# East Pye Solar

## Environmental Statement

## Volume 1: Chapter 18 – Other Environmental Matters

**Revision 1**

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# Contents



# Figures



# Tables

# 18 Other Environmental Matters

## 18.1 Introduction

18.1.1 This Chapter of the Environmental Statement (ES) presents the findings of the Environmental Impact Assessment (EIA) of effects on Other Environmental Matters (OEM) as a result of the Scheme.

18.1.2 The purpose of this Chapter is to collate the other environmental topics that do not warrant individual chapters in the ES, either due to the brevity of the assessment, or lack of likely significant effects.

18.1.3 The following aspects have been addressed:

- Major Accidents and Disasters (Scoped Out);
- Telecommunications, Utilities, and Television (Scoped In);
- Glint and Glare (Scoped In);
- Waste and Materials (Scoped In); and
- Human Health Summary Statement.

18.1.4 This Chapter is supported by the following figures:

- **ES: Figure 18.1 Utilities [EN0110014/APP/6.2.18.1**]

18.1.5 This Chapter is supported by the following appendices:

- **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]**

18.1.6 This OEM chapter has been prepared by Stantec, Pager Power, and Lanpro (See **ES: Appendix 1.2 Statement of Expertise [EN0110014/APP/6.3.1.2]**).

18.1.7 For the topics covered in this chapter, the majority of assessments of potential effects do not follow the approach and methodology outlined in **ES: Chapter 2 - EIA Methodology [EN0110014/APP/6.1.2].** The purpose of this chapter is to provide a high-level assessment of other environmental topics where full chapter adhering to the **ES Chapter 2 - EIA Methodology [EN0110014/APP/6.1.2]** is not considered necessary. Within this chapter, the alternative methodology used is clearly outlined for each topic.

18.1.8 A glossary of abbreviations can be found in **ES: Chapter 0 Contents, Glossary and Abbreviations [EN0110014/APP/6.1.0].**

# 18.2 Major Accidents and Disasters

## Introduction

18.2.1 This section of the ES presents the findings of an assessment of the likely effects on Major Accidents and Disasters which are relevant to the Scheme, further demonstrating that Major Accidents and Disasters have been sufficiently addressed, with measures secured and pose no likely adverse significant effects.

18.2.2 As set out in the Institute for Sustainability and Environmental Professionals (ISEP) guidance document 'Major Accidents and Disasters in EIA: A Primer (Ref 18-1).

*'Major Accidents – 'Events that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events.'*

and

*'Disasters – 'May be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident.'*

## Consultation

18.2.3 The Scheme has been subject to consultation throughout the DCO preparation period. A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through the Planning Inspectorate (PINS) in January 2025. A Scoping Opinion was adopted by PINS in February 2025 **[EN0110014/APP/6.3.2.2]**.

18.2.4 The issues raised in the Scoping Opinion relating to Major Accidents and Disasters are summarised and responded to within **Table 18.1** which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES, although scoped out of further assessment.

## Table 18.1: Relevant Scoping Opinion Comments from Statutory Bodies relating to Major Accidents and Disasters

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| **Planning Inspectorate** | The Scoping Report proposes to scope out MA&D. Table 5.4 of the Scoping Report describes possible MA&D that the applicant considers could be relevant to the Proposed Development. It identifies a number of events that are proposed to be scoped out of further assessment and the reasons for that approach. The Inspectorate agrees that these matters can be scoped out of the ES on the basis of the information presented. The Inspectorate notes that an Outline Battery Safety Management Plan (OBSMP) is proposed to be submitted with the DCO application. The Inspectorate expects that the information on the fire risk associated with battery storage facilities and relevant mitigation, such as fire-fighting and containment measures on the environment should be set out in the OBSMP.<br>The UXO constraints assessment contained in Appendix 5.2 Phase 1 Ground Conditions Assessment (Volume III) of the Scoping Report has identified that the site has moderate to high potential of UXO constraint associated with historical military airfields and aircraft crashes. The Inspectorate notes that no further surveys are proposed regarding this risk. As such, the nature and extent of the risk remains unclear. The Applicant should commit to further UXO surveys in order to identify the full extent of this risk and inform appropriate mitigation. | This comment is noted. An Outline Battery Safety Management Plan (Outline BSMP) **[EN0110014/APP/7.5]** is being submitted with the DCO.<br><br>As secured by the Outline CEMP, the detailed CEMPs will include the UXO mitigation measures recommended by ES: **Appendix 16.1, Annex 6 UXO Desk Study and Constraints Assessment [EN0110014/APP/6.3.16.1].** The embedded mitigation measures to address UXO include detailed UXO desk study to confirm the UXO hazard level. Where a potential UXO hazard is identified by the detailed UXO desk study, the detailed study will include further recommended mitigation measures for the identified types of development and anticipated working practices and could also include non-intrusive surveys to further delineate potential UXO hazards. | **Section 18.2** of this ES Chapter<br><br>**Outline BSMP [EN0110014/APP/7.5]**<br><br>**Table 18.2** of this ES Chapter<br><br>**Outline Construction Environmental Management Plan (Outline CEMP) [EN0110014/APP/7.1]** |
| **Health and Safety Executive** | 'It was found that that the following sites and cable corridors were in the Hazardous Substance Consent 'Consultation Zone' of the Gas Power Services Site, and the Natural Gas 5 Feeder pipeline. Major Hazard Installation: # 3561 Gas Power Services Ltd (adjacent to Nene Valley Farm) Postcode NR15 1EN [TM307958] NSIP Site areas within the consultation zones: 10B, 10D, 10E NSIP Cable corridors: CRC14 Pipeline:<br>Natural Gas 5 Feeder Yelverton/ Diss Comp Tee NSIP Site areas within the consultation zones: 5A, 5B, 7B, 7C, | The Applicant notes these suggestions and will engage with the relevant bodies.<br><br>The Applicant has engaged with HSE to identify relevant HSE consultation zones for the Scheme.<br>The applicant has also consulted with National Gas Transmission (NGT) to | Sections **18.2** and **18.3** of this ES Chapter.<br><br>**Outline Construction Environmental Management Plan (CEMP) [EN0110014/APP/7.1]** |

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | 7E, 7F NSIP Cable Corridors within the consultation zones: CRC4, CRC7. The applicant should contact the operators of the site Gas Power Services Ltd (adjacent to Nene Valley Farm) and pipeline Natural Gas 5 Feeder Yelverton/ Diss Comp Tee and inform them of the proposal. The Applicant should also inform the Hazardous Substance Authority South Norfolk Council. It is particularly important that groundworks are not started before consultation and liaison with the operator of Natural Gas 5 Feeder Yelverton/ Diss Comp Tee.<br>Explosives sites. Explosives Inspectorate has no comment to make as there are no HSE licenced explosives sites in the vicinity of the proposed development. Electrical safety. No comment from a planning perspective.' | understand easement requirements, and NGT advice has consequently been considered into the design of the Scheme. The Applicant are engaging with NGT regarding protective provisions.<br><br>The Applicant has provided / applied an easement for identified utilities, which are at risk of causing a major accident or disaster. The easement has been provided to reduce interaction between the Scheme and identified utilities, mitigating the risk of Major Accident and Disasters. A LSBUD (Linesearch Before U Dig) search will be completed to determine accurate locations and depth readings to support the design. | |
| **Brook Parish Council Hempnall Parish Council (BRP Residents Action Group) Shelton and Hardwick Parish Council** | Section 5.14 Human Health and Section 5.4 Major Accidents and Disasters. Absolutely must be scoped in. EPS admits 'In the unlikely event of a fire within the BESS, unplanned air emissions could result in the release of Hydrogen Fluoride (HF), which may impact nearby receptors depending on the location of the BESS in relation to sensitive receptors and the design of the BESS. However, this is unlikely to occur. A key design principle applied to the design is that BESS will not be located closer than 100m to sensitive human receptors (as described above) which will be secured through the DCO.' The current proposed site for the BESS is upwind from a village. The Fire Service is not a statutory consultee on this project. There have been a significant number of BESS fires now globally, with some in the UK taking as long as 59 hours to put out. How would such a fire be extinguished, given that BESS fires are currently left to burn out. The BESS should be sited significantly further away from<br>habitation if the fire is to be left to burn. Would fire suppressants be used? If so, which? The proposed BESS site is on a drinking water protection area and river | The Outline BSMP outlines the key fire safety provisions for the BESS proposed to be installed as part of the Scheme. A detailed version of this document will be secured through DCO requirement. The purpose<br>of the Outline BSMP is to identify how the Applicant will use good industry practice to reduce risk to life, property, and the environment from the BESS. As detailed in the Outline BSMP, the Scheme will integrate an external firefighting water capture drainage system. The local fire and rescue service, NFRS, has been consulted during pre-application discussions and as part of statutory consultation. This is discussed further in **Table 18.2.**<br><br>**ES: Chapter 9 Water Environment [EN0110014/APP/6.1.9]** assesses the | **Outline BSMP [EN0110014/APP/7.5]**<br><br>**ES: Chapter 9 Water Environment [EN0110014/APP/6.1.9]** |

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | catchment protection area, there is a significant risk of PFAS pollution of both drinking water, ground water and local rivers if there were to be a BESS fire. The environmental impacts of such a disaster to local residents and wildlife, as well as soils and rivers should be scoped in. | impacts from contaminated firewater in the unlikely event of a fire. | |
| **Shotesham Parish Council** | The scoping document does not appear to include a full analysis of all the potential risks and disasters that could affect the site over a lifetime of more than 60 years, including risks from heavy recurring rainfall (due to poor drainage on many sites and the potential for saturation of compacted soil), storm risk, and lightning strike. The wide geographic spread of the site makes it particularly sensitive to concerted attack by terrorists or enemies and the poor road access and geographic remoteness will hinder rapid response by the emergency services to any concerted attack. We consider that the EIA should include a full assessment of all major accident and disaster scenarios, and how these would be mitigated in practice. | The impacts of climate change and increased rainfall have been considered in **ES: Chapter 9: Water Environment [EN0110014/APP/6.1.9]** and **ES: Chapter 6: Climate Change [EN0110014/APP/6.1.6]** | Section **18.2** of this ES Chapter.<br><br>**ES: Chapter 9: Water Environment [EN0110014/APP/6.1.9]** and **ES: Chapter 6: Climate Change [EN0110014/APP/6.1.6]** |

## Statutory Consultation and Preliminary Environmental Information Report (PEIR)

18.2.5 Statutory consultation was held between 18th June 2025, and 6th August 2025. Relevant responses to the PEIR relating to Major Accidents and Disasters and how these have been addressed through the ES are set out within **Consultation Report Appendix 11 Section 47 Applicant Response Table [EN0110041.5.12]** and **Consultation Report Appendix 12 Section 42 Applicant Response Table [EN0110041.5.13].**

## Targeted Consultation

18.2.6 A further round of targeted consultation was undertaken between 22 October 2025 and 26 November 2025 following changes to the development boundary area of the Scheme presented in the PEIR and during Stage Two Statutory Consultation. All the changes are documented in full in the **Consultation Report [EN0110014/APP/5.1].** These changes did not give rise to any materially new or different likely significant environmental effects compared to those reported in the PEIR. How these have been addressed through the ES are set out within **Consultation Report Appendix 11 Section 47 Applicant Response Table [EN0110041.5.12]** and **Consultation Report Appendix 12 Section 42 Applicant Response Table [EN0110041.5.13].**

## Legislation, Planning Policy and Guidance

18.2.7 A summary of applicable legislation, planning policy and other guidance documents against which the Scheme will be considered relating to Major Accidents and Disasters is provided below.

### Legislation and Regulations

18.2.8 The EIA Regulations (Ref 18-2) contain text relevant to Major Accidents and Disasters.

18.2.9 Schedule 4, Paragraph 5(d) of the EIA Regulations requires that the EIA provides a description of the likely significant effects of the development on the environment resulting from the 'risks to human health, cultural heritage or the environment (for example due to accidents or disasters)' and Schedule 4, Paragraph 8 requires that the EIA provides 'a *description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned*'.

### Planning Policy

18.2.10 There are no specific clauses of National Planning Statements (NPSs) relevant to the Major Accidents and Disasters assessment. NPS EN-1 (December 2025) (Ref 18-3) sets out matters relating to safety; however, this mainly applies to schemes that are subject to the Control of Major Accidents hazards (COMAH) Regulations. The Scheme is not subject to the COMAH Regulations (2015) (Ref 18-4, Ref 18-7) but the Scheme has considered Section 4.13 of NPS EN-1 (December 2025).

18.2.11 There are no specific clauses of National Planning Policy Framework (NPPF) (December 2024) (Ref 18-5) relevant to the Scheme and the Major Accidents and Disasters assessment. Although not directly relevant to energy developments, the NPPF does refer, at Paragraph 101, to the fact that *'planning policies and decisions should promote public safety and take into account wider security and defence requirements'.*

18.2.12 There is no relevant local policy pertaining to major accidents and disasters.

### Guidance

18.2.13 The major accidents and disasters assessment has been carried out in accordance with the principles contained within the following appropriate guidance:

- ISEP 'Major Accidents and Disasters in EIA: A Primer' (Ref 18-6)

## Assessment Assumptions and Limitations

18.2.14 The major accidents and disasters assessment has considered the following assumptions:

- No surveys beyond those undertaken to inform other EIA topics have been completed to establish the baseline for the Major Accident and Disasters assessment;
- Where information is not available (such as historical evidence on the likelihood and the environmental consequence of an event), professional judgement has been used to reach a conclusion; and
- This assessment is based on the construction, design and decommissioning information that is currently available.

## Assessment of Likely Significant Effects and Mitigation Measures

18.2.15 This section sets out the likely impacts and effects of the Scheme in relation to Major Accidents and Disasters and identifies the relevant mitigation measures.

18.2.16 **Table 18.2** presents a list of Major Accident and Disaster risk events that have been considered and signposts to the relevant chapter where these have been explored in more detail.

### Table 18.2: List of Major Accident and Disaster Risk Events

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| **Electrical fires and explosions** | Local residents, infrastructure and buildings, habitats and species | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>There is a risk of electrical fire within the BESS. An **Outline BSMP [EN0110014/APP/7.5]** has been produced which outlines the key fire safety provisions for the BESS proposed to be installed as part of the Scheme. A detailed version of this document will be secured through DCO requirement. The purpose of the Outline BSMP is to identify how the Applicant will use good industry practice to reduce risk to life, property, and the environment from the BESS.<br><br>The design of the BESS will be undertaken in accordance with relevant guidance and legislation, with appropriate temperature regulatory equipment installed and monitoring procedures in place.<br><br>The BESS will include safety systems such as thermal monitoring systems, fire and gas detection systems, and fail-safe battery liquid cooling systems. The BESS compound would also include other apparatus such as water storage and / or fire suppression systems.<br><br>A BESS system and site-specific Emergency Response Plan (ERP) will be developed at the detailed design stage, based on national and international best practice measures.<br><br>As detailed in the Outline BSMP, the Scheme will integrate an external firefighting water capture drainage system.<br><br>There will be communication with the local fire and rescue services (Norfolk Fire and Rescue Service NFRS) with engagement early in the project and continuing across design and construction phases. This will ensure robust emergency response planning, risk management planning and ensure all | **Outline BSMP [EN0110014/APP/7.5]**<br><br>**Outline OEMP [EN0110014/APP/7.2]**<br><br>**Outline CEMP [EN0110014/APP/7.1]**<br><br>**Outline DEMP [EN0110014/APP/7.3]** |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | safety materials and equipment is available in an emergency for first responders<br><br>As detailed in the **Design Principles, Parameters, and Commitments [EN0110014/APP/7.18]** the BESS Containers/Compounds will be a minimum of 200m from the closest residential property.<br><br>Additional infrastructure such as the substations and inverters also have a risk of electrical fire. The design of the Scheme has been undertaken in accordance with relevant guidance and equipment will be selected to meet required safety standards.<br><br>As set out in the **Outline OEMP [EN0110014/APP/7.2]**, all works will be undertaken in accordance with relevant Health and Safety legislation and guidance. Details of fire, police, emergency services, and hospitals will be publicised and included in the site induction. An Emergency Response Plan would be followed in the event of fire.<br><br>Risk of fire and explosion may be present during the construction and decommissioning phases. As set out in the **Outline CEMP [EN0110014/APP/7.1]** and **Outline DEMP [EN0110014/APP/7.3]**, all works will be undertaken in accordance with relevant Health and Safety legislation and guidance. Details of fire, police, emergency services and hospitals will be publicised and included in the site induction. The relevant risk assessments for safety during construction/decommissioning will be required and produced by the Contractor prior to construction/decommissioning, which will be implemented to minimise the risk of accidents and disasters on site. | |
| **Aviation Incidents** | Pilots/ aviation facilities | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES. | Glint and Glare section of the OEM chapter (**18.4).**<br>Glint and Glare |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | The potential for interference on aviation activity is explored as part of the Glint and Glare assessment within the Glint and Glare section of the Other Environmental Matters Chapter of the ES.<br><br>**Section 18.4 Glint and Glare** concludes that with the implementation of embedded mitigation measures there will not be any likely significant effects from glint and glare to any receptors (including aviation users).<br><br>A **High-Level Investigative Report [EN0110014/APP/7.27]** has been produced which investigates the impact to Engline Failure After Take Off (EFATO) and Glider Launch Failure (GLF), thermal updrafts, and wind shear and turbulence, upon aviation activity associated with Norfolk Gliding Club at Tibenham airport. This report concludes that there are no significant adverse impacts.<br><br>The **Potential Impact on Seething Aerodrome Forced Landing Options [EN0110014/APP/7.27]** report assesses the impacts of the Scheme on the forced landing options for light aircraft taking off from runway 24 at Seething Aerodrome. The report concludes that the Scheme would not constrain forced landing options for aircraft suffering an engine failure on approach to runway 06 at Seething. | Assessment, submitted as **Appendix 18.1 [EN0110014/APP/6.3.18.1]** |
| **Control of Major Accident Hazards Regulations 2015 (COMAH) Sites** | Local residents, habitats and species | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>There are no designated COMAH Regulations Sites located within 5 km of the Order Limits. | N/A |
| **Hazardous Substance Consent 'Consultation Zone' of the Gas Power Services Site, and the** | Utility providers<br><br>Local residents, habitats and species | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES. | **Section 18.3** of this Chapter. |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| **Natural Gas 5 Feeder pipeline.** | | The Applicant has engaged with HSE to identify relevant HSE consultation zones for the Scheme. The applicant has also consulted with National Gas Transmission (NGT) to understand easement requirements, and NGT advice has consequently been considered into the design of the Scheme. The Applicant are engaging with NGT regarding protective provisions.<br><br>The Applicant has provided / applied an easement for identified utilities, which are at risk of causing a major accident or disaster. The easement has been provided to reduce interaction between the Scheme and identified utilities, mitigating the risk of Major Accident and Disasters. A LSBUD (Linesearch Before U Dig) search will be completed to determine accurate locations and depth readings to support the design. | |
| **Utilities damage / strike** | Utility providers | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>The construction of the Scheme has the potential to cause utility accidents, potentially damaging or cutting off the supply of utilities such as gas, electricity, water, sewage, and telecommunications. Depending on the nature of the accident this could cause supply disruption to users, and/or present a risk of danger to people and the natural environment on Site and in the surrounding area via contamination or potential fire or explosion.<br><br>**Section 18.3** of this Chapter assesses the risk of utilities damage/failure in further detail. This assessment concludes that with the use of embedded mitigation, no significant effects are anticipated.<br><br>The **Draft DCO [EN0110014/APP/3.1]** includes protective provisions for the protection of electricity, gas, water and sewerage undertakers, operators of electronic communications code networks, and drainage authorities. | **Section 18.3** of this Chapter.<br><br>**Draft DCO [EN0110014/APP/3.1]** |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | | |
| **Unexploded ordnance (UXO)** | Local residents, habitats and species | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>The majority of the Order Limits has a low UXO hazard potential, with isolated areas of moderate to high potential, primarily associated with the World War II Airfield and related wartime features. Further details are provided in **ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.1.16.1].**<br><br>As secured by the Outline CEMP, the detailed CEMPs will include the UXO mitigation measures recommended by **ES: Appendix 16.1, Annex 6 UXO Desk Study and Constraints Assessment [EN0110014/APP/6.3.16.1].** Embedded mitigation in the form of the UXO mitigation measures recommended by the UXO Desk Study and Constraints Assessment have been incorporated. These comprise a detailed UXO desk study to confirm the UXO hazard level. Where a potential UXO hazard is identified by the detailed UXO desk study, the detailed study will include further recommended mitigation measures for the identified types of development and anticipated working practices and could also include non-intrusive surveys to further delineate potential UXO hazards.<br><br>In addition to the above, construction of the Scheme also falls under the Construction (Design and Management) Regulations 2015 (CDM Regulations). These regulations place specific duties on clients, designers and contractors so that health and safety is considered throughout the life of a project, from its inception to its subsequent final demolition and removal. Under the CDM Regulations, designers are required to avoid foreseeable risks (including UXOs/UXBs) so far as reasonably practicable, by eliminating hazards from the construction, maintenance, and proposed use and demolition of a structure, reducing risks from any remaining hazard, and giving collective safety measures priority over individual measures. | **ES: Chapter 16 Ground Conditions [EN0110014/APP/6.1.16]**<br><br>**ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.1.16.1]**<br><br>**Outline Construction Environmental Management Plan (CEMP) [EN0110014/APP/7.1]** |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | As concluded in **ES: Chapter 16 Ground Conditions [EN0110014/APP/6.1.16]** no significant adverse effects are anticipated during the construction or operation and maintenance phases of the Scheme.<br><br>As the ground is disturbed during the construction phase, the risk of subsequently encountering UXO during operational inspections, maintenance, replacement, or decommissioning will be considerably lower. | |
| **Unstable ground conditions** | Local residents and on-Site workers | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>A preliminary ground stability risk assessment is presented in **ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.1.16.1].** Intrusive ground investigations and assessment will be undertaken prior to construction. The results of the ground investigation will be used to inform the detailed design of the Scheme. The Scheme's layout will be optimised to locate structures away from areas of potential land instability hazards, as far as is practicable (detailed design informed by ground investigation). | **ES: Chapter 16 Ground Conditions [EN0110014/APP/6.1.16]**<br><br>**ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.1.16.1]** |
| **Traffic and road accidents** | Road users | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>Traffic and road accidents are covered in **ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.11]** This assessment concludes that no likely significant effects are expected for transport and access matters during construction and decommissioning. The Planning Inspectorate agreed to scope out transport and access impacts during the operational period. The **Outline CTMP [EN0110014/APP/7.6]** includes measures to carefully manage access and routing to ensure any potential risks are managed appropriately. A final Construction Traffic Management Plan (CTMP) (to be | **ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.11]**<br><br>**Outline Construction traffic Management Plan (OCTMP) [EN0110014/APP/7.6]** |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | substantially in accordance with the Outline CTMP) will be secured via a Requirement within the DCO.<br><br>**Section 18.4 Glint and Glare** concludes that with the implementation of embedded mitigation measures there will not be any significant effects from glint and glare to any receptors (including road users). | |
| **Climate change and extreme weather-related events** | Local residents, habitats and species and on-site workers | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>A Flood Risk Assessment (FRA) has been prepared and submitted as part of the DCO application (**ES: Appendix 9.1 Flood Risk Assessment [EN0110014/APP/6.3.9.1])**<br><br>The FRA draws the following conclusions for Flood Risk:<br>• The Order Limits has a very low to low risk of flooding from groundwater, reservoirs and sewers.<br>• The majority of the area within the Order Limits is also at very low risk of surface water and fluvial flooding. While there are localised areas of higher flood risk from these sources (including areas of Flood Zones 2 and 3) within the Order Limits, given the nature of the Scheme it is considered that the risk of flooding from these sources is **low**.<br>The FRA also sets out how the Scheme will take account of the projected impacts of climate change. The FRA concludes that the Scheme complies with national and local planning policy with respect to flood risk and is an appropriate development at this location.<br><br>Climate change risks, including flooding, increasing temperatures, heatwaves and storm and/or wind damage, are considered in **ES: Chapter 6 Climate Change [EN0110014/APP/6.1.6]**. The chapter concludes that the impact of extreme weather-related events on the Scheme is considered **Not Significant.** During the operation and maintenance phase, | **ES: Appendix 9.1 Flood Risk Assessment [EN0110014/APP/6.3.9.1]**<br><br>**ES: Chapter 6 Climate Change [EN0110014/APP/6.1.6]**<br><br>**Outline CEMP [EN0110014/APP/7.1]**<br><br>**Outline OEMP [EN0110014/APP/7.2]**<br><br>**Outline DEMP [EN0110014/APP/7.1]** |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | the Scheme's impact on the global climate during is considered a **Significant beneficial effect.**<br><br>As well as a design that considers climate change risks, the **Outline CEMP [EN0110014/APP/7.1], Outline OEMP [EN0110014/APP/7.2], and Outline DEMP [EN0110014/APP/7.1]** include measures to manage the impact of GHG emissions from traffic and equipment and stronger winds, heatwaves, heavy precipitation and increased risk of fires/wildfires. Detailed Management Plans are secured as a requirement of the DCO application. | |
| **Accidental spillages** | Ecological, human and geological receptors | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>Accidental spillages that meet the scale of those required to constitute a major accident or disaster are considered very unlikely as a result of the Scheme. Therefore, there are unlikely to be any significant impacts relating to accidental spillages.<br>As well as a design that considers accidental spillage risks, the measures secured through the **Outline CEMP [EN0110014/APP/7.1], Outline OEMP [EN0110014/APP/7.2], and Outline DEMP [EN0110014/APP/7.1]** will ensure that the risk of accidental spillage is controlled. Detailed Management Plans are secured as a requirement of the DCO application. | **Outline CEMP [EN0110014/APP/7.1]**<br><br>**Outline OEMP [EN0110014/APP/7.2]**<br><br>**Outline DEMP [EN0110014/APP/7.1]** |
| **Infestation/spread of vegetation pests and diseases** | Habitats and species | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>Mitigation and enhancement measures may include new planting, which can be susceptible to disease and pests. Changing conditions due to climate change may exacerbate this. The landscape planting strategy for the Scheme takes account of the need to plant a diverse range of species that will be resilient to disease and climate change. To avoid risk to any species from the introduction of non-native species or pathogens during management operations, biosecurity | **Outline LEMP [EN0110014/APP/7.4]** |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | measures will be implemented when carrying out any works. This will include disinfecting all equipment, personal protective equipment (PPE), and machinery with a broad-spectrum disinfectant. This treatment will be repeated whenever machinery, equipment, or PPE is transferred to another site. These measures are secured within the **Outline LEMP [EN0110014/APP/7.4]**. | |
| **Crime/terrorism** | Surrounding population, National Infrastructure | Major Accidents and Disasters are not considered to be likely adverse significant effects and are scoped out of the ES.<br><br>Solar energy systems are connected to the electrical grid through power electronic devices like inverters and may have frequent communication with utility control and automation systems. It is widely accepted that there are threats posed to critical national infrastructure from terrorism, both 'conventional' and cyber, due to the reliance on Information and Communications Technologies (ICTs) in the electricity system which presents vulnerability.<br><br>The Scheme could be vulnerable to crime such as vandalism or arson which may either result in death or injury to the person concerned or could result in a fire. Fire risk is considered under Electrical Fires and Explosions above.<br><br>The **Outline CEMP [EN0110014/APP/7.1]** and **Outline DEMP [EN0110014/APP/7.2]** contain information about the security measures involved during the construction of the Scheme. Site security during construction and decommissioning will be managed by the Contractor(s). The site security fencing will remain in place throughout the duration of the construction and decommissioning period. Any storage of materials will be kept secure to prevent theft or vandalism. A safe system for accessing the materials storage areas will be implemented by the Contractor(s). There will be designated security staff during construction who will manage the Order Limits and patrol the perimeter where required. | **Outline CEMP [EN0110014/APP/7.1]**<br><br>**Outline OEMP [EN0110014/APP/7.2]**<br><br>**Outline DEMP [EN0110014/APP/7.1]** |

| Potential Major Accident or Disaster | Potential Receptor | Response/Matters Addressed | Relevant Chapter or Appendix |
|---|---|---|---|
| | | The **Outline OEMP [EN0110014/APP/7.2]** contains information about the fixed security measures involved during the operation and maintenance of the scheme. This includes security fencing and the provision of CCTV.<br><br>The Sites will receive several security risk management threat assessments during the development, construction, operation, and ultimately decommissioning phases. These security risk management threat assessments are conducted by suitable qualified and experienced persons (SQEP) and will determine security risks. | |

### Residual Effects

18.2.17 It is considered that all major accident and disaster risk events associated with the construction, operation and maintenance, and decommissioning of the Scheme can be appropriately mitigated through design and the application of management plans that will be submitted as part of the DCO Application, as demonstrated in **Table 18.2** above and the ES Chapters and management plans referenced therein.

18.2.18 No significant major accident and disaster effects are therefore considered likely to arise.

### Cumulative Effects

18.2.19 Considering the assessments and mitigation identified in **Table 18.2** and associated ES Chapters, it is not expected that any of the cumulative schemes would increase the risk or severity major accidents and disasters as a result of cumulative effects.

## 18.3 Telecommunications, Utilities, and Television

### Introduction

18.3.1 This Section of the ES Chapter presents an assessment of the likely effects on telecommunications, utilities, and television reception which are relevant to the Scheme.

18.3.2 To identify any existing infrastructure constraints, both consultation and a desk-based study were undertaken prior to the preparation of this ES. Consultation with relevant telecommunication and utilities providers is a routine part of proposals for a solar development. A desk-based search has been undertaken for the presence of telecommunications, television reception and utilities infrastructure within the DCO limits and within its vicinity. A qualitative approach undertaken by competent experts is used to assess the likelihood of significant effects on telecommunications, utilities and television reception. Key utilities identified include but are not limited to: Anglian Water assets, broadband cables (overground and underground), the Cadent high-pressure gas pipeline, and power network cables. The identified utilities are shown on **ES Figure 18.1: Utilities Plan [EN0110014/APP/6.2.18.1].**

18.3.3 The assessment of effects on telecommunications, utilities, and television is based on the maximum parameters set out by the design principles (see **ES Chapter 4 -The Scheme [EN0110014/APP/6.1.4]**). This includes the maximum depth of construction activities and infrastructure, the maximum area allowed to be disturbed during construction and developed by the Scheme, and the maximum heights and massing allowed by the application.

## Consultation

18.3.4 The Scheme has been subject to consultation throughout the DCO preparation period. A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through the Planning Inspectorate (PINS) in January 2025. A Scoping Opinion was adopted by PINS in February 2025 **[EN0110014/APP/6.3.2.3]**.

18.3.5 The issues raised in the Scoping Opinion relating to Telecommunications, Utilities, and Television are summarised and responded to within **Table 18.3** which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES.

### Table 18.3: Relevant Scoping Opinion Comments from Statutory Bodies relating to Telecommunications, Utilities and Television

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| **Planning Inspectorate** | 'The Inspectorate considers that insufficient evidence has been provided to scope this matter out. The ES should identify any receptors through consultation and a desk-based assessment, and should any diversions of utility or telecommunications infrastructure be required, these should be located and described in the ES along with any required mitigation measures. Impacts, including those from potential diversions and alterations in design, should be described and assessed where significant effects are likely to occur.<br><br>The Applicant's attention is drawn to the comments from National Highways, Health and Safety Executive, Cadent Gas Limited and Anglian Water Services (Appendix 2 of this Opinion) regarding the above and underground utilities.' | Further information regarding utilities and telecommunications is provided in this Section (**Section 18.3**) of this ES Chapter.<br><br>Key utilities identified during this search have been described, and mitigation has been embedded into the design and layout of the Scheme. The Applicant has provided / applied an easement for identified utilities. The easement has been provided to reduce interaction between the scheme and identified utilities. | **Section 18.3**. |
| **Health and Safety Executive** | 'It was found that that the following sites and cable corridors were in the Hazardous Substance Consent 'Consultation Zone' of the Gas Power Services Site, and the Natural Gas 5 Feeder pipeline.'<br><br>Sub-Sites identified are 5A, 5B, 7B, 7C, 7E, 7F, 10B, 10D and 10E.<br><br>CRC identified are CRC4, CRC7 and CRC14. | Utilities data has been incorporated into the design of the Scheme and appropriate buffers will be embedded into the design.<br><br>The Applicant has engaged with HSE to identify relevant HSE consultation zones for the Scheme. The Applicant has also consulted with National Gas Transmission (NGT) to understand easement requirements, and NGT advice has consequently been considered into the design of the Scheme. The Applicant are engaging with NGT regarding protective provisions.<br><br>A LSBUD (Linesearch Before U Dig) search will be completed to determine accurate | **Section 18.3.**<br><br>**Outline CEMP [EN0110014/APP/7.1]** |

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | | locations and depth readings to support the design.<br><br>The **Outline CEMP [EN0110014/APP/7.1]**, sets out measures to reduce potential impact on identified utilities. Once infrastructure is in place, risk to the identified utilities is considered minimal. | |
| **Cadent Gas Limited** | 'In respect of existing Cadent infrastructure, Cadent will require appropriate protection, assurance or relocation of retained apparatus including compliance with relevant standards for works which may be proposed within close proximity of its apparatus.'<br>'Any works relating to the project that may have an impact on the Cadent Gas Network MUST be submitted to the Plant Protection team at Cadent.'<br>'Written permission is required before any works commence within a Cadent easement strip and a Deed of Consent may be required if any apparatus needs to cross the Cadent easement strip.'<br>'You should be aware of the Health and Safety Executives guidance document HS(G) 47 'Avoiding Danger from Underground Services'<br>'Cadent will also need to ensure that all pipelines remain accessible throughout and after completion of the Works.'<br>'The actual depth and position must be confirmed on site by trial hole investigation under the supervision of a Cadent representative. Ground cover above our pipelines should not be reduced or increased.'<br>'If any excavations are planned within 3 metres of Cadent High Pressure Pipeline or, within 10 metres of an AGI (Above Ground Installation)'specific restrictions for trenchless techniques, piling and boring, solar farm installations, tree planting schemes and demolition 'when | Identified Utilities are shown in **ES: Figure 18.1: Utilities Plan [EN0110014/APP/6.2.18.1]**<br><br>Continued consultation with Cadent will be sought to ensure the Schemes design is in accordance with Cadents general Notes on Pipeline safety and to ensure risk is minimised.<br><br>All works will be undertaken in accordance with relevant Health and Safety legislation and guidance.<br><br>The **Outline CEMP [EN0110014/APP/7.1]**, sets out measures to reduce potential impact on identified utilities. In addition, the **Draft DCO [EN0110014/APP/3.1]** includes protective provisions for the protection of electricity, gas, water and sewerage undertakers, operators of electronic communications code networks, and drainage authorities.<br>Once infrastructure is in place, risk to the identified utilities is considered minimal. | **Outline CEMP [EN0110014/APP/7.1]**<br><br>**Draft Development Consent Order [EN0110014/APP/3.1];** |

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | being undertaken in the vicinity of gas assets therefore consultation with Cadent's Plant Protection team is essential'.<br>In addition to the above health and safety measures were set out for; pipeline crossings and new service crossings. | | |
| **Anglian Water Services** | 'We would expect the Outline Construction Environment Management Plan (OCEMP) and Outline Construction Traffic Management Plan (OCTMP) for the project to include steps to mitigate risk of damage to, and operation of Anglian Water assets within the defined project area, and the draft DCO to include Protective Provisions for Anglian Water. '<br><br>'Anglian Water requires that the following standoff distances are applied for working each side of the medial line of our pipes. The text is drawn from our template Protective Provisions which will need to be agreed with Anglian Water prior to the DCO submission.<br>(a) 4 metres where the diameter of the pipe is less than 250 millimetres.<br>(b) 5 metres where the diameter of the pipe is between 250 and 400 millimetres, and<br>(c) a distance to be agreed on a case-by-case basis and before the submission of the Plan under sub-paragraph (1) is submitted where the diameter of the pipe exceeds 400 millimetres.'<br><br>'The suggested approach to address any discussion on utilities such as diversions and other mitigation measures, including Anglian Water assets, within the Other Matters chapter of the ES is acceptable.'<br><br>'The proposed project area includes water mains, sewers and rising mains which can be in areas beyond the highway verges. Utilities searches should, therefore, be undertaken to establish the extent of our assets within the | Addressed within **Section 18.3** of this ES.<br><br>Anglian Water assets are presented on **ES: Figure 18.1 Utilities Plan [EN0110014/APP/2.18.1].**<br><br>The **Outline CEMP [EN0110014/APP/7.1]**, sets out measures to reduce potential impact on identified utilities. In addition, the **Draft DCO [EN0110014/APP/3.1]** includes protective provisions for the protection of electricity, gas, water and sewerage undertakers, operators of electronic communications code networks, and drainage authorities.<br><br>The Scheme will include the upgrade or construction of crossing points (such as Temporary Access Crossing Construction Ramps) over watercourses and below ground utility infrastructure (**Outline CTMP [EN0110014/APP/7.6]**)<br><br>Anglian Water standoff requirements will be adhered to within the detailed design and continued consultation will be sought. | **Section 18.3** of the ES.<br><br>**ES: Figure 18.1 Utilities Plan [EN0110014/APP/2.18.1]**<br><br>**Outline CEMP [EN0110014/APP/7.1]**<br><br>**Outline CTMP [EN0110014/APP/7.6].** |

