East Pye Solar

Environmental Statement

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19.1 Introduction

19.1.1 This chapter of the Environmental Statement (ES) presents a summary of the potential likely in-combination effects between topics, setting out the interrelationship arising as a result of direct effects from other environmental topics.

19.1.2 As set out in **ES: Chapter 2 EIA Methodology [EN0110014/APP/6.1.2]**, a Cumulative Effects Assessment has been undertaken in accordance with PINS Advice on Cumulative Effects Assessment (September 2024) (Ref 19-1) and has considered two types of cumulative effects:

- In-Combination Effects – The inter-relationship between individual development effects on one particular receptor (presented in this chapter); and
- Cumulative Effects – Multiple existing and/or approved developments generating additive effects which together have an increased effect on the same receptors. Each topic chapter within the **ES: Chapter 6-18 [EN0110014/APP/6.1.6 – 6.1.18]** sets out how the particular topic area has considered and assessed the cumulative effects arising as a result of other existing or proposed development.

19.1.3 In-combination effects occur when receptors are subject to residual effects under more than one environmental topic.

19.1.4 This chapter of the ES presents the potential in-combination effects between environmental aspect topics, setting out the inter-relationships arising as a result of direct effects from other aspect topics during the construction, operation, and decommissioning phases of the Scheme. These have been summarised and tabulated to demonstrate where these effects have the potential to occur.

Consultation, Legislation, Planning Policy and Guidance

19.1.5 An overview of the legislation, planning policy and guidance against which the Scheme will be considered for the in-combination effects assessment is set out below.

Legislation

19.1.6 Regulation 5(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 19-2) (EIA Regulations) makes explicit

reference to the requirement for an assessment of the in-combination effects between types of effects, and states that:

'The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors… the interaction between the factors referred to in sub-paragraphs (a) to (d)'

19.1.7 In relation to cumulative effects, Schedule 4 Paragraph 5 of the EIA Regulations (Ref 19-2) requires an ES to include:

'A description of the likely significant effects of the development on the environment resulting from, inter alia: …

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

The description of the likely significant effects on the factors specified in regulation 5(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short term, medium-term and long-term, permanent and temporary, positive and negative effects of the development'.

National Planning Policy

19.1.8 The National Policy Statements (NPSs) relevant to the Scheme are:

- Overarching National Policy Statement for Energy (EN-1) (December 2025) (Ref 19-3);
- National Policy Statement for Renewable Energy Infrastructure (EN-3) (December 2025) (Ref 19-4); and
- National Policy Statement for Electricity Networks Infrastructure (EN-5) (December 2025) (Ref 19-5).

19.1.9 Specifically, Section 4.3 of NPS EN-1 explains that the EIA Regulations:

'require an assessment of the likely significant effects of the proposed project on the environment, covering the direct effects and any indirect, secondary, cumulative, transboundary, short, medium, and long-term, permanent and temporary, positive and negative effects at all stages of the project, and also of the measures envisaged for avoiding or mitigating significant adverse effects'.

19.1.10 Paragraph 2.10.133 of NPS EN-3 states that:

'Where cumulative effects on the local road network or residential amenity are predicted from multiple solar farm developments, it may be appropriate for applicants for various projects to work together to ensure that the number of abnormal loads and deliveries are minimised, and the timings of deliveries

are managed and coordinated to ensure that disruption to residents and other highway users is reasonably minimised'

19.1.11 These NPSs set out the Government's energy policy for the delivery of nationally significant energy infrastructure, the need for new energy infrastructure, and guidance for the determination of an application for a Development Consent Order (DCO).

19.1.12 The National Planning Policy Framework (NPPF) (December 2024) (Ref 19-6) sets out the Government's planning policies for England and how these are expected to be applied. The NPPF includes considerations for cumulative effects on flood risk, ground conditions and pollution, sustainable use of materials, and climate change.

Guidance

19.1.13 Other guidance documents relevant to the assessment of the impacts of the Scheme on in-combination effects include the Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (March 2025) (Ref 19-1)

19.1.14 This document sets out a brief description of the legal context and obligations places on an applicant with respect to cumulative effects under national planning policy and the EIA Regulations; an overview of the Cumulative Effects Assessment (CEA) process that applicants may wish to adopt for Nationally Significant Infrastructure Projects; and advice regarding a staged approach and the use of consistent template formats for documenting the CEA.

19.2 Methodology

19.2.0 In-combination effects have been considered during the construction, operation, and decommissioning phases of the Scheme. In light of the comprehensive range of embedded design measures, effect interactions have only been considered where residual adverse or beneficial effects of at least slight or minor in at least one receptor group have been identified.

