

The Drovers Solar Farm

Chapter 17: In-Combination Effects (Clean)

Prepared by: LDA Design

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List of Contents

<u>17</u>	<u>In-Combination Effects.....</u>	<u>1</u>
17.1	Introduction.....	1
17.2	Methodology.....	3
17.3	Construction and Decommissioning Phases.....	7
17.4	Operational Phase.....	13
17.5	Summary of In-Combination Effects.....	21



List of Tables

Table 17-1 Effect Interactions during construction and decommissioning phases	8
Table 17-2 Effect Interactions during operational phase	14
Table 17-5 Summary of Significant In-Combination Effects.....	21



17 In-Combination Effects

17.1 Introduction

- 17.1.1 This chapter of the Environmental Statement (ES) presents a summary of the potential likely in-combination effects to report a summary of effect interactions between topics, setting out the interrelationship arising as a result of direct effects from other environmental topics.
- 17.1.2 As set out in **ES Chapter 2: EIA Process and Methodology [APP/6.1]**, a Cumulative Effects Assessment has been undertaken in accordance with PINS Advice on Cumulative Effects Assessment (September 2024¹) 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 (**ES Chapters 6-16 [APP/6.2]**) sets out how the particular topic area has considered and assessed the cumulative effects arising as a result of other existing or proposed development.
- 17.1.3 In-combination effects occur when receptors are subject to residual effects under more than one environmental topic. As such, the residual effects presented in **ES Chapters 6-16 [APP/6.2]** (regardless of whether they are classed as significant or not significant) 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.
- 17.1.4 In line with the PINS guidance, this chapter identifies where the residual effects of the Scheme on individual receptors have the potential to combine, creating an effect that is different from the identified effects in isolation.
- 17.1.5 This chapter of the ES presents the potential in-combination effects between environmental aspect topics, setting out the inter-relationship 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.

¹ Available here: Planning Inspectorate (2024) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment. Available from: <https://www.gov.uk/guidance/nationally-significant-infrastructure-projectsadvice-on-cumulative-effects-assessment>



- 17.1.6 This document has been updated at Deadline 1 to include remove an error from Table 17-3 and correct the reference to visual mitigation being explored in the oLEMP. The document references have not been updated from the original submission. Please refer to the **Guide to the Application [APP/1.3.2]** for the list of current versions of documents.

Consultation, Legislation, Planning Policy and Guidance

- 17.1.7 Issues raised in the Scoping Opinion (see **ES Appendix 2.1: Scoping Opinion [APP/6.4]**) relating to in-combination effects are summarised and responded to within **ES Appendix 2.3: Responses to Scoping Opinion [APP/6.4]**, which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES.
- 17.1.1 An overview of the legislation, planning policy and guidance against which the Scheme will be considered for the cumulative effects assessment is set out below.

Legislation

- 17.1.2 Regulation 5(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref **17-1**) (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)”

- 17.1.3 In relation to cumulative effects, Schedule 4 Paragraph 5 of the EIA Regulations (Ref 21-1) requires an ES to include:

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

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

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

National Planning Policy

- 17.1.4 The National Policy Statements (NPSs) that are relevant to the Scheme are:
- Overarching National Policy Statement for Energy (EN-1) (November 2023) (Ref **17-2**)
 - National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023) (Ref 17-3); and



- National Policy Statement for Electricity Networks Infrastructure (EN-5) (November 2023) (Ref 17-4).

17.1.5 Specifically, Section 5 of NPS EN-1 explains 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”.

17.1.6 Paragraph 2.10.141 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”

17.1.7 The NPSs listed above came into effect on 17 January 2024. 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).

17.1.8 The National Planning Policy Framework (NPPF) (December 2024) (Ref 17-5) 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

17.1.9 Other guidance documents relevant to the assessment of the impacts of the Scheme on Cumulative and In-Combination Effects include the Planning Inspectorate Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (March 2025) (Ref 17-6).

17.1.10 This document sets out a brief description of the legal context and obligations placed on an applicant with respect to cumulative effects under national planning policy and the EIA Regulations; an overview of the 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.

17.2 Methodology

Introduction

17.2.1 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.