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | scheme's application boundary. These should be mapped to establish interfaces with assets and the scheme designed to avoid impacts upon those assets.' | | |
| **Brook Parish Council**<br>**Hempnall Parish Council (BRP Residents Action Group)**<br>**Shelton and Hardwick Parish Council** | Several of the proposed sites for solar panels (5, 7E and 7F and 8) are on top of the high pressure gas pipeline that runs through Norfolk from Bacton, which is classed as a Major Hazard (MAHP). The proposed 400kV substation on site 5 and the welfare buildings for workers are also proposed to be built on it. The cable corridor would also potentially cross it. This is a significant risk not only to the PV farm but also to the surrounding area and public safety.<br><br>'PV farms carry an increased risk of a strike and lightning surge currents are of a magnitude and duration that could pass from any lightening protection or electrical the earth system to the pipeline.'<br><br>'Pipeline operators are required to consider societal risk, the boundaries for calculating this, is often outside the wayleaves and easements and extend a considerable distance. increased population density and infrastructure on these zones could alter the area classification of the pipeline.'<br><br>Limits are placed on 'vibration levels allowable near the pipelines – particular attention should be made to distances for piling…'. Any damage or potential damage to MAHP pipelines 'is likely to lead to serious safety, environmental and/or security of supply issues.'. The siting of a 400kV substation in close proximity to it, is also therefore of serious concern.<br><br>There are also pylons and overhead cables crossing several of the sites, that will require continued access to their easements. This may require additional access tracks or areas where development is not permitted. | The high-pressure gas pipeline and other relevant utilities are presented on **ES: Figure 18.1 Utilities Plan [EN0110014/APP/2.18.1].**<br><br>The Applicant has provided / applied an easement for identified utilities, which are at risk of causing a major accident or disaster. The easement has been provided to reduce interaction between the scheme and identified utilities, mitigating the risk.<br><br>All works will be undertaken in accordance with relevant Health and Safety legislation and guidance.<br><br>The **Outline CEMP [EN0110014/APP/7.1]**, sets out measures to reduce potential impact on identified utilities.<br><br>Once infrastructure is in place, risk to the identified utilities is considered minimal. | **Figure 18.1 Utilities Plan [EN0110014/APP/2.18.1]**<br><br>**Outline CEMP [EN0110014/APP/7.1]** |

| Consultee | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | There are also impacts to siting solar infrastructure beneath overhead cables, such as lightning strikes, damage from falling cables or falling ice, earthing of metal fencing, rising of earth potential around base of pylons. It is therefore essential that Utilities are scoped in and the whole section on Major Accidents and Disasters should be scoped in. It should also be scoped into the related aspects of other sections, particularly human health, utilities, air quality and ecology. | | |
| **Shotesham Parish Council** | Given the large area covered by this development, including the cable corridors, it is inevitable that there will be significant conflict with exiting infrastructure and utilities. Most obviously, the major high-pressure gas pipeline that runs through Site 8 and other parts of the proposed solar farm. We propose that a full analysis of telecommunications, television reception and utilities should form part of the EIA. | The high-pressure gas pipeline and other relevant utilities are presented on **Figure 18.1 Utilities Plan [EN0110014/APP/2.18.1]**<br><br>The Applicant has provided / applied an easement for identified utilities, which are at risk of causing a major accident or disaster. The easement has been provided to reduce interaction between the scheme and identified utilities, mitigating the risk.<br><br>The **Outline CEMP [EN0110014/APP/7.1]**, sets out measures to reduce potential impact on identified utilities.<br><br>Once infrastructure is in place, risk to the identified utilities is considered minimal. | **Figure 18.1 Utilities Plan [EN0110014/APP/2.18.1]**<br><br>**Outline CEMP [EN0110014/APP/7.1]** |

## Statutory Consultation and Preliminary Environmental Information Report (PEIR)

18.3.6 Statutory consultation was held between 18th June 2025, and 6th August 2025. Relevant responses to the PEIR relating to Telecommunications, Utilities, and Television and how these have been addressed through the ES are set out within **Consultation Report Appendix 11 Section 47 Applicant Response Table [EN0110041.5.12]** and **Consultation Report Appendix 12 Section 42 Applicant Response Table [EN0110041.5.13].**

## Targeted Consultation

18.3.7 A further round of targeted consultation was undertaken between 22 October 2025 and 26 November 2025 following changes to the development boundary area of the Scheme presented in the PEIR and during Stage Two Statutory Consultation. All the changes are documented in full in the **Consultation Report [EN0110014/APP/5.1].** These changes did not give rise to any materially new or different likely significant environmental effects compared to those reported in the PEIR. How these have been addressed through the ES are set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110041.5.11]** and **Consultation Report Appendix 11 Section 42 Applicant Response Table [EN0110041.5.12].**

## Legislation, Planning Policy and Guidance

### Legislation

18.3.8 Effects relating to infrastructure are not environmental effects and therefore there is no requirement to include an assessment of these effects under the EIA Regulations. However, given the nature of the Scheme, there is the potential to affect existing utility infrastructure above and below ground.

### Planning Policy

18.3.9 There are no specific clauses of National Planning Statements (NPSs) relevant to the telecommunications, utilities and television assessment.

18.3.10 NPS EN-3 (January 2026) (Ref 18-8) and NPS EN-5 (Ref 18-9) discuss connection to the National Grid and provision of cabling in relation to the Site Design, however, does not contain any clauses relating to the prior existence of utilities infrastructure.

### Guidance

18.3.11 The Telecommunications, utilities and television assessment has been carried out in accordance with the principles contained within the following appropriate guidance:

- Health and Safety Executive guidance document HS(G) 47 Avoiding Danger from Underground Services (Ref 18-10).
- Health and Safety Executive guidance document HS(G) 141 Electrical Safety on Construction Sites (Ref 18-11)
- Health and Safety Executive guidance note GS 6 Avoiding Danger from Overhead powerlines (Ref 18-12)
- The Horlock Rules (guidelines for the design and siting of substations) (Ref 18-13)

## Assessment Assumptions and Limitations

18.3.12 The assessment of effects on telecommunications, utilities and television is based on the maximum parameters set out in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**. This includes the anticipated maximum depth of construction activities and infrastructure, the maximum area allowed to be disturbed during construction and developed by the Scheme, and the maximum heights and massing allowed by the application.

18.3.1 The Applicant has assumed that the assets disclosed by these providers along with any assumed buried utilities identified within **ES: Figure 18.1: Utilities Plan [EN0110014/APP/6.2.18.1]** represent the worst-case scenario in terms of assessment.

## Assessment Methodology

18.3.2 This section sets out the scope and methodology for telecommunications, utilities and television assessment.

## Sources of Information

18.3.3 The Applicant has sought information regarding the telecommunications, Utilities and Television infrastructure located within the Order Limits and those outside the Order Limits that could be impacted by the Scheme. Utilities identified are outlined below and within **ES: Figure 18.1 Utilities Plan [EN0110014/APP/6.2.18.1].**

## Study Area

18.1.1 The Study Area for underground and overground cabling and pipelines comprises the Order Limits, as potential interactions with existing infrastructure are considered to be limited to this area.

18.1.2 For telecommunications masts the Study area encompasses a buffer zone of 250 m from the Order Limits, to capture nearby masts supporting the mobile networks provision of cellular and wireless communication.

18.1.3 The study area for television reception was expanded to identify the closest TV transmitters to the Order Limits within the Tacolneston transmitter group. This search identified three TV transmitters located to the west, north and east of the Limits.

## Impact Assessment Methodology

18.3.1 To identify any existing infrastructure constraints, both consultation and a desk-based study has been undertaken. Consultation with relevant telecommunication and utilities providers is a routine part of development and consultees include water, gas and electricity utilities providers and telecommunication providers, as appropriate. Information obtained from consultation has been used to inform the Scheme design and appropriate Protective Provisions are included within the **draft DCO [EN0110014/APP/3.1]** to ensure the protection of apparatus wherever any existing infrastructure has the potential to be affected by the Scheme and to mitigate against any identified risks, such as utilities failure.

18.3.2 A desk-based search has been undertaken for the presence of Telecommunications, Utilities and Television infrastructure within the Order Limits and within the vicinity. A qualitative approach was used to assess the likelihood of significant effects on Telecommunications, Utilities and Television.

18.3.3 The assessment methodology has followed the same approach as laid out in **ES Chapter 2: EIA Methodology [EN0110014/APP/6.1.2]**.

## Baseline conditions

18.3.4 There are multiple cables, pylons, and pipelines crossing the Order Limits which are owned and operated by a number of different utilities providers. Information provided by the utilities' providers on the assets within the Order Limits is provided in **Table 18.4** below, with reference to **Figure 18.1: Utilities Plan [EN0110014/APP/6.2.18.1]**:

**Table 18.42: Information Provided by Utilities Providers for Assets within the Order Limits**

| Category | Figure 18.1: Utilities Plan (sheets 1 to 13), sheet reference |
|---|---|
| UK Power Networks - High Voltage (Overhead Lines) | Sheet 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 |
| UK Power Networks - High Voltage (Underground Lines) | Sheet 2, 3, 4, 5, 9, 10, 11, 12, 13, 14, 19 |
| UK Power Networks (underground Lines) | Sheet 11 |
| UK Power Networks – Low Voltage (Underground Lines) | Sheet 3, 4, 9, 11, 12, 13, 14, 18 |
| UK Power Networks - Supply (Underground Lines) | Sheet 2, 3, 4, 8, 9, 11, 12, 13, 14 |
| National Grid – High Voltage (Overhead Lines) | Sheet 19 |
| Openreach (Overhead Lines) | Sheet 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 |
| Openreach (Underground Lines) | Sheet 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19 |
| Gigaclear (Underground) | Sheet 2, 3, 8, 9, 10, 11, 13, 14 |
| Broadband for Rural North Ltd (Underground) | Sheet 17, 18, 19 |
| Cadent Gas – Low Pressure | Sheet 11 |
| Cadent Gas - Intermediate Pressure | Sheet 2, 7, 8, 11, 13, 14, 15 |
| National Gas Transmission - High Pressure | Sheet 2, 3, 8, 9, 13, 14 |
| Anglian Water – Foul Sewer | Sheet 3, 9, 10, 11, 13, 18 |
| Anglian Water – Foul Sewer Rising Main | Sheet 3, 9, 10, 13 |
| Anglian Water – Final Effluent | Sheet 9 |
| Anglian Water - Water | Sheet 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 |
| Norfolk County Council (Underground Utility) | Sheet 10 |

## Telecommunications

18.3.5 There are no telecommunications masts located within the Order Limits, however there are a number of telecommunications assets including underground and overhead cabling, as referenced in **Table 18.4.**

18.3.6 Nearby telecommunications infrastructure located approximately within 250m of the Order Limits include:

- EE, Three UK and O2 UK mast, located east of Sub-Site 2A;
- EE, Three Uk, Vodaphone Uk and EE mast located west of CRC4;
- EE mast located east of Sub-Site 4B;
- Three Uk and EE mast located south-east of Sub-Site 7A;

- O2 UK and Vodaphone UK mast located south-east of Sub-Site 7A; and
- O2 UK and Vodaphone Uk located south of CRC9, west of Sub-Site 10C, 10B and 10A.

## Utilities

18.3.7 On-site utilities could include water, sewers, gas or oil pipelines and electrical cables. Knowledge of the utilities during design and construction allows any effects to be negated by avoiding them or by use of suitable structures.

18.3.8 **Table 18.3** provides a summary of the utilities and infrastructure that have the potential to be affected by the Scheme. Notably this includes a high-pressure gas pipeline that runs through Norfolk from Bacton and passes through Sub-Sites 5A, 5B, 7B, 7E, 7F and CRC7.

18.3.9 The is an existing dual circuit 400kV overhead line that runs southwest-northeast through Site 1, with 5 associated pylons located within Site 1.

## Television Reception

18.3.10 The area surrounding the Scheme receives television signals that were made exclusively digital after the digital switchover was completed in the region in November 2011.

18.3.11 The areas service is provided by the Tacolneston transmitter group. The area is predominantly serviced by the Tacolneston transmitting station, located approximately 6.5 km west of the Order Limits and standing at approximately 263 m, with other nearby transmitters including; Norwich Central (12 km to the north of the Order Limits) and Lowestoft (23 km east of the Order Limits).

## Future Baseline

18.3.12 It is not known what new Telecommunications, Utilities and Television infrastructure will be implemented in the lifetime of the Scheme beyond what has already been identified in this ES. For the purposes of assessment, the future baseline is not expected to represent a substantively different scenario to the existing infrastructure and is considered to be the same as current baseline conditions.

## Potential Impacts

18.3.13 Prior to the implementation of any mitigation (embedded or additional), the Scheme has the potential to affect Telecommunications, Utilities and Television, during the construction, operation and maintenance, and decommissioning phases, in the following ways:

- Potential to cause damage to existing infrastructure (i.e., utilities failure); and
- Potential to cause localised disruption to Telecommunications, Utilities and Television.

## Embedded Mitigation Measures

18.3.14 The risk of damage to utilities during construction would be minimised through protective measures within the DCO, embedded mitigation, and implementation of the relevant Management Plans. This would involve those measures listed below, close liaison with utility providers, and accurately mapping infrastructure that interacts with the Scheme and avoiding it through the detailed design.

18.3.15 The **draft DCO [EN0110014/APP/3.1]** includes protective provisions for the protection of electricity, gas, water and sewerage undertakers, operators of electronic communications code networks, and drainage authorities.

18.3.16 As detailed within the **Outline Construction Environmental Management Plan (CEMP) [EN0110014/APP/7.1]**, the following mitigation measures have been incorporated into the construction phase to identify and manage Impacts on utilities, telecommunications, and television receptors. These include precautionary measures such as:

- In advance of construction, the Applicant would liaise with all utility providers with assets in the area in regard to construction timelines, activities, proximity to assets and construction management measures;
- Locating the Scheme outside of utilities protected zones as part of detailed design of the Scheme, where practicable. This includes partaking in discussions with relevant utility providers as part of the detailed design evolution of the Scheme to ensure legal, safety, and practical design considerations to ensure these have been actively integrated into the Scheme. In addition, protective provisions for the benefit of statutory undertakers and electronic communications network code operators have been included in the **draft Development Consent Order [EN0110014/APP/3.1];**
- Above and below-ground infrastructure as part of the Scheme located with adequate offsets/buffers from existing telecommunications and utility infrastructure, where practicable;
- Use of geophysical data alongside mapping provided by telecommunication and utilities providers to ensure underground and overground utilities are adequately offset;
- Use of ground penetrating radar before excavation to identify any unknown utilities;

- Infrastructure that crosses the Scheme is mapped and will be avoided through the detailed design
- Use of Trenching and horizontal directional drilling activities to lay cabling where crossings are required;
- Consultation and agreement of construction/demobilisation methods will be undertaken prior to the works commencing (this would be covered by the protective provisions included in the DCO).
- During the construction phase, there will be safe working beneath any overhead lines in line with National Grid's technical guidance note 287 (Ref 18-14) including, for example, ensuring adequate clearances are in place when plant and equipment are being moved beneath overhead lines, and limiting any planting beneath overhead lines to low growing species.
- Measures in relation to safe working near buried utilities, particularly gas pipelines, will be in place at all phases of the Scheme.

## Assessment of Likely Impacts and Effects

### Telecommunications

18.3.17 A desk-based review and initial consultation with statutory undertakers has been undertaken to identify existing telecommunications infrastructure within the Site.

18.3.18 The Scheme consists mostly of fixed low-lying infrastructure, with the tallest elements of the Scheme forming part of the Grid Connection Infrastructure. Site 1 already contains five 53m pylons associated with the existing 400kV overhead line. The Scheme includes up to three new pylons (of which two would be associated with the repositioning of existing pylons and up to 1 new pylon). The maximum height of the new pylons is up to 61m above ground level. As a result, the pylons are not anticipated to adversely impact upon above-ground telecommunications.

18.3.19 As detailed in **Section 18.3.24** below, the Scheme proposes diverting the existing dual circuit 400kV overhead line (OHL). As part of these works, fibre optic cables will be rerouted or extended to match the new alignment. The DCO will include protective provisions for the protection of telecommunications. Full details of required telecommunications diversions will be defined at detailed design stage and further consultation with affected third parties will be undertaken regarding the interaction of their apparatus with the Scheme.

18.3.20 Substations delivered by the Scheme will be the subject of consultation with National Grid Electricity Transmission plc and relevant undertakers.

18.3.21 The potential exists for underground and overground telecommunications infrastructure shown in **ES Figure 18.1 [EN0110014/APP/6.2.18.1]** to be affected during the construction of the Scheme through damage caused by excavation and engineering operations. Precautionary measures will be included as part of the embedded mitigation for the Scheme, which includes developing the detailed design of the Scheme having regard to telecommunications protection zones, the use of ground penetrating radar before excavation to identify any unknown utilities, use of trenching and horizontal directional drilling activities to lay cabling where crossings are required, and the inclusion of protective provisions for third parties in the DCO which ensure appropriate protections are in place. These measures would reduce the likelihood of effects on telecommunications infrastructure during construction and are detailed in the **Outline CEMP [EN0110014/APP/7.1].**

18.3.22 Given the nature of the Scheme and mitigation measures as outlined above, no adverse likely significant effects on telecommunications are anticipated in the construction, operation and maintenance, and decommissioning phases.

## Utilities

18.3.23 On-site utilities include water, gas and oil pipelines and electrical networks. Through consultation and a desk-based search, the following utilities and infrastructure that have the potential to be affected by the Scheme are shown on **ES: Figure 18.1 Utilities [EN0110014/APP/6.2.18.1].**

18.3.24 The Scheme proposes diverting the existing dual circuit 400kV overhead line (OHL) into a newly constructed double busbar substation (i.e. the National Grid Substation). The works will be delivered in carefully planned stages to maintain safety, minimise disruption, and ensure continuity of supply throughout. Before any electrical work begins, new pylons will be built along the proposed diversion route leading into the new National Grid Substation. These pylons will eventually carry the circuits away from the old alignment and into the new infrastructure. Temporary pylons may also be installed to help maintain the flow of electricity during the transition.

18.3.25 The Applicant has developed a double circuit turn in solution as this enhances the operational efficiency and resilience of the transmission network and delivers long term maintenance benefits whilst also allowing for the decommissioning and removal of the existing section of overhead line.

18.3.26 The potential exists for utilities shown in **ES: Figure 18.1 [EN0110014/APP/6.2.18.1]** to be affected during the construction of the Scheme through damage caused by excavation and engineering operations. Precautionary measures will be included as part of the embedded mitigation for the Scheme, which includes developing the detailed design of the Scheme having regard to utilities protection zones, the use of ground penetrating radar before excavation to identify any

unknown utilities, use of trenching and horizontal directional drilling activities to lay cabling where crossings are required , and the inclusion of protective provisions for third parties in the DCO which ensure appropriate protections are in place. These measures would reduce the likelihood of effects on utilities during construction and are detailed in the **Outline Construction Environmental Management Plan (CEMP) [EN0110014/APP/7.1]**.

18.3.27 Consultation and continued communication will be sought with relevant utilities providers throughout the phases of the project. Protective provisions will be put in place to prevent and / or limit potential localised disruption to services in line with provider guidance.

18.3.28 Considering the above, no adverse likely significant effects on utilities are expected during construction.

18.3.29 The protective provisions would remain in place throughout the operation and maintenance phase, for the protection of utility assets. No adverse likely significant effects on utilities are predicted during the operation and maintenance phase of the Scheme as no below-ground works will be required during that phase.

18.3.30 After the Scheme's lifespan, the decommissioning phase will involve leaving the National Grid Substation and Grid Connection Infrastructure in place. All Solar PV Panels, mounting structures, above ground cabling, Conversion Units / 33 kV sub-distribution Switch Rooms, Project Substations and BESS would be removed from within the Sites. Given most of this infrastructure is above ground or low lying this is unlikely to interfere with utilities.

18.3.31 The mode of removing the cabling would be dependent upon government policy and good practice at the time. Currently, the most environmentally acceptable option is considered to be leaving the cables in situ, as this avoids disturbance to overlying land, habitats, communities and utilities. Alternatively, the cables can be removed by opening up the ground at regular interval and pulling the cable through to the extraction point, leaving the ducting and jointing bays in place, avoiding the need to open up the entire length of the cable route. In this case, the works would be undertaken within the footprint excavated during construction.

18.3.32 Additionally, the embedded mitigation measures used during construction would apply during decommissioning, as set out in the **Outline DEMP [EN0110014/APP/7.3]**. In advance of decommissioning, the Applicant will liaise with all utility providers with assets in the area regarding decommissioning timelines, decommissioning activities, proximity to assets and decommissioning management measures that will be in place to ensure no impact to utilities. Therefore, no adverse likely significant effects are predicted during decommissioning.

### Television

18.3.33 Given the nature of the Scheme which consists mostly of fixed low-lying infrastructure, with the tallest elements of the Scheme forming part of the Grid Connection Infrastructure, as detailed in paragraph **18.3.18,** the Scheme is not anticipated to impact and / or disrupt the reception of television in residence, businesses, and other users.

18.3.34 Furthermore, the nearest television transmission tower (according to Ofcom (Ref 18-15)) to the Order Limits is located approximately 7.7km north-west of the National Grid Substation and Point of Connection, with additional transmitters located to the east and north of the Order Limits.

18.3.35 There are no television transmitters located within the Order Limits, so there is no potential for damage to be caused to this infrastructure.

18.3.36 As a result, adverse likely significant effects on television reception are not anticipated in the construction, operation and maintenance, and decommissioning phases.

### Cumulative Effects Assessment

#### Cumulative Effects

18.3.37 The Scheme has been assessed to have no likely significant effects on telecommunication, television, or utilities. It is expected that the other development proposals would also have no effect on telecommunications and television reception and would adhere to the same mitigation as set out above to reduce the risk of damaging utilities.

18.3.38 All developments will be managed through a CEMP that will include mitigation measures to reduce the risk of damaging utilities during construction. Consequently, no cumulative effects are expected on telecommunications, television reception, or utilities.

#### Residual Effects

18.3.39 Telecommunications, television reception and utilities will experience no adverse likely significant effects during construction, operation and maintenance and decommissioning as detailed above.

## 18.4 Glint and Glare

### Introduction

18.4.1 As agreed by the Planning Inspectorate (PINS) within the Scoping Opinion **[EN0110014/APP/6.3.2.3]**, an individual glint and glare chapter is not required in the ES.

18.4.2 This Section of the OEM Chapter presents the assessment of the likely effects of the Scheme on the environment with respect to glint and glare during construction, operation and maintenance, and decommissioning phases upon road safety, residential amenity, and aviation activity.

18.4.3 This Section of the OEM Chapter is supported by **ES: Appendix 18.1 Glint and Glare Assessment.**

## Consultation

18.4.4 The Scheme has been subject to consultation throughout the DCO preparation period. A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through PINS in January 2025. A Scoping Opinion was adopted by PINS in February 2025 **[EN0110014/APP/6.3.2.3]**.

18.4.5 The issues raised in the Scoping Opinion relating to Glint and Glare are summarised and responded to within **Table 18.5.** which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES.

**Table 18.5: Relevant Scoping Opinion Comments from Statutory Bodies Relating to Glint and Glare**

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| **Planning Inspectorate** | 3.6.1<br>The Inspectorate is content with the proposed approach and agrees that a standalone glint and glare chapter does not need to be included in the ES. However, the Inspectorate considers that potential significant glint and glare effects during construction and decommissioning phases also need to be considered in the standalone glint and glare assessment. | A glint and glare assessment considering the potential impacts upon road safety, amenity, and aviation activity has been carried out considering the operational and maintenance phase. Impacts during the construction and decommissioning phases are discussed within this Chapter. | **Section 18.4**, paragraphs 18.4.63-18.4.74<br><br>**Appendix 18.1: Glint and Glare Assessment** |
| | 3.6.2<br>The ES should justify the choice of study area and sensitive receptors with reference to the extent of the likely impacts. Effort should be made to agree these details with relevant consultation bodies.<br>3.14.7<br>The ES should provide further justification for the extent of the study area with reference to recognised professional guidance and the extent of the likely impacts, informed by fieldwork and relevant models or approaches. Effort should be made to agree these details with relevant consultation bodies. | The study areas are derived from industry experience and previous consultation with safeguarding bodies (such as National Highways and Network Rail) when developing an assessment methodology for glint and glare assessments in general. In conjunction with this, the study areas also consider a case-by-case basis to identify receptors that may need to be included even if not identified within the study area.<br><br>Consultation with the relevant stakeholders outlined in **Table 18.5** outline established sensitive viewpoints that have been | **Section 18.4,** Paragraphs 18.4.19 and 18.4.22 |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | | considered in the context of glint and glare. | |
| **Alburgh Parish Council** | Glint and Glare impact specifically on airfields should be scoped in due to the proximity to Hardwick airstrip | A glint and glare assessment has considered the potential impacts upon aerodromes within 15km of the Scheme, including Hardwick Airstrip. | Section 18.4, paragraphs<br><br>**Appendix 18.1: Glint and Glare Assessment** |
| **Brooke Parish Council** | Response highlights the significance of glint and glare impacts upon six<br>airfields | A glint and glare assessment has considering the potential impacts upon aerodromes within 15km of the Scheme, including consultation with aerodrome's and their operators. | Paragraphs 18.4.7 and 18.4.77 |
| **Ian Nelson BFP FCA CF CLCA**<br>**Clerk to Hempnall Parish Counci** | Response highlights the impacts upon the surrounding road infrastructure and aviation activity | A glint and glare assessment considering the potential impacts upon road safety, amenity, and aviation activity has been carried out considering the operational and maintenance phase. Impacts during the construction and decommissioning phases are discussed within this Chapter. | Paragraph 18.4.66 |
| **Shelton and Hardwick Parish Counci** | Response highlights the impacts upon the surrounding road infrastructure and aviation activity | A glint and glare assessment considering the potential impacts upon road safety, amenity, and aviation activity has been carried out considering the operational and maintenance phase. | Paragraph 18.4.66 |

## Statutory Consultation and Preliminary Environmental Information Report (PIER)

18.4.6 Statutory consultation was held between 18th June 2025, and 6th August 2025. Relevant responses to the PEIR relating to Glint and Glare and how these have been addressed through the ES are set out within **Consultation Report Appendix 11 Section 47 Applicant Response Table [EN0110041.5.12]** and **Consultation Report Appendix 12 Section 42 Applicant Response Table [EN0110041.5.13].**

## Further Engagement

18.4.7 Further engagement has been undertaken as part of stakeholder engagement specific to Glint and Glare, as detailed within **Table 18.6**.

**Table 18.6: Summary of Further Engagement Undertaken**

| Consultee and Date | Summary of Matter | Response |
|---|---|---|
| **Long Stratton Airfield** | Pre-application consultation. | Non-statutory consultation via email 28/10/2024.<br>To date, a response has not been received. |

| Consultee and Date | Summary of Matter | Response |
|---|---|---|
| **Hardwick Airfield** | Pre-application consultation. | Non-statutory consultation via email 28/10/2024.<br>To date, a response has not been received. |
| **Norfolk Gliding Club (Tibenham Airfield)** | Pre-application consultation regarding glint and glare, EFATO, and thermal updrafts. | On-going exchange of emails between the Applicant and Norfolk Gliding Club throughout December 2024; and January, February and April 2025.<br>Non-statutory consultation via email 28/10/2024.<br>Non-statutory consultation via email 26/11/2024.<br>Non-statutory consultation via onsite meeting 23/01/2024<br>Initial response received 26 November 2024.<br>Non-statutory consultation via an on-airfield meeting attended on 23 January 2025 to discuss concerns regarding glint and glare and additional aviation concerns.<br>Non-statutory consultation between January 2025 and June 2025 to establish key receptors to consider within the glint and glare assessment. The technical information required to model the receptors for the glint and glare assessment could not be confirmed by the airfield.<br>Non-statutory consultation via an on-airfield meeting attended on 5 January 2026. The technical information required to model the receptors for the glint and glare assessment were confirmed by the airfield. |
| **General Aviation Awareness Council (GAAC)** | Pre-application consultation in conjunction with Norfolk Gliding Club regarding glint and glare, EFATO, and thermal updrafts. | Initial correspondence received 3 December 2024 from the GAAC.<br>Response received by the Applicant from GAAC to the Applicants 'East Pye Solar Phase One Consultation Summary Report'. Received 5th April 2025.<br>Response drawing attention to the potential risks posed by the proposed solar farm on the aviation operations of Norfolk Gliding Club at Tibenham. |
| **Seething Airfield** | Pre-application consultation regarding glint and glare, and EFATO. | Initial correspondence received 19 August 2025 from Seething Airfield.<br>Non-statutory consultation on-site (at Seething Airfield) on 19th September 2025 highlighted concerns regarding glint and glare and additional aviation concerns.<br>Non-statutory consultation received 05/01/26 confirming |

| Consultee and Date | Summary of Matter | Response |
|---|---|---|
| | | receptors to consider for the glint and glare assessment, and a sensitive viewpoint receptor. |

### Targeted Consultation

18.4.8 A further round of targeted consultation was undertaken between 22 October 2025 and 26 November 2025 following changes to the development boundary area of the Scheme presented in the PEIR and during Stage Two Statutory Consultation. All the changes are documented in full in the **Consultation Report [EN0110014/APP/5.1].** These changes did not give rise to any materially new or different likely significant environmental effects compared to those reported in the PEIR. How these have been addressed through the ES are set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110014/APP/5.11]** and **Consultation Report Appendix 11 Section 42 Applicant Response Table [EN0110014/APP/5.12].**

## Legislation, Planning Policy, and Guidance

18.4.9 A summary of relevant legislation, policy, and guidance is provided within this Section. Further details regarding the referenced legislation, policy and guidance can be found in **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]**.

### Legislation

18.4.10 The glint and glare assessment has been carried out in accordance with the following legislation:

- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
- The Air Navigation Order 2016.

### Policy

18.4.11 The glint and glare assessment has been carried out in accordance with the principles contained within the following appropriate policies:

- NPS for Renewable Energy Infrastructure (‘EN-3’) (Ref 18-19).

### Guidance

18.4.12 The glint and glare assessment has been carried out in accordance with the principles contained within the following appropriate guidance:

- Pager Power Glint and Glare Guidance, Fourth Edition (Ref 18-36);

- National Planning Practice Guidance – Renewable and Low Carbon Energy - Guidance for Renewable and Low Carbon Energy (Ref 18-37);
- The FAA guidance 'Technical Guidance for Evaluating Selected Solar Technologies on Airports (Ref 18-35);
- Interim Civil Aviation Authority (CAA) guidance – Solar Photovoltaic Systems (Ref 18-38);
- CAA – CAP738: Safeguarding Aerodromes 3rd Edition (Ref 18-39);
- US Federal Aviation Authority (FAA) Administration Policy (Ref 18-40).

## Impact Assessment Methodology

18.4.13 The Glint and Glare Assessment methodology used in **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]** is based on Pager Power's Glint and Glare Guidance (Fourth Edition), which was developed in line with information provided to Pager Power through consultation with stakeholders and through review of available studies. This methodology has been used for other solar DCOs such as Cottam Solar Project, West Burton Solar Project, and the Lime Down Solar Park. The methodology for a glint and glare assessments is as follows:

- Identification of relevant receptors based on their type and range from the Photovoltaic (PV) panels;
- Technical modelling of the sun path throughout the year to calculate the times and duration of predicted glare for the proposed panel configuration (this modelling considers bare earth terrain and makes a worst-case assumption that direct sunlight is present during all daylight hours);
- Evaluation of impact significance based on the criteria for the receptor type in accordance with Pager Power's guidance (the main considerations are duration, field of view, and intensity but this varies per receptor type):
  - For aviation receptors the key considerations are the location of glare relative to a pilot's primary field-of-view, whether a reflection is predicted to be experienced in practice, glare intensity and whether a reflection is predicted to be operationally significant in practice or not;
  - For road receptors, the key consideration is the reflecting area relative to a driver's direction of travel and whether a reflection is predicted to be experienced in practice; and

- For dwelling receptors, the key consideration is the duration of effects and whether a reflection is predicted to be experienced in practice.

- Identification of areas that require mitigation, if any; and
- Mitigation strategy if required.

18.4.14 There is no formal guidance with regard to the maximum distance at which glint and glare should be assessed. From a technical perspective, there is no maximum distance for potential reflections. However, the significance of a solar reflection decreases with distance. This is because the proportion of an observer's field of vision that is taken up by the reflecting area diminishes as the separation distance increases. In most instances, terrain and shielding by vegetation are also more likely to obstruct an observer's view at greater distances. The identified receptors are outlined within Section 4 of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1].**

18.4.15 As not all of the proposed panels will be present simultaneously during the construction or decommissioning phases, it is considered that the duration and intensity of any glare during these phases will be less than or equal to the operational and maintenance phase. The worst-case scenario for glint and glare effects is therefore the operational and maintenance phase. This has been considered within Section 5 of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1].**

### Study Area

18.4.16 The Study Areas for each relevant receptor (Section 4 of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]**) are based on the potential for significant effects to occur based on previous project experience as well as Pager Power's Glint and Glare Guidance, which establishes best practice for the assessment of glint and glare.

18.4.17 As part of the Statutory Consultation material, agreement on sensitive receptors and associated Study Areas was sought with relevant consultation bodies through the presentation of the PEIR for comment. Whilst there is no geometric limit for solar reflections, beyond these limits reflections would be of lesser intensity and are more likely to be screened by obstructions or intervening terrain. Any impacts upon receptors outside of the Study Areas would be considered a low impact in the worst-case scenario and considered not significant in EIA terms.

18.4.18 The Study Areas are derived from industry experience and previous consultation with safeguarding bodies (such as National Highways and Network Rail) when developing an assessment methodology for glint and glare assessments in general. In conjunction with this, the Study Areas also consider a case-by-case basis to identify receptors that may need to be included even if not identified within the Study Areas.

18.4.19 The Study Areas for the following receptors are outlined below:

- Major national, national, and regional roads within 1km of the panel areas are considered. Separate 4.20km and 7.90km sections of the A140 and B1527 respectively have been identified and geometrically modelled within the assessment
- Residential dwellings within 1km of the panel areas are considered. In total, 482 dwelling receptors have been identified and geometrically modelled within the assessment
- Railway receptors within 500m of the panel areas are considered. No railway receptors have been identified within the assessment
- Aerodromes within 15km of the panel areas are considered. In total, 6 aerodromes have been identified and geometrically modelled within the assessment.

## Baseline Conditions

18.4.20 This section describes the baseline environmental characteristics for the Order Limits and surrounding areas with specific reference to glint and glare.

18.4.21 The existing baseline conditions are derived from a desk-based review of the available aerial and street view imagery of the Order Limits undertaken as a part of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]**.

18.4.22 The location of the Scheme is rural, surrounded by roads, dwellings, and airfields.

18.4.23 The following airfields in the surrounding area have been identified for assessment. Full details of the aviation receptors are shown in Section 4.2 of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1].**

- Seething Airfield, 560m east;
- Long Stratton Airfield, 2.14km south-west;
- Hardwick Airfield, 30m south;
- Topcroft Farm Airfield, 1.10km south-east;
- Nut Tree Farm Airfield, 2.31km south; and
- Norfolk Gliding Airfield, 1.88km east.

18.4.24 Road receptors have been identified for assessment along the A140 and B1527. Full details of the road receptors are presented in Section 4.4 of

**ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]**.

18.4.25 482 dwelling receptors have been identified within the assessment area. Full details of the dwelling receptors are shown in Section 4.5 of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]**

18.4.26 Only the development area as shown in the Works Plans **Works Plans [EN0110014/APP/2.3]** for Solar PV panels are relevant for Glint and Glare, as solar PV panels will be sited within these areas. The indicative areas for mitigation and enhancement and indicative siting zones for other components of the Scheme such as Grid Connection Infrastructure, BESS, and CRC are not relevant for Glint and Glare, due to no solar PV panels being sited within these areas, and have therefore not been considered.