19.2.1 In-Combination effects occur when receptors are subject to residual effects under more than one environmental topic. As such, the residual effects presented in the respective ES topic chapters have been reviewed to identify receptors subject to one or more types of effect to ensure that the interrelationship between each of the aspects of the environment likely to be affected by the Scheme has been properly evaluated and considered.

19.2.2 To qualify for consideration as an in-combination effect, the residual effect must meet both of the following criteria:

- Be Minor in scale or greater (i.e. not negligible) – by the definition of a negligible effect, they do not justify further consideration; and

- Have a shared receptor with another residual effect – there is no potential for in-combination effects if a receptor only experiences a single effect.

19.2.3 The scale of the effect interaction has not been identified as part of this assessment; however, the significance of the effect interaction has. The significance of an effect interaction is determined based on:

- Whether one or more residual effect(s) is significant in isolation (in which case the in-combination effect is considered significant); or
- Professional judgment being applied where all residual effects on a single receptor are not significant, and the potential of these combining to create a significant effect interaction.

19.2.4 Where individual effects are of a different nature (e.g. beneficial effect and an adverse effect occur simultaneously on a single receptor), the nature of the effect interaction has not been stated; however, where all effects on a single receptor are of the same nature, then the nature of the effect interaction has been stated. When determining the in-combination nature of an effect when different natures (e.g. a beneficial and adverse) occur, an outweighing or balancing or natures is not afforded to either beneficial or adverse as for the purpose of assessment it is considered awarding an in-combination nature of effect is inherently subjective and therefore the nature of an in-combination effect has not been stated. An example of this could be a beneficial and adverse nature of effect occurring simultaneously on a single receptor does not balance out to conclude a 'neutral' nature of effect or an in-combination overall beneficial or adverse in-combination nature of effect.

19.2.5 The approach to assessing in-combination effects has followed a four-stage process as outlined in **ES: Chapter 2 EIA Methodology [EN0110014/APP/6.1.2]** highlighted in the following paragraphs.

Stage 1 – Screening

19.2.6 The first stage of the assessment is identifying 'receptor groups' based on whether a sensitive receptor is exposed to more than one type of residual effect across the ES topics during the construction, operation and maintenance, and decommissioning phases of the Scheme. The term 'receptor group' is used to highlight that the approach taken for the in-combination effects assessment does not assess every individual receptor assessed at the EIA stage, but rather potentially sensitive groups of receptors identified through the EIA process.

19.2.7 Sensitive receptors that could experience two or more types of residual effects (post-mitigation), with significance of 'minor' or greater, are taken forward to Stage 2 of the assessment. Key receptors groups are as follows:

- Residents and occupants/users of surrounding land uses, including places of work and the local road network;

- Users of PRoW and walking routes;
- Heritage assets, including Listed Buildings , Conservation Areas and archaeological sites; and
- Ecologically-designated sites and priority habitats

19.2.8 It there is only one type of effect on a sensitive receptor, then it will be considered that there are no potential in-combination effects, and the sensitive receptor will not be taken forward to Stage 2 of the assessment.

Stage 2 – Assessment of In-Combination Effects

19.2.9 This ES chapter is split into two parts:

- The assessment of effect interactions during the construction and decommissioning phases of the Scheme;
- The assessment of effect interactions during the operation phase of the Scheme.

19.2.10 For the assessment of in-combination effects in this ES chapter, the construction and decommissioning phase effects have been grouped and assessed as one for the most. This is because the construction phase effects in most cases represent the worst-case scenario and it is assumed that the decommissioning phase effects will be similar to or lesser than the construction phase effects in most cases, as has been evidenced in the technical chapters of this ES. Therefore, a worst-case scenario is presented for the decommissioning phase.

19.2.11 Where likely in-combination effects are identified at Stage 1, these are assessed based on information provided in the chapters of the ES and supporting appendices. As this assessment compares both qualitative and quantitative assessment outcomes, professional judgement is applied to determining the significance of each in-combination effect identified.

19.3 Construction and Decommissioning Phases

19.3.1 **Table 19.1** presents the likely residual effects during the construction and decommissioning phases which could occur in-combination with other effects, on a single receptor group. The effects of the decommissioning phase are anticipated be the same or less than the construction phase. Where differences are identified between the construction and decommissioning phase effects for individual environmental topics, these have been assessed and described separately in the ES.