- 17.2.2 In-combination effects occur when receptors are subject to residual effects under more than one environmental topic. As such, the residual effects presented in **ES Chapters 6-16** (regardless of whether they are classed as significant or not significant) 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.
- 17.2.3 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.
- 17.2.4 The scale of effect of ‘neutral’ (i.e. no or inconsequential change) identified in **ES Chapter 8: Cultural Heritage and Archaeology [APP/6.2]** is considered lesser than Minor in scale and therefore residual effects considered neutral in isolation with regard to cultural heritage and archaeology do not qualify for consideration as in-combination effects. The term ‘neutral’ is based on professional judgement and the reasoning that an impact is so small as to be inconsequential/not worth of consideration meaning that the end effect is effectively no change, or ‘neutral’. The methodology for attributing the significance of effects in relation to Cultural Heritage and Archaeology is described further in **ES Chapter 8: Cultural Heritage and Archaeology [APP/6.2]**.
- 17.2.5 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:
- A) Whether one or more residual effect is significant in isolation (in which case the in-combination effect is considered significant); or
 - B) Professional judgement 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.
- 17.2.6 Where individual effects are of a different nature (e.g. a 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 of natures is not afforded to either beneficial or adverse as for the purposes 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.

- 17.2.7 The approach to assessing in-combination effects has followed a four-stage process as outlined in **ES Chapter 2: EIA Methodology and Process [APP/6.1]**, highlighted in the following paragraphs.

Stage 1: Topic-specific Assessments

- 17.2.8 The first stage of the assessment is presented in each of the individual environmental topic chapters and comprises the individual assessments of residual effects on receptors across the construction, operation and decommissioning phases of the Scheme. The embedded mitigation is assumed to be implemented before consideration of the effects.

Stage 2: Identification of Receptors

- 17.2.9 To aid in the assessment of in-combination effects, a review of the **ES Chapters 6-16 [APP/6.2]** has been undertaken to identify 'receptor groups' requiring assessment within the In-combination effects assessment. 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. Only receptors that are expected to incur more than one potential effect have been included in the assessment (e.g. noise and dust). Receptors predicted to be affected by only a single effect (e.g. only noise) are excluded because there is considered to be no potential for In-combination effects to take place. It should be noted that uncertainty in the assessment of effects, for most of the technical chapters in this ES, is dealt with by making conservative, or worst-case, assumptions.
- 17.2.10 The receptor groups identified in this chapter of the ES are different from the Visual Receptor Groups (VRGs) identified in **ES Chapter 6: Landscape and Visual [APP/6.2]**, which are identified for the purposes of assessing visual effects in isolation.
- 17.2.11 The receptor groups identified within this ES can be broadly categorised as follows:
- Landscape and visual resources: landscape character; visual receptors (residents; users of public rights of way; other visual receptors)
 - Ecology and biodiversity: ecological nationally designated sites
 - Historic environment: settings of nationally designated heritage assets
 - Access and highways: road users, residents; pedestrians/cyclists; sensitive local uses (e.g. schools, hospitals, local facilities)
 - Noise and vibration: residents, users of public rights of way; users of other land use (e.g. places of work)



- Air quality: local residents; ecological designated sites
- Water resources and Ground conditions: land at risk of flooding, land quality/soils
- Agriculture: agricultural land; farm businesses; and
- Socio-economics: employment levels and tourism.

Stage 3: Assessment of potential In-combination effects on receptor groups

17.2.12 This ES chapter is split into two parts:

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

17.2.13 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 (**ES Chapters 6-16**). Therefore, a worst-case scenario is presented for the decommissioning phase.

17.2.14 An exception to this approach (in paragraph 17.2.10 above) applies to the assessment of the decommissioning phase in relation to **ES Chapter 8: Cultural Heritage and Archaeology [APP/6.2]**, which considers a residual Moderate significant effect during decommissioning which is of a greater scale than the Neutral effect concluded during the construction phase. This is considered in the assessment of in-combination effects below.

17.2.15 The nature (e.g. Beneficial, Neutral, Adverse) and scale (e.g. Minor, Moderate, Major – in most cases) of the individual effects that meet the above criteria has been presented in the tables below, to aid in the assessment of in-combination effects.