18.4.27 In the absence of the Scheme, the baseline is considered to remain the same.

### Site Surveys

18.4.28 No field work/Site surveys have been undertaken to understand the existing baseline conditions with respect to glint and glare. It is standard practice to utilise data from available resources such as digital terrain models and ordnance to inform the desktop assessment. The information is sufficient to model receptors, analyse results and determine impacts.

18.4.29 There are no future field work/Site surveys currently proposed. Through the available resources and details of the embedded mitigation proposed, future field work/site surveys will not be required.

### Determining Significance of Effect

18.1.4 This section provides an overview of the receptor sensitivity, magnitude of impact, and the significance of effects against which the Scheme will be considered for glint and glare.

18.1.5 A negligible impact is considered when a solar reflection is not geometrically possible or will not be visible from the assessed receptor.

18.1.6 A low impact is considered when a solar reflection is geometrically possible however any impact is considered to be small such that mitigation is not required e.g. intervening screening will limit the view of the reflecting solar panels.

18.1.7 A medium impact is considered when a solar reflection is geometrically possible and visible however it occurs under conditions that do not represent a worst-case.

18.1.8 A high impact is considered when a solar reflection is geometrically possible and visible under conditions that will produce a significant impact.

18.1.9 The receptor-specific considerations are outlined the Magnitude of Impact.

### Sensitivity of Receptor

18.4.30 The sensitivity of all identified receptors is assessed in line with the criteria provided in **Table 18.7** below.

**Table 18.7: Receptor Sensitivity**

| Sensitivity | Definition |
|---|---|
| **High** | The receptor has little ability to absorb change without fundamentally altering its present character or is of international or national importance. |
| **Medium** | The receptor has moderate capacity to absorb change without significantly altering its present character or is of regional importance. |
| **Low** | The receptor is tolerant of change without detriment to its character or is of low or local importance. |
| **Negligible** | The receptor has little ability to absorb change without fundamentally altering its present character or is of negligible importance. |

#### Roads

18.4.31 Roads can generally be categorised as:

- Major National – Typically a road with a minimum of two carriageways with a maximum speed limit of up to 70mph. These roads typically have fast-moving vehicles with busy traffic.
- National – Typically a road with a one or more carriageways with a maximum speed limit 60mph or 70mph. These roads typically have fast-moving vehicles with moderate to busy traffic density.
- Regional – Typically a single carriageway with a maximum speed limit of up to 60mph. The speed of vehicles will vary with a typical traffic density of low to moderate.
- Local – Typically roads and lanes with the lowest traffic densities. Speed limits vary.

18.4.32 Local roads would be considered as Low sensitivity. Regional, National, and Major National roads would be considered of Medium sensitivity.

#### Dwellings

18.4.33 Residential dwellings would be considered as Low sensitivity as they are tolerant of change without detriment and of local importance.

#### Aviation Activity

18.4.34 Aviation receptors are typically considered to be of Medium sensitivity because they are of regional to national importance with a Low to Moderate capacity to absorb change.

18.4.35 Aviation receptors include airborne receptors such as aircraft that fly on approach paths and circuits. Additional sensitive viewpoints can also be considered, including those specifically and reasonably defined by the aerodrome.

## Magnitude of Impact

18.4.36 The magnitude of impact is outlined in **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]** and summarised below.

### Roads

18.4.37 A Negligible magnitude of impact would occur if solar reflections are not geometrically possible or are not predicted to be experienced by a road user.

18.4.38 A Low magnitude of impact would occur if solar reflections would all originate from outside a road user's main field of view. Reflections originating within a road user's main field of view can be of Low magnitude based on consideration of the following mitigating factors:

- Whether the solar reflection originates with a road user's field-of-view.
- Whether visibility is likely for elevated drivers (relevant to dual carriageways and motorways).
- The separation distance to the panel area. Larger separation distances reduce the proportion of an observer's field of view that is affected by glare.
- Solar reflection may be fleeting in nature. Small gaps in screening, e.g. an access point to the Site, may not result in a sustained reflection for a road user.
- The position of the Sun. Effects that coincide with direct sunlight appear less prominent than those that do not.

18.4.39 A Medium magnitude of impact would occur if solar reflections were experienced from within a driver's main field of view and there are insufficient mitigating factors.

18.4.40 A High magnitude of impact would occur if solar reflections were experienced from directly in front of a road user's direction of travel with no mitigating factors.

### Dwellings

18.4.41 A Negligible magnitude of impact would occur if solar reflections were not geometrically possible or are not predicted to be experienced by an observer within a residential dwelling.

18.4.42 A Low magnitude of impact would occur if solar reflections would be experienced for less than three months per year and for less than sixty minutes per day, or outside of these limits based on consideration of the following mitigating factors:

- Whether visibility is likely from all storeys. The ground floor is typically considered the main living space and has a greater significance with respect to residential amenity.
- Whether the dwelling appears to have windows facing the reflecting area. Factors that restrict potential views of a reflecting area reduce the level of impact.
- The separation distance to the panel area. Larger separation distances reduce the proportion of an observer's field of view that is affected by glare.
- The distance between the receptor and the panel area.
- The position of the Sun. Effects that coincide with direct sunlight appear less prominent than those that do not.

18.4.43 A Medium magnitude of impact would occur if solar reflections were experienced for more than three months per year or for more than sixty minutes per day and there are insufficient mitigating factors.

18.4.44 A High magnitude of impact would occur if solar reflections were experienced for more than three months per year and for more than sixty minutes per day with no mitigating factors.

### Aviation Activity

18.4.45 Glare intensity is a key consideration to aviation receptors only and can generally be categorised as solar reflections having a:

- Low potential for temporary after-image, referred to as 'green' glare.
- Potential for temporary after-image, referred to as 'yellow' glare.
- Potential for permanent eye damage, referred to as 'red' glare.

18.4.46 The relevance of after-image is outlined below:

- 'Green' glare is considered acceptable in accordance with the associated guidance, assessment methodology and industry best practice;
- 'Yellow' glare requires assessment of the glare scenario based on the matters listed in paragraph 7 below. As a result of this assessment, the impact is either low (and does not require mitigation) or moderate/high

(and required mitigation). In any event, consultation with the aerodrome is recommended; and

- 'Red' glare requires mitigation.

18.4.47 The magnitude of impact upon aircraft approaching a runway (referred to as an approach path) is dependent on the following factors:

- The likely traffic volumes and level of safeguarding at the aerodrome. Licensed aerodromes typically have higher traffic volumes and are formally safeguarded.
- The time of day at which glare is predicted and whether the aerodrome will be operational such that pilots can be on the approach at these times.
- The duration of any predicted glare i.e. glare that occurs for low durations throughout the year which is less likely to be experienced than glare that occurs for longer durations throughout the year.
- The location of the source of glare relative to the position of the Sun at the times and dates in which solar reflections are geometrically possible. Effects that coincide with direct sunlight appear less prominent than those that do not.
- The level of predicted effect relative to existing sources of glare. A solar reflection is less noticeable by pilots when there are existing reflective surfaces in the surrounding environment.

## Significance of Effects

18.4.48 The Significance of Effects matrix is presented in **Table 18.8** below.

**Table 18.8: Significance of Effects Matrix**

| | | Sensitivity of Receptor | | | |
|---|---|---|---|---|---|
| | | **High** | **Medium** | **Low** | **Negligible** |
| **Magnitude of Impact** | **High** | Major | Major / Moderate | Minor | Minor Negligible |
| | **Medium** | Moderate | Moderate | Minor | Negligible |
| | **Low** | Minor | Minor | Minor | Negligible |
| | **Negligible** | Negligible | Negligible | Negligible | Negligible |

18.4.49 Effects are considered to be significant in EIA terms if the resultant significance of effect is **Moderate**, **Major/Moderate** or **Major**.

### Assumptions and Limitations

18.4.50 The assessment is limited to desk-based analysis. No Site surveys have been undertaken.

18.4.51 The glint and glare assessment considers the operational phase of the Scheme which is considered to be the worst-case for glint and glare.

18.4.52 The geometric model considers 100% sunlight during daylight hours which is highly conservative.

18.4.53 Only a reflection from the face of the panel will be considered. The frame supporting the panels, or the back of solar panels, has not been considered as a solar reflection from the frame of a smaller surface area will be less significant than from the face of a solar panel with a larger surface area. The worst-case scenario is therefore presented in the assessment.

18.4.54 The geometric model has assumed panels within the entirety of the indicated areas of the **Works Plans [EN0110014/APP/2.3]**. In actual practice, rows and arrays of solar panels will include a break in between panels to decrease the effects of shadowing upon neighbouring panels. Therefore, the model assumes a highly conservative number of panels and presents a worse-case geometric result.

18.4.55 The model assumes that a receptor can view the face of every panel (i.e. 'point', defined in the following paragraph) within the Site. However, in reality, in the majority of cases, this will not occur. Consequently, any predicted solar reflection from the face of a solar panel that is not visible to a receptor will not occur in practice.

18.4.56 A finite number of points within each solar panel area defined is chosen based on an assessment resolution so that a comprehensive understanding of the entire Scheme can be formed. This determines whether a solar reflection could ever occur at a chosen receptor. The model does not consider the specific panel rows or the entire face of the solar panel within the Site, rather a single point is defined every 10 metres (based on this assessment resolution) with the geometric characteristics of the panel. A panel area is however defined to encapsulate all possible panel locations.

## Embedded Mitigation

18.4.57 Screening in the form of proposed vegetation such as mature tree and shrub planting for sections of the B1527 and 46 dwellings will aid to obstruct views of reflecting panels.

18.4.58 Full details regarding the landscape mitigation are presented in the **Outline LEMP [EN0110014/APP/7.4].**

## Assessment of Likely Impacts and Effects

## Construction and Decommissioning Phase

18.4.59 During the construction phase, the PV panels will be installed over the duration of the construction programme until the operational phase commences. As the Scheme is constructed and PV panels are installed, there is the potential for glint and glare impacts on the identified receptors as detailed for the assessment of operational phase impacts. As a worst-case scenario, the potential glint and glare impacts from the Scheme during the construction phase will be of the same level as during the operation and maintenance phase, when the maximum number of PV panels are present. As concluded below, there are no likely significant effects during the operation and maintenance phase, when the Scheme has the highest potential for glint and glare impacts. As a result, during the construction phase, when fewer PV panels will be present and there is less potential for glint and glare impacts, there is no potential for likely significant effects.

18.4.60 The decommissioning stage will be similar to the construction phase and therefore this phase will be less than or equal to the assessed operation and maintenance phase.

## Operational Phase

### Roads

18.4.61 Solar reflections from the Scheme are geometrically capable of affecting 4.2km of the A140 and 7.9km of the B1527. Section 5.3 of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]** identifies the specific locations of the roads affected. The sensitivity of these receptors are considered to be Medium as they are roads of Regional and National importance.

18.4.62 However, when considering the baseline conditions, screening in the form of existing vegetation, buildings and intervening terrain is predicted to significantly obstruct views of reflecting panels for the entire 4.2km of the A140 and 5.8km of the B1527. The resulting impact is considered to be **Negligible** and resulting effect significance is considered **Not Significant**.

18.4.63 For remaining sections of road totalling 1.3km of the B1527, solar reflections may occur within a road user's primary horizontal field-of-view. With the implementation of the embedded landscape mitigation measures, the resulting impact is considered to be **Negligible** and the resulting effect significance is considered **Not Significant**.

### Dwellings

18.4.64 Solar reflections are geometrically capable of affecting 482 dwellings. The sensitivity of these receptors are considered to be Low as they are tolerant of change without detriment and of local importance.

18.4.65 When considering the baseline conditions, screening in the form of existing vegetation, buildings and intervening terrain is predicted to significantly obstruct views of reflecting panels for residents at 414 of these dwellings. The impact is therefore considered to be **Negligible** and the resulting significance of effect is **Not Significant**.

18.4.66 For the remaining 68 dwellings, solar reflections may occur for more than three months per year but less than sixty minutes on any given day. With the screening in the form of existing vegetation, buildings and intervening terrain, and implementation of the embedded landscape mitigation measures, views are considered to be limited marginal from above ground level, and the duration of effects are predicted to be reduced to less than three months per year and less than 60 minutes on any given day. The impact is considered to be **Low** and the resulting significance of effect is **Not Significant**.

### Aviation

18.4.67 Solar reflections with glare intensities with the potential for temporary after-image ('yellow' glare) are geometrically possible towards the approach path or final sections of visual circuits (specified path flown by aircraft operating when landing at an aerodrome) for all assessed aerodromes. The sensitivity of these receptors are considered to be Medium sensitivity as they are of regional importance.

18.4.68 The glare scenario is considered in context of these airfields' operations, as well as mitigating factors already employed by both pilots (in line with industry safe practices) and the Scheme, and embedded mitigation. Effects could potentially be operationally accommodated, subject to ongoing consultation with the aerodromes. Considering the mitigating factors as detailed within **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1],** a **Low** impact and **Not Significant** effect is predicted.

## Further Mitigation

18.4.69 No further mitigation is required in relation to glint and glare effects on road safety and residential amenity.

18.4.70 As detailed in **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1],** solar reflections towards all aerodromes could be operationally accommodated, and consultation is recommended to confirm their position. If required, panels can be further mitigated by changing the backtracking angle to tilt solar reflections away from

receptors. Further mitigation can be implemented by changing the configuration of panels, such as the azimuth, tilt (for fixed panels) and backtracking angle (for single-axis tracking panels).

### Residual Effects

18.4.71 It is anticipated that through the use of the embedded and further mitigation measures, the Scheme will result in no significant residual glint and glare effects.

### Cumulative Effects

18.4.72 Cumulative effects are considered for existing, in construction or consented solar schemes. Section 6 of **ES: Appendix 18.1 Glint and Glare Assessment [EN0110014/APP/6.3.18.1]** outlines the methodology and cumulative assessment in detail.

18.4.73 Cumulative effects are considered when receptors exist within the same study areas as outlined in **Section 18.4.19**. Shared ground-based receptors (roads and dwellings) between the Scheme and existing developments are not predicted experience a significant impact from either the Scheme or existing development in isolation. Predicted impacts for aviation receptors are predicted to experience cumulative effects that do not exceed a low impact due to panels reflecting at different times.

## 18.5 Waste and Materials

18.5.1 This Section of the OEM Chapter presents the assessment of the likely effects of the Scheme on the environment with respect to waste and materials during construction, operation and maintenance, and decommissioning phases.

### Consultation

18.5.2 The Scheme has been subject to consultation throughout the DCO preparation period. A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through the Planning Inspectorate (PINS) in January 2025. A Scoping Opinion was adopted by PINS in February 2025 **[EN0110014/APP/6.3.2.3]**.

18.5.3 The issues raised in the Scoping Opinion relating to waste and materials are summarised and responded to within **Table 18.9** which demonstrates how the matters raised in the Scoping Opinion are addressed in this ES.

**Table 18.9: Relevant Scoping Opinion Comments from Statutory Bodies relating to Waste and Materials**

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| **The Planning Inspectorate, Scoping Opinion, February 2025** | 3.9.1, Waste and Materials – All Phases: *'The ES proposes to scope out an assessment of waste and materials on the basis that the best practices measures and principles of the waste hierarchy is to be applied to the Proposed Development and a Site Waste Management Plan (SWMP) is to be implemented and included within the 'Other Matters' chapter of the ES. The Inspectorate considers that insufficient information has been provided on the expected waste arisings associated with the Proposed Development. As such, the Inspectorate is currently not in a position to scope this matter out. The ES should provide an assessment of waste and materials across all phases of the Proposed Development. This should include a detailed description of waste streams, including expected quantities of waste arisings and any monitoring measures required to ensure compliance.'* | Waste and materials have been considered within Section 18.5 of **ES: Chapter 18: Other Environmental Matters [EN0110014/APP/6.1.18]**. The ES has identified potential waste streams during the construction, operational and decommissioning phases including, where possible, estimated volumes, by type and quantity, of expected residues and emissions and quantities and types of waste produced, including, and an assessment of the likely significant effects.<br>Where off-site disposal is required such as for waste packaging materials, construction and demolition (C&D) waste, and waste electronics and electrical equipment (WEEE), the assessment of effects has included cumulative effects in Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**.<br>Good practice measures have been set in place to ensure responsible processing of waste is adhered to. These are secured through a suite of outline management plans that have been submitted in support of the DCO Application. These management plans include details on appropriate monitoring measures to ensure compliance with good practice measures as well as adherence to the waste hierarchy.<br>Management of waste will be addressed further within the Site Waste Management Plan (SWMP) to be submitted alongside the Construction Environmental Management Plan, prior to the Scheme's construction and | The assessment of waste and materials is undertaken within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**.<br>Embedded mitigation measures are outlined within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. These measures are secured by corresponding requirements in the **draft DCO [EN0110014/APP/3.1]** in relation to the respective management plans (namely, the **Outline CEMP [EN0110014/APP/7.6]**, the **Outline OEMP [EN0110014/APP/7.8]** and the **Outline DEMP [EN0110014/APP/7.10]**). The SWMP is to be submitted, as secured, as part of the final CEMP. |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | | is subject to a requirement in the **draft DCO [EN0110014/APP/3.1]**. | |
| **Norfolk County Council, Scoping Opinion, February 2025** | 2.4, Minerals and Waste: *'These matters should be scoped into the ES given the site coverage and potential to sterilise large swathes of land; and the waste implications associated with decommissioning and / or replacement of solar arrays or supporting infrastructure during the lifetime of the project. These matters need to be thoroughly addressed in the ES.'* | Waste and materials have been considered within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. The ES has identified potential waste streams during the construction, operation and maintenance, and decommissioning phases including, where possible, estimated volumes, by type and quantity, of expected residues and emissions and quantities and types of waste produced, including, and an assessment of the likely significant effects.<br>**ES: Chapter 16 Ground Conditions [EN0110014/APP/6.1.16] assesses** the likely significant effects of the Scheme on minerals. | The assessment of waste and materials is undertaken within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**.<br><br>**ES: Chapter 16 Ground Conditions [EN0110014/APP/6.1.16] assesses** the likely significant effects of the Scheme on minerals. |
| **Norfolk County Council, Scoping Opinion, February 2025** | 10.3, Minerals and Waste: *'With regard to the Minerals and Waste chapter: In determining whether waste should be scoped in or out of the ES the Minerals and Waste team consider that the Scoping Report is incorrect to use regional landfill capacity data for the East of England. The Institute of Environmental Management and Assessment (IEMA) guidance states that baseline information on waste management infrastructure should be at the waste planning authority, county or other regional scale. It would therefore be most appropriate to use landfill capacity data for Norfolk (the Waste Planning Authority and county) in assessing whether there will be likely significant effects.'* | The study area for assessment of waste and materials has been assessed for the East of England (covering multiple waste authority regions) as the scale of the Scheme, and quantum of specialist waste, is anticipated to require waste handling to be undertaken over a wider geographic area than just Norfolk. This is consistent with section 9.7 of the ISEP (formally IEMA) guide to: Materials and Waste in Environmental Impact Assessment (2020) (Ref 18-41).<br>Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]** sets out baseline data for the East of England, with specific regard to waste handling capabilities in Norfolk specifically highlighted therein. | The assessment of waste and materials is undertaken within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| **Brooke Parish Council, Scoping Opinion, February 2025**<br><br>**Shelton and Hardwick Parish Council, Scoping Opinion, February 2025**<br><br>**Shotesham Parish Council, Scoping Opinion, February 2025** (Appendix A) | Climate change adaptation should be scoped in:<br>*'For this reason, Waste and Materials should also be scoped in to demonstrate how and where damaged panels will be recycled, or all equipment will be recycled at the end of its lifespan. Chinese panels should not be used for this project if they contain PFAS and are unable to be recycled in the UK. It is particularly important to know how unrecyclable materials will such as PFAS (forever chemicals) be dealt with, and how all land will be decontaminated and returned either to its former agricultural grade or an improved grade once the project is decommissioned. Figures in the EIA to calculate waste production are currently incorrect by a factor of two.'* | Waste and materials have been considered within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. The ES has identified potential waste streams during the construction, operational and decommissioning phases including, where possible, estimated volumes, by type and quantity, of expected residues and emissions and quantities and types of waste produced, including, and an assessment of the likely significant effects.<br>Good practice measures have been set in place to ensure responsible processing of waste, including all electrical (such as PV Panel waste) is adhered to. These are secured through a suite of outline management plans that have been submitted in support of the DCO Application. These management plans include details on appropriate monitoring measures to ensure compliance with good practice measures as well as adherence to the waste hierarchy.<br>Waste may be separated onsite to improve reuse and recyclability, but all electrical waste handling and processing, including of any PFAS (if they are present in the type of panel selected for the Scheme), must be undertaken offsite at WEEE handling facilities in line with WEEE Regulations.<br>Management of waste will be addressed further within the Site Waste Management Plan (SWMP) to be submitted prior to the Scheme's construction and is subject to a requirement in the **draft DCO [EN0110014/APP/3.1]**. | The assessment of waste and materials is undertaken within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**.<br>Embedded mitigation measures are outlined within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. These measures are secured by corresponding requirements in the **draft DCO [EN0110014/APP/3.1]** in relation to the respective management plans (namely, the **Outline CEMP [EN0110014/APP/7.6]**, the **Outline OEMP [EN0110014/APP/7.8]** and the **Outline DEMP [EN0110014/APP/7.10]**). |
| **Great Moulton Parish Council, Scoping Opinion, February 2025** | Waste and Materials:<br>*'Has it been demonstrated how and where equipment including panels will be recycled at the end of its lifespan. It is particularly important to know how unrecyclable materials such as PFAS (forever chemicals) will be dealt with, and how all land will be decontaminated and returned either to its former agricultural grade or an improved grade once the project is decommissioned.'* | | |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| **Hempnall Parish Council, Scoping Opinion, February 2025** | *'Hempnall Parish Council is very concerned about the long list of subjects that East Pye Solar have requested to scope out of the ES namely: …Waste and Materials…. A solar scheme of this magnitude will have significant impacts on all these matters and therefore all these subjects should be scoped in and fully assessed in the ES.'* | The Planning Inspectorate has at 3.9.1, Waste and Materials – All Phases, that waste and materials cannot be scoped out from EIA. Resultantly the assessment of waste and materials has been undertaken within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. | The assessment of waste and materials is undertaken within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. |
| **Shotesham Parish Council, Scoping Opinion, February 2025** | Waste & Materials:<br>*'Over the lifetime of the solar farm, a significant volume of waste materials will be produced. We believe that the ES should include an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation), and the quantities and types of waste produced during the construction and operation phases, as required by the legislation.'* | Waste and materials have been considered within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. The ES has identified potential waste streams during the construction, operational and decommissioning phases including, where possible, estimated volumes, by type and quantity, of expected residues and emissions and quantities and types of waste produced, including, and an assessment of the likely significant effects. | The assessment of waste and materials is undertaken within Section 18.5 of **ES: Chapter 18 Other Environmental Matters [EN0110014/APP/6.1.18]**. |

## Statutory Consultation and Preliminary Environmental Information Report (PEIR)

18.5.4 Statutory consultation was held between 18th June 2025, and 6th August 2025. Relevant responses to the PEIR relating to waste and materials and how these have been addressed through the ES are set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110041.5.11]** and **Consultation Report Appendix 1` Section 42 Applicant Response Table [EN0110041.5.12].**

## Targeted Consultation

18.5.5 A further round of targeted consultation was undertaken between 22 October 2025 and 26 November 2025 following changes to the development boundary area of the Scheme presented in the PEIR and during Stage Two Statutory Consultation. All the changes are documented in full in the **Consultation Report [EN0110014/APP/5.1].** These changes did not give rise to any materially new or different likely significant environmental effects compared to those reported in the PEIR. How these have been addressed through the ES are set out within **Consultation Report Appendix 10 Section 47 Applicant Response Table [EN0110014/APP/5.11]** and **Consultation Report Appendix 11 Section 42 Applicant Response Table [EN0110014/APP/5.12].**

## Legislation, Planning Policy and Guidance

18.5.6 A summary of applicable legislation, planning policy and other guidance documents against which the Scheme will be considered relating to waste and materials is set out in **ES: Appendix 2.3 Legislation, Planning Policy and Guidance [EN0110014/APP/6.3.2.3]**.

18.5.7 An overview of the legislation, planning policy, and guidance against which the Scheme will be considered for the waste and materials assessment is set out below.

## Legislation and Regulations

18.5.8 The following legislation and regulations are relevant for waste and materials:

- The Environmental Protection Act 1990 (Ref 18-42)
- The Environment Act 2021 (Ref 18-43)
- The Environmental Permitting (England and Wales) Regulations 2016 (Ref 18-44)
- The Waste (England and Wales) Regulations 2011 (Ref 18-45)

- The Hazardous Waste Regulations (England and Wales) 2005 (amended 2006) (Ref 18-46)
- The Waste Electrical and Electronic Equipment Regulations 2013 (Ref 18-47)
- The Waste Batteries and Accumulators Regulations 2009 (Ref 18-48)

# Planning Policy

## National Planning Policy

18.5.9 National Policy Statements - National Policy Statements (NPS) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Scheme will be considered. Listed below are the details of the elements of NPS considered relevant to the waste and materials assessment.

- National Policy Statement (NPS) for Energy (EN-1) – Overarching NPS EN-1 (Ref 18-18), Section 5.15. Paragraph 5.12.2 states that *'Sustainable waste management is implemented through the waste hierarchy, which sets out the priorities that must be applied when managing waste'.* The waste hierarchy is shown in **Figure 18.1 Waste Hierarchy.**

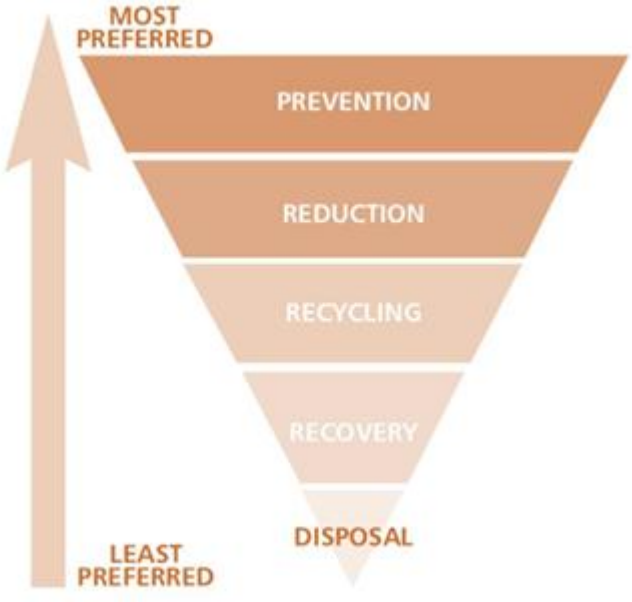


**Figure 18.1: Waste Hierarchy**

## National Planning Policy Framework

18.5.10 The National Planning Policy Framework (NPPF) (Ref 18-49) as revised in December 2024 does not directly cover waste and materials in a dedicated

section. However, the NPPF does support sustainable waste management through several policies.

### Waste National Policy, Guidance, and Strategies

- The National Planning –Policy for Waste (NPPW) 2014 (Ref 18-50). This is supporting by National Planning Practice Guidance: Waste (published 2015).
- Environmental Improvement Plan 2023 (Ref 18-51)
- The Waste Management Plan for England 2021 (Ref 18-52)
- A Green Future: Our 25 Year Plan to Improve the Environment 2018 (Ref 18-53)
- Our Waste, Our Resources, A Strategy for England 2018 (Ref 18-54)
- The Waste Prevention Programme for England: Maximising Resources, Minimising Waste 2023 (Ref 18-55).

### Local Planning Policy

18.5.11 The Scheme is located within the administrative areas of Norfolk County Council (NCC) and South Norfolk Council (SNC) who are the host authorities, with NCC being the host authority for waste. Local planning plan policies which are relevant to waste and have informed the waste and materials assessment are detailed below.

- The Norfolk Minerals and Waste Local Plan (NM&WLP) (Ref 18-56). The NM&WLP outlines strategic objectives for waste management under Section 4.2

### Other Guidance

18.5.12 The assessment has been carried out in accordance with the following other guidance documents:

- The Institute of Sustainability and Environment Professionals (ISEP) (formally the Institute of Environmental Management and Assessment (IEMA)) guide to: Materials and Waste in Environmental Impact Assessment – Guidance for a proportionate approach (2020) (Ref 18-41)
- Waste Duty of Care Code of Practice (Ref 18-57) provides practical guidance on how to meet waste duty of care requirements in England.
- The Waste Hierarchy (produced under Reg 15(1) of the Waste (E&W) Regulations 2011) (Ref 18-58) ranks waste management options based on their environmental impact.

## Assessment Assumptions and Limitations

18.5.13 The waste and materials assessment has considered the following assumptions:

- The waste and materials assessment has been undertaken on the basis of information available at the time of the assessment;
- Effects on the availability of materials have been assessed only for construction. Effects during the operation and maintenance and decommissioning of the Scheme, have not been assessed further. Forecast use of materials relevant to assessment are (using professional judgement) considered negligible in relation to the scale and nature of the Scheme;
- The manufacturing of components or materials required for the Scheme will largely by prefabricated and bought on the national or international market, minimising the quantum of materials required to be sourced from local resources;
- Limitations in information of component design, material requirements, and sourcing location at this stage make tracing material resources disproportionately burdensome to the scope of this assessment;
- Effects on mineral safeguarding are assessed in **ES: Chapter 16 Ground Conditions [EN0110014/APP/6.1.16];**
- Waste and materials estimates associated with the Scheme have been provided by an EPC Contractor and are based upon other similar Nationally Significant Infrastructure Project (NSIP) schemes; and
- Professional judgement has been used to qualitatively estimate if likely waste streams from unmeasured sources (paint, solvents, vegetation, etc.) that are not quantified in the EPC Contractor's waste and materials estimates, are likely to be significant or not.

18.5.14 The assessment of baseline conditions is limited to publicly available data for 'current' landfill void capacity and publicly available data for forecast void capacity use and future provision.

## Assessment Methodology

18.5.15 This section sets out the scope and methodology for the assessment of the impacts of the Scheme on waste and materials.

## Sources of Information

18.5.16 The following sources of information that have been consulted in the preparation of this chapter:

- ISEP (IEMA) Guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach (Ref 18-41)
- Applying the Waste Hierarchy (Ref 18-58)
- Environment Agency (2018 to 2024) Remaining Landfill Capacity (Ref 18-59)
- Environment Agency's Historic Landfill Sites (Ref 18-60)
- Environment Agency's Permitted Waste Sites – Authorised Landfill Site Boundaries (Ref 18-61)
- WRAP's Designing Out Waste: A design team guide for civil engineering (Ref 18-62)
- Waste Local Plans and Monitoring Reports for the East of England (Ref 18-63, Ref 18-64, Ref 18-65, Ref 18-66, Ref 18-67, Ref 18-68 and Ref 18-69)
- Environment Agency's Hazardous Waste Interrogator (Ref 18-70);
- Environment Agency's Waste Interrogator (Ref 18-71);
- UK Steel's Key Statistics Guide 2025 (Ref 18-72); and
- Mineral Products Association's Profile of the UK Mineral Products Industry: 2025 Edition (Ref 18-73).

## Study Area

18.5.17 In line with ISEP guidance (Ref 18-41), three Study Areas are proposed in relation to Scheme waste and materials:

- The Scheme Study Area – comprising the Order Limits;
- The wider Study Area for inert and non-hazardous waste– extending to the capacity of waste management infrastructure and remaining landfill void within the region of the East of England. The East of England consists of the following Sub Regions: Bedfordshire, Cambridgeshire, Essex, Hertfordshire, Norfolk and Suffolk. The East of England is used for the non-hazardous waste Study Area (rather than Norfolk County Council alone) recognising the fact that waste may not always be managed in the Waste Planning Authority where it is generated and may instead be managed at the regional level;
- The wider Study Area for hazardous waste (including WEEE) – England is used for the hazardous waste study area as treatment of hazardous waste and WEEE operates at a national scale; and
- The wider Study Area for availability of aggregates and concrete is the East of England, while for steel is the United Kingdom.

## Potential Impacts

18.5.18 Embedded mitigation measures being incorporated into the design and construction of the Scheme are set out below. Prior to the implementation of any mitigation (embedded or additional), the Scheme has the potential to affect (beneficially or adversely), during the construction, operation and maintenance and decommissioning phases in the following ways:

- The use of materials and resources for use on the Scheme and the depletion of material or resource stocks or sources; and
- The generation and disposal of waste and subsequent waste handling requirement and reduction in landfill void capacity as a result of waste unable to be reused, recycled, or recovered.

## Impact Assessment Methodology

18.5.19 The waste and materials assessment follows the general approach to undertaking EIA, explained in **ES: Chapter 2 EIA Process and Methodology [EN0110014/APP/6.1.2]**. Albeit it has been modified in accordance with/to align with ISEP (2020) guidance (Ref 18-41). The methodology for attributing sensitivity of receptors, magnitude of effects and the significance of effects in relation to waste and materials is described further below in this chapter of the ES.

18.5.20 The impact assessment methodology for materials sourcing relates to the availability and type of construction materials to be used by the Scheme, as prescribed by ISEP guidance. Consideration will be given to regional and national material sourcing, and to potential recycled content where appropriate. Impacts to material resources for prefabricated electrical equipment likely to be purchased from the international supply chain (PV panels, BESS, inverters) have not been assessed in respect to material resourcing.

18.5.21 The ISEP guidance offers two methods to assess waste effects: W1 - assessment of void capacity, or W2 - assessment of landfill diversion. In accordance with the ISEP guidance, the assessment focuses on void capacity, which is considered a robust and suitable method for complex developments and is recommended for statutory EIAs. In line with ISEP's recommendation to not combine both methods, and minimise ambiguity, landfill diversion has been excluded from the assessment. For the purpose of robust assessment and clarity of assessment methodology, the following has been used:

- Void Capacity - The magnitude of impact from waste is assessed by determining the percentage of the remaining landfill void capacity that will be depleted by waste produced during the Construction, Operation and maintenance, and Decommissioning Phases of the Scheme. In a worst case, where landfill sensitivity is very high, a significant effect would occur at a magnitude of minor.

18.5.22 The assessment of likely significant effects in relation to waste and materials has been provided in accordance with ISEP guidance to give an understanding of the waste conditions within the anticipated Study Areas. This assessment therefore aims to make a proportionate assessment of the likely impacts of the Scheme based on the information publicly available at the time of writing.

## Sensitivity of Receptor

18.5.23 The sensitivity of likely impacted receptors, defined depending on the vulnerability, recoverability and value/importance of the receptor, to potential effects arising from the Scheme is assessed in line with the below, as detailed in **Table 18.10.**

18.5.24 The sensitivity of waste receptors is based upon the relative importance of the receptors, and their ability to respond and adapt to the anticipated level of change. These are defined by the assessed baseline conditions at the relevant assessed development phase (these being construction, operation, a peak replacement scenario, and decommissioning. The sensitivity of materials relates to the availability and type of resources to be consumed, and are defined by the baseline conditions for the construction phase only.