Table 19.1: Effect Interactions during Construction and Decommissioning

Receptor Group	Topic and Residual Effect	Nature of Effect	Scale and Nature	In-combination Effect Significance
Residents / users of the local area	**Visual** Noticeable changes to people's views and visual amenity	Short Term	No Changes to Major Adverse to Substantial (depending on the view)	Not Significant to **Significant** (depending on the view)
	Vibration Construction activity vibration	Short-term	Minor Adverse	Not Significant
	Noise Construction traffic noise	Short-term	Minor Adverse	Not Significant
	Air Quality Road traffic emissions on human health	Short-term	Not Significant	Not Significant
	Water Environment Water supply and demand	Short-term	Minor Adverse	Not Significant
	Ground Contamination Human health exposure to potential contamination through ground disturbance.	Short-term	Minor Adverse	Not Significant
	Transport Driver and passenger delay. User and pedestrian safety. Severance of communities.	Short-term	Minor Adverse	Not Significant
	Socio-economics Jobs, employment and supply chain	Short-term	Major Beneficial	Not Significant to **Significant**
	Socio-economics Skills and the labour market	Short-term	Moderate Beneficial	**Significant**
	Socio-economics Temporary accommodation market	Short-term	Minor Adverse	Not Significant
	Socio-economics Tourism industry	Short-term	Minor Adverse	Not Significant
PRoW and Walking Routes	**Visual** Visual effects to local PRoW and walking routes	Short-term	Minor to Major Adverse	Not Significant to **Significant**
	Transport	Short-term	Minor Adverse	Not Significant

Receptor Group	Topic and Residual Effect	Nature of Effect	Scale and Nature	In-combination Effect Significance
	Pedestrian amenity and delay			
Heritage Assets	**Visual** Change to the setting of heritage assets through possible visibility of construction plant, greater traffic and noise	Short-term	Minor Adverse	Not Significant

Residents of the Local Area

19.3.2 During the construction and decommissioning phases, potential individual environmental effects in isolation have been identified which may have an impact on local residents, as well as on people using the local area. A significant adverse effect on views has been identified for a number of residential receptors. In addition, non-significant effects have been identified with regards to additional noise from construction traffic, vibration from construction activities, air quality impacts of road traffic emissions on human health, water supply and demand, ground disturbance leading to potential exposure to contamination, the local transport network including the potential for driver and passenger delay, and socio-economic effects on the temporary accommodation market and tourism industry. Significant beneficial effects have been identified for socio-economic effects on jobs, employment and the supply chain and for the local labour market.

19.3.3 At viewpoints accessed within the area, as described in in **ES: Chapter 7 Landscape and Visual [EN0110014/APP/6.1.7]**, people will experience visual effects which will range from Minor to Substantial Adverse in significance (in the absence of mitigation). For those residents that may experience an adverse effect on views whilst also begin affected by construction traffic noise, this may have a significant adverse in-combination effect.

19.3.4 **ES: Chapter 14 Socio-economics [EN0110014/APP/6.1.14]** concludes that at a local level there will be a Major Beneficial effect on jobs, employment and supply chain (work-place based) and the skills and labour market, which would be considered significant. No adverse effects that were not considered significant were identified with regards to temporary market accommodation and the tourism industry. Increased economic activity could lead to greater levels of travel and in turn, adverse effects on noise and air quality, however the assessments undertaken as a part of this ES conclude that this is not likely to be significant.

19.3.5 The Human Health Summary Statement presented in **Chapter 18: Other Environmental Matters [EN0110014/APP/6.1.18]** summarises the likely effects of the Scheme on human health during the construction, operation and decommissioning phases, drawing together relevant findings from across the ES, in accordance with ISEP guidance and the requirements of

Regulation 18(3) of the EIA Regulations. Taking account of embedded mitigation, construction-phase effects on human health for residents / users of the local area are assessed as negligible or minor adverse and not significant. In addition, the construction phase will deliver temporary employment and skills opportunities, which support positive determinants of health such as income stability, particularly within the context of a rural area with high levels of economic inactivity due to retirement **[ES Chapter 14 Socio-Economics, EN0110014/APP/6.1.14].** In regard to human health, this is identified as a minor beneficial effect that is not significant.