Stage 4: In-combination effects Assessment

17.2.16 The following receptor groups that have the potential to be subject to in-combination effects have been identified as:

- Landscape character
- Visual receptors
- Ecologically designated sites
- Road users, pedestrians and cyclists, users of public rights of way, railway operations, train drivers, aviation operations
- Residents and users of other land uses (e.g. places of work, heritage based visitor attractions)



- Land at risk of flooding
- Land quality/soils; and
- Employment and tourism.

17.3 Construction and Decommissioning Phases

17.3.1 Table 17-1 presents the residual effects during the construction and decommissioning phases which occur in-combination with other effects, on a single receptor. The effect interactions on each receptor are discussed in greater detail in the text below the table.



Table 17-1 Effect Interactions during construction and decommissioning phases

Receptor	Topic and Residual effect	Scale and Nature	Significance
Residents	Noise On-site construction activities, Trenchless works incl. Horizontal Directional Drilling (HDD) and PV panel piling	Minor Adverse	Not significant
	Vibration On-site construction activities	Minor Adverse	Not significant
	Visual Loss of visual amenity at VRG1 and VRG3	Major-Moderate and Moderate Adverse	Significant
	Visual Loss of visual amenity at VRG4 and VRG5	Moderate Adverse	Not Significant
Public Rights of Way, Footpaths and Cycle Routes	Noise On-site construction activities	Minor Adverse	Not significant
	Vibration	Minor Adverse	Not Significant



	On-site construction activities		
	Visual Loss of amenity at VRG6 and VRG7	Slight-Minimal and Slight Adverse	Not Significant
	Visual Loss of amenity at VRG4 and VRG5 and the Nar Valley Way	Moderate Adverse	Not Significant
	Visual Loss of amenity at VRG1 and VRG2, VRG3, The Peddars Wat and Norfolk Coastal Path and Rebellion Cycle Route	Moderate and Major-Moderate Adverse	Significant
Heritage Assets	Heritage Change to the heritage setting	Minor Adverse (decommissioning phase)	Not Significant
	Visual Loss of visual amenity at VRG5	Moderate Adverse	Not Significant



Residential Receptors

- 17.3.2 During the construction and decommissioning phases, individual effects have been identified on residential receptors in relation to noise, vibration, and visual impact.
- 17.3.3 Those residential properties located within VRG1 and VRG3, as detailed in **ES Chapter 6: Landscape and Visual [APP/6.2]**, have been assessed as experiencing Moderate and Major-Moderate adverse effects, which are significant visual effects in isolation, as a result of the works associated with the construction and decommissioning phases being visible from these areas. As assessed in **ES Chapter 10: Noise and Vibration [APP/6.2]**, the residential properties within these areas are expected to experience Minor adverse effects as a result of the construction noise, as well as Minor adverse effects as a result of the construction vibration, neither of which are considered to be significant in isolation. The residential properties in these areas are likely to experience an in-combination effect as a result of the combination of noise, vibration, and visual effects, which is judged to be **Significant Adverse** on the basis that the visual effects are considered to be significant in isolation.
- 17.3.4 The residential properties located within VRG4 and VRG5, as detailed in **ES Chapter 6: Landscape and Visual [APP/6.2]**, have been assessed as experiencing Moderate Adverse effects as a result of the loss of visual amenity due to partial visibility of the works associated with the construction and decommissioning phases, which is not considered to be significant in isolation. As assessed in **ES Chapter 10: Noise and Vibration [APP/6.2]**, the residential properties within these areas are expected to experience Minor Adverse effects as a result of the construction noise, as well as Minor adverse effects as a result of the construction vibration, neither of which are considered to be significant in isolation. However, the assessment of noise and vibration impacts on residential receptors assessed the impact at the closest property, presenting a worst-case assessment, mitigating any potential significant effects at these to ensure that no receptors would experience a significant effect. The residential properties represented by VRG4 and VRG5 are well removed from the location of the on-Site construction activities (as can be seen in **ES Figure 6.7: Visual Receptor Groups [APP/6.3]**); therefore in reality, the potential for the visual impact effects and the noise and vibration effects to be experienced in-combination with each other is very low. On this basis, it is recognised that there is the potential for an in-combination effect on residential properties within VRG4 and VRG5 however, it is considered to constitute a **Not Significant Adverse** effect.
- 17.3.5 The significant in-combination effect on residential receptors (located within VRG1 and VRG3) concluded is deemed to be **Significant Adverse** based on the scale of visual impact effects involved. In order to mitigate these effects to be not significant, mitigation of the visual impact effects would be required. As per **ES Chapter 6: Landscape and Visual [APP/6.2]**, no additional mitigation has been identified at this stage beyond that embedded into the Scheme and secured in the design. However, there is opportunity for the inclusion of further design measures to be included within the detailed design stage of the Scheme. The design measures that could be included to reduce adverse effects are detailed in paragraph 7.4.20 of the **oLEMP [APP/7.11.1]**.