**Table 18.10: Sensitivity Criteria of Identified Receptor**

| Sensitivity | Description for Inert and Non-Hazardous Waste Receptors | Description for Hazardous Waste Receptors | Description for Materials |
|---|---|---|---|
| **Very high** | Over each assessed development phase, the future baseline (without development of the Scheme), of regional recycling handling and landfill void capacity is: expected to reduce very considerably (by >10%); end during the assessed development phase; is already known to be unavailable; or, would require new capacity or infrastructure to be put in place to meet forecast demand. | Over each assessed development phase, the future baseline (without development of the Scheme), of national landfill void capacity is: expected to reduce very considerably (by >1%); end during the assessed development phase; is already known to be unavailable; or, would require new capacity or infrastructure to be put in place to meet forecast demand. | Are known to be insufficient in terms of production, supply and/or stock;<br>and/or<br>Comprise no sustainable features and benefits compared to industry-standard materials. |
| **High** | Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to reduce considerably: by 6-10% as a result of waste forecasts. | Over the defined study period the future baseline (without development of the Scheme) of national landfill void capacity is expected to reduce considerably: by 0.5-1% as a result of waste forecasts. | Are forecast (through trend analysis and other information) to suffer from known issues regarding supply and stock;<br>and/or<br>Comprise little or no sustainable features and benefits compared to industry-standard materials. |
| **Medium** | Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling | Over the defined study period the future baseline (without development of the Scheme) of national landfill void | Are forecast (through trend analysis and other information) to suffer from |

| Sensitivity | Description for Inert and Non-Hazardous Waste Receptors | Description for Hazardous Waste Receptors | Description for Materials |
|---|---|---|---|
| | and landfill void capacity is expected to reduce noticeably: by 1-5% as a result of waste forecasts. | capacity is expected to reduce noticeably: by 0.1-0.5% as a result of waste forecasts. | some potential issues regarding supply and stock;<br>and/or<br>Are available comprising some sustainable features and benefits compared to industry-standard materials. |
| **Low** | Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to reduce minimally: by <1% as a result of waste forecasts. | Over the defined study period the future baseline (without development of the Scheme) of national landfill void capacity is expected to reduce minimally: by <0.1% as a result of waste forecasts. | Are forecast (through trend analysis and other information) to be generally free from known issues regarding supply and stock;<br>and/or<br>Are available comprising a high proportion of sustainable features and benefits compared to industry-standard materials. |
| **Negligible** | Over the defined study period the future baseline (without development of the Scheme) of regional recycling handling and landfill void capacity is expected to remain unchanged, or is expected to increase through a committed change in capacity | Over the defined study period the future baseline (without development of the Scheme) of national landfill void capacity is expected to remain unchanged, or is expected to increase through a committed change in capacity | Are forecast (through trend analysis and other information) to be free from known issues regarding supply and stock;<br>and/or<br>Are available comprising a very high proportion of sustainable features and benefits compared to industry-standard materials. |

18.5.25 The assessment of sensitivity is based on limited publicly available data regarding forecasted changes in landfill capacity during the construction, operation and maintenance, and decommissioning phases of the Scheme. A precautionary worst-case scenario has been adopted, assuming no increase in current landfill capacity, while recognising that a substantial reduction in available void space remains a risk. However, a complete absence of landfill void space is considered unrealistic, as outlined in the future baseline scenario.

## Magnitude of Impact

18.5.26 The categorisation of the magnitude of impact takes into account the following factors:

- Extent
- Duration
- Frequency; and
- Reversibility

18.5.27 The magnitude of impact is the level of change caused by the Scheme and is defined with respect to waste in **Table 18.11**: Criteria for Determining Magnitude of Impact and to materials in **Table 18.12** below.

18.5.28 In determining the anticipated magnitude of impact for waste, the criteria for each level of magnitude have been determined in compliance with the W1 – Void Capacity methodology as set out by ISEP. Where quantitative void capacity impacts cannot be calculated, a qualitative judgement of anticipated impacts will be used.

**Table 18.11: Criteria for Determining Magnitude of Impact (Void Capacity)**

| Magnitude of Impact | Description (Non-Hazardous Waste) | Description (Hazardous Waste) |
|---|---|---|
| **Major** | Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by >10%. | Waste generated by the development will reduce national landfill void capacity baseline by >1%. |
| **Moderate** | Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by 6-10%. | Waste generated by the development will reduce national landfill void capacity baseline by 0.5-1%. |
| **Minor** | Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by 1-5%. | Waste generated by the development will reduce national landfill void capacity baseline by 0.1-0.5%. |
| **Negligible** | Waste generated by the development will reduce regional recycling handling and landfill void capacity baseline by <1%. | Waste generated by the development will reduce national landfill void capacity baseline by <0.1%. |
| **No change** | Zero waste generation and disposal from the development. | Zero waste generation and disposal from the development. |

**Table 18.12: Criteria for Determining Magnitude of Impact (Materials)**

| Magnitude of Impact | Description (Materials) |
|---|---|
| **Major** | Consumption of one or more materials is >10% by volume of the regional (or national) baseline availability; and/or more than one allocated mineral site is substantially sterilised by the development rendering it inaccessible for future use. |
| **Moderate** | Consumption of one or more materials is between 6-10% by volume of the regional (or national) baseline availability; and/or one allocated mineral site is substantially sterilised by the development rendering it inaccessible for future use. |
| **Minor** | Consumption of one or more materials is between 1-5% by volume of the regional (or national) baseline availability; and/or the development has the potential to adversely and substantially impact access to one or more allocated mineral site (in their entirety), placing their future use at risk. |
| **Negligible** | Consumption of no individual material type is equal to or greater than 1% by volume of the regional (or national) baseline availability. |
| **No change** | Consumption of no materials is required. |

## Categorising Scale of Effect

18.5.29 The scale of effect that the Scheme may have on an impacted receptor will be influenced by a combination of the sensitivity of the identified receptor and the magnitude of impact.

18.5.30 There are five categories demonstrating the scale of effect:

- Neutral;
- Slight;
- Moderate;
- Large; and
- Very large.

**Table 18.13: Scale of Effect**

| Magnitude of Impact | Sensitivity | | | | |
|---|---|---|---|---|---|
| | Very High | High | Medium | Low | Negligible |
| **Major** | **Very Large** | **Large or very large** | **Moderate or large** | Slight or moderate | Slight |
| **Moderate** | **Large or very large** | **Moderate or large** | **Moderate** | Slight | Neutral or slight |
| **Minor** | **Moderate or large** | Slight or moderate | Slight | Neutral or slight | Neutral or slight |
| **Negligible** | Slight | Slight | Neutral or slight | Neutral or slight | Neutral |
| **No change** | Neutral | Neutral | Neutral | Neutral | Neutral |

18.5.31 The terminology used for the scale of effect is as recommended by the ISEP guidance and differs from that presented in **ES: Chapter 2 EIA Methodology [EN0110014/APP/6.1.2]**, although is largely comparable to standard scale of significance.

18.5.32 Where the levels of effects have been determined in accordance with professional judgment to be of a moderate, large or very large level of effect, these are deemed to be significant effects. In accordance with the ISEP guidance (Ref 18-41), all effects with regard to the consumption of materials and production of waste are deemed to be adverse effects.

# Baseline Conditions

## The Order Limits

18.5.33 The Scheme is located within the administrative areas of Norfolk County Council (NCC) and South Norfolk Council (SNC) who are the host authorities. A full description of the Order Limits is provided in **ES Chapter 4: The Scheme [EN0110014/APP/6.1.4]**. For the purposes of waste, NCC is the only host authority.

## Existing Baseline

18.5.34 The land within the Order Limits is predominately in agricultural use for arable crop production across agricultural fields. The existing waste arisings are assumed to be low.

18.5.35 The existing baseline conditions for the wider Study Area has been derived from completed desk studies.

# Desk Study

## Non-Hazardous Landfill Capacity

18.5.36 Merchant landfills are operated for commercial purposes, accepting waste from construction projects and operating businesses. Merchant landfills are therefore considered to form the baseline. In contrast, restricted landfills are sites that deal with their own produced waste (i.e. not operating for commercial purposes). Therefore, additional capacity created by restricted landfills is excluded from the baseline. Some non-hazardous landfills have a Stable Non-Reactive Hazardous Waste (SNRHW) cell (e.g. for asbestos). SNRHW cells usually form only a small fraction of the overall capacity. Therefore, for assessment purposes non-hazardous landfills with SNRHW cells are considered in the same way as non-hazardous landfills.

18.5.37 The East of England region has a total inert and non-hazardous landfill capacity of 52.6 million $m^3$ as of 2024 (Ref 18-59). Compared to 2019, this is a 2.9% increase, with that increase largely generated by new landfill void space being created by mineral extraction sites in the year 2021-2022. That notwithstanding, waste management and monitoring for the East of England (Ref 18-56, Ref 18-63 to Ref 18-69) identify some areas in which forecast waste arisings may exceed handling capacity, there may be some void capacity reduction, but also where there may be further future landfill void capacity creation. These forecasts extend to the 2030s and 2040s at the latest, covering the construction Phase of the Scheme. Due to a lack of consistency in reporting of waste handling and landfill void capacity forecasting, professional judgement is exercised in the consideration of total inert and non-hazardous landfill capacity over the Scheme's operation and maintenance and decommissioning phases. During the construction phase, the sensitivity is anticipated to be 'low' based on existing capacity and forecasting. A conservative professional judgement that the sensitivity

is ‘medium’ during the Scheme’s operation and maintenance phase and ‘high’ during the Scheme’s decommissioning phase as applied based on limitations in waste handling and landfill capacity forecasting.

### Hazardous Landfill Capacity

18.5.38 For hazardous merchant landfill, the void capacity in England is 9.17 million $m^3$. The East of England does not have any hazardous waste landfill facilities with capacity information published under Environmental Agency conditional licencing, and therefore void capacity must be considered at a national level. Publicly available information demonstrated that from 2019-2024, hazardous landfill void capacity has reduced by 50.3%, largely during 2020-2022 (Ref 18-59). The assessment therefore considers hazardous landfill void capacity as being of a 'very high' sensitivity due to present conditions and minimal hazardous landfill void capacity forecasting. Therefore, likely significant effects may occur if the quantum of hazardous waste generated by the Scheme that is destined for landfill is more than 9,170 $m^3$ (0.1% of national landfill capacity).

18.5.39 Hazardous Waste Data for 2024 (Ref 18-70) identifies that approximately 7.09 million tonnes of hazardous waste are handled annually nationally, of which 773,000 tonnes (10.9%) – estimated to be equivalent to between 641,000 and 778,000 $m^3$ – were sent to landfill.

### Waste Management

18.5.40 An assessment of the existing waste management capacity in Norfolk concluded that sufficient capacity already exists to accommodate the forecast growth in waste arisings over the Plan period to 2038. Therefore, it is not considered necessary to allocate any specific sites for waste management facilities in the NM&WLP (Ref 18-56). According to the NM&WLP, as of 2021, there were 88 operational waste treatment and transfer sites in Norfolk County Council’s area. These sites handle a range of waste types, including municipal, commercial and industrial, hazardous, clinical, and construction and demolition waste. In 2021, they received over 2.248 million tonnes of waste, and in 2022, over 2.188 million tonnes.

18.5.41 Norfolk has two non-hazardous landfill sites: Blackborough End and Feltwell. Only Blackborough End accepted waste in both 2021 and 2022, receiving over 131,000 tonnes and 156,000 tonnes respectively. By the end of 2022, it had 2.325 million $m^3$ of permitted space, but 2.225 million $m^3$ of this is reserved for inert waste, leaving just 0.1 million $m^3$ for other non-hazardous waste. Feltwell had 1.204 million $m^3$ of remaining space. Together, this gives Norfolk a total of 1.304 million $m^3$ of void space available for non-hazardous waste disposal.

18.5.42 The most recent Waste Management Capacity and Forecast Arisings (2024) (Ref 18-63) identifies that in Norfolk, the maximum existing waste management capacity of operational sites 3.755 million tonnes per annum, of which 1.1 million tonnes per annum is dedicated to handling of inert and construction and demolition waste arisings.

18.5.43 Information regarding capacity data for waste management is publicly available through permits for example. However, the permitted capacity does not necessarily reflect the actual operational capacity of the infrastructure or indicate how much waste these sites process. A summary of waste inputs by facility within the East of England regions is provided in **Table 18.14** below. Inputs are not totalled since the double counting of waste moving between the site types listed in the Waste Data Interrogator cannot be discounted.

**Table 18.14: Summary of Waste Inputs by Facility for the East of England Region 2023 (Ref 18-71)**

| Facility Type | East of England (Tonnes Received) |
|---|---|
| **Associated Process** | 2,725 |
| **Combustion** | 164,181 |
| **Incineration** | 1,561,925 |
| **Landfill** | 7,775,684 |
| **Mining** | 105,390 |
| **MRS** | 3,853,363 |
| **On/In Land** | 1,731,774 |
| **Processing** | 472,222 |
| **Storage** | 314,351 |
| **Transfer** | 5,075,056 |
| **Treatment** | 11,741,551 |

## Waste Targets

18.5.44 The national target for recovery of construction and demolition waste is 70% by weight, as set out in the Waste Framework Directive (Ref 18-45) and the Waste Management Plan for England Recovery is deemed to include reuse, recycling, and other recovery methods such as energy recovery. A recovery rate of 70% is assumed be achievable for the purpose of the waste assessment.

18.5.45 Standard, good, and best practice recovery rates by material are provided by the Waste and Resources Action Programme (WRAP) (Ref 18-62). WRAP offers guidelines and benchmarks to help businesses and local authorities improve their recycling and waste management practices. These rates are designed to optimise the recovery of materials and reduce waste sent to landfill. Recovery rates for key construction materials and other construction wastes relevant to the Scheme are provided in **Table 18.15** below.

**Table 18.15: Recovery rates for key construction materials**

| Material | Standard Practice Recovery (%) | Good Practice Recovery (%) | Best Practice Recovery (%) |
|---|---|---|---|
| **Metals** | 95 | 100 | 100 |
| **Packaging** | 60 | 85 | 95 |
| **Concrete** | 75 | 95 | 100 |
| **Inert** | 75 | 95 | 100 |
| **Plastics** | 60 | 80 | 95 |
| **Miscellaneous** | 12 | 50 | 75 |
| **Electrical Equipment** | Limited Information Available | 70 | 95 |
| **Cement** | Limited Information Available | 75 | 95 |
| **Liquids and Oils** | 100 | 100 | 100 |
| **Hazardous** | 50 | 100 | 100 |

18.5.46 In 2022, the UK generated 63 million tonnes of non-hazardous construction and demolition waste, of which 59.4 million tonnes was recovered. This represents a recovery rate of 94.3%. The UK recovery rate from non-hazardous construction and demolition waste has remained at similar levels from 2010 to 2020 In 2023, 64.8% of UK packaging waste was recycled, up from 62.4% in 2022. (Ref 18-74).

### Historic and Authorised Landfills

18.5.47 There are no historic or authorised landfills identified within the Order Limits, as outlined in the Environment Agency's Permitted Waste Sites, Authorised Landfill Site Boundaries (Ref 18-75) or Historic Landfill Sites (Ref 18-76) datasets.

### Key Construction Materials

18.5.48 The key anticipated materials used in the Scheme's construction sourced from within the wider Study Area for materials are steel, aggregates, and concrete. Additional material requirements such as timber, conductors, and electrical equipment are likely to be far smaller in quantity, sourced from international providers, or prefabricated to minimise material requirements.

18.5.49 National (UK) steel availability in 2024 is estimated to be 15.8 million tonnes, based on annual UK requirements being met, of which approximately 6 million tonnes are sourced from steel mill products in the UK (Ref 18-72). In 2024, aggregate production for London, the South East, the South West and the East of England[1] totalled 53.0 million tonnes for crushed rock and sand and gravel (Ref 18-73). The supply of construction

[1] Baseline area combined due to data availability.

aggregates in Great Britain in 2024 consisted approximately 32% recycled or secondary material. Ready-mix concrete production in the East of England was 1.5 million $m^3$ (approximately 3.6 million tonnes) in 2024 (Ref 18-73).

18.5.50 Potential recycled content for the main construction materials is estimated at up to: 60% for structural steel, 100% for steel reinforcement, 16% for concrete, and 50% for aggregates. These good practice rates are derived from the Waste and Resources Action Programme (WRAP) Designing Out Waste Tool for Civil Engineering (Ref 18-62).

18.5.51 The sensitivity of materials likely to be used for construction are considered to be 'low' for all materials sourced within the wider Study Area. This is due to their availability largely being free from constraints, and the materials anticipated having substantial opportunity to be sources from reused or secondary resources.

## Future Baseline

18.5.52 This section considers changes to the baseline conditions, described above, as far as changes can be established, that might occur in the absence of the Scheme coming forward during the time period over which the Scheme would be in place. The future baseline scenarios are set out in **ES: Chapter 2 EIA Methodology [EN0110014/APP/6.1.2]**.

18.5.53 There is no publicly available information about changes to landfill capacity by the time the Scheme is built. Forecasting suggests no void space would be available in future, but this is not considered a credible scenario. If landfill is required in the future, it is assumed that new capacity will be approved to meet this requirement. It is the waste authorities' duty to manage and ensure that there is sufficient landfill capacity as required. Therefore, non-hazardous and hazardous landfill capacity is assumed to stay the same as the current baseline due to its cyclical nature whereby as capacity is reduced, it is assumed to be increased by new sites becoming available.

18.5.54 Similarly, there is no publicly available information about potential changes to regional or national material availability by the time of the construction of the Scheme. Construction material demand is closely aligned to both the quantity of construction activity taking place and general economic conditions. It is therefore not appropriate to predict future availability as the demand is unlikely to be linear and it is not possible to set a future baseline for materials. As such, future availability is assumed to remain the same as the current baseline.

## Embedded Mitigation

18.5.55 The following embedded mitigation measures have been incorporated into the Scheme's design.

18.5.56 In accordance with the waste hierarchy (Ref 18-58) the Scheme will prioritise waste prevention, followed by preparation for reuse, recycling, and recovery, with landfill disposal as the last resort. By virtue of the relationship between waste and material use, the application of the waste hierarchy will help to minimise material demand on resource requirements. Waste prevention is largely undertaken through minimising material use, while reuse and recycling aids in reducing the need to use new material resources.

18.5.57 The nature of the waste to be produced during construction, operation and maintenance, and decommissioning phases will mean it will be managed by appropriately permitted carriers and facilities in line with the appropriate environmental permits and requirements.

18.5.58 All waste management will comply with relevant industry regulations and legislation. All waste transported off-site will be delivered to appropriately licensed receivers. Operators receiving waste materials from the Scheme will follow their own permitting procedures.

18.5.59 Through iterative design and detailed assessment, potential impacts have been evaluated, and mitigation opportunities further refined to prevent or reduce impacts as much as possible. This proactive approach aims to minimise potential adverse impacts from the inception of the Scheme.

18.5.60 The way that potential environmental impacts have been or will be prevented, avoided or mitigated to reduce impacts to a minimum through design and/or management of the Scheme is outlined in this section and has been taken into account as part of the assessment of the potential effects. Proposed environmental enhancements are also described where relevant.

## Embedded Construction Phase Mitigation

18.5.61 The following embedded mitigation measures have been incorporated into the Scheme's design for the construction phase:

18.5.62 The Scheme design incorporates embedded mitigation through the predominant use of pre-fabrication. This approach reduces on-site construction waste and material use, with waste produced during unit manufacturing being managed by the companies producing the PV Panels, Mounting Structures, Battery Energy Storage System (BESS), temporary construction site office units, cabling, and (where practicable) substation infrastructure. Consequently, most of the on-site construction waste is packaging. Although some waste is generated during the pre-fabrication process, it is significantly less compared to on-site fabrication, as accepted by the ISEP Guidance (Ref 18-41).

18.5.63 In accordance with the waste hierarchy and the objective of minimising waste generation, uncontaminated excavated soil and stone is, where feasible, to be reused on-site. This approach aligns with UK government guidance (Ref 18-80), which recognises that such materials, when reused

on-site, are not considered waste and should not be factored into landfill or recovery calculations. The Scheme commits to excavated ground material being stored on site or reused if suitable for bedding of cables, ground compaction, and cut/fill operations during site grading. Soils from the Scheme will be removed for treatment or disposal if they are found to be contaminated and cannot be treated on site. Any toxic and hazardous materials will also need to be handled by an authorised carrier and a suitably qualified contractor, ensuring no cross-contamination with 'clean' materials. These control measures are set out in the **Outline CEMP [EN0110014/APP/7.1]** while site storage measures are set out in the **Outline Soil Resource Management Plan [APP/7.13].**

18.5.64 The Scheme will minimise and eliminate waste streams or over-use of materials where practicable, pursuing opportunities for reusing material resources. When reuse and prevention are not feasible, waste will be managed according to the waste hierarchy and detailed in the CEMP. The **Outline CEMP [EN0110014/APP/7.1]** includes industry-standard practices and control measures to address environmental impacts during construction, such as on-site material and waste management. These measures identified in the **Outline CEMP [EN0110014/APP/7.1]** include the separation of main waste streams on-site before transport to approved, licensed third-party waste facilities for recycling or disposal.

18.5.65 As set out in the **Outline CEMP [EN0110014/APP/7.1]**, a Site Waste Management Plan (SWMP) is to be prepared before construction begins. The SWMP will detail the efficient management, storage, and legal disposal of materials during the Construction Phase. It will also outline the aims, objectives, and ongoing management responsibilities, including practices for management and storage, and set targets for waste reduction, landfill diversion, and reuse. Once appointed, details of the waste carriers and contractors for the Scheme, along with copies of their appropriate licenses, will be included in the SWMP.

18.5.66 Furthermore, the **Outline CEMP [EN0110014/APP/7.1]** sets out the requirement for the appointed contractor, to outline the strategic approach to planning, coordinating, and managing the labour, materials and equipment.

18.5.67 The location and consolidation of the Temporary Construction Compounds and welfare facilities within the Order Limits will help minimise the amount of excavation and construction waste required for hardstanding for access, material storage, and welfare unit placement. Consolidating welfare units within the Temporary Construction Compounds helps reduce construction waste, wastewater, and electricity use. Similarly, the BESS consists of modular units that can be grouped into standard shipping container-sized payloads and transported in their finished state to the Order Limits, eliminating the need for construction and packing waste for these elements.

## Embedded Operation and Maintenance Phase Mitigation

18.5.68 The following embedded mitigation measures have been incorporated into the Scheme's design for the operation and maintenance phase:

18.5.69 During the operation and maintenance phase, the Scheme will adhere to the waste hierarchy by prioritising waste prevention, followed by the reuse, recycling, and recovery of equipment during the replacement of components. Landfill disposal will be considered only as a last resort. A Site Waste Management Plan (for operation and maintenance) will be developed and agreed with the authority prior to commencement of the operation (including maintenance) as part of the detailed Operational Environmental Management Plan (OEMP), to be prepared in accordance with the **Outline OEMP [EN0110014/APP/7.2]**, submitted in support of the DCO Application.

18.5.70 All waste management will comply with relevant regulations, and waste will be transported by licensed hauliers to authorised waste management sites with the necessary permits for the consigned wastes.

18.5.71 The Scheme is expected to generate WEEE during both the operation and maintenance phase, and during the decommissioning phase. This includes PV Panels and smaller quantities from Ancillary Infrastructure. These items will be recovered and recycled by an authorised reprocessor in compliance with the WEEE Regulations 2013 (Ref 18-47). To ensure this is done according to '*Best Available Treatment Recovery and Recycling Techniques*', a list of up-to-date authorised reprocessors should be established prior to the Operational Phase of the Scheme and kept up-to-date throughout the operational and maintenance phase and decommissioning phase. This will be secured through measures set out within the **Outline OEMP [EN0110014/APP/7.2]**.

18.5.72 Batteries must be separated from WEEE streams so they can be recovered, recycled, or disposed of in accordance with the Waste Batteries and Accumulators Regulations 2009 (Ref 18-48). This is most likely to be undertaken by the battery manufacturer or supplier. This requirement will be secured ahead of the Scheme's operation and maintenance phase, based on the detail provided in the **Outline OEMP [EN0110014/APP/7.2]** to ensure it is undertaken as legally required throughout the Operational and Decommissioning Phases of the Scheme.

## Embedded Decommissioning Phase Mitigation

18.5.73 The following embedded mitigation measures have been incorporated into the Scheme design for the decommissioning phase.

18.5.74 During decommissioning, all infrastructure, including Solar PV Panels, Mounting Structures, above ground cabling, Conversion Units / 33 kV sub-distribution Switch Rooms, Project Substations, BESS will be removed,

recycled, recovered, or disposed of in accordance with good practice and market conditions at that time. The National Grid Substation and Grid Connection Infrastructure will remain in situ. As outlined above, the Scheme is anticipated to generate WEEE; however, the recycling and recovery of these items is detailed in the **Outline DEMP [EN0110014/APP/7.3]**.

18.5.75 The decommissioning of the Scheme will adhere to the measures and procedures outlined in the **Outline DEMP [EN0110014/APP/7.3]**, upon which the detailed DEMP will be prepared, as secured through requirement of the DCO. A Site Waste Management Plan (SWMP) for decommissioning will be developed by the appointed contractor and will set out how to manage the disposal of waste in accordance with relevant legislative and policy requirements at the time of decommissioning.

18.5.76 The **Outline OEMP [EN0110014/APP/7.2]** and Outline **DEMP [EN0110014/APP/7.3]** states that the Applicant is committed to maximising the recycling and reuse of Scheme components at the end of their life. There are already organisations around the UK and Europe specialising in solar recycling, such as PV Cycle and the European Recycling Platform. These organisations work with solar developers to minimise electrical waste and recycle old panels in line with the WEEE Regulations. Additionally, companies like SECONDSOL offer a marketplace service for buying and selling second-hand PV Panels and equipment, where there is still a good level of life remaining. PV Panels that have developed faults or damage can also be refurbished and repowered by specialist companies and manufacturers, then resold or reinstalled. As secured through the **Outline OEMP [EN0110014/APP/7.2],** the Applicant will adhere to the industry good practice outlined in Solar Power Europe's Lifecycle Quality Best Practice Guidance (Ref 18-85).

## Assessment of Likely Effects

18.5.77 This section of the assessment of likely waste and materials effects identifies and characterises potential impacts arising during the construction, operation and maintenance, and decommissioning phases of the Scheme.

18.5.78 Taking into account the embedded mitigation measures as detailed above, the potential for the likely effects of the Scheme on waste receptors was assessed using the methodology as detailed in this chapter. In the sections below, effects during the construction, operation and maintenance, and decommissioning phases of the Scheme are assessed for waste receptors scoped into this assessment.

18.5.79 Any additional mitigation, if required to reduce these effects, is then set out thereafter. Finally, an assessment is made of the significance of any residual effects after all mitigation measures have been accounted for.

## Construction Phase

18.5.80 Construction activities associated with the Scheme are extensive and are anticipated to be undertaken over a 24-month construction period. Construction materials required, and waste generated across the Scheme has been assessed in this section. These activities include, but are not limited to, the below. The volumes in **Table 18.16** below are precautionary and a worst-case scenario, which is considered to reflect the maximum parameters ('envelope') of the Scheme design. The main construction activities associated with the Scheme are as follows:

- Creation of a new National Grid Substation;
- Construction of up to 5no. transmission towers (pylons);
- Decommissioning of up to 4no. existing transmission towers (pylons) and up to ~19.1 km of conductors and cabling (overhead wires);
- Piling of Mounting Structures across the Solar PV Array areas;
- Mounting of the PV Panels onto the Mounting Structures;
- Digging of trenches for laying of underground Cabling;
- Creation of concrete foundations or monolith plinths as required for the Project Substations, National Grid Substation, Conversion Units, 33 kV Sub-distribution Switch Rooms, and BESS, as required;
- Creation of Access Tracks within the Site;
- Installation of deer fence wire mesh and wooden post fencing and metal palisade security fencing; and
- Installation of CCTV camera poles.

### Waste

18.5.81 The DCO Application includes the creation of a new 400 kV National Grid Substation, together with the rerouting of an approximately 1.01 km section of the existing Overhead Line. If required, this would include the decommissioning of up to 4no. existing pylons, and up to approximately 19.1 km of electrical conductors and earth wiring as part of these works. For the purposes of this assessment, the potential decommissioning of the existing National Grid infrastructure has been treated as the worst-case scenario and has been included within the assessment.

18.5.82 The PV Panels, Mounting Structures, Inverters and other Associated Development will be manufactured offsite to the specified sizes, and wastage during installation is expected to be minimal and associated largely with packing materials. The majority of the construction equipment will be delivered to the Order Limits for assembly, installation and

connection. This also minimises construction material needs at a local level, as prefabricated construction equipment and elements are most likely to be acquired on the national or international market. The types of waste streams associated with the removal of waste material during construction are summarised below in **Table 18.15**.

18.5.83 Employee activity will generate a minimal amount of commercial, food and sewage waste. Commercial and food waste will be managed by appropriate permitted waste carriers and taken to facilities in line with environmental permits and requirements. Sewage waste generated during construction has been estimated to be approximately 15,100 $m^3$. Any wastewater generated from welfare facilities will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.

18.5.84 Large-scale earthworks are not anticipated, with a cut and fill strategy developed that aims to re-use all excavated material onsite; it is not expected that large quantities of material will need to be imported to or removed from the Site. It is expected that all materials removed during cable trenching activities or the creation of working or laydown/compound areas will be reinstated, with no need for, or a small amount of material for import or export. While the potential for generating some surplus excavated material cannot be entirely ruled out, the quantities involved would be insignificant in the context of regional landfill capacity.

**Table 18.16: Anticipated waste streams from the Construction Phase (rounded to 3 significant figures)**

| Waste Type | Estimated Waste Quantity (m3) | Recyclable / Recoverable |
|---|---|---|
| **General waste from site offices and welfare facilities** | Minimal | Yes |
| **Waste from the maintenance of construction vehicles** | Minimal | Yes |
| **Hazardous waste (e.g. chemicals, batteries, solvents, oils, aerosols etc.)** | Minimal | Yes |
| **Vegetation** | Minimal | Yes |
| **Decommissioned National Grid Infrastructure** | **68.8**<br>***148 tonnes*** | **Yes** |
| **Transmission towers[2] (Ref 18-77)** | 53.3 | Yes |
| **Electrical Conductors[3] (Ref 18-78)** | 15.2 | Yes |
| **Earth wire[4] (Ref 18-79)** | <1.0 | Yes |
| **PV Panel Packing Materials** | **29,400**<br>***2,370 tonnes*** | Yes |

[2] Based on 3no. L6(c) D STD towers and 1 no. L6(c) D60 STD tower
[3] Based on Araucaria type conductor, 700 $mm^2$ x 18no., 1.01 km length
[4] Based on Keziah type earthwire, 160 $mm^2$ AACSR, 1.01 km length

| Waste Type | Estimated Waste Quantity (m3) | Recyclable / Recoverable |
|---|---|---|
| **Pallet Wood** | 9,870 | Yes |
| **Polyurethane Foam: padding between modules** | 9,200 | Yes |
| **Paper, Cardboard, Kraft board** | 10,200 | Yes |
| **HDPE: Corner pieces and spacers** | 168 | Yes |
| **Pallet Nails** | 3.02 | Yes |
| **PV Panel Structure Packing Materials** | **6,720**<br>***798 tonnes*** | Yes |
| **Pallet Wood** | 3,320 | Yes |
| **Paper, Cardboard, Kraft board** | 3,390 | Yes |
| **Pallet Nails** | 1.02 | Yes |
| **Cable Drum Materials** | **1,420**<br>***569 tonnes*** | Yes |
| **DC Cable Drums (size 6)** | 211 | Yes |
| **Grounding Cable Drums (size 10)** | 506 | Yes |
| **LV Cable Drums (size 20)** | 655 | Yes |
| **MV Cable Drums (size 20)** | 49.7 | Yes |
| **Total** | **37,600**<br>***3,890 tonnes*** | |

18.5.85 Excavated material is excluded from the construction waste estimates and from the calculation of the overall waste recovery rate. This is because, where feasible, such material will be reused on-site and therefore not classified as waste. This approach aligns with UK government guidance (Ref 18-80), which recognises that such materials, when reused on-site, are not considered waste and should not be factored into landfill or recovery calculations.

18.5.86 There may be a requirement to remove some soils from the Scheme for treatment or disposal if they are found to be contaminated and cannot be treated on site, or are otherwise unsuitable for on-site use. Any toxic and hazardous materials will also need to be handled by an authorised carrier and a suitably qualified contractor, ensuring no cross-contamination with 'clean' materials. With the use of appropriate control measures (as set out in the **Outline CEMP [EN0110014/APP/7.1]**), no significant effects are anticipated at this stage.

18.5.87 All waste transported offsite will be taken to appropriately licensed sites for the relevant materials. The operators receiving any waste materials from the Scheme will be subject to their own permitting procedures applicable at the time of the construction phase. Any waste created during the construction phase will need to be removed from the Order Limits and disposed of in accordance with legal requirements.

18.5.88 Any reusable waste materials generated as part of the Scheme, such as soil excavated from trenches, Access Tracks, compound areas, drainage features, and foundations, will be reused wherever possible.

18.5.89 Estimated volumes and potential streams of construction waste, in addition to estimated water and electricity usage, have been used within the **ES: Chapter 6 Climate Change [EN0110014/APP/6.1.6]** to establish the Greenhouse Gas emissions associated with the construction of the Scheme.

18.5.90 An assessment of construction traffic impacts, including the removal of waste from the Site, is provided in **ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.11]**.

## Materials

18.5.91 The estimated main construction material types and their associated quantities to be used for the Scheme's construction are shown within **Table 18.17** below.

**Table 18.17: Estimated Construction Materials**

| Material Type | Estimated Annual Availability (tonnes, 2024) | Construction Quantity (tonnes) | Proportion of Available Resource (%) |
|---|---|---|---|
| **Steel (e.g., PV mounting structures, substation infrastructure)** | 15,800,000 (UK) | 22,100 | 0.14 |
| **Concrete (e.g. foundations)** | 3,600,000 (East of England) | 18,300 | 0.51 |
| **Aggregate (e.g. internal tracks and substation and BESS bases)** | 53,000,000 (London/South East/South West/East of England) | 157,000 | 0.30 |

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## Conclusion

18.5.92 With the embedded mitigation measures in place, the overall quantities of construction waste likely to be generated during the 24-month Construction Phase is 37,600 $m^3$, equivalent to approximately 3,890 tonnes of waste. Only minimal quantities of this are anticipated to be considered hazardous waste, such as batteries for hand-held devices or isolated construction equipment, solvents and fixatives, and waste paint materials.

18.5.93 With respect to construction and demolition (C&D) waste handling in Norfolk, the Scheme is anticipated to generate 1,940 tonnes of C&D per annum during the Construction Phase. This is equivalent to 0.18% of 2024 C&D waste capacity in Norfolk and is therefore not a substantial increase to waste handling requirements. Taking an absolute worst-case scenario that all C&D waste generated during construction by volume (37,600 $m^3$) is

disposed to landfill in the East of England, this is equivalent to 0.07% of inert or non-hazardous landfill void capacity for this region.

18.5.94 The magnitude of impact to inert and non-hazardous waste void capacity is negligible. Due to it being assigned a low sensitivity during the construction phase of the Scheme, the effect is slight adverse, which is considered **not significant**.

18.5.95 The magnitude of impact to hazardous waste void capacity is considered to be negligible, which due to it being assigned a very high sensitivity during the construction phase of the Scheme, results in a slight adverse effect, which is also considered **not significant**.

18.5.96 For materials, the estimated consumption of steel, concrete and aggregates is less than 1% of the regional (or for steel, national) baseline availability. As such, the magnitude of impact is considered negligible. Due to the low sensitivity of material resources assessed, the construction phase is anticipated to have a likely slight adverse effect on materials, which is **not significant**.

## Operation and Maintenance Phase

18.5.97 As set out in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**, during the operation and maintenance phase, there are not expected to be any permanent onsite staff members. The short-term workforce required to deliver the peak replacement scenario of all PV Panels and BESS infrastructure is assessed as requiring up to approximately 50% as much labour as construction over a minimum 12-month programme.

18.5.98 All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them. Waste generated from maintenance activities, such as component replacement during the Scheme's operation and maintenance, will be managed similarly to waste from the Scheme's final decommissioning.

### General Operation and Maintenance Activities

18.5.99 The Scheme will generally be unmanned with personnel monitoring the Scheme remotely. Waste arising during the operation and maintenance phase from routine inspection and maintenance activities is expected to be substantially less than during the construction and decommissioning phases and could include the following:

- WEEE as identified under Schedule 4 of the WEEE Regulations 2013 (Ref 18-47) that requires replacing, such as PV Panels and BESS;
- Packing materials associated with prefabricated replacement equipment;

- Waste associated with maintenance, including packaging, vegetation management, and maintenance to security features (including fencing); and

- General waste (paper, cardboard, wood).

18.5.100 Waste generated from daily operations will include waste from welfare facilities and general waste such as paper, cardboard, and wood.

18.5.101 Material and resource requirements for routine operation and maintenance phase activities are anticipated to be minimal and thus not anticipated to have any significant effect on material resource locally, or nationally.

18.5.102 During the operation and maintenance phase of the Scheme, waste arisings associated with general maintenance activities are expected to be minimal and, as they will be considered to be commercial waste, this will be managed by appropriately permitted carriers and facilities in line with the appropriate environmental permits and requirements. It is assumed that the local waste infrastructure has the capacity for this. As such it is anticipated at this time, general activities will result in limited amounts of waste.

18.5.103 It is likely that PV Panel waste generated during the Scheme's Operational Phase will be managed by specialist regional or national recycling facilities. These facilities are expected to develop in response to the demand generated by the UK-wide solar panel industry. The capacity of these facilities is not expected to be influenced by other non-solar farm projects in the surrounding area, as they will only manage solar panel waste.