Users of Public Rights of Way and Walking Routes

19.3.6 During the construction and decommissioning phases, individual effects in isolation have been identified on PRoW and walking routes. For the users of PRoW and walking routes, at viewpoints identified in **ES: Chapter 7 Landscape and Visual [EN0110014/APP/6.1.7]**, it is anticipated that there will be significant Adverse effects. Transport effects (as reported in **ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.7]**,) have been identified as Minor Adverse for pedestrian amenity and delay, which are considered to be not significant. A number of PRoW have been identified as requiring short term closures that wouldn't require a diversion. A lesser number of PROW are expected to require closure for a period sufficient to warrant a diversion. Which specific paths will require a diversion will be developed further and agreed with NCC PRoW Officer and documented in the detailed Public Right of Way and Permissive Path Management Plan secured by a DCO Requirement. The in-combination effect on the overall amenity level for users of PRoW and walking routes is therefore considered to be not significant as the only significant effects are predicted for landscape and visual.

Heritage Assets

19.3.7 During the construction and decommissioning phases, there is the potential for in-combination effects on heritage assets such as Conservation Areas specified in **ES: Chapter 10 Cultural Heritage [EN0110014/APP/6.1.7]**, as a result of changes to the heritage setting. Changes to the setting of heritage assets may include visibility of construction plant and also increased traffic on the local road network, including Abnormal Indivisible Loads. During the decommissioning phase, several impacts on designated heritage assets resulting from the operational phase of the Scheme would be reversed, specifically the removal of PV panels and returning the land to the control of the landowner. The exception to this would be the Grid Connection Infrastructure and National Grid Substation, both of which are assumed to remain in-situ post-decommissioning. Overall, the in-combination effect is anticipated to be a minor negative.

Air quality

19.3.8 **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13]** considers air quality impacts on ecological receptors inherently within its assessment, therefore, any impact interactions between air quality and biodiversity effects have already been considered. **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13]** identifies that effects on ecological receptors associated with increases in NOx, NH3 concentrations, and nitrogen and acid deposition resulting from road traffic emission are short-term, negligible, and not significant.

19.4 Operational Phase

19.4.1 **Table 19.2** presents the likely residual effects identified for the operation phase which occur potentially in combination with other effects on a receptor group.

Table 19.2: Effect Interactions During Operation

Receptor	Topic and Residual Effect	Nature of Effect	Scale and Nature	In-combination Effect Significance
Residents / users of the local area	**Visual** Changes to people's views and visual amenity	Long term	No change to Moderate to Major Adverse	Not Significant to **Significant**
	Noise Noise from Project Substations, BESS and Arrays	Long term	No change to Minor Adverse	Not Significant
	Socio-economics Jobs, employment and supply chain	Long term	Minor Beneficial	Not Significant
	Socio-economics Skills and the labour market	Long term	Moderate Beneficial	**Significant**
	Socio-economics Temporary accommodation market	Long term	Minor Adverse	Not Significant
	Socio-economics Tourism industry	Long term	Minor Adverse	Not Significant
	Water Environment Water supply and demand	Long term	Minor Adverse	Not Significant

Receptor	Topic and Residual Effect	Nature of Effect	Scale and Nature	In-combination Effect Significance
PRoW and Walking Routes	**Visual** Visual effects to people's views from PRoW and walking routes	Long term	Minor Adverse	Not Significant
	Noise Noise from Project Substations , BESS and Arrays	Long term	No change to Minor Adverse	Not Significant
Heritage Assets	**Heritage** Changes to the setting of heritage assets possibly through change in heritage landscapes, visual intrusion	Long term	Minor Adverse	Not Significant
	Heritage Below ground archaeology	Long term	Minor to moderate beneficial	Not Significant to **Significant**
	Visual Visual effects to the local area	Long term	Minor to Major Adverse	Not Significant to **Significant**
Ecologically designated sites	**Ecology** Priority habitat: arable field margins and flood plain grazing marsh	Long term	Minor Beneficial	Not Significant
	Ecology Priority habitat: native hedgerows, ponds, rivers and lowland deciduous woodland	Long term	Moderate Beneficial	**Significant**
	Water Environment Reduced nutrient loading to receptors arising from cessation of the spreading of agricultural chemicals and fertiliser	Long term	Major Beneficial	**Significant**
	Climate change Global climate	Long term	Minor beneficial	Not Significant

Residents of the Local Area

19.4.2 During the operational phase, potential individual environmental effects in isolation have been identified which may have an impact on local residents, as well as on people using the local area. An adverse significant effect on views has been identified for a number of residential receptors. A beneficial significant effect has been identified for socio-economics in relation to skills and the labour market. In addition, non-significant effects have been identified with regards to noise from the operation of the scheme, socio-economic effects on jobs, employment and the supply chain, the temporary accommodation market and tourism industry, and water supply and demand.