Public Rights of Way, Footpaths and Cycle Routes

- 17.3.6 During the construction and decommissioning phases, individual effects have been identified on Public Rights of Way (PRoW), Footpaths and Cycle Routes in relation to noise, vibration, and visual impact.
- 17.3.7 As assessed in **ES Chapter 10: Noise and Vibration [APP/6.2]**, the PRoW, Footpaths and Cycle routes within and surrounding the Site are likely to experience Minor adverse effects as a result of the construction noise, as well as minor adverse effects as a result of the construction vibration, neither of which are considered to be significant in isolation. The assessment of noise and vibration effects on PRoW, Footpaths and Cycle routes has adopted a worst-case approach and undertaken the assessment on the basis that the receptor is located 15m from the construction activities. The purpose of this worst-case assessment is to identify where there is the potential for significant effects and provide mitigation solutions to ensure that there are no significant residual effects.
- 17.3.8 Depending on where the PRoW, Footpath or Cycle Route is located, the scale of effect as a result of the visual impact varies, depending on how much visibility there is of the works associated with the construction and decommissioning phases of the Scheme.
- 17.3.9 For the receptors that experience a slight adverse and slight-minimal visual effect, specifically PRoW within VRG6 and VRG7, the in-combination effect with noise and vibration is not considered to be significant. The in-combination effect is considered to be **Not Significant Adverse** due to the low scale of effect of each effect in isolation.
- 17.3.10 For the receptors that experience a moderate adverse visual effect assessed as being not significant in **ES Chapter 6: Landscape and Visual [APP/6.2]**, specifically PRoW within VRG4 and VRG5 as well as The Nar Valley Way, the potential for and in-combination effect with the noise and vibration effects is considered to be low. This is judged on the basis that the PRoW represented by VRG4 and VRG5 as well as The Nar Valley Way are mostly well separated from the construction activities, with only a small section of PRoW within VRG4 coming close to the Order limits. Therefore, the potential for the visual impact effects and the noise and vibration effects to be experienced in-combination with each other is low. On this basis, it is recognised that there is the potential for an in-combination effect on PRoW within VRG4 and VRG5 as well as The Nar Valley Way however, it is considered to constitute a **Not Significant Adverse** effect.
- 17.3.11 For the receptors that experience significant visual effects in isolation, namely PRoW within VRG1, VRG2 and VRG3 as well as The Peddars Way and Norfolk Coastal Path, and Rebellion Way Cycle Route (all of which are Moderate and Major-Moderate adverse), the in-combination effects with the noise and vibration effects are considered to be **Significant Adverse**. The main reasoning for the in-combination effects being significant is that the visual effects are considered to be significant in isolation, which is not reduced by the effects being experienced in-combination with the noise and vibration effects.
- 17.3.12 The significant in-combination effects on PRoW, Footpaths and Cycle routes within and surrounding the Site are deemed to be significant based on the scale of visual impact



effects involved. In order to mitigate these effects to be not significant, mitigation of the visual impact effects would be required. As per Section 6.9 of **ES Chapter 6: Landscape and Visual [APP/6.2]**, no additional mitigation has been identified at this stage beyond that embedded into the Scheme and secured in the design and as set out within **Design Principles, Parameters and Commitments [APP/5.8]**. However, there is opportunity for the inclusion of further design measures to be included at the detailed design stage of the Scheme. The design measures that could be included to reduce adverse effects are detailed paragraph 7.2.40 of the **oLEMP [APP/7.11.1]**.