18.5.104 There are several companies which provide recycling services for solar panels. The companies 'Recycle Solar' and ‘Solar Recycling Solutions’ reports that 90-99% of glass and semiconductor materials in end-of-life solar panels can be recycled or recovered for use in new panels (Ref 18-81 and Ref 18-82).

18.5.105 The UK market for Lithium-ion (Li-ion) battery recycling is developing, driven by the rapid increase in electric vehicles and other Li-ion battery users. Several new investments have been announced, and an 80% recovery rate is reported (Ref 18-83 and Ref 18-84).

18.5.106 It is expected that greater private sector waste companies will develop facilities to meet market demands. This market growth is expected to be driven by the increasing number of PV installations, which are being implemented as part of the Government's initiative to achieve net zero emissions. Currently, PV Panel waste generation is low, resulting in limited demand for facilities and available capacity. Therefore, it is expected that facilities for reusing, recycling, or recovering end-of-life PV Panels will be developed as the waste stream demand increases. The WEEE Regulations 2013 (Ref 18-47) require those who place PV Panels on the UK market to finance the costs of collection, treatment, recovery, and environmentally sound disposal.

18.5.107 Wastewater generated during the operation and maintenance phase relates to a single welfare facility at each substation site. This is likely to consist of a septic tank arrangement. As no permanent onsite staff are anticipated, a maximum of 125 $m^3$ of sewage waste is anticipated to be generated on site per annum. All waste water will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.

18.5.108 Waste arisings during the Operational Phase are largely anticipated to be limited to replacement of faulty or broken onsite infrastructure. An estimated failure rate of 0.05% of the PV Panel per annum has been used based on professional experience. Resultantly, the Scheme is anticipated to annually generate up to 7.19 $m^3$ (16.4 tonnes) of WEEE, and 14.7 $m^3$ (1.18 tonnes) of pallet wood and packaging waste. During the Operational Phase, waste generation arising from general maintenance activities (such as lubricants and oils for electrical infrastructure, and individual replacement parts on machinery) is expected to be negligible.

### Replacement Activities

18.5.109 Over the 60-year lifespan of the Scheme, it is expected that, in addition to regular equipment maintenance, infrastructure such as PV Panels and BESS units will need to be replaced (see **Table 18.18**). PV Panels are anticipated to be replaced once, while the BESS units may need replacement up to five times during the Scheme's Operational Phase, subject to the operator's discretion. Further details of the scheme of replacement activities are set out in **ES Chapter 4: The Scheme [EN0110014/APP/6.1.4]**.

**Table 18.18: Operational Replacement Rates**

| Waste Type | Indicative Design Life | Recyclable / Recoverable |
|---|---|---|
| **PV Panels** | 40 years<br>One replacement event during Scheme lifetime. | Recyclable |
| **Transformers** | 30 years<br>One replacement event during Scheme lifetime.<br>Only to be carried out if required for performance of health and safety reasons. | Recyclable |
| **BESS** | Up to five replacement events during Scheme lifetime. | Recyclable |

18.5.110 Equipment that requires replacement during the operation and maintenance phase will be managed in line with the waste hierarchy and in accordance with legislation in force at the time, with materials re-used or recycled wherever possible (as detailed in the **Outline OEMP [EN0110014/APP/7.2]**).

18.5.111 During the replacement activities, all components identified in **Table 18.17** are expected to be almost fully recyclable (>95% of component parts).

Furthermore, the volume of packaging waste associated with component delivery is anticipated to be significantly lower than the packaging materials associated with the Construction Phase, as infrastructure such as Mounting Structures will already be in place.

18.5.112 **Table 18.19** summarises the anticipated waste streams from the peak replacement phase, anticipated to be approximately at Year 30.

**Table 18.19: Anticipated waste streams from the Peak Replacement Phase (rounded to 3 significant figures)**

| Waste Type | Estimated Waste Quantity (m3) | Estimated Waste Quantity (tonne) | Recyclable / Recoverable |
|---|---|---|---|
| **General waste from site offices and welfare facilities** | Minimal | | Yes |
| **Waste from the maintenance of construction vehicles** | Minimal | | Yes |
| **Hazardous waste (e.g. chemicals, batteries, solvents, oils, aerosols etc.)** | Minimal | | Yes |
| **PV Panel Packing Materials** | **29,400** | ***2,370*** | Yes |
| **Pallet Wood** | 9,870 | - | Yes |
| **Polyurethane Foam: padding between modules** | 9,200 | - | Yes |
| **Paper, Cardboard, Kraft board** | 10,200 | - | Yes |
| **HDPE: Corner pieces and spacers** | 168 | - | Yes |
| **Pallet Nails** | 3.02 | - | Yes |
| **WEEE (PV Panel)** | **14,400** | **32,700** | Yes |
| **PV Panel – Silicon** | 671 | 1,560 | Yes |
| **PV Panel – Glass** | 12,000 | 26,400 | Yes |
| **PV Panel – Metals** | 1,670 | 4,500 | Yes |
| **PV Panel – Hazardous (including heavy metals)** | 36.7 | 293 | Yes |
| **BESS (Batteries and Accumulators)** | **22,300** | **20,700** | Yes |
| **BESS units** | 22,300 | 20,700 | Yes |

18.5.113 Currently, recycling routes for component replacement waste are generally available and it is anticipated that recycling opportunities will increase in the future, driven by the expanding market for solar PV installations. Waste materials requiring removal from the Site would be transported using licensed carriers and records kept, detailing the types and quantities of waste moved and the destinations, in accordance with the relevant regulations.

18.5.114 Sewage waste generated during the peak replacement scenario has been estimated to be approximately 7,530 $m^3$. As during the Construction

Phase, any wastewater generated from welfare facilities will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.

### Conclusion

18.5.115 With the embedded mitigation measures in place, the overall quantities of annual waste likely to be generated during general operation and maintenance phase activities is: 14.7 $m^3$ (~1.18 tonnes) of inert and non-hazardous waste; and 7.19 $m^3$ (~16.4 tonnes) of WEEE (PV Panels) and BESS, which for the purpose of this assessment is considered as hazardous waste.

18.5.116 For the annual handling of operational waste, including taking the assumption that all is disposed to landfill, the Scheme is anticipated to have a negligible (far less than 0.1%) magnitude of impact to regional inert and non-hazardous waste void capacity, and to national hazardous waste void capacity. Due to the respective medium and very high sensitivity of these receptors during the Scheme's operation and maintenance phase, the effects to regional inert and non-hazardous waste void capacity, and to national hazardous waste void capacity are slight adverse. Both of these effects are considered to be **not significant**.

18.5.117 Considering a 12-month worst case scenario, peak replacement activities are anticipated to generate: 29,400 $m^3$ (~2,370 tonnes) of inert and non-hazardous waste; and 36,700 $m^3$ (~53,400 tonnes) of WEEE and Batteries, which for the purpose of this assessment is considered as hazardous waste.

18.5.118 Applying current baseline conditions to estimate future conditions for C&D waste handling in Norfolk, the peak replacement scenario on the Scheme is anticipated to generate an equivalent to 0.22% of C&D waste capacity in Norfolk and is therefore not a substantial increase to waste handling requirements. Taking an absolute worst-case scenario that all C&D waste generated during construction by volume (29,400 $m^3$) is disposed to landfill in the East of England, this is equivalent to 0.06% of inert or non-hazardous landfill void capacity for this region. Therefore, the magnitude of impact to inert and non-hazardous waste void capacity is negligible. Due to it being assigned a medium sensitivity, the effect is slight adverse, which is considered **not significant**.

18.5.119 For the recycling and recovery of WEEE and waste batteries, the Scheme is committed to achieving '*Best Available Treatment Recovery and Recycling Techniques*' which indicatively demonstrate that 95% of WEEE and BESS can be recycled or recovered. As such, an estimated worst-case of 1,830 $m^3$ (~2,670 tonnes) of WEEE and waste BESS units generated by the Scheme during the peak replacement scenario is anticipated to go to landfill following treatment. This therefore is equivalent to 0.02% of the national landfill void capacity for hazardous waste (as of 2023). The magnitude of impact to hazardous waste void capacity is

therefore considered to be negligible. Due to the receptor's very high sensitivity, the effect is slight adverse, which is considered **not significant**.

## Decommissioning Phase

18.5.120 The decommissioning phase of the Scheme will involve the decommissioning of the all infrastructure, including Solar PV Panels, Mounting Structures, above ground cabling, Conversion Units / 33 kV sub-distribution Switch Rooms, Project Substations, and BESS as detailed in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**. The National Grid Substation, and the Grid Connection Infrastructure would remain in situ. The approach to cable removal will be dependent upon government policy and best practice at the time; however, for the purposes of this assessment, cable removal has been assumed as a worst-case scenario.

18.5.121 The **Outline DEMP [EN0110014/APP/7.3]** will ensure the Scheme is decommissioned in accordance with best practices and guidance at the time.

18.5.122 Material and resource requirements for decommissioning are likely to be minimal, with the most substantive elements required for temporary access works during decommissioning. As a result, no significant effects on materials and resources are anticipated locally or nationally.

18.5.123 The main decommissioning waste streams associated with the Scheme are expected to include:

- PV Panels and their associated Mounting Structures and cabling;
- Breaking up of concrete foundations/bases for Inverters, Conversion units, control rooms, and Transformers;
- Rubble and aggregate from substations, and any Access Tracks within the Site;
- Electrical equipment, including BESS, Inverters, and Transformers;
- Welfare facility waste; and
- Waste metals and wood.

18.5.124 As described in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**, the Scheme will be decommissioned at the end of its operation and maintenance phase, which is expected to be 60 years after construction is completed. It is not possible to identify specific waste management routes or facilities at this stage, as these are likely to change over such a timescale.

18.5.125 The Scheme's decommissioning does not include for the decommissioning of new or replacement National Grid infrastructure (substation,

transmission towers and overhead lines) that were constructed during the Scheme's construction phase.

18.5.126 Prior to the decommissioning phase, opportunities to minimise waste will be explored. Possibilities for reusing, recycling, or recovering materials will be considered before resorting to landfill options. The emerging industry for recycling PV Panels will be explored, along with any resale of operational panels.

18.5.127 The Solar PV Panels, Mounting Structures, above ground cabling, Conversion Units / 33 kV sub-distribution Switch Rooms, Project Substations, BESS will be removed and recycled or disposed of in accordance with good practice and market conditions at that time. The waste management method and key procedures will be set out in a final DEMP. Standard good practices for waste management will be implemented during decommissioning, as outlined within the **Outline DEMP [EN0110014/APP/7.3]**. The contractor will be required to minimise waste and reuse decommissioned items as much as possible to reduce landfill waste.

18.5.128 The types of waste streams associated with the removal of waste material during decommissioning are summarised below in **Table 18.19**. A qualitative estimate on the volume of waste materials is made in **Table 18.19** given the information that is known at this stage.

18.5.129 As set out in the **Outline DEMP [EN0110014/APP/7.3]**, the Applicant is committed to maximise recycling and reuse of the Scheme components at the end of their operational life.

18.5.130 If any hazardous materials need to be removed during decommissioning, suitably qualified contractors will be appointed to handle and remove these items. Hazardous materials may include lithium-ion batteries and transformer oil.

18.5.131 As with construction activities, all wastewater and sewage from decommissioning will be stored on-site and removed by tanker to an approved wastewater and sewage treatment centre. Based on decommissioning activities requiring up to 80% of the labour likely to be required for construction, sewage waste generated during decommissioning has been estimated to be approximately 12,100 $m^3$. Any wastewater generated from welfare facilities will be removed by tanker to an approved wastewater and sewage treatment centre. As such, this would not give rise to significant environmental effects and is not considered further.

18.5.132 The Scheme is anticipated to generate substantial WEEE during decommissioning. The Scheme includes '*large-scale fixed installations*' as defined in the WEEE Regulations 2013 (Ref 18-47), such as Transformers within the Project Substations, which are excluded from the regulations. These will need to be removed and dismantled by authorised competent specialists during decommissioning. The recovery, recycling, or disposal of

any part of large-scale fixed installations should be undertaken in accordance with the Waste Hierarchy. **Table 18.20** summarises the anticipated waste streams from the decommissioning phase of the Scheme.

**Table 18.20: Anticipated waste streams from Decommissioning (rounded to 3 significant figures)**

| Waste Type | Estimated Waste Quantity (m3) | Estimated Waste Quantity (tonne) | Recyclable / Recoverable |
|---|---|---|---|
| **General waste from site offices and welfare facilities** | Minimal | | Yes |
| **Waste from the maintenance of construction vehicles** | Minimal | | Yes |
| **Hazardous waste (e.g. chemicals, batteries, solvents, oils, aerosols etc.)** | Minimal | | Yes |
| **Inert C&D waste** | **143,000** | ***235,000*** | Yes |
| **PV Mounting Structures – Metal** | 5,590 | 14,000 | Yes |
| **Access track, inverter, and substation aggregate or substrate** | 105,000 | 157,000 | Yes |
| **Concrete foundations (BESS, inverters and transformers)** | 31,500 | 60,400 | Yes |
| **Cabling** | 1,140 | 3,090 | Yes |
| **WEEE (PV Panel)** | **14,400** | **32,700** | Yes |
| **PV Panel – Silicon** | 671 | 1,560 | Yes |
| **PV Panel – Glass** | 12,000 | 26,400 | Yes |
| **PV Panel – Metals** | 1,670 | 4,500 | Yes |
| **PV Panel – Hazardous (including heavy metals)** | 36.7 | 293 | Yes |
| **BESS (Batteries and Accumulators)** | **29,000** | **22,700** | Yes |
| **BESS units** | 22,300 | 20,700 | Yes |
| **BESS Inverter units** | 6,710 | 2,030 | Yes |
| **Large Installations** | **21,300** | **11,400** | Yes |
| **Inverters / Conversion Units** | 7,310 | 2,140 | Yes |
| **Substations (Transformers and electrical equipment)** | 14,000 | 9,310 | Yes |

18.5.133 As outlined in paragraphs 18.5.104-18.5.105 above, there are already organisations around the UK and Europe specialising in solar recycling, such as Recycle Solar, PV Cycle and the European Recycling Platform.

18.5.134 Waste materials transported off-site will be delivered to a licensed waste disposal site. Currently, there are no baseline estimates for capacity at county recycling and landfill sites for the estimated earliest decommissioning date of 2091. Therefore, the sensitivity of these receptors cannot be accurately determined. For this assessment, it is assumed that sensitivity levels in 2091 are the same as those in 2025. Technological advancements in recycling, reuse, and waste treatment may also change the outcomes compared to current technology.

### Conclusion

18.5.135 Decommissioning activities are anticipated to generate a large quantum of waste as set out in **Table 18.20**: 143,000 $m^3$ (~235,000 tonnes) of inert and non-hazardous waste; 43,400 $m^3$ (~55,400 tonnes) of WEEE and BESS, which for the purpose of this assessment is considered as hazardous waste; and 21,300 $m^3$ (11,400 tonnes) of large installations for disposal.

18.5.136 Applying current baseline conditions to estimate future conditions for C&D waste handling in Norfolk, the decommissioning of the Scheme (based on an estimated 24-month decommissioning programme) is anticipated to generate an annual equivalent to 10.7% of C&D waste handling capacity in Norfolk. This is a substantial amount (equivalent to a major magnitude impact on C&D waste handling capacity in Norfolk), albeit is largely consistent of aggregate and concrete rubble, for which waste handling facilities are well resourced and well placed for recovery and recycling aggregate and concrete waste for future uses. As such, this is therefore a substantial increase to waste handling requirements but is unlikely to have any increased onward environmental effect. Taking an absolute worst-case scenario that all C&D waste generated during construction by volume (143,000 $m^3$) is disposed to landfill in the East of England, this is equivalent to 0.24% of inert or non-hazardous landfill void capacity for this region.

18.5.137 Therefore, the magnitude of impact to inert and non-hazardous waste void capacity is negligible. Due to future inert and non-hazardous landfill void capacity being assigned a high sensitivity (as there is no long term forecasting for up to the 2090s), the effect is a slight adverse effect, which is considered **not significant**.

18.5.138 During the Scheme's operation and maintenance phase, the Scheme is committed to achieving '*Best Available Treatment Recovery and Recycling Techniques*', which indicatively demonstrate that 95% of electrical infrastructure from decommissioning can be recycled or recovered (see **Table 18.13**). This is considered to apply directly to Solar PV infrastructure and BESS infrastructure from the Scheme, while large-scale installations such as inverters and transformers are likely to require waste management by specialist contractors who are also likely to achieve high recovery and recycling rates. As such, an estimated worst-case of 2,170 $m^3$ (~2,770 tonnes) of WEEE and BESS generated by the Scheme during decommissioning is anticipated to go to landfill following treatment. This

therefore is equivalent to 0.02% of the national landfill void capacity for hazardous waste (as of 2023).

18.5.139 Waste generated by large-scale installations is removed and dismantled by authorised competent specialists during decommissioning. It is anticipated that these specialists will also be committed to up to a 95% recycling or recovery rate, as is understood to be an achievable rate at present. As such, it can be estimated that a worst-case of 1,060 $m^3$ (572 tonnes) of potentially hazardous materials from large-scale installations are destined to go to landfill. This therefore is equivalent to 0.01% of the national landfill void capacity for hazardous waste (as of 2023). Together with WEEE and BESS, the magnitude of impact to hazardous waste void capacity is therefore considered to be negligible. Due to the receptor's very high sensitivity, the effect is slight adverse, which is considered **not significant**.

## Additional Mitigation Measures

18.5.140 As no significant effects have been identified above for receptors during any phase of the Scheme once embedded mitigation is taken into account, no additional mitigation measures for the Scheme are required.

## Residual Effects

18.5.141 As there are no additional mitigation measures identified the effects will remain unchanged as those reported above in the assessment of likely effects.

## Cumulative Effects Assessment

18.5.142 This section presents an assessment of cumulative effects between the Scheme and other existing and/or approved developments.

18.5.143 As set out in **ES: Chapter 2 EIA Process and Methodology [EN0110014/APP/6.1.2]**, a Cumulative Effects Assessment (CEA) has been undertaken as part of the EIA in accordance with PINS Advice on Cumulative Effects Assessment (September 2024) and has considered two types of cumulative effects.

- In combination effects: the combined effect generated by individual effects on a particular receptor (presented within **ES: Chapter 19 In-Combination Effects [EN0110014/APP/6.1.19]**; and
- Cumulative effects: effects generated by the Scheme and other planned or approved developments on the same receptor.

## Cumulative Effects

18.5.144 Cumulative effects may arise as a result of effects associated with the Scheme combining with effects associated with other developments. The list of developments has been narrowed down to focus on those

developments which are most likely to give rise to cumulative effects. A long-list was generated which was then refined following consultation with relevant local planning authorities, this short-list forms the basis of this assessment.

18.5.145 The shortlist of cumulative developments/allocations can be found in **ES: Appendix 2.4 Cumulative Schemes [EN0110014/APP/6.3.2.4].**

## Relevant Developments

18.5.146 Those developments which have the potential to result in cumulative effects on waste and materials within the associated study area are set out in **Table 18.21**. The remaining schemes are not considered to have cumulative effects on within the waste and materials study area.

**Table 18.21: Short List Developments/Allocations relevant to Waste and Materials**

| Planning Ref | Description | Distance from the Scheme | Waste Assumption |
|---|---|---|---|
| 2018/0111 | Land East of the A140<br>Outline planning permission for 1,275 dwellings, 8 hectares of employment land, and 2 hectares primary school | Adjacent to southern boundary of sub-Site 4B | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$<br>Per hectare employment / school land C&D: 3,750 $m^3$; hazardous: 25 $m^3$ |
| 2025/1689 | Land north of Carr Lane, Great Moulton<br>400MW (estimated 3,000MWh) BESS scheme. | 900 m north of sub-Site 1B | Decommissioning waste only (at year 30-40)<br>Waste based on Scheme assumptions for 768 BESS units and 192 MV Skids |
| 2025/1150 | Land north of Church Road, Aslacton<br>Outline planning application for 36 dwellings | 1.7 km north-west of sub-Site 1B | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2025/2930 | St Marys Road, Long Stratton<br>Planning application for 45 dwellings | 1.9 km south-west of sub-Site 4A | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2025/1152 | Land north of Hill Farm, Forncett St Peter<br>50MW (estimated 200MWh) BESS scheme. | 2.0 km south-west of subsite 4A | Decommissioning waste only (at year 30-40)<br>Waste based on Scheme assumptions for 50 BESS units and 12 MV Skids |
| 2025/2000 | Land south of Semere Lane, Dickleburgh<br>Planning application for 49.9 MW solar PV installation | 2.4 km south of sub-Site 2A | Construction and decommissioning waste<br>Waste based on Scheme assumptions for ~60 MWp and 8 inverters / conversion units |

| Planning Ref | Description | Distance from the Scheme | Waste Assumption |
|---|---|---|---|
| 2021/2495 | Brick Kiln Lane, Swainsthorpe<br>Planning application for 49.9 MW solar PV installation | 3.6 km north-west of sub-Site 7A | Construction and decommissioning waste<br>Waste based on Scheme assumptions for ~60 MWp and 12 inverters / conversion units |
| 2025/0806 | Wymondham Road, Bracon Ash<br>50MW (estimated 400MWh) BESS scheme. | 4 km north-west of sub-Site 4A | Decommissioning waste only (at year 30-40)<br>Waste based on Scheme assumptions for 94 BESS units and 24 MV Skids |
| 2024/3750<br>2023/1095 | Hickling Lane, Swainsthorpe<br>400MW (estimated 680MWh) BESS scheme | 5.4 km north-west of sub-Site 7D | Decommissioning waste only (at year 30-40)<br>Waste based on Scheme assumptions for 170 BESS units and 85 MV Skids |
| 2022/2148 | Caistor Lane, Caistor St Edmund<br>Outline planning permission for 178 dwellings, and 1.5 hectare primary school | 5.6 km north-west of sub-Site 9 | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$<br>Per hectare school land C&D: 3,750 $m^3$; hazardous: 25 $m^3$ |
| 2023/3506 | Land north of Beccles Road, Loddon<br>Outline planning permission for 85 dwellings | 5.9 km north-east of sub-Site 10E | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2021/1569 | Land north and south of Norton Road, Loddon<br>Outline planning permission for 130 dwellings | 6.0 km north-east of sub Site 10E | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2024/2476 | Hall Road, Winfarthing<br>Outline planning permission for 21 dwellings | 6.1 km south-west of NG Substation Site | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2025/0004 | Mill Road, Winfarthing<br>Planning permission for 20 dwellings | 6.2 km south-west of NG Substation Site | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2023/2037 | Land west of Hethel Engineering Centre<br>Outline planning application for 55,800 $m^2$ development centre and road infrastructure | 6.4 km north-west of sub-Site 4A | Construction waste only<br>Per 1,000 $m^2$ employment floorspace C&D: 750 $m^3$; hazardous: 5 $m^3$ |
| 2025/2952 | Roadside Nurseries, Swardeston<br>Planning permission for 30 dwellings | 6.7 km north-west of sub-Site 7A | Site clearance and construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |

| Planning Ref | Description | Distance from the Scheme | Waste Assumption |
|---|---|---|---|
| 2023/1418 | Land north of Spirketts Lane, Harleston<br>Planning permission for 89 dwellings | 7.5 km south-east of sub-Site 2A | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2023/3610 | Land south of Spirketts Lane, Harleston<br>Planning permission for 162 dwellings | 8.0 km south of sub-Site 3A | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| 2024/0558 | Norwich Road, Scole<br>Hybrid application for 112 dwellings | 9.0 km south of BESS Site | Construction waste only<br>Waste arisings per dwelling: C&D: 150 $m^3$; hazardous: 1 $m^3$ |
| EN0110019 | EcoPower Suffolk Solar DCO<br>Solar PV DCO with generating capacity of ~300MW. | 10 km south of 2A | Construction, operation (replacement), and decommissioning waste<br>Limited information. Estimate similar waste streams as the Scheme. Scale multiplier ×0.6 |
| EN0110010 | High Grove Solar<br>Solar PV DCO with generating capacity of ~720MW. | 31 km north-west of 4A | Construction, operation (replacement), and decommissioning waste<br>Similar waste streams as the Scheme. Scale multiplier ×1.44 |
| EN0110013 | The Droves Solar Farm<br>Solar PV DCO with generating capacity of ~500MW. | 41 km north-west of 4A | Construction, operation (replacement), and decommissioning waste<br>Similar waste streams as the Scheme. Scale multiplier ×1.0 |

18.5.147 The developments listed in **Table 18.20** above have been considered as likely to contribute towards a considerable uplift in waste arisings within the temporal and geographic scope of this assessment. This is based on likely construction, operational and maintenance, and decommissioning phases for the developments assessed, and their scale to qualitatively determine the likelihood of significant effects. This assessment relies on assumptions from published information, and where unavailable, has relied on assumption based on the Scheme itself.

## Cumulative Effects Assessment

### Construction Phase

18.5.148 The cumulative construction phase considers the worst-case scenario that all of the assessed developments are undertaken within a time period in which landfill void capacity for inert waste in the East of England, and hazardous waste across England nationally, is unchanged from 2023-based values. This cumulative assessment does not consider waste handling capacity as it is not considered likely that all of the assessed developments will have overlapping construction phases.

18.5.149 With respect to inert waste arisings from construction, the Cumulative Schemes in the energy sector likely to be constructed around 2030 are estimated to total 161,000 $m^3$ of C&D waste. Estimated arisings from the construction of 28 ha of employment and education land and more than 2,180 dwellings (based on developments listed in **Table 18.20**) is a further 425,000 $m^3$ of C&D waste. Taking an absolute worst-case scenario that this is disposed to landfill in the East of England, this is equivalent to 1.11% of inert or non-hazardous landfill void capacity for this region. A substantial proportion of this is likely to come from soil waste arising from ground clearance on greenfield development, and as such, is likely to be subject to onsite construction waste management strategies associated with each of the Cumulative Schemes. That notwithstanding, the cumulative magnitude of impact to inert and non-hazardous waste void capacity is minor. Due to it being assigned a low sensitivity during the Construction Phase of the Scheme, the effect is a cumulative neutral or slight adverse, which is considered **not significant**.

18.5.150 The cumulatively assessed energy developments are not anticipated to generate more than negligible amounts (estimated to be less than 500 $m^3$ cumulatively) of hazardous waste during construction. The construction of 28 ha of employment and education land and more than 2,180 dwellings (based on developments listed in **Table 18.21**) is anticipated to generate up to 2,880 $m^3$ of hazardous waste, largely anticipated to be generated from instances of contaminated soils. This likelihood is greater for brownfield sites. Hazardous waste statistics (Ref 18-70) identify that on average in 2023, 11.6% of hazardous waste was sent to landfill. Taking this as a worst-case scenario, the resultant quantity of up to 400 $m^3$ likely to be sent to landfill would constitute up to 0.004% of hazardous landfill void capacity in England. This would constitute a cumulative negligible magnitude impact to a very high sensitivity receptor, and as such would be a cumulative slight adverse effect. This is therefore **not significant**.

18.5.151 Due to the low sensitivity of materials as a receptor, significant cumulative adverse effects are not anticipated to be generated where less than 10% of regional (or national) baseline availability is anticipated to be required for construction. The cumulatively assessed energy developments are anticipated to have up to 4.0 times the construction material needs as the Scheme in isolation, with other Cumulative Schemes likely to have a further additional effect. However, this is not anticipated to require more than 10% of any assessed material resource (steel, aggregates, or concrete), and as such, **no significant effect** to materials is anticipated to occur.

### Operational and Maintenance Phase

18.5.152 During their operational lifetimes, the Cumulative Schemes in the energy sector are likely to generate no more than negligible inert and hazardous waste. During their operational lifetimes, the assessed residential and employment Cumulative Schemes are anticipated to generate a steady, but not substantial stream of waste relating to general household, or commercial and industrial (C&I) waste respectively. These waste streams

are not anticipated to significantly increase waste arisings or handling requirements in the East of England above current or forecasted quantities.

### Peak Replacement Scenario

18.5.153 The Cumulative Schemes in the energy sector are anticipated to have operational lifetimes that largely overlap, and as such, are likely to have similar requirements with regard to infrastructure replacement during their lifetimes, including a likely scenario where onsite solar and BESS infrastructure is renewed. In a worst-case scenario that these happen in a similar timeframe, inert waste arisings from this peak replacement and decommissioning scenario are estimated to total 120,000 $m^3$ of C&D waste. Arisings from employment and residential Cumulative Schemes has not been considered. Taking an absolute worst-case scenario that this is disposed to landfill in the East of England, this is equivalent to 0.23% of inert or non-hazardous landfill void capacity for this region (as of 2024). The cumulative magnitude of impact to inert and non-hazardous waste void capacity is therefore negligible. Due to it being assigned a medium sensitivity, the effect is a cumulative neutral to slight adverse, which is considered **not significant**.

18.5.154 The peak replacement scenario for the Cumulative DCO Schemes may also coincide with the decommissioning phases of the cumulative TCPA approved solar and BESS developments assessed. Hazardous waste from cumulative residential and employment developments have not been assessed as these waste streams are most likely to be minimal, or derived from employment uses that are not known at this stage. As a result of these assumptions, there may therefore be a worst-case peak where there is increased WEEE and waste batteries to be disposed of in a condensed period. For the recycling and recovery of WEEE and waste batteries, all of the cumulatively assessed energy developments are anticipated to share similar commitments to achieving *'Best Available Treatment Recovery and Recycling Techniques'* which indicatively demonstrate that 95% of WEEE can be recycled or recovered. As such, an estimated worst-case of 11,800 $m^3$ (~17,200 tonnes) of WEEE and waste batteries generated by the cumulative replacement scenario is anticipated to go to landfill following treatment. This therefore is equivalent to 0.13% of the national landfill void capacity for hazardous waste (as of 2024). The cumulative magnitude of impact to hazardous waste void capacity is therefore considered to be minor. Due to the receptor's very high sensitivity, the cumulative effect is moderate or large adverse, which is considered **significant**.

### Decommissioning Phase

18.5.155 The Scheme, and The Droves Solar Farm DCO are anticipated to have up to a 60 year operational lifetime, while the High Grove Solar DCO and EcoPower Suffolk Solar DCO are anticipated to have up to 40-year operational lifetimes. However, in considering a worst-case scenario in which all Cumulative DCO Schemes are decommissioned after approximately 40 years, there is a scenario in which waste arisings from

decommissioning could have a cumulative effect on waste handling capabilities and landfill void capacity. The decommissioning of the Cumulative DCO Schemes is likely to generate considerable amounts of inert waste: such as from cabling, solar mounting structures, foundations, aggregates and enclosures – and large amounts of WEEE and BESS waste.

18.5.156 For the purpose of this assessment, it is assumed that the Cumulative Schemes in employment and residential use are permanent, and therefore do not have a projected decommissioning phase.

18.5.157 Applying current baseline conditions to estimate future conditions for C&D waste handling in Norfolk, the cumulative decommissioning is anticipated to generate a substantial amount of inert waste. Taking an absolute worst-case scenario that all C&D waste generated during decommissioning by volume 578,000 $m^3$ is disposed to landfill in the East of England, this is equivalent to 1.10% of inert or non-hazardous landfill void capacity for this region (based on 2024 capacity). Therefore, the cumulative magnitude of impact to inert and non-hazardous waste void capacity is minor. Due to future inert and non-hazardous landfill void capacity being assigned a high sensitivity (as there is no long term forecasting for up to the 2070s or 2090s), the effect is a cumulative slight or moderate adverse effect, which is therefore considered **not significant**.

18.5.158 As during their operational lifetimes, the Cumulative Schemes in the energy sector are anticipated to be committed to achieving *'Best Available Treatment Recovery and Recycling Techniques'* which indicatively demonstrate that 95% of WEEE from decommissioning can be recycled or recovered (see **Table 18.13**). This is considered to apply directly to Solar PV infrastructure, BESS infrastructure, and large-scale installations such as Inverters and Transformers. All of these are likely to be managed by specialist contractors who are likely to achieve high recovery and recycling rates. As such, an estimated worst-case of 15,100 $m^3$ (~15,600 tonnes) of WEEE, BESS, and large-scale installations generated by the decommissioning of these cumulatively assessed DCOs is anticipated to go to landfill following treatment. This therefore is equivalent to 0.16% of the national landfill void capacity for hazardous waste (as of 2024).

18.5.159 Together, the cumulative magnitude of impact to hazardous waste void capacity is therefore considered to be minor. Due to the receptor's very high sensitivity, the effect is a cumulative moderate or large adverse effect, which is considered **significant**. This, however, should be understood in the context of a lack of forecasting for hazardous waste landfill void capacity, and a lack of forecasting of the quantum of specialist solar and BESS waste management facilities that are likely to arise to meet future demand. The future economic value of solar and BESS waste is anticipated to encourage technological advancement to increase the quantity of materials that are reused or recycled, reducing future landfill need.

### Additional Mitigation for Cumulative Effects

18.5.160 The Operational Site Waste Management Plan and Decommissioning Site Waste Management Plan must both ensure that hazardous waste handling capabilities are assessed based on up-to-date information at the time of drafting prior to decommissioning works being undertaken. Where significant cumulative effects on hazardous waste handling facilities from the replacement works or decommissioning of multiple Nationally Significant Infrastructure Projects are assessed as likely to occur, a coordinated approach between site operators of those relevant Nationally Significant Infrastructure Projects should be secured ahead of the commencement of decommissioning activities. This should include measures, as necessary, to stagger decommissioning works across Nationally Significant Infrastructure Projects, staggering the delivery of hazardous waste arisings requiring treatment to relevant facilities, and securing suitable and safe hazardous waste storage if required to delay delivery to hazardous waste treatment facilities, to reduce overloading of hazardous waste facilities.

## 18.6 Human Health Summary Statement

### Introduction

18.6.1 This Human Health Summary Statement presents a summary of the potential for likely significant effects on human health as a result of the Scheme that have been identified within the technical assessments scoped into the ES. This summary presents relevant findings linked to human health contained with the ES and provides additional analysis of baseline and policy considerations relevant to the human health.

18.6.2 An EIA Scoping Opinion was received from the Planning Inspectorate on 25th February 2025. The Inspectorate confirmed that a standalone Human Health ES chapter was not required *'…on the basis that the Proposed Development would be designed to minimise any impact on human health and where there are interactions with human health these will be assessed within the Noise, Climate Change and Transport aspect chapters of the ES'.*

18.6.3 The Inspectorate's comments also highlighted that impacts to human health may extend beyond the above listed aspect chapters during the Construction, Operation and Maintenance, and Decommissioning phases and any potential impacts to human health that arise as a result of other disciplines (e.g., Landscape and Visual, Air Quality and Water Environment etc.) should be cross-referenced within the ES.

18.6.4 Whilst a standalone ES chapter is not required, this Human Health Summary Statement has been prepared to provide an overview of relevant human health impacts identified through other technical chapters presented in the ES across construction, operation and maintenance, and decommissioning.

18.6.5 This approach aligns with ISEP guidance (Ref 18-16) as a proportionate approach to appraising human health impacts within the EIA when a separate chapter is not required.

18.6.6 The information presented within this chapter has been informed by the Scheme information provided in **ES: Chapter 4 The Scheme [EN0110014/APP/6.1.4]**, alongside technical chapters including**:**

- **ES: Chapter 6 Climate Change [EN0110014/APP/6.1.6];**
- **ES: Chapter 7 Landscape and Visual [EN0110014/APP/6.1.7];**
- **ES: Chapter 9 Water Environment [EN0110014/APP/6.1.9];**
- **ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.11];**
- **ES: Chapter 12 Noise and Vibration [EN0110014/APP/6.1.12];**
- **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13];**
- **ES: Chapter 14 Socio-Economics [EN0110014/APP/6.1.14];**
- **ES: Chapter 15 Soils and Agricultural Land [EN0110014/APP/6.1.15]**
- **ES: Chapter 16 Ground Conditions [EN0110014/APP/6.1.16];** and
- **ES: Chapter 17 Electromagnetic Fields [EN0110014/APP/6.1.17].**

18.6.7 This Health Summary Statement has been prepared by appropriately qualified experts. For further details, refer to **ES: Appendix 1.2 Statement of Expertise [EN0110014/APP/6.3.1.2]**.

## Consultation

18.6.8 The Scheme has been subject to consultation throughout the DCO preparation period. A request for an EIA Scoping Opinion was sought from the Secretary of State (SoS) through the Planning Inspectorate (PINS) in January 2025. A Scoping Opinion was adopted by PINS in February 2025 **[EN0110014/APP/6.3.2.3]**.