19.4.3 At viewpoints accessed within the area, as described in in **ES: Chapter 7 Landscape and Visual [EN0110014/APP/6.1.7]**, people will experience visual effects which will range from Minor to Substantial Adverse in significance (in the absence of mitigation). Following completion of construction activities, visual effects will generally reduce due to the cessation of construction activity on the Site. In addition, throughout the operation phase mitigation planting will become increasingly well established. For those residents that may experience an adverse effect on views whilst also being affected by operation noise, this may have a significant adverse in-combination effect, noting that this effect would be expected to reduce throughout the operational phase as planting becomes established.

19.4.4 The Scheme will result in economic activity which will directly lead to emissions associated with worker's vehicle movements. The assessment of these vehicle emissions from worker transport has been identified through the GHG assessment and are included within **ES Chapter 6: Climate Change [EN0110014/APP/6.1.6]**. Following implementation of the proposed mitigation, the residual effect is considered to be negligible and not significant.

Public Rights of Way and Walking Routes

19.4.5 During the operation of the Scheme, non-significant individual visual effects have been identified on users of PRoW and walking routes. In addition, minor effects have been identified in relation to noise. For those residents that may experience an adverse effect on views whilst also being affected by operation noise, this may have a significant adverse in-combination effect, noting that this effect would be expected to reduce throughout the operational phase as planting becomes established. In addition, three new permissive paths will be established during the construction phase to maintain and enhance public access. These permissive paths will complement the existing PRoW network, providing alternative routes for pedestrians. The permissive paths are to remain open up to 365 days per year throughout the 60-year operational lifetime of the Scheme. Accordingly, the in-combination effect visual effect with noise and vibration on PRoW and walking routes is predicted to be not significant.

Heritage Assets

19.4.6 There is the potential for in-combination effects on heritage assets during the operational phase of the Scheme. This is the result of visual impact and changes to heritage setting. **ES: Chapter 10 Cultural Heritage [EN0110014/APP/6.1.7]** identifies up to minor adverse effects on heritage assets and **ES: Chapter 7 Landscape and Visual [EN0110014/APP/6.1.7]** identifies that there will be a minor adverse effect on specified local views. These effects in-combination will however be not significant for heritage assets and will reduce throughout the operational phase as planting becomes more established.

Ecologically Designated Sites

19.4.7 There are significant beneficial effects reported for ecologically-designated sites and priority habitats during the operational phase as a result of the cessation of agricultural activities and the application of fertilisers and chemicals, for which significant effects are also reported for the water environment (**ES Chapter 9 Water Environment [EN0110014/APP/6.1.7]**) in terms of water quality. Considering the Significant Beneficial effects in-combination, it is determined that the in-combination effects during the operation of the Scheme are significant.

19.4.8 During the operation phase of the Scheme, there is potential for ecological and climate change in-combination effects. These effects relate to the potential for climate change impacting habitats and/or species. Habitats might become more threatened or rare over time. This has been considered in **ES Chapter 8: Ecology and Biodiversity [EN0110014/APP/6.1.8]** and the potential risks of a changing climate are detailed therein. Measures to mitigate against Climate Change for habitats and species include the selection of new planting that is locally appropriate and resilient to foreseeable changes in climate and disease. Management is detailed in the **Outline Landscape and Ecological Management Plan (LEMP) [EN0110014/APP/7.4].** The Scheme itself will reduce national GHG emissions and help to mitigate the effects of climate change and as such is not anticipated to have a significant in combination effect on species and habitats. The in-combination climate effect with ecology and biodiversity is not significant.

Summary of In-Combination Effects

19.4.9 In accordance with the definitions provided above, the receptor groups likely to experience significant in-combination effects during the construction and decommissioning phases are:

- Local residents and users of the local area

19.4.10 In accordance with the definitions provided above, the receptor groups likely to experience significant in-combination effects identified during the operational phase are:

- Local residents and users of the local area
- Ecologically-designated sites

References

Ref 19-1 Planning Inspectorate (2025) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment.

Ref 19-2 UK Government (2017) *The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.*

Ref 19-3 Department for Energy Security and Net Zero (2023) *Overarching National Policy Statement for Energy (EN-1).* < https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1

Ref 19-4 Department for Energy Security and Net Zero (2023) *Overarching National Policy Statement for Energy (EN-3)* < https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3

Ref 19-5 Department for Energy Security and Net Zero (2023) *Overarching National Policy Statement for Energy (EN-5)* < https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5 >

Ref 19-6 Ministry of Housing, Communities and Local Government (2024) *National Planning Policy Framework (NPPF)*.