Heritage Assets

- 17.3.13 During the decommissioning phases, there is the potential for in-combination effects on off-site heritage assets as a result of visual impact and changes to the heritage setting.
- 17.3.14 As presented in **ES Chapter 6: Landscape and Visual [APP/6.2]**, VRG5 demonstrates effects on Castle Acre Priory and Castle Acre Castle. The visual effect on VRG5 is assessed as Moderate adverse and not significant. **ES Chapter 8: Cultural Heritage and Archaeology [APP/6.2]** considers effects on heritage assets beyond the Order limits. 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, as detailed in **ES Chapter 5: The Scheme [APP/6.1]**. As a result, operational phase effects as a result of these elements of the Scheme would remain for the decommissioning phase; in this case, Minor adverse on the heritage receptors of Castle Acre Castle and Castle Acre Priory, which is considered not significant in isolation. It is considered there is the potential for an in-combination effect between visual impact and heritage setting on heritage receptors during the decommissioning phase which is judged to be **Not Significant Adverse** on the basis that the heritage setting and visual effects are considered to be not significant in isolation.



17.4 Operational Phase

- 17.4.1 Table 17-2 presents the residual effects during the operational phase which occur in-combination with other effects, on a single receptor. The effect interactions on each receptor are discussed in greater detail in the text below the table.
- 17.4.2 The visual impact effects have been presented for the Short-Term, Medium-Term and the Long-Term. As per **ES Chapter 6: Landscape and Visual [APP/6.2]**, the visual effects will reduce over time as embedded mitigation in the form of hedgerow planting, maintenance and management, matures and provide additional screening. The Short-Term effects refer to Years 0-5 of the operational phase. The Medium-Term effects refer to Years 5-10 of the operational phase and the Long-Term effects refer to beyond Year 10.



Table 17-2 Effect Interactions during operational phase

Receptor	Topic and Residual effect	Scale and Nature	Significance
Residents	Noise Operation of BESS, National Grid Substation, Customer Substation and Conversion Units.	Minor Adverse (Short-Term)	Not significant
	Visual Loss of amenity at VRG1	Major-Moderate Adverse (Short-Term)	Significant
		Major-Moderate to Moderate Adverse (Medium-Term)	Significant
	Visual Loss of amenity at VRG3	Moderate Adverse (Long-Term)	Not Significant
		Moderate Adverse (Short-Term)	Significant
		Moderate Adverse (Medium-Term)	Not Significant
	Moderate Adverse (Long-Term)	Not Significant	



	Visual Loss of amenity at VRG4	Moderate Adverse (Short-Term) Moderate Adverse (Medium-Term) Moderate-Slight Adverse (Long-Term)	Not Significant Not Significant Not Significant
Public Rights of Way (Within the Site)	Noise Operation of BESS, National Grid Substation, Customer Substation and Conversion Units.	Minor Adverse (Short-Term_	Not Significant
	Visual Loss of amenity at VRG1	Major-Moderate Adverse (Short-Term) Major-Moderate to Moderate Adverse (Medium-Term) Moderate Adverse (Long-Term)	Significant Significant Not Significant
	Visual Loss of amenity at VRG2	Major-Moderate Adverse (Short-Term) Major-Moderate Adverse (Medium-Term)	Significant Significant



		Moderate Adverse (Long-Term)	Not Significant
Heritage Assets	Heritage Change to the heritage setting at Castle Acre Castle and Castle Acre Priory (Scenario A)	Minor Adverse	Not Significant
	Visual Loss of visual amenity at VRG5	Moderate Adverse (Short-Term)	Not Significant
		Moderate Adverse (Medium-Term)	Not Significant
		Moderate Adverse (Long-Term)	Not Significant
Socio-economics Changes to local tourism assets	Minor Adverse (Long-Term)	Not Significant	