### Table 18.22: Relevant Scoping Opinion Comments from Statutory Bodies relating to Human Health

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| The Planning Inspectorate, Scoping Opinion, February 2025 | **3.11.1** *'The Inspectorate agrees that a standalone aspect chapter on human health is not required on the basis that the Proposed Development will be designed to minimise any impact on human health and where there are interactions with human health these will be assessed within the Noise, Climate Change and Transport aspect chapters of the ES. Impacts to human health may extend beyond the Traffic and Access, Climate Change and Noise Chapters and the ES should clearly set out potential impacts to human health from the Proposed Development during construction, operation and decommissioning and cross reference where impacts are assessed within the ES e.g. Landscape and Visual, Air Quality, Water Environment etc.'* | Human health matters across the ES have been summarised in this Human Health Summary Statement, further detail on technical assessments referenced remains in individual chapters. | Human health is addressed within **ES: Chapter 18 – Other Environmental Matters [EN0110014 APP/6.1.18].** This summarises human health impacts considered across the ES**.** |
| UK Health and Security Agency (including the Office for Health Improvement and Disparities), Scoping Opinion, February 2025 | **UK Health and Security Agency (UKHSA):**<br>*''We understand that the promoter will wish to avoid unnecessary duplication and that many issues including noise, contaminated land, accidents etc. will be covered elsewhere in the 1 Environmental Statement (ES), such that a separate Human Health section is scoped out. We believe the summation of relevant issues into a specific section of the report provides a focus which ensures that public health is given adequate consideration.''*<br><br>*'' In terms of the level of detail to be included in an ES, we recognise that the differing nature of projects is such that their impacts will vary. UKHSA and OHID's predecessor organisation Public Health England produced an advice document Advice on the content of Environmental Statements accompanying an application under the NSIP Regime', setting out aspects to be addressed within the Environmental Statement1. This advice document and its recommendations are still valid and should be considered when preparing an ES. Please note that where impacts relating to health and/or further assessments are scoped out, promoters should fully explain and justify this within the submitted documentation.''*<br><br>*'' Our position is that pollutants associated with road traffic or combustion, particularly particulate matter and oxides of nitrogen are non-threshold; i.e, an exposed population is likely to be subject to potential harm at any level and that reducing public exposure to non threshold pollutants (such as particulate matter* | UKHSA:<br>A Human Health Summary Statement has been provided to collate human health impacts across the ES as per best practice guidance from the Institute of Environmental and Sustainability Professionals.<br><br>The advice document an 'Advice on the content of Environmental Statements accompanying an application under the NSIP Regime' by Public Health England has been reviewed and referenced within the Human Health Summary Statement. The approach to the scoping of the Human Health | Human health is addressed within ES**: Chapter 18 – Other Environmental Matters [EN0110014 APP/6.1.18]** This summarises human health impacts considered across the ES. |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | *and nitrogen dioxide) below air quality standards will have potential public health benefits. We support approaches which minimise or mitigate public exposure to non-threshold air pollutants, address inequalities (in exposure) and maximise co-benefits (such as physical exercise). We encourage their consideration during development design, environmental and health impact assessment, and development consent."*<br><br>*'' For potential electromagnetic field (EMF) health impacts, UKHSA requests clarification for scoping the electrical infrastructure out from the ES if it is included in the ES under "Other Matters". Please refer to the following code of practice, which defines the criteria for demonstrating compliance with the public exposure guidelines, including the operational conditions for scoping out electrical infrastructure: https://assets.publishing.service.gov.uk/media/5a796799ed915d07d35b5397/1256-code practice-emf-public-exp-guidelines.pdf"*<br><br>**Office for Health Improvement and Disparities (OHID):**<br><br>*''It is noted that population and human health will be considered within existing chapters and not form a separate chapter within the ES. Given the current knowledge of the scheme and potential impacts this appears to be a proportionate approach but does ignore the potential for cumulative effects from the project or nearby schemes.'' & '' The cumulative effects assessment should consider the potential for population and human health effects.'' & ''Scoping out a separate population and human health chapter should be kept under review as more information becomes available. A separate population and human health chapter may be justified as the assessments develop."*<br><br>*'' The report identifies that temporary portacabins will be provided on the site. They will accommodate the temporary construction workforce, in order to place no demand on tourist accommodation in the local area. No details are provided regarding the provision of water, sanitation, accommodation design and provision of food. Poorly designed and managed temporary accommodation may increase risk of communicable disease or water and food borne illness, thus increasing demand on local health care services.'' &'' The environmental statement should* | Summary statement is outlined under 'Approach to Human Health in the ES'<br><br>The UKHSA position on pollutants is noted. Exposure to air pollutants is primarily considered within **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13]** and summarised in the human health summary statement. This summary statement also considers impacts on vulnerable groups (however, this is primarily considered in The **Equality Impact Assessment [EN0110014/APP/7.19]**). Access to co-benefits such as PRoWs and community accessible space as considered within this Human Health Summary Statement in relation to transport.<br><br>An Assessment of Electromagnetic Fields has been provided in **ES: Chapter 17 Electromagnetic Fields [EN0110014/APP/6.1.17]** and is summarised in this | |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | *provide sufficient detail regarding the location, design and management of the temporary accommodation, to reduce the risk of communicable disease or water and food borne illness.''* | Human Health Summary Statement.<br><br>OHID:<br>The Scoping Report submitted by the Applicant identified that temporary accommodation in the form of portacabins may be used to house construction workers. This is no longer considered necessary within **ES Chapter 14 Socio-Economics [EN0110014/APP/6.1.14]** and therefore the human health implications have not been assessed.<br><br>Cumulative impacts have been considered within this Human Health Summary Statement.<br><br>The human health summary statement is considered proportionate to the likely health impacts of the scheme at submission, and includes an assessment of cumulative effect. | |
| Norfolk County Council, Scoping Opinion, February 2025 | **2.3** *''Health Impact Assessment (HIA) including mental health impact assessment – these should be considered as part of the ES. The subject matter (covering for example magnetic and electromagnetic fields (EMF)) has the potential to raise* | A HIA has not been included as part of the ES as this is not recommended | Human health is addressed within **ES:** |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | *significant local concerns, which needs thoroughly investigating and addressing within a HIA forming part of the ES. The ES should cover off mental health issues associated with the "perceptions" of health and safety risks relating to not just EMFs but also battery storage facilities''*<br><br>**9.1** *''Given the scale of the project, Norfolk County Council (NCC) Public Health strongly recommends that human health and wellbeing is scoped into the ES, with a full Health Impact Assessment (HIA) undertaken with its own dedicated chapter. This aligns with discussions held with the project team on 21/10/2024 and was reiterated in NCC's Non-statutory Consultation Technical Response to Island Green Power. While the scoping report concludes that such a chapter is unnecessary due to potential impacts being scoped out or assessed elsewhere, a chapter summarising the project's health related impacts, regardless of their significance, should be included to ensure clarity for stakeholders. The chapter should address the potential direct health impacts (e.g. air quality) and should consider the wider determinants of health, including potential effects on mental wellbeing. It might be appropriate that potential impacts are assessed in their own chapters, but a health chapter should be included to summarise these impacts whilst also considering potential synergistic effects, which may exacerbate health and wellbeing impacts when considered together. If significant health impacts are identified, appropriate mitigation strategies should be detailed.''*<br><br>**9.2** *'' NCC Public Health notes the references to appropriate guidance (5.12.7), and particularly advises the use of the Institute of Environmental Management and Assessment's (IEMA) Effective Scoping of Human Health in Environmental Impact Assessment and Determining Significance for Human Health in Environmental Impact Assessment (both published in November 2022).''*<br><br>**9.3** *'' With the exception of a minor reference in section 5.12.11, the Scoping Report makes little reference to the project's impact on mental health and wellbeing. While certain physical impacts may be deemed insignificant, perceived impacts – particularly in relation to visual amenity impacts and concerns surrounding electromagnetic fields (EMFs) – can contribute to stress and anxiety in local communities. As outlined in IEMA's Effective Scoping of Human Health in Environmental Impact Assessment, perceived impacts can have real effects on* | best practice by ISEP. An EMF assessment has been provided in **ES: Chapter 17 Electromagnetic Fields [EN0110014/APP/6.1.17]** and is summarised in this Human Health Summary Statement. A dedicated assessment of likely effects on mental wellbeing and equality-related impacts has been undertaken and is presented within the **Equality Impact Assessment (EqIA) [EN0110014/APP/7.19].** The rationale for this has been outlined in the human health summary statement, Approach to Human Health in the ES section<br><br>A Human Health Summary Statement has been provided to collate human health impacts across the ES as per best practice guidance from the Institute of Environmental and Sustainability Professionals. Consideration of mental health impacts are within the **EqIA [EN0110014/APP/7.19].** | **Chapter 18 – Other Environmental Matters [EN0110014 APP/6.1.18].** This summarises human health impacts considered across the ES. |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | *mental health and should be considered appropriately. As such NCC Public Health reiterates its previous recommendation that the mental health impacts of the project are scoped into the assessment and an appropriate mental health assessment is undertaken, specifically in relation to EMFs as well as concerns around battery storage facilities.''*<br><br>**9.4** *'' Regarding EMFs, the UK Health Security Agency is the lead agency with responsibility for health threats from radiation in the UK and is a statutory consultee for Nationally Significant Infrastructure Projects. It should also be consulted regarding the appropriateness of scoping out of the impacts of EMF from the Environmental Statement as 5.5.10 states.''*<br><br>**9.5** *'' NCC Public Health notes the commitment to undertaking a construction dust risk assessment in accordance with Institute of Air Quality Management guidance and expects that the potential health impacts form an integral part of this, particularly in relation to vulnerable populations. It would be expected that the impacts on air quality and human health, regardless of their significance, are summarised in a specific human health chapter.''*<br><br>**9.6** *'' NCC Public Health notes the commitment to conducting a Cumulative Effects Assessment and advises that particular attention be given to the potential cumulative impacts on local communities' mental health and wellbeing. This is especially important in relation to inter-project effects, with particular focus on National Grid's Norwich to Tilbury NSIP scheme and the potential development of further solar projects as identified in the Transmission Entry Capacity (TEC) Register.''* | The ISEP (previously IEMA) guidance has been referenced and used as the basis for the human health summary statement.<br><br>A dedicated assessment of likely effects on mental wellbeing and equality-related impacts has been undertaken and is presented within the **EqIA [EN0110014/APP/7.19].** The rationale for this has been outlined in the human health summary statement, Approach to Human Health in the ES section.<br><br>An assessment of Electromagnetic Fields has been provided in **ES Chapter 17 Electromagnetic Fields [EN0110014/APP/6.1.17]** and is summarised in this Human Health Summary Statement.<br>The air quality assessment provided in **ES Chapter 13 Air Quality [EN0110014/APP/6.1.13]** has been summarised in this human health summary | |

| Consultee and Date | Comment and Scoping Opinion ID No. | How has the comment been addressed in the ES chapter | Location of response in ES Chapter |
|---|---|---|---|
| | | statement. Including mitigation including the **Outline CEMP EN0110014/APP/7.1** which includes measures regarding dust impacts.<br><br>Cumulative impacts have been considered within this Human Health Summary. | |

18.6.9 Additional, Scoping Opinion comments were raised during scoping from local and parish councils. These have not been tabulated in **Table 18.22** as they concerned comments raised regarding the scoping of human health out of the assessment and the consideration of mental health within the ES. These have been discussed in response to the consultee comments listed above. A summary of consultation matters relevant to human health, and how these have been taken into account within the ES, is provided in the **Consultation Report [EN0110014/APP/5.1].**

18.6.10 Further consultation responses received during the PEIR and DCO application stages included comments from other stakeholders relating to potential effects on human health and the rationale for scoping out human health, including considering cumulative effects. These comments highlighted the importance of making clear links between human health and the findings of relevant technical chapters of the Environmental Statement, including Transport and Access, Noise and Vibration, Air Quality, Climate Change and Socio-Economics. In response, this Human Health Summary Statement has been prepared to bring together and explain health-related considerations reported across the ES in a clear and proportionate way, providing an accessible overview without duplicating the detailed technical assessments.

## Legislation, Planning Policy and Guidance

18.6.11 An overview of the legislation, planning policy and guidance relevant to the Human Health Summary Statement are outlined here.

18.6.12 A summary of applicable legislation, planning policy and other guidance documents against which the Scheme will be considered relating to other relevant technical chapters cross-referenced in this Statement are set out in **ES: Appendix 2.3 Consultation and Legislation, Planning Policy and Guidance [EN0110014/APP/6.3.2.3]**.

## Legislation and Regulations

18.6.13 Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (Ref 18-17): Regulation 5(2)(a) explicitly states that an EIA must identify, describe and assess in an appropriate manner, the direct and indirect significant effect of a proposed development on ‘population and human health’.

## Planning Policy

### National Planning Policy

18.6.14 National Policy Statements (NPS) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the

Scheme will be considered. Listed below are the details of the elements of NPS considered relevant to Human Health.

- **Overarching National Policy Statement for Energy (EN-1, 2025)** (Ref 18-18)**:** EN-1 sets the strategic context for all energy infrastructure projects. Under Section 4.4 it requires Environmental Statements to assess all potential adverse effects on human health and to identify measures to avoid, reduce or compensate for adverse impacts. This includes consideration of both direct and indirect health determinants. This section of the ES responds directly to this requirement by presenting a summary of key health and wellbeing issues relevant to the Scheme. Cumulative impacts on health should be considered where appropriate.

- **National Policy Statement for Renewable Energy Infrastructure (EN-3, 2025)** (Ref 18-19) EN-3 provides technology-specific guidance for renewable energy projects, including solar PV. It emphasises the need to address environmental and health considerations such as land use, visual impacts and noise and vibration.

- **National Policy Statement for Electricity Network Infrastructure (EN-5, 2024)** (Ref 18-20)**:** EN-5 focuses on electricity and distribution infrastructure. It highlights health-related issues such as electromagnetic field (EMF) exposure and requires applicants to demonstrate compliance with relevant safety standards and mitigation measures.

18.6.15 **National Planning Policy Framework** (Ref 18-21) - The National Planning Policy Framework (NPPF) as revised in December 2024 sets out national planning policies that reflect priorities of the Government for operation of the planning system and the economic, social, and environmental aspects of the development and use of land. The NPPF has a strong emphasis on sustainable development, with a presumption in favour of such development. The NPPF has the potential to be considered important and relevant to the Secretary of State's (SoS) consideration of the Scheme. Listed below provides details of the elements of the NPPF that are relevant to this chapter, and how and where they are covered in the ES.

- Chapter 8 'Promoting healthy and safe communities' outlines principles for achieving healthy, inclusive and safer places.

### Local Planning Policy

- **Norfolk Strategic Planning Framework (NSPF) (2025)** outlines a series of agreements applicable to local planning authorities and other local authority signatories to promote agreed objectives and strategic priorities that inform the preparation of future Local Plans in the Norfolk

County Council area. Health is a key objective outlined in Section 7 and promoted primarily by Agreement 3, Agreement 15 and Agreement 16.

- **South Norfolk Development Management Policies (2015)** Policy DM 3.14 Pollution, health and safety**.** The policy requires development to minimise emissions and prevent pollution, ensuring no decline in water quality. Proposals must avoid unacceptable impacts on air, water, land, and public health. Development on contaminated or potentially contaminated land is only permitted with appropriate assessment and remediation. Schemes affecting air quality must avoid harm to human health, protected species, and amenity, and must not cause the designation or worsening of Air Quality Management Areas.

- **Norfolk County Council Climate Strategy (2023):** this document sets out the local climate strategy for NCC. It's purpose is to guide local decision-making, co-ordinate action across sectors, and ensure that climate consideration are integrated into planning, transport, housing and public services. It is highlights the risks of climate change on human health and recognises that climate change can directly affect physical and mental wellbeing through heat stress, poor air quality, flooding, and disruption to essential services.

### Other Guidance

18.6.16 The assessment has been carried out in accordance with the following other guidance documents.

- ISEP (2022) Guide to 'Effective Scoping of Human Health Assessments in EIA' (Ref 18-22)

- ISEP (2022) Guide to 'Determining Significance for Human Health in Environmental Impact Assessment' (Ref 18-16)

- UKHSA (formerly PHE) (2020) Health Impact Assessment in Spatial Planning (Ref 18-23)

- PINS Nationally Significant Infrastructure Projects: Technical Advice Page for Scoping Solar Development (Ref 18-24)

- Public Health (2020) England Advice on the content of Environmental Statements accompanying an application under the NSIP Regime (Ref 18-25)

## Approach to Human Health in the ES

18.6.17 The purpose of this Health Summary Statement is to provide a clear and proportionate overview of the health-related impacts identified within the ES. This summary ensures that health considerations are presented in an accessible format for decision-makers, stakeholders, and the public, in line

with best practice guidance from the Institute of Sustainability and Environmental Professionals (Ref 18-22), and the requirements confirmed through the Planning Inspectorate's scoping process.

18.6.18 This Human Health Summary Statement aims to provide a collated summary of relevant impacts identified through the relevant scoped-in technical assessments. Where appropriate, further narrative is provided to contextualise the direct or indirect nature of identified effects on physical, mental and social health and wellbeing outcomes in addition to any influence on vulnerable population groups, health inequalities and the wider determinants of health.

18.6.19 The scope reflects the Planning Inspectorate's scoping opinion which agreed that a separate Human Health ES Chapter was not required but acknowledged that relevant effects may be identified elsewhere in the ES that should be cross-referenced. It also responds to feedback from stakeholders including, NCC Public Health and UKHSA who recommended that potential human health impacts should proportionately be summarised within the ES.

18.6.20 ISEP guidance on human health in EIA (Effective Scoping of Human Health in Environmental Impact Assessment and Determining Significance for Human Health in Environmental Impact Assessment) advocates for:

- A holistic approach to health, considering physical, mental, and social well-being;
- Proportionality in reporting, ensuring clarity without unnecessary complexity;
- Integration of health determinants and vulnerable population considerations.

18.6.21 This Health Summary Statement aligns with these principles by consolidating findings from technical assessments into a concise, narrative supported by relevant evidence and policy considerations.

18.6.22 It is not anticipated that a Human Health Summary Statement should introduce new effects not considered within the wider ES. Therefore, in this human health summary statement an assessment in relation to relevant human health effects identified in other technical chapters has been provided. This assessment has been made with reference to the following factors, as per the ISEP guidance referenced above, as well as consideration of relevant mitigation:

- Scientific literature;
- Baseline conditions for the population;

- Health priorities in the jurisdiction;
- Consultation for the Scheme;
- Regulatory standards in the jurisdiction; and
- Health policy context in the jurisdiction.

18.6.23 This Health Summary Statement has reviewed relevant technical ES chapters and supporting documents, drawing on key information regarding:

- Pathways of exposure (indirect and direct routes of impact on human health linked to each corresponding technical chapters);
- Receptor sensitivity (including vulnerable groups);
- Magnitude and significance of effect; and
- Mitigation measures and residual impacts.

18.6.24 The following aspects have been considered within the Human Health Summary Statement:

- An assessment of potential effects relevant to Human Health linked to Climate Change, Water Environment, Landscape and Visual Impacts, Transport and Access, Noise and Vibration, Air Quality, Socio-Economics, Soils and Agricultural Land, Ground Conditions, and Electromagnetic Fields during construction, operation and maintenance and decommissioning phases.

18.6.25 In-combination effects and cumulative impacts have also been considered within this summary by synthesising interactions between project-related health determinants and other committed developments, ensuring that combined and additive effects on human health are reported.

18.6.26 It is recognised that large-scale infrastructure projects have the potential to affect mental wellbeing for people living and working in the surrounding area, particularly through pathways such as perceived environmental change, disruption, uncertainty and concern about potential risks. In response to consultation feedback raising these issues. A dedicated assessment of likely effects on mental wellbeing and equality-related impacts has been undertaken and is presented within the **Equality Impact Assessment (EqIA) [EN0110014/APP/7.19]**. The Scoping Opinion confirmed that a standalone human health chapter could be scoped out of the ES. Additionally, there is a current lack of an agreed or robust methodology within EIA practice for the assessment of mental health effects, including the absence of consistently applied significance thresholds. As a result, potential mental health effects are more appropriately considered through the **EqIA [EN0110014/APP/7.19]** where

effects can be qualitatively assessed without the need to apply EIA significance criteria.

18.6.27 Findings from the **EqIA [EN0110014/APP/7.19]** are not duplicated within this Human Health Summary Statement; however, relevant conclusions relating to mental wellbeing and vulnerable population groups are appropriately signposted and taken into account where they intersect with the health pathways considered in this chapter.

## Baseline Conditions

18.6.28 To inform the consideration of impacts linked to human health, a high-level baseline assessment has been undertaken.

18.6.29 ISEP Guidance (2022) (Ref 18-22) on Effective Scoping of Human Health in Environmental Impact Assessments recognises that the geographic scope of assessment varies by health determinant topic and that a range of study areas may be selected to *"identify where there are likely and potentially significant Site and local area effects that differ from wider effects and focus on areas where the project would influence most".*

18.6.30 The baseline study area comprises of five Middle-Layer Super Output Areas (MSOAs) including:

- South Norfolk 009;
- South Norfolk 011;
- South Norfolk 012;
- South Norfolk 013; and
- South Norfolk 014.

18.6.31 These MSOAs cover the communities with the greatest potential exposure to development-related changes associated with the Scheme. Comparator data is provided at the local authority (Norfolk) and national (England) level.

18.6.32 To inform the baseline assessment the following data sources have been used:

- ONS, 2021 (Ref 18-26);
- OHID, 2021 (Ref 18-27);
- Norfolk Insight, 2025 (Ref 18-28); and
- English Indices of Multiple Deprivation 2025 (Ref 18-29).

### Receptor Sensitivity

18.6.33 Sensitive receptors have been identified according to each relevant chapter and are considered as part of the significance conclusions summarised here.

18.6.34 Within the sensitive receptors identified throughout the ES, it is acknowledged that there may be additional vulnerabilities or sensitivities beyond those captured in baseline data. As part of the Human Health Summary Statement these considerations will be informed by the Welsh Health Impact Assessment Support Unit (WHIASU) Checklist to ensure a comprehensive approach to health determinants and inequalities.

18.6.35 Furthermore, Protected Characteristic groups, as defined under the Equality Act 2010, have been considered through the **EqIA [EN0110014/APP/7.19],** ensuring that potential differential and disproportionate effects on these groups are identified and addressed

## Baseline Conditions

### The Order Limits

18.6.36 The Scheme is located within the administrative areas of Norfolk County Council (NCC) and South Norfolk Council (SNC) who are the host authorities. A full description of the Order limits is provided in **ES Chapter 3 The Order Limits [EN0110014/APP/6.1.3]**.

## Existing Baseline

### Population Profile

18.6.37 The study area comprises a population of approximately 45,200 residents, with a near-even gender distribution (51% female and 49% male). The age profile indicates an older demographic compared to regional and national averages. Around 28% of residents are aged 65 years and over, which is substantially higher than the England average of 18.7%. The proportion of working-age adults (16-64 years) is lower at 56.4% compared to 62.9% nationally. Children and young people (0-15 years) account for 15.6% of the population, slightly below the national figure of 18.4% (Ref 18-26). This is illustrated below in **Figure 18.2**.

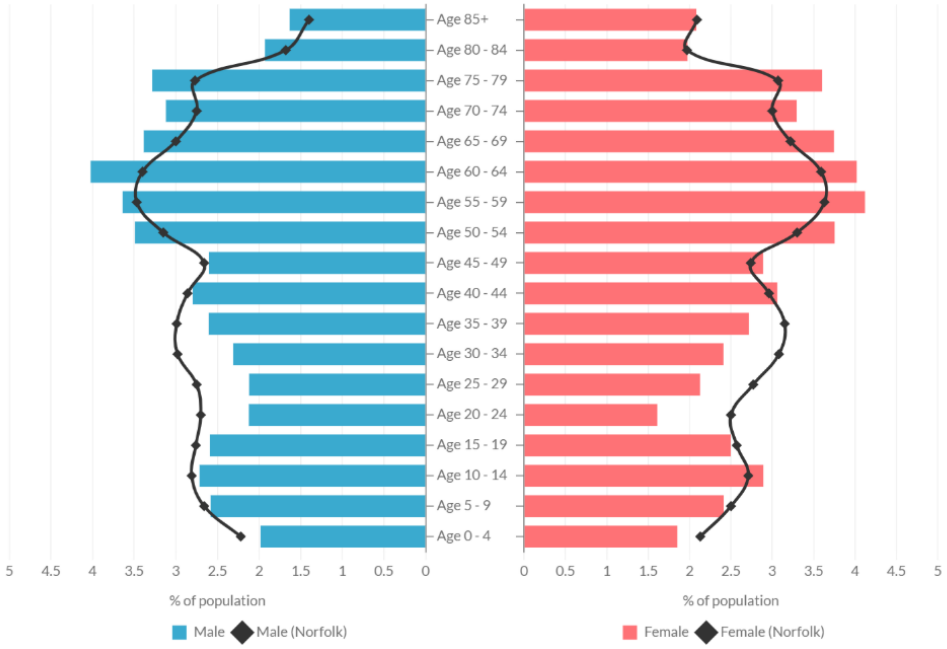


**Figure 188.2: Percentage of population by 5-year age groups (2024). Source: ONS, Population Estimates. Norfolk Insight Custom Area Reporter.**

18.6.38 The population is predominantly White (98%) with small proportions identifying as Asian (0.6%), Black (0.3%), Mixed (0.9%%), or Other ethnic groups (0.2%). English is the main spoken language in almost all households within the study area (Ref 18-26).

# Health Profile

## General Health

18.6.39 Self-reported health data for the study area (Ref 18-26) indicates that the majority of the population perceive their health positively. Approximately 45% of residents describe their health as ‘very good’, which is slightly higher than the Norfolk average (41.3%) but below the England average (48.5%). A further 36% report their health as ‘good’, which is broadly consistent with regional and national figures. Around 14% consider their health to be ‘fair’, while smaller proportions report ‘bad’ (3.7%) or ‘very bad’ health (1%). These figures suggest that while overall health outcomes are relatively strong, there is a small proportion of the study area population experiencing poorer health.

## Disability

18.6.40 Within the study area 18.5% of residents reported being disabled under the Equality Act 2010 (Ref 18-26). This is slightly lower than regional (20.2%) rates, but slightly higher than the national average of 17.3%. These rates are likely to be influenced by the ageing demographic of the area

highlighted in the population baseline. National trends indicate that older populations typically have higher rates of limiting long-term illness and disability which can generate higher levels of baseline sensitivity within the study area.

### Life Expectancy

18.6.41 The average life expectancy for females in Norfolk is 83.8 years which is marginally higher than the national average of 83.2 years. Average life expectancy for males is 79.9 years in Norfolk which is similar to the national average of 79.5 years (Ref 18-28).

### Healthy Life Expectancy

18.6.42 Healthy Life Expectancy (HLE) is a summary measure of mortality and morbidity (ill health). HLE shows the number of years a person can expect to live in good health (rather than disability or in poor health). HLE data is only available for Norfolk as whole. In Norfolk, males are expected to live to age 62 years in good health, while women are expected to live to age 63 in good health. As such, females can expect to live 21 years in poor health on average and men can expect to live 17 years in poor health on average (Ref 18-28).

### Mortality and Disease Prevalence

18.6.43 The top four types of long-term ill health in Norfolk are cancer, heart or cardiovascular disease (CVD), musculoskeletal (MSK) conditions and poor mental health (Ref 18-28).

18.6.44 Norfolk has a rate of 45 per 100,000 people preventable cancer deaths among under-75s across the most recent 5-year period (Ref 18-30). This is slightly lower than the national rate of 50.6 per 100,000 people.

18.6.45 The rate of all CVD deaths among under-75s in Norfolk is 65.1 per 100,000 people which is also lower than the national rate of 75.0 per 100,000 people (Ref 18-30).

18.6.46 In Norfolk, 27.1% of adults (aged 16 years and older) are suffering from long-term MSK conditions (e.g., arthritis, back pain or joint pain), this is 4.1% higher than the national average (23.0%) (Ref 18-31).

18.6.47 The rate of suicide deaths in Norfolk is 10.9 per 100,000 people which is marginally higher than the national average of 10.0 per 100,000 people.

18.6.48 Dementia and Alzheimer's disease are leading causes of death in England. For all ages groups, the mortality rate in Norfolk for Dementia and Alzheimer's disease is 114 per 100,000 people which is slightly higher than the national rate of 100.5 per 100,000 people.

## Economy and Employment

18.6.49 Census 2021 data shows that 56.9% of residents aged 16 years and over in the study area are economically active, which is slightly higher than Norfolk (54.9%) but below the England average (58.6%). Within this group 43.2% are employees, 10.2% are self-employed without employees, and 1.8% are self-employed with employees. The unemployment rate is 1.7% which is lower than both Norfolk (2.3%) and England (2.9%). Full-time students account for 1.2% of the population.

18.6.50 In terms of occupational structure in the study area, the largest groups are professional occupations (18%), managers and senior officials (14.8%) and skilled trades (14.3%). These are all above national averages for skilled trades but slightly below for professional roles.

18.6.51 Economic inactivity stands at 42%, primarily driven by retirement (30.3%), which is significantly higher than the national figure of 21.5%. Other reasons include looking after home or family (3.9%), long-term sickness or disability (3%), and study (2.8%).

18.6.52 Travel-to-work patterns show that 32% of residents work mainly from home, while 57% commute by car or van. Active travel modes are limited, with 4.5% walking and 1.2% cycling. Public transport use is very low (bus: 0.9%, train: 0.3%), reflecting the rural nature of the area. Most commutes are over longer distances, with 17.8% travelling 10-20 km and smaller proportions travelling over 20 km.

## Deprivation Profile

18.6.53 The Indices of Multiple Deprivation (Ref 18-86) provide a composite measure of relative deprivation across several domains, including income, employment, education, health, crime, barriers to housing and services, and living environment. Scores range across deciles from 1 (most deprived) to 10 (least deprived).

18.6.54 Across the study area, deprivation levels are generally low indicating that these communities are among some of the least deprived nationally. Most LSOA score between the 4$^{th}$ and 9$^{th}$ deciles for overall Index of Multiple Deprivation (Ref 18-86), with no LSOA areas falling into the most deprived categories. Income and employment domains show similar patterns, suggesting relatively low levels of economic disadvantage.

18.6.55 Education, skills and training scores vary slightly with some LSOAs scoring as low as the 4$^{th}$ deciles, indicating pockets of lower educational attainment. Health and disability rankings range from the 5$^{th}$ to 10$^{th}$ deciles, reflecting generally good health outcomes compared to national averages.

18.6.56 Barriers to housing and services show the greatest variation, with several LSOAs scoring in the 1$^{st}$ to 3$^{rd}$ deciles suggesting challenges in access to

housing and essential services, however this is likely due to rurality rather than socio-economic disadvantage.

18.6.57 Overall, the baseline indicates that the area is relatively affluent with low levels of deprivation, though rural accessibility and educational attainment present localised challenges. These factors are relevant for assessing potential health and social impacts of the Scheme.

**Table 188.23: Indices of Multiple Deprivation for the Study Area**

| LSOA | English Indices of Deprivation | Income | Employment | Education, skills and training | Health and disability | Crime | Barriers to housing and services | Living environment |
|---|---|---|---|---|---|---|---|---|
| South Norfolk 009A | 7 | 7 | 7 | 6 | 8 | 10 | 2 | 6 |
| South Norfolk 009B | 8 | 8 | 8 | 8 | 8 | 9 | 2 | 6 |
| South Norfolk 009C | 9 | 9 | 9 | 8 | 9 | 10 | 3 | 10 |
| South Norfolk 009D | 6 | 6 | 6 | 6 | 8 | 7 | 2 | 5 |
| South Norfolk 009E | 7 | 7 | 7 | 7 | 8 | 9 | 1 | 3 |
| South Norfolk 009F | 7 | 9 | 9 | 9 | 9 | 10 | 1 | 1 |
| South Norfolk 009G | 8 | 9 | 9 | 7 | 10 | 10 | 3 | 3 |
| South Norfolk 011A | 6 | 9 | 9 | 5 | 9 | 10 | 1 | 2 |
| South Norfolk 011B | 5 | 6 | 6 | 4 | 7 | 8 | 1 | 4 |
| South Norfolk 011C | 7 | 8 | 8 | 6 | 10 | 10 | 1 | 3 |
| South Norfolk 011D | 8 | 7 | 7 | 6 | 8 | 7 | 6 | 3 |
| South Norfolk 011E | 7 | 8 | 7 | 5 | 9 | 8 | 4 | 2 |
| South Norfolk 011F | 6 | 5 | 6 | 5 | 7 | 6 | 4 | 4 |
| South Norfolk 012A | 4 | 5 | 5 | 5 | 6 | 7 | 2 | 1 |
| South Norfolk 012B | 7 | 8 | 7 | 8 | 6 | 9 | 3 | 2 |
| South Norfolk 012C | 5 | 6 | 6 | 5 | 8 | 8 | 1 | 2 |
| South Norfolk 012D | 6 | 8 | 7 | 7 | 7 | 8 | 1 | 3 |
| South Norfolk 012E | 6 | 7 | 7 | 5 | 8 | 9 | 1 | 4 |

| LSOA | English Indices of Deprivation | Income | Employment | Education, skills and training | Health and disability | Crime | Barriers to housing and services | Living environment |
|---|---|---|---|---|---|---|---|---|
| South Norfolk 013A | 5 | 6 | 5 | 5 | 8 | 7 | 2 | 1 |
| South Norfolk 013B | 6 | 6 | 5 | 4 | 5 | 5 | 4 | 6 |
| South Norfolk 013C | 7 | 8 | 7 | 4 | 9 | 10 | 3 | 7 |
| South Norfolk 013D | 5 | 4 | 5 | 4 | 7 | 6 | 4 | 8 |
| South Norfolk 014B | 4 | 7 | 5 | 5 | 7 | 6 | 1 | 1 |
| South Norfolk 014C | 6 | 8 | 7 | 6 | 9 | 10 | 1 | 2 |
| South Norfolk 014D | 5 | 6 | 6 | 5 | 7 | 8 | 2 | 2 |
| South Norfolk 014E | 6 | 7 | 7 | 4 | 7 | 8 | 3 | 4 |
| South Norfolk 014F | 6 | 8 | 7 | 6 | 8 | 10 | 1 | 2 |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|

← More deprived Less deprived →

18.6.58 Fuel poverty is assessed under the Low Income Low Energy Efficiency (LILEE) definition, which considers households living in properties with poor energy efficiency (bands D–G) and having disposable income below the poverty line after housing and energy costs. Fuel poverty is influenced by income levels, fuel costs, and the energy efficiency of dwellings. Properties with lower energy efficiency require higher fuel consumption, contributing to increased costs and carbon emissions.

18.6.59 Fuel poverty rates using the LILEE indicator are presented below in **Table 18.24**. The study area has 2,789 households experiencing fuel poverty, representing a rate of 14.1%. This is slightly higher compared to the national rate of 13.2% while Norfolk, regionally has a higher rate of fuel poverty at 15.6% (Ref 18-32).

**Table 18.24: Proportion of households in fuel poverty (Ref 18-32)**

| Indicator | Study Area | Norfolk | England |
|---|---|---|---|
| Number of households in fuel poverty – Low Income/Low energy Efficiency (LILEE) | 2,789 | 63,174 | 3,158,206 |
| Number of households in fuel poverty – Low Income/Low energy Efficiency (LILEE) | 14.1% | 15.6% | 13.2% |

## Climate Change

18.6.60 The Norfolk Director of Public Health Annual Report 2025 (Ref 18-33) identifies climate change as a significant public health challenge for Norfolk with the potential for direct and indirect impacts on mortality, morbidity and wellbeing. Recent trends show an increase in extreme weather events, which pose risks to vulnerable populations and health systems.

18.6.61 The frequency of heatwaves has risen sharply, with the number of days exceeding 30 °C tripling in the past decade. Norfolk recorded its first 40 °C day in 2022, during which heat-related mortality increased by 18%, equating to 242 excess deaths compared to the five-year average. Projections suggest that, without adaptation, heat-related deaths could reach 3,700 annually by 2030 under a 2 °C warming scenario.

18.6.62 Despite warming trends, cold-related health risks persist. Winter mortality in 2023–24 was 10.2% higher than the previous four-year average, primarily due to cardiovascular and respiratory conditions.

18.6.63 Warmer, drier conditions have increased wildfire risk, with Norfolk experiencing 45 wildfires in 2022, a 96% rise from 2021. Smoke and particulate emissions from these events exacerbate respiratory and cardiovascular illnesses, particularly among older adults and those with pre-existing conditions.

