm. This is due to a number of factors, including the distance of the other existing and/or approved developments from Rosefield Solar Farm, and Rosefield Solar Farm being positioned in mostly Flood Zone 1 and within an area at low risk of flooding from other sources. Mitigation measures outlined for each of the other existing and/or approved developments will likely result in no or negligible effects on water resource and flood risk receptors.
- 18.5.12. The main common thread with respect to the identified other existing and/or approved developments is the requirement to limit offsite surface water discharges to greenfield rates (where an effect is identified) that will mimic the natural runoff scenario and ensure no increase in flood risk either onsite or downstream.

Glint and glare

- 18.5.13. With respect to glint and glare, HS2 and East West Rail have the potential to result in inter-project cumulative effects with Rosefield Solar Farm; however such effects are considered unlikely due to the HS2 railway being constructed within an embankment.

18.6. Difficulties and uncertainties

- 18.6.1. The assessment of inter-project cumulative effects will be limited to publicly available information obtained from the relevant planning applications on the planning portals of Buckinghamshire Council, Cherwell District Council and the Planning Inspectorate. For some of the short-listed other existing developments and/or approved developments, relevant information to inform this assessment may not be available.

18.7. Further work to inform the ES

- 18.7.1. 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 Buckinghamshire Council to agree the final short list for inclusion in the ES will be undertaken.
- 18.7.2. Any other existing development and/or approved 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 18.4** 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 the Planning Inspectorate's Advice Note Seventeen¹⁵.

¹⁵ Planning Inspectorate (2019) Advice Note Seventeen: Cumulative effects assessment relevant to nationally significant infrastructure projects (Version 2). Available online: <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seventeen-cumulative-effects-assessment-relevant-to-nationally-significant-infrastructure-projects>



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