Residential Receptors

- 17.4.3 During the operational phase, individual effects have been identified on residential receptors in relation to noise and visual impact.
- 17.4.4 **ES Chapter 10: Noise and Vibration [APP/6.2]** concludes that there are likely to be Minor adverse noise effects on the assessed residential properties as a result of the noise emissions from the BESS, National Grid Substation, Customer Substation and Conversion Units. Embedded and additional mitigation measures are proposed to reduce these so that they are not significant in isolation, the details of which have been provided in **ES Chapter 10: Noise and Vibration [APP/6.2]**. There is the potential for these noise effects to be experienced by residential receptors in-combination with the concluded visual effects, which vary in scale and significance depending on the location.
- 17.4.5 Residential receptors that are represented by VRG1 are assessed as being likely to experience a Major-Moderate adverse visual effect in the Short-Term and Major-Moderate to Moderate adverse visual effect in the Medium-Term, which is considered to be significant for both Short and Medium-Terms. When considered in-combination with the Minor adverse noise effect, it is considered that there is a **Significant Adverse** in-combination effect on the residential properties represented by VRG1, in the Short-Term due to the visual effect being significant in isolation. Similarly, it is also considered that there is a **Significant Adverse** in-combination effect on VRG1 residential properties in the Medium-Term when considered in-combination with the minor adverse noise effect. due to the visual effect being significant in isolation.
- 17.4.6 However, in the Long-Term due to the maturing of mitigation planting providing screening of views, the residual scale of effect is reduced to Moderate adverse, which is considered to be not significant. Additional mitigation measures are identified in **ES Chapter 10: Noise and Vibration [APP/6.2]** to mitigate the operational noise effects on residential properties located within VRG1 (Keepers Cottage) which, when considered in the Long-Term with the not significant visual effect, are considered sufficient to mitigate the potential for a significant in-combination effect as a result of noise and visual impacts. The Long-Term in-combination effect on residential receptors represented by VRG1 are therefore considered to be **Not Significant Adverse**.
- 17.4.7 Residential receptors that are represented by VRG3 are assessed as being likely to experience a Moderate adverse visual effect in the Short-Term and Moderate adverse visual effect in the Medium-Term, which is only considered to be significant in the Short-Term. In the Long Term, the scale of effect is not considered to change (remaining as Moderate as for that in the Medium-Term), the effect is not considered to be significant due to the maturing of mitigation planting providing screening of views.
- 17.4.8 When considered in-combination with the noise effect, it is considered that there is a **Significant Adverse** effect in-combination on the residential properties represented by VRG3, in the Short-Term, due to the visual effect being significant in isolation. When considering the visual effects in-combination with the noise effect, the Medium-Term in-combination effect is considered to be **Not Significant Adverse**. When considering the



exact locations of the residential receptors within VRG3 (see **Figure 6.7: Visual Receptor Groups [APP/6.3]**), and the fact that the noise assessment considers effects at the closest distance to the receptor to identify the worst-case, it is considered that there is low potential for a Long Term in-combination effect on residential properties within VRG3, and that it constitutes a **Not Significant Adverse** in-combination effect.

- 17.4.9 Residential receptors that are represented by VRG4 are assessed as being likely to experience a Moderate adverse visual effect in the Short-Term and a Moderate adverse visual effect in the Medium-Term, which is considered to be not significant. In the Long-Term, due to the maturing of mitigation planting providing screening of views, the scale of effect is reduced to Moderate-Slight adverse and is considered to be not significant. When considering the visual effects in-combination with the noise effect, the Short-Term and Medium-Term in-combination effect is considered to be **Not Significant Adverse**, through the application of professional judgement. Although the visual effect is Moderate adverse in isolation, and in **ES Chapter 6: Landscape and Visual [APP/6.2]** shows that this scale of effect can be considered to be not significant, the magnitude of impact of the noise effect on residential receptors represented by VRG4 is lower than those in VRG1 and VRG3 (see **ES Appendix 10.3 Noise Impact Assessment [APP/6.3]**), and the addition of the Minor adverse noise effect is not considered to meet the threshold for constituting a significant in-combination effect. The Long Term in-combination effect is also assessed as **Not Significant Adverse**, as the visual effect is of lesser scale than in the Medium-Term which is also not considered to be significant.
- 17.4.10 The three significant in-combination effects on residential receptors concluded are deemed to be significant based on the significance of the Short-Term (two significant in-combination effects) and Medium Term (one significant in-combination effect) visual effects involved. No significant in-combination effects on residential receptors during the Long-Term are considered. In order to mitigate these effects to be not significant, mitigation of the visual impact effects would be required. As per Section 6.9 of **ES Chapter 6: Landscape and Visual [APP/6.2]**, no additional mitigation has been identified at this stage beyond that embedded into the Scheme and secured in the design. However, there is opportunity for the inclusion of further design measures to be included within at the detailed design stage of the Scheme. The design measures that could be included to reduce adverse effects are detailed in paragraph 7.4.20 of the **oLEMP [APP/7.11.1]**.