## Future Baseline

18.6.64 This section considers changes to the baseline conditions, described above, as far as changes can be established, that might occur in the absence of the Scheme coming forward during the time period over which the Scheme would be in place.

## Population Projections

18.6.65 South Norfolk is projected to grow much faster than the surrounding areas and the national average. Starting at 150,200 residents in 2024, its population is expected to rise by 8.8% to 163,300 by 2030. In comparison, Norfolk is expected to grow by 4.0% over the same period, Suffolk by 3.2%, and the East of England by 3.3%. England sees only a 2.8% increase. This means South Norfolk's growth rate is more than double that of Norfolk and nearly three times the national average, highlighting it as a hotspot for population expansion in the region (Ref 18-26). Population projections are not available for the Local Area.

## Economic Activity (Growth from 2024)

18.6.66 As outlined in **ES: Chapter 14 Socio-Economics [EN0110014/APP/6.1.14]** South Norfolk is projected to see a slight decline in employment activity compared to 2024, with reductions of around 0.3–0.4% through 2030. Unemployment initially spikes by 15% in 2028 but then improves significantly, falling to 6.2% above baseline by 2030. In contrast, Norfolk, Suffolk, and the wider East of England show steady employment growth and declining unemployment, with regional and national unemployment rates dropping substantially, turning negative in the East of England by 2029-2030. Overall, South Norfolk differs from other areas as employment growth remains negative while unemployment improves dramatically after an initial rise.

## Climate Change

18.6.67 **ES: Chapter 6 Climate Change [EN0110014/APP/6.1.6]** presents a future baseline for greenhouse gas (GHG) emissions. Consideration was given to the Scheme's wider implications, including its alignment with UK carbon budget targets and its overall contribution to climate change. In the absence of the Scheme, no change to the future climate baseline is anticipated.

18.6.68 The future baseline for Climate Change Risk Resilience Assessment (CCRA) also presented in **ES: Chapter 6 Climate Change [EN0110014/APP/6.1.6]** notes that the future baseline is expected to differ from current conditions due to project climate change changes over the Scheme's lifetime. The assessment highlight UKCP18 probabilistic projections for 30-year periods from 2020-2099 which under a 'business as usual' scenario indicate a clear warming trend, with mean annual temperatures rising by around 1°C by 2049, 2.4°C by 2079, and up to 3.6°C by 2099. Maximum temperatures could increase by nearly 3.9°C, while minimum temperatures show similar gains.

18.6.69 Precipitation is projected to decline slightly, with reductions of up to 4%, and cloud cover is expected to fall by nearly 7% by the end of the century. These changes suggest a future climate that is warmer, drier, and sunnier than current conditions.

18.6.70 Such shifts have implications for the Scheme's design and operation, including vegetation management, water availability, and resilience to heat extremes. They also provide context for assessing potential environmental and health impacts during construction, operation and maintenance, and decommissioning.

## Water Environment

18.6.71 As reported in **ES: Chapter 7 Water Environment [EN0110014/APP/6.1.7]** the future baseline without the implementation of the Scheme would be unlikely to change substantially, however there would be potential for increases in peak river flow and peak rainfall intensity as a result of climate change, leading to an increase in flood risk within the Order Limits and the Water Environment Study Area.

## Air Quality

18.6.72 As set out in **ES: Chapter 13 Air Quality [EN00110014/APP/6.1.13]**, future air quality is expected to improve due to declining background pollutant levels and reduced vehicle emissions as older vehicles are replaced with zero-emission models and Euro 6/IV standard engines. Government initiatives such as the Transport Decarbonisation Plan and Net Zero Highways Plan will further support fleet decarbonisation and progress toward Net Zero, delivering long-term air quality benefits

### Baseline Summary

18.6.73 The baseline health profile indicates that the study area has an older-than-average population, with approximately 28% of residents aged 65 years and over, alongside a higher prevalence of long-term conditions such as cardiovascular disease, musculoskeletal conditions and poorer self-reported health for a small proportion of the population. Although overall levels of deprivation are low, rural accessibility constraints and a relatively high rate of disability compared with national averages indicate that some residents may be more sensitive to temporary disturbance, changes in access or environmental stressors.

18.6.74 Children and young people, older people, people with pre-existing respiratory or cardiovascular conditions and those with mobility limitations are therefore recognised as potentially more vulnerable to certain short-term effects, particularly during construction.

### Sensitive Receptors and Vulnerable Groups

18.6.75 The WHIASU, Population Groups Checklist (Ref 18-34) (which is an accepted source reference for projects across the UK) has been reviewed in order to identify the population groups who could be more impacted than others by the Scheme. The following receptor and vulnerable population groups have been identified as being more vulnerable to direct impacts generated by the Scheme:

- Children and young people;
- Older and elderly people; and

- People with or at risk of pre-existing health conditions.

18.6.76 The following groups are also likely to be more sensitive to indirect impacts generated by the Scheme (e.g., socio-economic effects linked to employment):

- Low-income groups;
- People with a long-term illness or disability; and
- Ethnic minority groups.

18.6.77 In reviewing the baseline, based on sensitivity criteria as outlined the ISEP guidance (2022) (Ref 18-22) there are no identified population-level sensitive receptors or vulnerable groups that require further consideration in the appraisal of topics scoped in to the ES.

## Embedded Mitigation

18.6.78 Likely environmental effects have been or will be avoided, minimised, mitigated or reduced through design measures and/or management of the Scheme, as outlined in this section. Proposed environmental enhancements are also described where relevant.

18.6.79 A summary of embedded mitigation measures presented throughout the ES during the construction, operation and maintenance, and decommissioning phases that are relevant to human health are presented below. Mitigation measures presented below are summarised from corresponding technical chapters, for full mitigation details please refer to each technical chapter.

## Construction

18.6.80 During construction, mitigation focuses on controlling temporary disturbance, reducing exposure to environmental pollutants and protecting vulnerable receptors, including local communities and the construction workforce.

## Climate Change

18.6.81 Embedded mitigation measures are in place to minimise greenhouse gas emissions and manage climate-related risks, including extreme weather and flooding, during construction. Key measures include:

- Adoption of the Considerate Constructors Scheme to minimise emissions and community disturbance.

- Efficient plant use, regular maintenance and promotion of low-carbon travel for construction workers.
- Flood risk mitigation measures as detailed in **ES: Chapter 9 Water Environment [EN0110014/APP/6.1.9]** and **ES: Appendix 9.1 Flood Risk Assessment & Outline Surface Water Drainage Strategy [EN0110014/APP/6.3.9.1]**
- Worker protection through adaptive working practices and monitoring of weather and flood warnings.
- Controls secured through the **Outline CEMP [EN0110014/APP/7.1]** and **Outline BSMP [EN0110014/APP/7.5].**

## Water Environment

18.6.82 Construction activities are managed to prevent adverse effects on water quality and availability that could indirectly affect human health. Key measures include:

- Management of runoff and pollution through bunding, silt traps, filter drains and spill response measures.
- Use of trenchless techniques beneath watercourses where required.
- Control of construction water demand through water neutrality measures and off-site wastewater disposal.
- Controls secured through the **Outline CEMP [EN0110014/APP/7.1]**

## Landscape and Visual

18.6.83 Construction activities will be controlled through the **Outline CEMP [EN0110014/APP/7.1]** submitted with the DCO application with a detailed CEMP to be approved prior to works commencing and secured as a requirement of the **draft DCO [EN0110014/APP/3.1].** Key measures include:

- Protection of existing trees and vegetation through surveys, exclusion zones and arboricultural methods.
- Temporary visual screening for sensitive receptors, good site housekeeping and dust suppression near residential receptors and PRoWs.
- Control of construction lighting to minimise light spill and restoration of disturbed ground and hedgerows in accordance with **ES: Appendix 7.11 Lighting Strategy [EN0110014/APP/6.3.7.11]** and the **Outline LEMP [EN0110014/APP/7.4].**

## Transport and Access

18.6.84 Traffic-related effects that could influence safety, access to services and wellbeing are managed through embedded design and controls. Key measures include:

- Defined construction access routes, use of internal haul roads and minimisation of vehicle movements through local communities.
- Delivery scheduling, abnormal load management and workforce travel controls under the **Outline Construction Traffic Management Plan (OCTMP) [EN0110014/APP/7.6].**
- Wider environmental controls delivered through the **OCEMP [EN0110014/APP/7.1].**

## Air Quality

18.6.85 Measures are implemented to reduce dust and emissions that could affect respiratory health and outdoor activity. Key measures include:

- Dust and emission controls for construction activities and non-road mobile machinery, secured via the **OCEMP [EN0110014/APP/7.1].**
- Promotion of sustainable worker travel through the Framework Construction Worker Travel Plan within the **OCTMP [EN0110014/APP/7.6].**

## Socio-Economics

18.6.86 Construction-phase mitigation also seeks to enhance positive health determinants through employment and skills development. Key measures include:

- Local employment opportunities, apprenticeships, training and supply chain engagement. Secured through the **Outline Employment, Skills and Supply Chain Strategy [EN0110014/APP/7.10].**

## Soils and Agricultural Land

18.6.87 Controls are applied to maintain soil quality and agricultural productivity, supporting food systems and rural livelihoods. Key measures include:

- Timing, trafficking and reinstatement measures to reduce soil compaction and disturbance. Secured through the **Outline Soil Resource Management Plan (OSRMP) [EN0110014/APP/7.9].**

## Ground Conditions

18.6.88 Construction-phase risks associated with ground conditions are managed to protect worker health and the surrounding environment. Key measures include:

- Layout optimisation of the scheme to avoid sensitive features or receptors, as far as practicable, such as historical landfill sites and other identified sources of potential contamination or potential land instability hazards (detailed design informed by ground investigation).
- Ground investigations, UXO risk mitigation, foundation risk assessments and adherence to statutory health and safety requirements. Secured through construction controls set out in O**utline Construction Environmental Management Plan (OCEMP) [EN0110014/APP/6.3.7.1].**

### Operation and Maintenance

18.6.89 During operation and maintenance, mitigation focuses on maintaining stable environmental conditions and minimising ongoing disturbance to nearby communities. Key measures include:

- Continued implementation of climate resilience and environmental controls through the **Outline Operational Environmental Management Plan (OOEMP) [EN0110014/APP/7.2].**
- Long-term air quality and wellbeing benefits delivered through woodland, hedgerow and habitat management secured by the **Landscape and Ecological Management Plan (LEMP) [EN0110014/APP/7.4].**
- Management of limited operational traffic through the **Outline Operational Traffic Management Plan (OOTMP) [EN0110014/APP/7.7].**
- The **Outline Public Rights of Way and Permissive Paths Management Plan [EN0110014/APP/7.8]** provides a framework for the management of routes throughout the Scheme. The key objective is to seek to ensure that Public Rights of Way (PRoW), promoted walking routes and permissive paths remain open and safe to use throughout the Scheme's construction, operational and decommissioning phases, where practicable.
- Ongoing community engagement, education and skills initiatives delivered through the **Employment, Skills and Supply Chain Strategy [EN0110014/APP/7.10].**

- Potential EMF effects are avoided through design compliance rather than operational mitigation measures. The Scheme will be designed so that the maximum levels of electromagnetic radiation during construction, operation and maintenance and decommissioning phases will be below ICNIRP reference levels, see **ES Chapter 17 Electromagnetic Fields [EM0110014/APP/6.1.17]**.
    - For overhead lines, a setback distance of at least 15m from the existing 400kV overhead cables is to be maintained to protect human health receptors.
    - For 132kV and 400kV underground cables, electric fields are fully contained within the cable insulation and sheath, so no setback distance is required.
    - All proposed cables will be 'UKCA' and/or 'CE' marked with electrical fields further shielded by the cable duct and surrounding soil.

18.6.90 The **Design Approach Document [EN0110014/APP/7.17]** sets out project-level design principles that guide design decisions throughout the Scheme's lifecycle, informed by early consultation with stakeholders and ongoing engagement. A number of principles set out here respond to the landscape character to retain and enhance existing vegetation, strengthen green infrastructure and habitat connectivity, protect water quality, minimise light spill, and carefully site infrastructure to reduce impacts on residential amenity, heritage assets and PRoW. This supports access to nature and recreational routes such as the Boudicca Way. Minimum offsets and buffers from sensitive receptors, watercourses, woodland and heritage assets are defined within the document and applied across the Scheme to avoid or reduce visual, landscape and amenity effects, ensuring integration of the Scheme within its rural setting and contributing to long-term environmental quality and wellbeing.

### Decommissioning

18.6.91 Decommissioning mitigation will follow construction phase principles, adapted to reflect future conditions and best practice at the time. Key measures include:

- Management of transport movements, dust, noise, soil disturbance and water quality through the **Outline Decommissioning Environmental Management Plan (ODEMP) [EN0110014/APP/7.3].**
- Application of resilience based and lower carbon approaches, set out in the **Outline DEMP [EN0110014/APP/7.3].**
- Retention of flexibility to reflect future technological, regulatory and environmental change while maintaining protection of human health.

## Summary of Likely Human Health Effects

18.6.92 This section of the Human Health Summary Statement provides an overview of potential human health impacts arising during the Construction, Operation and Maintenance, and Decommissioning Phases of the Scheme.

18.6.93 Taking into account the embedded mitigation measures as summarised above and presented in detail within each relevant technical chapter of the ES, the potential for the likely effects of the Scheme relevant to human health are presented below.

18.6.94 Any additional mitigation required to reduce these effects is then set out. Thereafter, a summary of residual effects is provided relevant to human health once all mitigation measures have been accounted for.

## Climate Change

18.6.95 Within **ES: Chapter 6 Climate Change [EN011014/APP/6.1.6]** climate change is assessed in terms of both GHG emissions and climate resilience, Relevant pathways that can potentially affect human health include exposure of the construction and maintenance workforce to extreme weather such as heatwaves, high winds, heavy rainfall and wildfire smoke, as well as flood related safety risks, reduced thermal comfort, and stress. Indirect pathways are also relevant, where the Scheme's contribution to decarbonisation supports wider population health through reduced climate related risks over the long term. The CCRA has considered the measures which are integrated into the Scheme design. These measures are considered adequate to address the projected climate change impacts to which the Scheme would be exposed.

18.6.96 The Scheme's design and embedded mitigation measures are considered to effectively address climate change risks. No significant adverse climate change risks during the construction, operation and maintenance, or decommissioning phases have been identified.

### Construction

18.6.97 During the construction, operation and maintenance, and decommissioning phases of the Scheme, GHG emissions will be generated by products, transport, energy, and fuel-use used by the Scheme.

18.6.98 During construction, GHG emissions will arise primarily from the embodied carbon in materials such as photovoltaic (PV) panels and batteries. These emissions are assessed as having a minor adverse residual effect on global climate, as all GHG emissions contribute to climate risk; however, the impact is not significant in EIA terms.

18.6.99 The Scheme and associated workforce may be exposed to climate-related risks such as stronger winds, heatwaves, heavy precipitation, and increased wildfire potential. These effects are considered minor adverse and not significant, with appropriate mitigation measures in place.

### Operation and Maintenance

18.6.100 The Scheme is anticipated to generate GHG emissions primarily from the embodied carbon in materials requiring replacement during its operational life, notably batteries and PV panels. These emissions will be offset when compared to a future baseline without the Scheme, where electricity would otherwise be produced using more carbon-intensive generation methods. Furthermore, the Scheme will support the wider transition to low-emission technologies beyond traditional electricity uses. Overall, the Scheme is assessed as having a beneficial and significant effect on global climate. The operational workforce for the Scheme will be small, however personnel undertaking routine inspections and maintenance activities may be exposed to climate-related risks such as high-winds, heatwaves or heavy rainfall. It is anticipated that these risks will be managed through established health and safety procedures and as such are considered to be minor adverse and not significant.

### Decommissioning

18.6.101 The Scheme has an estimated operational lifespan of 60 years, and future effects remain uncertain. GHG emissions during decommissioning are expected to be lower than during construction, as no new products will need to be manufactured and technological advancements are likely. Based on this reduced emissions profile and compliance with policy and best practice at the time, decommissioning is assessed as having a minor adverse effect on climate, which is not significant in EIA terms.

18.6.102 Although decommissioning activities may require a slightly larger workforce compared to the operational phase, numbers will remain limited and temporary. Workers may be exposed to climate-related risks similar to those during construction and operational phases, including stronger winds, high temperatures, and heavy rainfall. With adherence to contemporary health and safety measures, relevant regulations, and decommissioning-specific safety protocols, these effects are judged to be minor adverse and not significant.

### Summary

18.6.103 Taking account of the embedded climate resilience measures and the assessed greenhouse gas profile across construction, operation and decommissioning, including the minor adverse GHG emissions associated with construction and decommissioning phases, no significant climate change related risks to human health are predicted.

18.6.104 Construction, operation and maintenance and decommissioning present minor adverse, not significant effects for the workforce due to weather related hazards, which will be managed through the **Outline CEMP [EN011014/APP/7.1]**, established health and safety regulations and site controls.

18.6.105 During operation and maintenance, the Scheme's beneficial and significant effect on global climate is expected to support long term public health at a population level, although local health changes attributable to this Scheme are not expected to be measurable. Overall, the Scheme is not considered likely to give rise to adverse human health effects linked to climate change.

## Water Environment

18.6.106 This section considers potential effects on the water environment, including surface water, groundwater, and water supplies, and how these pathways may influence human health. Key risks to human health include contamination of watercourses or aquifers, changes in water quality, and impacts on water availability during construction, operation, and decommissioning. These factors can affect drinking water safety, sanitation, and exposure to pollutants, which are relevant to both site workers and nearby communities.

### Construction and Decommissioning

18.6.107 **ES: Chapter 9 Water Environment [EN0110014/APP/6.1.9]** concludes that potential impacts to watercourses, groundwater, and water supplies during construction and decommissioning include spills, sediment or pollutant mobilisation, contamination from battery handling, changes to surface water runoff patterns, and minor thermal effects from cables.

18.6.108 These impacts are assessed as negligible to low magnitude, resulting in minor, not significant effects when embedded mitigation is applied. Increased water demand during these phases could affect public and private supplies, particularly in summer or drought conditions, but this is considered to result in minor and not significant effects**.**

### Operation and Maintenance

18.6.109 During operation, similar risks apply, including contamination from surface water runoff, battery and solar PV replacement, and firewater in the unlikely event of a fire at Project Substations or the BESS. Thermal effects from cables are also considered negligible. A significant beneficial effect identified relates to the reduction in agricultural chemical and fertiliser application, which could alter nutrient loading in watercourses. All other operational impacts are negligible to minor and not significant.

### Summary

18.6.110 With embedded mitigation measures in place, the Scheme is not expected to result in significant adverse effect on water quality or supply. A significant beneficial effect identified relates to the reduction in agricultural chemical and fertiliser application. Therefore, it is expected that Scheme is not likely to give rise to adverse human health effects linked to water quality.

## Landscape and Visual

18.6.111 Landscape character and visual amenity are recognised determinants of health, influencing mental wellbeing, sense of place, and opportunities for recreation and connection to nature. Changes to landscape and views can affect people's experiences of their surroundings, particularly for nearby residential receptors as well as PRoW and recreational route users

### Construction

18.6.112 **ES: Chapter 7 Landscape and Visual [EN0110014/APP/6.1.7** concludes that construction effects are short-term and reversible, and occur as a result of increased activity, vehicle movements, temporary compounds, hedgerow loss, trenching, and temporary PRoW closures. Significant adverse effects are predicted for several LCAs and sites, notably LCA B1 Tas Tributary Farmland, LCA E2 Great Moulton Plateau Farmland, and the landscape character and features of the Battery Energy Storage System (BESS) Site, Site 1, and Site 7 due to Major disturbance. Moderate significant effects occur at Site 8 and others, with Minor or Negligible effects elsewhere. Visual receptors located within close proximity to construction activities experience significant adverse with effects diminishing with distance as a result of intervening layers of vegetation providing screening.

18.6.113 Whilst the Scheme has applied the mitigation hierarchy firstly avoiding effects through excluding development from part of the Order Limits, and maximising distance of the development from receptors with consideration of the project level design principles, there are instances where receptors results in the potential for short term and reversible effects during the construction phase. Mitigation measures have therefore been applied to reduce the potential scale of those effects.

18.6.114 The **Outline LEMP [EN011001/APP/7.4]** sets out mitigations such as landscape planting, however this planting will not provide visual screening until the operational phase. **The Outline CEMP [EN0110014APP/7.**1] defines a series of measures to be adhered to during construction which aid to mitigate potential effects of the Scheme, such as retention and protection of landscape features, and installation of temporary hoarding to reduce visibility of construction.

### Operation and Maintenance

18.6.115 **ES: Chapter 7 Landscape and Visual [EN0110014/APP/6.1.7]** reports that the operational phase introduces long-term changes as a result of the transition from an agricultural to energy production landscape, with direct loss of features and increased influences from infrastructure. Solar panels alter land cover and affect perceptions of remoteness and tranquillity. Landscape planting begins but provides limited screening in Year 1. Significant adverse landscape effects persist to the landscape character and features of BESS Site, Site 1, and Site 8, with moderate significant effects at LCA's B1 Tas Tributary Farmland, C2 Thurlton Tributary Farmland with Parkland and E2 Great Moulton Plateau Farmland and to the character and features of all Sites excluding Site 6 and the Cable Route Corridor Sites. Cable route areas largely restore with negligible residual effects. Visual effects generally lessen compared to construction but remain significant near the Order Limits, especially for residential and recreational receptors.

18.6.116 Although the landscape mitigation would not yet be established in Year 1, there would be some beneficial effects resulting from the transition from arable farmland to species-rich grassland, as well as from the provision of enhanced accessible community spaces and new permissive paths.

18.6.117 By Year 15, mitigation planting matures, reducing effects and enhancing integration. Most landscape receptors experience decreased effects, often minor or not significant. However, Site 1 continues to have major and significant adverse effects due to infrastructure scale, with the LCA's B1 Tas Tributary Farmland, LCA E2 Great Moulton Plateau Farmland, the BESS Site, Site 7, and Site 8 maintain moderate and significant effects. Other LCAs and character and features of the other Sites reduce effects to minor or negligible. The cable route corridor Sites experience no change. Overall, the visual effects assessed for Year 1 are predicted to diminish by Year 15 as the landscape mitigation establishes and provides filtering and screening benefits. Visual effects diminish but remain significant at some locations, particularly near major infrastructure at the BESS Site, Site 1, Site 3, Site 4, Site 5, Site 7, Site 8, and Site 9.

18.6.118 At year 15, the proposed landscape mitigation would help to integrate the development into its setting and reducing the visibility of the Scheme. The mitigation would also deliver beneficial effects, including enhancement of landscape character through the reinforcement of woodland belts and hedgerows, which positively respond to improving habitat connectivity and supporting biodiversity gain.

### Decommissioning

18.6.119 A similar scale of activities to that of the construction stage is expected to occur, but generally in reverse with the removal of the Scheme elements.

The National Grid Substation and the Grid Connections Scheme elements will remain in situ along with the established landscape mitigation planting (woodland, trees, and hedgerows) which will continue to provide screening benefits.

18.6.120 Effects increase compared to Operation Year 15 due to higher activity but are short-term and reversible. Site 1 is predicted to have major and significant effects; Site 8 has moderate magnitude but major significance. Other LCAs and sites experience moderate or slight magnitudes with varying significance. Some recreational routes and LCAs experience negligible and not significant effect.

18.6.121 These effects are controlled through the **Outline DEMP [EN011014/APP/7.3]** and are generally of a lower magnitude than those experienced during construction. Most areas would be reinstated to agricultural use, with retained landscape and ecological features contributing to the recovery of character and views. While significant effects may re-occur temporarily at a small number of Sites, including Site 1 and the BESS Site, these effects are time-limited and reduce following reinstatement.

### Summary

18.6.122 Overall, while the Scheme is predicted to result in adverse landscape and visual effects during the construction phase, these effects are primarily short-term and reversible, and therefore limited in their potential to affect long-term human health outcomes.

18.6.123 During operation, the establishment and maturation of landscape mitigation reduces effects on landscape character and visual amenity for most receptors, supporting a gradual improvement in environmental quality and wellbeing. By the longer term, significant residual landscape and visual effects are confined to a limited number of locations where large-scale infrastructure is present, with most communities, PRoW users and recreational receptors experiencing minor or negligible effects.

18.6.124 The significant landscape effects identified for Year 1 primarily arise from the change in land use and the associated influence resulting from the introduction of solar PV arrays, pylons and substations within a predominantly rural and agricultural landscape. The Scheme also affects the recreational value, experiential qualities and perceived tranquillity of the landscape. Although the landscape mitigation would not yet be established in Year 1, there would be some beneficial effects resulting from the transition from arable farmland to species rich grassland, as well as from the provision of enhanced accessible community spaces and new permissive paths. By Year 15, mitigation planting matures, reducing effects and enhancing integration. Most landscape receptors experience decreased effects, often minor or not significant. Decommissioning effects are temporary and controlled through reinstatement measures, further

limiting potential effects on health. Overall, the landscape and visual effects of the Scheme are not anticipated to result in significant adverse long-term effects on human health.

## Transport and Access

18.6.125 **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11]** provides an assessment of potential effects arising during the construction and decommissioning of the Scheme on transport and access receptors.

18.6.126 Transport and access effects are relevant to human health as they can influence community connectivity, access to services, opportunities for walking and cycling, perceptions of safety, and exposure to traffic-related risks such as collisions, delay-related stress, fear and intimidation, and disruption to daily activities. Changes to traffic conditions, particularly on rural roads, may affect physical activity levels, mental wellbeing and safety for residents, pedestrians and cyclists. The Transport and Access assessment therefore contributes to understanding potential indirect effects on health and wellbeing during the construction and decommissioning phases.

### Construction

18.6.127 During construction **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11]** assesses the impact of construction activities on the severance of communities, non-motorised user (NMU) delay, NMU amenity, fear and intimidation on and by road users, road vehicle driver and passenger delay, road safety, hazardous and large loads, and effects on Public Right of Way (PRoW) and recreation routes.

18.6.128 A total of 84 PRoW are located within the Order Limits. The Boudicca Way recreational route will be affected at three key intersections during construction as outlined in the **Outline Public Rights of Way and Permissive Paths Management Plan [EN0110014/APP/7.8]**. No PRoW are expected to require long-term closure. Where restrictions are necessary, these will be short-term, ranging from less than a day to a few weeks, or medium-term where required for a month or longer. On-site access routes will, where practicable, follow existing agricultural track alignments to minimise additional severance, unfamiliarity or land-take, as outlined in **ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.11].**

18.6.129 Temporary restrictions to PRoW, diversions and changes to the walking environment may result in differential effects for groups with protected characteristics. Older people and disabled individuals may be more sensitive to changes to familiar routes where diversions involve longer distances, steeper gradients, uneven surfaces or reduced legibility, which could discourage use or reduce independence. This is particularly relevant

given that people aged over 65 make up a higher proportion of the study area population compared with regional and national averages. Impacts on green space access and recreational routes, including the Boudicca Way, may also affect all age groups who use these routes for exercise and wellbeing.

18.6.130 Construction traffic will access the Scheme via three principal arterial routes A140, B1332 and B1527, with remaining access using narrower rural roads with intermittent markings, varying widths, limited passing opportunities, adjacent hedgerows and variable visibility. Increased traffic flows, particularly from Heavy Goods Vehicles accessing compounds and moving along local rural roads, may affect pedestrian experience and perceived safety. Individuals may be more sensitive to actual or perceived risks on shared-use rural roads with limited footway provision, where vehicle presence, engine noise or reduced sightlines could increase anxiety, fear or intimidation.

18.6.131 Groups that may experience differential impacts include school children and parents during school travel, people requiring regular access to healthcare facilities including older people, children and pregnant people, and disabled people requiring hospital appointments or home care support. Temporary changes to access could also affect community facilities such as primary schools, GP surgeries, places of worship and community halls, which are frequently accessed on foot and used by people with protected characteristics. Where community groups or activities are temporarily disrupted, effects on social cohesion may be more keenly felt by people who live alone, older residents or those in smaller rural communities.

## Severance of Communities

18.6.132 Baseline traffic flows on the assessed rural links are very low. Although construction traffic results in relatively high percentage increases on some links, absolute vehicle numbers remain small. As a result, effects on community severance are assessed as negligible to low and not significant within **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11].** Temporary restrictions to PRoW and diversions are managed to maintain connectivity and access to services, with no long-term severance anticipated.

### NMU Delay

18.6.133 Pedestrian and cyclist activity along affected routes is generally low, although several PRoW intersect construction routes. Temporary delays may occur due to construction traffic; however, these will be managed through the **Outline Public Rights of Way and Permissive Paths Management Plan [EN0110014/APP/7.8],** including clear signage, provision of safe alternative routes, and advance communication. With

these measures in place, the magnitude of impact is negligible and effects are not significant.

### NMU Amenity

18.6.134 Although traffic increases on some links approach indicative thresholds, the staggered construction programme and low baseline NMU usage mean significant changes in amenity are unlikely. The magnitude of impact on NMU amenity is considered low, with effects assessed as low and not significant within **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11]**

### Fear and Intimidation on and by Road Users

18.6.135 Traffic volumes, HGV movements and vehicle speeds remain low across assessed links, and construction activity is temporary. While baseline levels of fear and intimidation vary, particularly on narrow rural roads, the change during construction is considered negligible. Embedded mitigation including use of traffic marshals, community engagement and signage reduces conflict between vehicles and pedestrians. Accordingly, effects on fear and intimidation for non-motorised users are not significant within **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11]**

### Road Vehicle Driver and Passenger Delay

18.6.136 The majority of construction trips will be undertaken outside peak network hours and managed through timing restrictions in the **Outline CTMP [EN0110014/APP/7.6]**. Construction hours are restricted, and delivery scheduling seeks to avoid peak periods where practicable. Average HGV arrivals are anticipated to be 44 per day, with a peak of 69, alongside controlled workforce transport arrangements and on-site parking within the Order Limits. Although occasional delays may occur on narrow rural roads, these are temporary. The effect is not significant due to its short- to medium-term nature, within **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11]**

### Road Safety

18.6.137 Collision data indicates no existing highway safety concerns on the assessed links. Construction traffic will be managed through embedded mitigation measures in the **Outline CTMP [EN0110014/APP/7.6].** Taking account of the temporary nature of construction traffic and low traffic volumes, the magnitude of effect on road safety is low, which results in a not significant effect, within **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11]**

### Hazardous and Large Loads

18.6.138 Abnormal Indivisible Loads will be required during construction to transport specialist equipment and will be managed by specialist contractors using agreed routes, scheduled movements and appropriate traffic management. These measures will be secured through the **Outline CTMP [EN0110014/APP/7.6]** and a final CTMP. With mitigation in place, the effects are minor and not significant. No hazardous load movements are forecast during construction, operation and maintenance, or decommissioning.

### Decommissioning

18.6.139 The decommissioning phase is not anticipated to exceed the number of vehicles forecast during the construction phase, and it is expected that the period will be similar in duration. This is as the decommissioning phase will include similar activities to the construction phase, but in reverse. The National Grid Substation and the Grid Connection Infrastructure would remain in situ further reducing the activities during decommissioning. As such, similar impacts are anticipated subject to changes in technology and construction techniques. The decommissioning is detailed further in the **Outline DEMP [EN0110014/APP/7.3]**.

18.6.140 It is considered that the effects of the Scheme during the decommissioning phase will be no worse than the construction phase and none of the links identified have significant adverse effects on the road network with respects to: severance of communities; NMU delay; NMU amenity; fear and intimidation on and by road users; road vehicle driver and passenger delay; road user and pedestrian safety; and hazardous and large loads. The effect on all these categories is therefore not significant, within **ES: Chapter 11 Transport and Access [EN011014/APP/6.1.11]**

### Summary

18.6.141 Taking account of the low baseline traffic conditions, the temporary nature of construction and decommissioning activities, and the embedded mitigation measures secured through the **Outline CTMP [EN0110014/APP/7.6], Outline PRoW and Permissive Paths Management Plan [EN110014/APP/7.8]** and **Outline DEMP [EN011014/APP/7.3]**, transport and access effects are not anticipated to give rise to significant adverse effects on human health.

18.6.142 As part of the Scheme, three new permissive pedestrian paths are proposed to maintain and enhance public access alongside the existing PRoW network. These routes will remain open year-round for the full 60-year operational life of the Scheme.

18.6.143 Within Sub-Site 7F, a permissive path will utilise an existing informal track through retained green space, linking Saxlingham Nethergate FP27 and FP9, thereby maintaining local walking opportunities.

18.6.144 In Sub-Site 8B, a new path will connect Market Lane to Shotesham FP22, improving access from Shotesham FP19 and reducing reliance on the full length of Market Lane, which currently has limited pedestrian provision.

18.6.145 A further path in Sub-Site 10B will run parallel to Seething Road, providing a continuous link between Hedenham RB9, Seething RB13 and Wash Lane.

18.6.146 All permissive paths will include pedestrian-only routes with appropriate access features such as fencing, gates, signage, interpretation boards, and associated landscaping and biodiversity enhancements. The Scheme will also deliver community accessible space.

18.6.147 The design and implementation of the permissive paths is set out in the **Outline Public Rights of Way and Permissive Paths Management Plan [EN0110014/APP/7.8]** and **Outline LEMP [EN0110014/APP/7.4]**.

18.6.148 Accessibility to communities and services, opportunities for active travel, perceptions of safety, and road safety outcomes are expected to be maintained at levels that do not materially affect physical or mental wellbeing. Overall, the Scheme is not anticipated to result in significant transport-related human health effects.

## Air Quality

18.6.149 This section considers potential air quality impacts arising from the Scheme and the pathways through which these may affect human health. Key risks include exposure to dust and fine particulate matter during earthworks and construction, as well as emissions from construction traffic and non-road mobile machinery **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13].**

18.6.150 Vulnerable groups such as older people, young children, disabled people and those who are pregnant may be more sensitive to airborne pollutants, including those with asthma, respiratory illness or underlying health conditions that heighten susceptibility. Low levels of dust can contribute to discomfort, increased fatigue or reluctance to spend time outdoors in gardens, in nature and on PRoW near the Scheme. The presence of dust in the atmosphere can also affect sleep patterns and may aggravate respiratory conditions, visual impairments and neurological sensitivities for some individuals.

18.6.151 Properties and villages located closer to the Order Limits, haul routes and construction access points may experience greater exposure. In rural areas, where residents commonly use private gardens and local paths for

recreation and exercise, changes in air quality could lead some people to avoid certain routes, restrict time spent outdoors or change their schedules. Fire scenarios associated with the BESS present a very low likelihood of smoke exposure, which could affect sensitive receptors; siting and emergency measures are designed to minimise this risk.

### Construction and Decommissioning

18.6.152 The assessment of air quality impacts presented in **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13]** identifies that during construction and decommissioning phases, human receptors with high sensitivity may experience slight increases in nitrogen dioxide $(NO)_2$, and particulate matter ($PM_{10}$, and $PM_{2.5}$) concentrations from road traffic emissions and dust generation. These changes are predicted to be of negligible magnitude at residential receptors and not significant in EIA terms.

18.6.153 Management measures secured through the **Outline CEMP [EN0110014/APP/7.1]** will control dust and trackout to reduce potential effects on small children and people with respiratory or other health conditions. Measures include water-based dust suppression, wheel washing systems, surfaced site access where practicable, routine housekeeping and a prohibition on burning of waste. The Framework Construction Worker Travel Plan in the **Outline CTMP [EN0110014/APP/7.6]** promotes sustainable travel for workers, including staff minibuses, a Travel Plan coordinator, cycle parking and encouragement of electric vehicle use where practicable, which together reduce emissions from workforce transport.

18.6.154 Three internal haul routes have been incorporated to connect Sub-Site groups 7A to 7F, 7G to 7L and 8A to 8B and to minimise the use of public roads for materials and equipment movements, thereby reducing off-site vehicle trips and related emissions **(ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.11])**. Construction deliveries will be coordinated to avoid peak morning and late afternoon hours where practicable, which further reduces the likelihood of concentrated emissions on local links as reported in the **Outline CTMP [EN0110014/APP/7.6].**

18.6.155 In the very unlikely event of a BESS fire, the BESS compound will be a minimum of 200 metres from the nearest residential receptor as outlined in the **Outline BSMP [EN0110014/APP/7.5]**. Taking account of the above, construction and decommissioning air quality effects on human health remain not significant.