Public Rights of Way, Footpaths and Cycle Routes

- 17.4.11 During the operational phase, individual effects have been identified on PRow, Footpaths and Cycle Routes in relation to noise and visual impact.
- 17.4.12 **ES Chapter 10: Noise and Vibration [APP/6.2]** concludes that there are likely to be Minor adverse noise effects on PRow within the Site as a result of the noise emissions from the BESS, National Grid Substation, Customer Substation and Conversion Units. Embedded and additional mitigation measures are proposed to reduce these so that they are not significant in isolation, the details of which have been provided in **ES Chapter 10: Noise and Vibration**. There is the potential for these noise effects to be experienced by users



of PRow, Footpaths and Cycle Routes in-combination with the concluded visual effects, which vary in scale and significance depending on the location.

- 17.4.13 PRow users that are represented by VRG1 are assessed as being likely to experience a Major-Moderate adverse visual effect in the Short-Term and a Major-Moderate to Moderate adverse visual effect in the Medium-Term, which is considered to be significant for both terms. In the Long Term, due to the maturing of mitigation planting providing screening of views, the scale of effect is reduced to Moderate adverse and is considered to be not significant. When considered in-combination with the Minor adverse noise effect, it is considered that there is a **Significant Adverse** in-combination effect on the PRow represented by VRG1 in the Short-Term and Medium-Term due to the visual effect being significant in isolation, and the significance not being reduced through the consideration of an additional effect. In the Long-Term, the in-combination effect is considered to be **Not Significant Adverse** through the application of professional judgement; this is largely influenced by the sensitivity of PRow users to noise effects being lower due to their transient nature and temporary exposure to the effect, which has been taken into account when concluding the in-combination effect in the Long-Term as not significant.
- 17.4.14 PRow users that are represented by VRG2 are assessed as being likely to experience a Major-Moderate visual effect in the Short-Term, a major-moderate in the Medium-Term and moderate adverse visual effect in the Long-Term, which is considered to be significant in the Short and Medium-Term only and not significant in the Long-Term in isolation. When considered in-combination with the minor adverse noise effect, it is considered that there is a **Significant Adverse** in-combination effect on the PRow represented by VRG2 in the Short-Term and Medium-Term and not the Long-Term due to the visual effect being significant in isolation only for the Short-Term and Medium-Term, and the significance not being reduced through the consideration of an additional effect.
- 17.4.15 The significant in-combination effects on PRow users within the Site are deemed to be significant based on the scale of visual impact effects involved. No significant in-combination effects on PRow users during the Long-Term are considered. In order to mitigate these effects to be not significant, mitigation of the visual impact effects would be required. As per Section 6.9 of **ES Chapter 6: Landscape and Visual [APP/6.2]**, no additional mitigation has been identified at this stage beyond that embedded into the Scheme and secured in the design. However, there is opportunity for the inclusion of further design measures to be included within the refined Scheme. The design measures that could be included to reduce adverse effects are detailed in paragraph 7.4.20 of the **oLEMP [APP/7.11.1]**.

Heritage Assets

- 17.4.16 During the operational phase there is the potential for in-combination effects on off-site heritage assets as a result of visual impact, changes to the heritage setting, and socio-economics.
- 17.4.17 As detailed in **ES Chapter 8: Heritage [APP/6.2]**, there are two heritage assets that have been assessed to have their setting impacted due to limited visibility of the Scheme from



the receptors. The affected heritage assets are Castle Acre Castle and Castle Acre Priory, both not experiencing significant heritage effects in isolation, which have the potential to be experienced in-combination with visual and socio-economic effects. These heritage assets are represented by VRG5 in **ES Chapter 6: Landscape and Visual [APP/6.2]**, which concludes Moderate adverse effects in the Short, Medium and Long-Term, none are considered to be significant in isolation. In addition, **ES Chapter 14: Socio-economics [APP/6.2]** concludes a Minor adverse effect to local tourism assets, caused by an anticipated reduction in tourist visits due to the change of setting and visual presence of the Scheme. When considered in-combination with each other, these three in-combination effects on Castle Acre Castle and Castle Acre Priory have the potential for a **Not Significant Adverse** in-combination effect, on the basis that the heritage, visual and socio-economics effects are considered to be not significant in isolation.