### Operation and Maintenance

18.6.156 There is no centralised combustion-based energy generation, operational traffic is expected to be minimal and operational emissions were scoped out of detailed assessment in **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13].** As such, effects resulting from operational road

traffic emissions are not considered to be likely to be or significant in EIA terms, and have been scoped out of the ES

### Summary

18.6.157 During construction and decommissioning, receptors may experience temporary, localised increases in nitrogen dioxide, $PM_{10}$ and $PM_{2.5}$ from vehicle emissions and dust generation. Certain groups such as older people, young children, disabled people and those who are pregnant may be more sensitive to these changes, particularly near haul routes and access points. With embedded mitigation in the **Outline CEMP [EN0110014/APP/7.1], Outline CTMP [EN0110014/APP/7.6]** and internal haul route strategy, and with emergency provisions for the very low likelihood of a BESS fire outlined in the **Outline BSMP [EN0110014/APP/7.5],** effects are of negligible magnitude and not significant in EIA terms. Overall, given the above the Scheme is not expected to result in significant, long-term air quality effects on human health.

## Noise and Vibration

18.6.158 The WHO outlines that excessive noise can cause annoyance; in addition, research shows it increases the risk for ischaemic heart disease (IHD) and hypertension, sleep disturbance, hearing impairment, tinnitus and cognitive impairment, with increasing evidence for other health impacts such as adverse birth outcomes and mental health problems.

18.6.159 Noise may be differentially experienced by certain individuals, particularly those more vulnerable to heightened noise and vibrations such as older people, disabled people, children, and those with sensory impairments. The presence of community-facing receptors near construction areas means there could be temporary disturbance for these Protected Characteristic Group's at these locations. The **ES: Chapter 12 Noise and Vibration [EN011001/APP/6.1.12]** sets out how early communication with surrounding off-site receptors would assist with reducing potential for and in managing any complaints arising during the construction works associated with the Scheme.

18.6.160 Noise impacts have the potential to affect pregnant people, who require more sleep and could be experiencing health conditions related to pregnancy. Noise is also disruptive for babies and young children who require sleep and sleep at regular intervals during the day. Noise impacts have the potential to be severe for cognitive development in small children.

### Construction

18.6.161 Certain construction activities such as horizontal directional drilling (HDD) works have been treated as the highest impact trenchless installation

method due to elevated noise levels and the potential need to carry out during night-time hours. The **ES: Chapter 12 Noise and Vibration [EN011001/APP/6.1.12]** sets out how HDD will take place over 1-2 days within one drilling location and therefore, temporary accommodation or noise insulation measures are not required to be offered to the residents due to the short-term nature of the works.

18.6.162 Construction noise and vibration will be managed via the **Outline CEMP [EN011001/APP/7.1],** to reduce noise impacts potentially on those more vulnerable to noise and heightened vibrations. Embedded mitigations, as also per the **ES: Chapter 12 Noise and Vibration [EN011001/APP/6.1.12],** include: 'silenced' plant and equipment; switched off engines for standing vehicles; acoustic enclosures to suppress noisy equipment; low speed plant operations and automatic low speed idling; using electrically-driven, hydraulic powered plants, and wheeled vehicles where praticable; maintained equipment for optimum performance; temporary screening or enclosures for static noisy plants where necessary and appropriate; plants meeting standards; and awareness training for contractors.

18.6.163 The Scheme layout has been designed to maximise the distance between key noise-generating activities and noise sensitive receptors and will include: localised screenings of plants; acoustic fences; cooling fans orientation; silencers; and operating hours set to reduce noise during night time hours.

18.6.164 Noise and Vibration residual impacts have been assessed as non-significant within the **ES: Chapter 12 Noise and Vibration [EN011001/APP/6.1.12]**. No significant adverse construction effects have been identified by the those more vulnerable to noise and heightened vibrations. Embedded mitigations are also per the **ES: Chapter 12 Noise and Vibration [EN011001/APP/6.1.12].**

### Operation and Maintenance

18.6.165 During the operational phase, noise effects arise primarily from fixed electrical plant associated with the Scheme, including solar inverters, BESS containers and inverters, and the 132 kV, 400 kV and National Grid substation. Operational noise has been assessed on a worst-case basis, assuming continuous operation of plant and conservative operating hours, with comparisons made against measured baseline background sound levels and relevant assessment criteria.

18.6.166 For residential receptors, operational noise levels during daytime and night-time periods are generally predicted to be below the No Observed Adverse Effect Level (NOAEL), resulting in negligible impacts that are not significant in EIA terms. During early morning periods, limited exceedances of the NOAEL are predicted at a small number of residential receptors, with effects ranging from low to, in a few cases, moderate adverse prior to

mitigation. These exceedances are largely associated with operational noise from the BESS and solar inverters.

18.6.167 Low frequency noise from substations and the BESS has been assessed at worst-affected residential and educational receptors. Predicted levels are below the relevant assessment criteria, and low frequency noise does not alter the conclusions on significance.

18.6.168 At non-residential receptors, including schools, nurseries, offices and places of worship, predicted internal noise levels are low and below relevant benchmarks, resulting in negligible impacts that are not significant.

18.6.169 Operational noise effects on PRoWs are also predicted to be negligible, reflecting low sound levels along routes primarily used during daytime hours, and are not significant.

18.6.170 Operational noise from solar PV tracking motors has been considered using a representative worst-case scenario. Predicted sound levels at nearby receptors are substantially below background levels and do not contribute materially to overall operational noise. Effects from tracking motors are therefore assessed as negligible and not significant.

18.6.171 Operational traffic noise and vibration associated with routine maintenance activities have been scoped out due to the low frequency and limited nature of vehicle movements, which are not expected to result in perceptible or significant effects.

18.6.172 Overall, with embedded and additional mitigation in place, operational noise and vibration effects of the Scheme are assessed as negligible to low, with no significant residual effects identified in EIA terms.

### Decommissioning

18.6.173 The Scheme is anticipated to be decommissioned after an operational period of approximately 60 years. Noise and vibration effects during decommissioning are expected to be similar to, and no greater than, those experienced during construction, with cable infrastructure remaining in situ and reducing the extent of activity required. No piling is anticipated during this phase and therefore no notable vibration effects are predicted. The construction phase assessment is considered a suitable and conservative proxy for decommissioning impacts and, on this basis, a separate noise and vibration assessment has not been undertaken.

18.6.174 Noise and vibration effects during decommissioning are therefore anticipated to be not significant in EIA terms.

### Summary

18.6.175 Noise and vibration have the potential to affect human health, particularly among more vulnerable groups including older people, disabled people, children, pregnant people and those with sensory impairments. The assessment has considered these sensitivities across the construction, operation and decommissioning phases of the Scheme.

18.6.176 During construction, temporary noise and vibration effects may arise locally, including from higher-impact activities such as horizontal directional drilling; however, these effects are short-term, managed through the **Outline CEMP [EN0110014/APP/7.1]** and extensive embedded mitigation, and are not expected to result in significant adverse effects on vulnerable population groups.

18.6.177 During operation, noise from solar inverters, during early morning periods, predicted noise levels could result in the NOAEL and LOAEL being exceeded, which could result in significant adverse effects. All other effects are not significant with embedded mitigation.

18.6.178 Decommissioning noise and vibration effects are expected to be similar to or less than construction and are not anticipated to give rise to significant effects.

18.6.179 Overall, with embedded mitigation in place, the construction and decommissioning phases of Scheme are not expected to give rise to significant noise or vibration effects on human health or result in disproportionate impacts on vulnerable groups. Further mitigation measures in relation to operational effects are identified below.

## Socio-Economics

18.6.180 This section considers how socio-economic changes associated with the Scheme may influence human health. Employment, skills development, income stability, and access to economic opportunities are recognised determinants of health, with positive socio-economic conditions contributing to improved wellbeing, reduced health inequalities, and strengthened community resilience. The pathways of relevance include job creation, training opportunities for local residents, and longer-term economic activity stimulated by the Scheme, each of which can affect health and wellbeing outcomes.

## Construction

### Employment

18.6.181 **ES: Chapter 14 Socio-Economics [EN011014/APP/6.1.14]** assessed that the Scheme is anticipated to support employment of 1,044 net

additional direct and indirect (supply chain) jobs during construction. Of those, 29 are anticipated to be for people living in South Norfolk, 116 across the remainder of Norfolk, 261 in the rest of the East of England and 638 elsewhere, see **Table 18.25**. For workplace-based employment (i.e., based on where the jobs are located), this effect has been assessed as major beneficial and significant on employment in South Norfolk, a minor beneficial (not significant) effect on workplace-based employment in Norfolk and a minor beneficial (not significant) effect on workplace-based employment in the East of England region.

**Table 18.25: Net Construction Employment Effect of the Scheme (Peak)**

| | Total | South Norfolk | Norfolk | East of England | Rest of England |
|---|---|---|---|---|---|
| **Gross Job Creation** | 720 | 20 | 80 | 180 | 440 |
| **Displacement (50%)** | -360 | -10 | -40 | -90 | -220 |
| **Net Direct Jobs** | 360 | 10 | 40 | 90 | 220 |
| **Indirect and Induced (net x 1.9)** | 684 | 19 | 76 | 171 | 418 |
| **Total net employment (direct and indirect)** | **1,044** | **29** | **116** | **261** | **638** |

18.6.182 The chapter assesses that the construction of the Scheme will have a negligible (not significant) effect on resident-based employment in South Norfolk (i.e., based on where employees live), a negligible (not significant) effect on resident-based employment in Norfolk and a negligible (not significant) effect on resident-based employment in the East of England region.

## Skills and the Labour Market

18.6.183 The construction phase of the Scheme will provide opportunities for upskilling and training. An Engineering, Procurement, and Construction (EPC) contractor who will manage the construction of the Scheme will be appointed by the Applicant. At this stage, no EPC has been procured. However, once they are in place they will be in control of hiring workers, including deciding on the total size of the workforce required, and how many local residents are hired for roles during construction of the Scheme.

18.6.184 **ES: Chapter 14 Socio-Economics [EN0110014/APP/6.1.14]** Table 14.27 outlines a range of job roles and skill requirements that will likely be required during construction of the Scheme. During the construction phase of the Scheme, a substantial number of temporary construction employment opportunities across a range of different occupations will be created. The **Outline Employment, Skills and Supply Chain Strategy [EN0110014/APP/7.10]** sets out the construction related education, skills, training and supply chain opportunities to be provided, including

apprenticeships, local employment, partnerships with schools and colleges, and site visits.

18.6.185 Overall, **ES: Chapter 14 Socio-Economics [EN0110014/APP/6.1.14]** has assessed that the construction of the Scheme will have a Moderate Beneficial (Significant) effect on skills in South Norfolk.

### Operation and Maintenance

18.6.186 The Scheme will create a small number of permanent operational roles, covering maintenance, technical engineering, performance management, landscaping and occasional repair tasks. These roles will be required intermittently rather than being permanently on-site, and are expected to be filled largely by workers from South Norfolk or the wider Norfolk area. The Applicant also intends to support the local economy by working with local suppliers and manufacturers where possible.

18.6.187 A future panel and BESS replacement programme is expected to generate short-term employment, averaging around 129 workers and peaking at up to 240 over a 12 month period. As long-term operational employment remains limited, the overall effect on jobs, employment and supply chains is considered minor beneficial and not significant within **ES: Chapter 14 Socio-Economics [EN0110014/APP/6.1.14].** Although the Applicant will continue to support local education and skills initiatives, the limited scale of operational employment means the impact on skills in South Norfolk is also assessed as negligible, and not significant.

### Decommissioning

18.6.188 The decommissioning phase of the Scheme is not anticipated to commence until at least 2091. In the absence of knowledge about what the socio-economic context will be at that point in time, decommissioning effects of the Scheme are assumed to be the same as those assessed for the construction phase, as stated earlier in this Chapter.

### Summary

18.6.189 The Scheme will generate substantial short-term employment during construction, including over 1,000 net direct and indirect jobs, and provide training and skills opportunities for local residents. These socio-economic benefits can positively influence human health by improving income security, reducing stress, supporting mental wellbeing, and enhancing long-term employability. During operation, only a small number of roles (around 15 FTE) will be sustained, with additional short-term employment during equipment replacement cycles. While operational socio-economic effects are limited, they remain neutral to slightly positive for human health. Decommissioning effects are expected to mirror construction, offering similar short-term health-supportive benefits. Overall, the Scheme's

socio-economic outcomes are considered to be minor beneficial for determinants of human health, with no adverse health effects anticipated.

## Soils and Agricultural Land

18.6.190 This section summarises how potential impacts on agricultural land, soils and agricultural businesses have been considered in relation to human health.

18.6.191 These receptors form an important part of the wider environmental and socio-economic systems that support population well-being, including food quality and security, environmental exposure pathways, and rural economic resilience. The assessment focuses on whether construction, operational and decommissioning activities could give rise to changes in soil function, land quality or agricultural viability that might, in turn, influence human health. It also reflects the embedded mitigation and best-practice soil management measures incorporated into the Scheme, which together ensure that no likely significant health-related effects are anticipated.

### Construction

18.6.192 **ES: Chapter 15 Soils and Agricultural Land [EN011014/APP/6.1.15]** assesses the potential for effects on agricultural land quality and soil disturbance resulting from the construction of the Scheme.

### Agricultural land quality.

18.6.193 The majority of the Scheme will not affect agricultural land quality. Works that involve soil disturbance are limited in scale, temporary and mostly reversible, and therefore of low magnitude.

18.6.194 The likely scenario is that there would be permanent loss of 6.1ha of BMV land for the National Grid Substation and 9.0 ha of MBV land for mitigation planting, the impact of which is of low magnitude on resource of high sensitivity, resulting in a minor adverse effect, which is not significant in EIA terms. A worst-case scenario, accounting for permanent loss of 6.1ha for the National Grid Substation, 9.0ha for mitigation planting, 12.1ha for the BESS and Project Substations, this will rise to a moderate adverse effect, which is significant.

### Soils

18.6.195 The soils are mostly of low sensitivity, with two areas of medium sensitivity. The soils will generally not be disturbed, and disturbance for installation of the solar PV modules, trenching and cable laying will be temporary. Overall, the magnitude of impact is low, on resources of medium and low

sensitivity, resulting in an adverse effect of minor adverse significance, which is not significant in EIA terms.

### Agricultural businesses

18.6.196 **ES: Chapter 15 Soils and Agricultural Land [EN011014/APP/6.1.15]** also assessed potential impacts on agricultural businesses, the assessment concludes that due to the temporary and short-term nature of construction there are only low or negligible adverse impacts on farms of medium or low sensitivity, resulting in negligible adverse effects, which is not significant in EIA terms.

## Operation and Maintenance

### Agricultural Land

18.6.197 **ES: Chapter 15 Soils and Agricultural Land [EN011014/APP/6.1.15]** confirms that there will be no further disturbance to soils during the operational and maintenance phase of the Scheme, therefore the agricultural land quality within the Order Limits will not be affected during this phase. The resulting effect on agricultural land quality is therefore negligible and not significant.

### Soils

18.6.198 Overall, the **ES: Chapter 15 Soils and Agricultural Land [EN011014/APP/6.1.15]** concludes that for the majority of land within the Order Limits, where arable soils will go into long-term grassland land coverage, there will be a significant benefit for soils. This will be a temporary benefit, however, in that the benefits would potentially be reduced or lost if arable farming activities recommence following decommissioning. Overall, therefore, the benefit is therefore considered a temporary impact and of low magnitude resulting in a minor beneficial effect which is not significant.

### Agricultural businesses

18.6.199 **ES: Chapter 15 Soils and Agricultural Land [EN011014/APP/6.1.15]** states that within the Order Limits, nine full-time farm enterprises operate across landholdings of varying size. All affected holdings retain access to the remainder of their farmland throughout the operational phase, meaning no severance effects arise. Impacts are therefore limited to temporary reductions in the amount of land available for farming activities. While this represents an adverse effect, each farm also gains a guaranteed and secure income through diversification, partly offsetting the loss of agricultural land.

18.6.200 Overall, these impacts are assessed as temporary, minor adverse and not significant in EIA terms.

### Wider Food and Economic Effects

18.6.201 The assessment of wider food and economic benefits provided in **ES: Chapter 15 Soils and Agricultural Land [EN011014/APP/6.1.15]** concludes that the effects of the Scheme on agricultural land quality, food production and the wider rural economy are negligible and not significant at local, regional or national levels.

18.6.202 Although Norfolk contains a relatively high proportion of Best and Most Versatile (BMV) land, the area within the Order Limits represents only a very small fraction of county and district agricultural land, resulting in a negligible regional impact.

18.6.203 National evidence indicates that UK food self-sufficiency is stable, productivity improvements are expected to offset future land-use change, and global forecasts show increasing food production over the next decade. Existing agri-environmental schemes already take substantial areas of arable land out of food production, far exceeding the land affected by the Scheme, while government policy anticipates and supports land-use change to meet climate and biodiversity targets without compromising food security.

18.6.204 The limited, mixed economic effects on the rural service sector are also outweighed by much larger ongoing national shifts in land use. Overall, both the economic and food production benefits of BMV land within the Scheme footprint are negligible, resulting in negligible effects in EIA terms.

### Decommissioning

18.6.205 Decommissioning will remove most long-term temporary impacts, with adverse effects on food production ending and soils restored as infrastructure is dismantled. PV modules, framework, cabling, tracks, BESS infrastructure and substations will be removed using methods that minimise soil disturbance, with all soils reinstated under a detailed Soil Resource Management Plan secured through the draft DCO.

18.6.206 Any soil impacts are fully reversible and result in low-magnitude, minor adverse effects, which are not significant in EIA terms. Agricultural Land quality will be restored to a standard suitable for agricultural use, except for the National Grid Substation and Grid Connection Infrastructure, which remain in place.

18.6.207 Farm businesses may experience short-term disruption (1-2 years), but given their low sensitivity and the flexibility of sheep-grazing enterprises, effects are also minor adverse and not significant.

### Summary

18.6.208 Soils and agricultural land perform functions that support food quality, environmental regulation and the wider rural economy. The impacts on soils, agricultural land and agricultural businesses resulting from the Scheme are limited in scale and do not give rise to conditions that would be expected to affect human health.

18.6.209 With the exception of the worst-case assessment of a moderate adverse effect on agricultural land, the construction, operational and maintenance, and decommissioning effects identified in the ES are minor, temporary or reversible and are effectively controlled through established soil management practices and restoration measures.

18.6.210 Agricultural businesses remain viable, with no loss of access or severance, and any reductions in productive land are small in the context of the wider agricultural resource. Wider food production and economic indicators also show no meaningful change at local, regional or national level.

18.6.211 Given the scale of change, the embedded management measures and the temporary nature of the effects, it is considered that there is no credible pathway through which these impacts would result in likely significant effects on human health.

## Ground Conditions

18.6.212 Ground disturbance during all phases have the potential to result in existing ground contamination (if present) being mobilised. This can influence human health through pathways such as direct contact with contaminated soils, ingestion or inhalation of dust, and exposure to contaminated groundwater or ground gases. The Ground Conditions assessment, reported in **ES: Chapter 16 Ground Conditions [EN011014/APP/6.1.16],** has considered whether any pre-existing contamination within the Order Limits could pose risks to human health receptors during construction, operation, or decommissioning, and how embedded mitigation measures manage these risks. A summary of likely significant effects on human health are presented below.

### Construction

18.6.213 A preliminary contamination risk assessment (PRA), carried out in line with Land Contamination Risk Management LCRM and presented in **ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.3.16.1]**, found that most areas within the Order Limits and Study Area present a very low risk to human health during construction. In the few locations where Specific Pollutant Linkages (SPCs) were identified, risks are assessed as Very Low to Low.

18.6.214 With the embedded mitigation measures in place, potential construction phase effects on high-sensitivity human health receptors from disturbing pre-existing contamination are judged to be of very small magnitude, resulting in minor effects near identified SPCs and Negligible effects elsewhere. All effects were identified as temporary and not significant.

### Operation and Maintenance

18.6.215 The PRA completed in line with LCRM and documented in **ES: Appendix 16.1 Phase 1 Ground Conditions Assessment [EN0110014/APP/6.3.16.1]**, concludes that during the operational phase the risk to human health from existing contamination is generally very low across the Order Limits and Study Area. In the few locations where SPCs are present, risks remain assessed as very low.

18.6.216 With embedded mitigation measures applied, the potential operational-phase effects on high-sensitivity human health receptors from disturbing pre-existing contamination are of very small magnitude, resulting in minor, temporary, and not significant effects being identified.

### Decommissioning

18.6.217 Decommissioning activities will be similar in nature but lower in intensity than construction, and the estimated risks (**ES: Chapter 16 Ground Conditions [EN011014/APP/6.1.16]**) are therefore the same as those identified for the Construction Phase. The receptors and their sensitivities will also mirror those present during construction. With embedded mitigation in place, the effects during decommissioning were assessed to be the same as the construction phase effects which are temporary and not significant.

### Summary

18.6.218 Overall, the Ground Conditions assessment concludes that, with embedded mitigation in place, the risk to human health from pre-existing contamination is very low across all phases of the Scheme. Where limited Specific Pollutant Linkages were identified, the resulting effects on high-sensitivity human health receptors are of very small magnitude, leading to Minor or Negligible, temporary, and Not Significant effects during construction, operation and maintenance, and decommissioning being identified within **ES: Chapter 16 Ground Conditions [EN011014/APP/6.1.16]** Therefore, no significant residual effects on human health arising from ground conditions are expected.

## Electromagnetic Fields

18.6.219 Electromagnetic fields (EMFs) generated by both underground and overhead electrical infrastructure have the potential to affect human health

depending on exposure levels. The EMF assessment in **ES: Chapter 17 Electromagnetic Fields [EM0110014/APP/6.1.17]** for the Scheme therefore evaluates predicted electric and magnetic field strengths during operation and maintenance, comparing them against the 1998 International Commission on Non-Ionizing Radiation Protection (ICNIRP) reference limits, and considers how design measures such as cable specification, burial depth, and setback distances manage any potential risks to human health receptors.

### Operation and Maintenance

18.6.220 The Scheme has been assessed against the 1998 ICNIRP reference limits, which set maximum safe exposure levels of 100 µT for magnetic fields and 5 kV/m for electric fields. EMF effects are temporary (lasting only for the Scheme's lifetime) and arise directly from its operation.

18.6.221 For the 400 kV underground cables, magnetic fields at 1 m above ground reach a maximum of 95 µT, remaining below the 100 µT limit, and no external electric fields occur because these are fully contained within the cable insulation and sheath. For the existing and diverted 400 kV overhead lines, magnetic fields measure 81 µT at a 7.6 m clearance, also below the ICNIRP limit. Electric fields at 0 m would be up to 10 kV/m, but due to mandatory 15 m setbacks, human health receptors are exposed to levels below the 5 kV/m reference limit.

18.6.222 Overall, because all EMF levels remain within ICNIRP guidance, the magnitude of impact is considered Low, resulting in Minor and Not Significant effects on human health within **ES: Chapter 17 Electromagnetic Fields [EM0110014/APP/6.1.17]**

### Summary

18.6.223 Overall, the **ES: Chapter 17 Electromagnetic Fields [EM0110014/APP/6.1.17]** assessment concludes that all predicted EMF levels from the Scheme remain below ICNIRP reference limits, with underground cables producing no external electric fields and magnetic fields well within accepted thresholds, and overhead line exposure reduced further by maintaining a minimum 15 m setback from receptors. As a result, it is expected the effects of EMF exposure on human health will be leading to Minor and Not Significant effects across the lifetime of the Scheme

## Additional Mitigation Measures

18.6.224 Across the topics of climate change, air quality, the water environment, landscape and visual, socio-economics, soils and agricultural land, ground conditions, electromagnetic fields, transport and access, no additional mitigation measures have been identified during the construction, operation and maintenance, or decommissioning phases of the Scheme.

## Noise and Vibration

18.6.225 The assessment of operational noise, presented in **ES: Chapter 12 Noise and Vibration [EN0110014/APP/6.1.12],** identifies that noise from solar inverters, during early morning periods, predicted noise levels could result in the NOAEL and LOAEL being exceeded, which could result in significant adverse effects. As such, additional mitigation measures will be necessary to reduce levels below the NOAEL threshold.

18.6.226 Mitigation could include procuring low-noise inverter models, acoustic enclosures, relocation or reorientation of plant, or installation of noise barriers, subject to further detailed design. Mitigation measures outlined are included within the **Outline OEMP [EN0110014/APP/7.2]**. In addition to this, the resultant noise levels at receptors will be required achieve the levels set out within the **Design Principles, Parameters and Commitments [EN0110014/APP/7.18]**.

## Summary of Residual Effects

18.6.227 This section summarises the residual effects of the Scheme on following the adoption of embedded and additional mitigation (if additional mitigation is proposed).

## Noise and Vibration

18.6.228 Significant adverse effects were identified for operational noise as a result of the Scheme, reported in **ES: Chapter 12 Noise and Vibration [EN0110014/APP/6.1.12].** Following the application of additional mitigation measures to control operational noise from solar inverters, the residual operational noise assessment indicates that noise levels at residential receptors are largely reduced to below the NOAEL. During daytime, all assessed residential receptors are predicted to experience noise levels below the NOAEL. As a result, the magnitude of impact during these periods is considered negligible, with effects assessed as long-term, negligible adverse and not significant in EIA terms.

18.6.229 During night-time periods and early morning period, one residential receptor is predicted to experience a rating level up to 2 dB and 1dB above the background sound level respectively, which exceeds the NOAEL but remains below the LOAEL. This exceedance is attributable to operational noise from the BESS. At this receptor, the residual magnitude of impact is assessed as low, giving rise to a long-term, minor adverse effect which is not significant in EIA terms. Overall, with mitigation in place, residual operational noise effects are not significant and do not give rise to unacceptable impacts on residential amenity.

## Other Topics

18.6.230 For all other scoped-in topics relevant to human health, including climate change, water environment, transport and access, air quality, socio-economics, soils and agricultural land, ground conditions and electromagnetic fields, the residual effects remain unchanged from those reported in the Summary of Likely Effects (**Section 18.6, paragraphs 18.6.92 to 18.6.223**). Taking account of the embedded mitigation secured through the Scheme design and associated management plans, no likely significant adverse residual effects on human health have been identified.

## Summary of Cumulative Effects

18.6.231 As set out in **ES Chapter 2: EIA Process and Methodology [EN0110014/APP/6.1.2]**, Cumulative Effects Assessments (CEA) have been undertaken as part of the EIA in accordance with PINS Advice on Cumulative Effects Assessment (September 2024) and has considered two types of cumulative effects. This section presents a summary of in-combination and cumulative effects between the Scheme and other existing and/or approved developments that are relevant to Human Health. These are described below:

- In combination effects: the combined effect generated by individual effects on a particular receptor (presented within **ES: Chapter 19 In-Combination Effects [EN0110014/APP/6.1.19]**; and
- Cumulative effects: effects generated by the Scheme and other planned or approved developments on the same receptor (presented in **ES Chapters 6 to 18**).

## Cumulative Effects

18.6.232 Cumulative effects may arise as a result of effects associated with the Scheme combining with effects associated with other developments. The list of developments has been narrowed down to focus on those developments which are most likely to give rise to cumulative effects. A long-list was generated which was then refined following consultation with relevant local planning authorities, this short-list forms the basis of this assessment.

18.6.233 The shortlist of cumulative developments/allocations can be found in **ES: Appendix 2.4 Cumulative Schemes [EN0110014/APP/6.3.2.4].**

## Climate Change

18.6.234 Cumulative climate change effects are reported in **ES: Chapter 6 Climate Change [EN0110014/APP/6.1.6]**. For greenhouse gas emissions, the

receptor is the global atmosphere. In line with ISEP guidance and established case law, a project-level cumulative greenhouse gas assessment is not undertaken, as climate effects are global in nature and emissions are instead assessed against UK carbon budgets, which are inherently cumulative.

18.6.235 For climate resilience, the receptor is the Scheme itself. As resilience effects are specific to the design and operation of the Scheme, no cumulative climate resilience effects on other receptors are identified.

## Water Environment

18.6.236 A summary of cumulative effects presented in **ES: Chapter 7 Water Environment [EN0110014/APP/6.1.7]** is provided below.

18.6.237 During construction and decommissioning, cumulative developments are expected to implement similar pollution prevention, surface water management and best-practice controls through secured management plans. As a result, cumulative effects on water quality and flood risk are assessed as not significant in EIA terms.

18.6.238 During operation, all cumulative developments are required to implement Flood Risk Assessments and surface water drainage strategies. Cumulative effects are assessed as not significant, with the exception that where multiple schemes replace agricultural land, a significant beneficial cumulative effect may arise due to reductions in fertiliser use and nutrient loading.

## Transport and Access

18.6.239 **ES: Chapter 11 Transport and Access [EN0110014/APP/6.1.11]** presents a cumulative assessment concludes that no identified links experience significant adverse cumulative effects in relation to community severance, non-motorised user delay or amenity, fear and intimidation, driver and passenger delay, road safety, or hazardous and large load movements.

## Air Quality

18.6.240 **ES: Chapter 13 Air Quality [EN0110014/APP/6.1.13]** states that cumulative effects from construction-phase road traffic emissions are assessed as not significant in EIA terms.

# Socio-Economics

## Jobs, Employment and Supply Chain

18.6.241 A high proportion of cumulative developments, including other solar projects, will require specialist energy-sector construction workers. This increases the likelihood of beneficial cumulative employment effects through overlapping construction programmes and increased demand for skilled labour.

18.6.242 **ES: Chapter 14 Socio-Economics [EN0110014/APP/6.1.14]** concludes that cumulative effects on jobs, employment and the supply chain during construction are major beneficial and significant in South Norfolk, and moderate beneficial and significant in Norfolk and the wider East of England.

18.6.243 During operation, a total of 26 cumulative schemes are expected to support operational workforces, including several large employment sites. While operational employment for the 23 cumulative energy schemes is limited, the combined effect of all schemes is anticipated to generate a meaningful increase in local job opportunities and supply chain activity. As a result, the cumulative operational effect on jobs, employment, and the supply chain in South Norfolk is assessed as moderate beneficial and significant in EIA terms.

## Skills and Labour Market

18.6.244 During operation, the combined effect of operational employment across cumulative developments is anticipated to result in a moderate beneficial and significant cumulative effect on employment and supply chain activity within South Norfolk.

# Soils and Agricultural Land

18.6.245 No significant cumulative effects on soils are anticipated during construction, operation or decommissioning or agricultural land during construction and operation within **ES: Chapter 15 Soils and Agricultural Land [EN011014/APP/6.1.15].**

18.6.246 In regard to agricultural land and decommissioning, all schemes considered within the cumulative assessment are expected to involve small areas of permanent land take, for fixed infrastructure, or permanent mitigation areas. Consequently, there is the potential for permanent land loss of BMV quality from all the developments to exceed 20ha, which would result in a moderate adverse cumulative effect which would be significant in EIA terms.

## Ground Conditions

18.6.247 No significant cumulative effects have been identified for Ground Conditions, as reported in **ES: Chapter 16 Ground Conditions [EN011014/APP/6.1.16].** Potential cumulative effects relating to contamination, groundwater or land stability are assessed as negligible and not significant.

## Electromagnetic Fields

18.6.248 No significant cumulative effects have been identified for electromagnetic fields as reported in **ES: Chapter 17 Electromagnetic Fields [EN0110014/APP/6.1.17].**

## Summary of Cumulative Effects

18.6.249 Overall, taking account of the Scheme's design, embedded mitigation and the findings of the Cumulative Effects Assessment, no likely significant standalone cumulative or in-combination effects on human health beyond those identified within the technical assessments above have been identified.

## Conclusion

18.6.250 This section 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.

## Construction Phase Effects

18.6.251 During the construction phase, potential effects on human health arise primarily from temporary construction activities, including vehicle movements, construction plant operation, earthworks and the presence of temporary compounds. These activities have the potential to influence health through short-term changes to noise levels, air quality, traffic conditions, accessibility and visual amenity.

18.6.252 Baseline health data indicates that a small proportion of the local population experiences poorer self-reported health and long-term illness, and that older residents are over-represented relative to national averages. These groups may be more sensitive to construction-related changes, particularly where dust, noise or traffic movements have the potential to cause annoyance, stress or minor exacerbation of existing conditions.

18.6.253 The assessments reported in the ES conclude that construction-phase changes remain localised, short-term and generally of low magnitude. Dust

and traffic emissions are predicted to give rise to negligible changes in pollutant concentrations at residential receptors, with mitigation delivered through measures secured in the **Outline CEMP [EN0110014/APP/7.1].** Construction noise effects are temporary and controlled through working hour restrictions and good practice measures, limiting the potential for sleep disturbance or prolonged stress.

18.6.254 Construction traffic increases occur on rural routes with very low baseline flows. While percentage increases can appear large, absolute vehicle numbers remain small, and effects on access to healthcare, education and other services are limited. Measures secured through the **Outline CTMP[EN0110014/APP/7.6]** and the **Public Rights of Way Management Plan [EN0110014/APP/7.8]** ensure that pedestrian access, including for older people and those with mobility impairments, is maintained.

18.6.255 While the Scheme is predicted to result in adverse landscape and visual effects during the construction phase which are significant these effects are primarily short-term and reversible. Therefore it is considered that they are limited in their potential to affect long-term human health outcomes.

18.6.256 Taking account of embedded mitigation, construction-phase effects on human health 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 (not significant).

## Operational and Maintenance Phase Effects

18.6.257 During operation and maintenance, the Scheme will give rise to very low levels of activity, with limited vehicle movements and no ongoing combustion processes. As a result, operational effects on air quality, noise, transport, water quality and ground conditions are assessed as negligible, with no identified pathways for adverse physical health outcomes following mitigation.

18.6.258 Changes to landscape character and visual amenity represent the principal pathway through which operational effects on health could occur, particularly in relation to mental wellbeing, sense of place and perceived environmental quality. The baseline indicates that the surrounding area is predominantly rural and that environmental quality is an important component of wellbeing, particularly for older residents [**ES: Chapter 7 Landscape and Visual, EN0110014/APP/6.1.7].** Embedded mitigation, including landscape design, planting and long-term management secured through the **Outline LEMP [EN0110014/APP/7.4],** limits the scale and duration of landscape effects. With mitigation in place, operational

landscape and visual effects are not expected to give rise to significant adverse impacts on human health.

18.6.259 Electromagnetic fields generated during operation have been assessed in **ES: Chapter 17 Electromagnetic Fields [EN0110014/APP/6.1.17].** Predicted EMF levels remain well below ICNIRP reference limits and do not present a physical health risk. It is recognised that EMF exposure can be a source of public concern; however, compliance with established standards and appropriate design measures, including setbacks and cable burial depth, reduce both actual and perceived risk. As a result, EMF effects on human health are assessed as **minor** and **not significant**.

18.6.260 At a broader scale, the Scheme delivers a significant beneficial contribution to climate change mitigation by reducing greenhouse gas emissions through renewable electricity generation **[ES: Chapter 6 Climate Change, EN0110014/APP/6.1.6].** Baseline evidence highlights climate change as a key long-term determinant of health, particularly for older people and those with cardiovascular and respiratory illness (Ref 18-33). While direct local health benefits are not measurable, the Scheme's contribution to emissions reduction supports long-term population health and aligns with national and local public health objectives.

18.6.261 Taking account of embedded mitigation, operational-phase effects on human health are assessed as **negligible** or **minor adverse** and **not significant**.

### Decommissioning Phase Effects

18.6.262 The Scheme has an anticipated operational lifetime of approximately 60 years. Decommissioning activities are expected to be similar in nature to construction but of equal or lower intensity, reflecting advances in technology and practice at the time. Potential health effects would arise through similar pathways, including temporary noise, dust and traffic movements.

18.6.263 Although future baseline conditions cannot be predicted with certainty, decommissioning will be managed through a Decommissioning Environmental Management Plan secured by the **draft DCO [EN0110014/APP/7.3].** With mitigation in place, decommissioning-phase effects on human health are assessed as **minor adverse** and **not significant**, with no long-term residual effects anticipated.

### Overall Summary

18.6.264 Taking account of baseline population characteristics, including the presence of older residents and people with long-term health conditions, the assessment concludes that the Scheme will not result in any likely significant adverse effects on population human health during construction, operation or decommissioning.

18.6.265 Construction-phase effects are temporary, localised and effectively managed, with no evidence that they would disproportionately affect vulnerable groups. Operational effects are largely neutral, with some pathways, including climate change mitigation, employment and enhanced green infrastructure, contributing positively to wider determinants of health. Decommissioning effects mirror construction and remain short-term and controlled.

18.6.266 Overall, the Scheme is considered compatible with the protection of human health and wellbeing, does not exacerbate health inequalities and supports national policy objectives for sustainable development and clean energy infrastructure.

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