- 17.4.18 The significant in-combination effects on off-site heritage assets are all as a result of the visibility of the Scheme from the location of these assets.
- 17.4.19 **ES Chapter 8: Cultural Heritage and Archaeology [APP/6.2]** has identified optionality (Scenario A or B) depending on the final design stage of the Scheme. For the in-combination effects assessment, a worst-case assessment approach has been adopted. Should the alternative scenario be applied to the assessment of in-combination effects for the operational phase, a residual effect of a lesser scale and not significant would be presented resulting in a not significant effect in isolation and in-combination. The design measures that could be included to reduce adverse effects are detailed in paragraph 7.4.20 of the **oLEMP [APP/7.11.1]**.



17.5 Summary of In-Combination Effects

17.5.1 Table 17-3 below provides a summary of the significant in-combination effects identified as a result of the Scheme.

Table 17-3 Summary of Significant In-Combination Effects

Receptor	Topics	In-Combination Effect
Construction and decommissioning phase		
Residential Properties represented by VRG1 and VRG3	Noise (Chapter 10) Vibration (Chapter 10) Visual (Chapter 6)	Significant Adverse
PRoW represented by VRG1, VRG2, VRG3, The Peddars Way and Norfolk Coastal Path, and Rebellion Way Cycle Route	Noise (Chapter 10) Vibration (Chapter 10) Visual (Chapter 6)	Significant Adverse
Operational phase (Short-Term)		
Residential Properties represented by VRG1	Noise (Chapter 10) Visual (Chapter 6)	Significant Adverse
Residential Properties represented by VRG3	Noise (Chapter 10) Visual (Chapter 6)	Significant Adverse
PRoW within the Site represented by VRG1	Noise (Chapter 10) Visual (Chapter 6)	Significant Adverse
PRoW within the Site represented by VRG2	Noise (Chapter 10) Visual (Chapter 6)	Significant Adverse
Operational phase (Medium-Term)		



Receptor	Topics	In-Combination Effect
Residential Properties represented by VRG1	Noise (Chapter 10) Visual (Chapter 6)	Significant Adverse
PRoW within the Site represented by VRG1	Noise (Chapter 10) Visual (Chapter 6)	Significant Adverse
PRoW within the Site represented by VRG2	Noise (Chapter 10) Visual (Chapter 6)	Significant Adverse



References

- Ref 17-1 His Majesty's Stationery Office (HMSO) (2017). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: <https://www.legislation.gov.uk/ukSI/2017/572>
- Ref 17-2 Department for Energy Security and Net Zero (2023) Overarching National Policy Statement for energy (EN-1). Available at: <https://assets.publishing.service.gov.uk/media/65bbfbd709fe1000f637052/overarching-nps-for-energy-en1.pdf>
- Ref 17-3 Department for Energy Security and Net Zero (2023) National Policy Statement for Renewable Energy Infrastructure (EN-3). Available at: <https://assets.publishing.service.gov.uk/media/65a7889996a5ec000d731a/ba/nps-renewable-energy-infrastructure-en3.pdf>
- Ref 17-4 Department for Energy Security and Net Zero (2023) National Policy Statement for Electricity Networks Infrastructure (EN-5). Available at: <https://assets.publishing.service.gov.uk/media/65a78a5496a5ec000d731a/bb/nps-electricity-networks-infrastructure-en5.pdf>
- Ref 17-5 Ministry of Housing, Communities and Local Government (2024) National Planning Policy Framework (NPPF). Available at: <https://www.gov.uk/government/publications/national-planning-policyframework--2>
- Ref 17-6 Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (2025) Available at: <https://www.gov.uk/guidance/nationallysignificant-infrastructure-projects-advice-on-cumulative-effectsassessment>



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