



Peartree Hill Solar Farm

Planning Statement

Revision 2 (tracked)

Planning Act 2008

Infrastructure Planning

(Applications: Prescribed Forms

and Procedure) Regulations 2009 –

Regulation 5(2)(q)

Application Document Ref: EN010157/APP/5.5

~~February~~ September 2025

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Acronyms

Acronym	Description
AOD	Above ordnance datum
AC	Alternating current
ALC	Agricultural Land Classification
AQMA	Air Quality Management Area
BESS	Battery Energy Storage System
BMV	Best and Most Versatile
BNG	Biodiversity Net Gain
COMAH	Control of Major Accident Hazards
CCA 2008	Climate Change Act 2008
CEMP	Construction Environmental Management Plan
CNP	Critical national priority
CTMP	Construction Traffic Management Plan
DC	Direct current
DCO	Development Consent Order
Draft DCO	Draft Development Consent Order
DEMP	Decommissioning Environmental Management Plan
DESNZ	Department for Energy Security and Net Zero
DNO	Distribution Network Operator
EA	Environment Agency
EIA	Environmental Impact Assessment
ERLP	East Riding Local Plan
ERLPU	East Riding Local Plan Update
ES	Environmental Statement
ERYC	East Riding of Yorkshire Council
ExA	Examining Authority
FRA	Flood Risk Assessment
GHG	Greenhouse gas
HSC	Hazardous Substances Consent
HDD	Horizontal Directional Drilling
HE	Historic England
HGV	Heavy goods vehicle
HRA	Habitats Regulations Assessment
HSE	Health and Safety Executive
IDB	Internal Drainage Board
IEMA	Institute of Environmental Management and Assessment
kV	Kilovolts
LEMP	Landscape and Ecological Management Plan
LIRs	Local Impact Reports

LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
LVIA	Landscape and Visual Impact Assessment
MCZ	Marine Conservation Zone
MW	Megawatts
NCA	National Character Area
NCN	National Cycle Network
NCSA	National Cyber Security Centre
NETS	National Electricity Transmission System
NGESO	National Grid Electricity System Operator Limited
NIS	National Infrastructure Strategy
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NPSA	National Protective Security Authority
NSIP	Nationally Significant Infrastructure Project
NIC	National Infrastructure Commission
NTS	Non-Technical Summary
OEMP	Operational Environmental Management Plan
PA 2008	Planning Act 2008
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PRoW	Public Rights of Way
PV	Photo voltaic
RoFSW	Risk of Flooding from Surface Water
SFRA	Strategic Flood Risk Assessment
SMP	Soil Management Plan
SoS	Secretary of State for the Department for Energy Security and Net Zero
SPZ	Source Protection Zones
SRN	Strategic Road Network
SSSI	Sites of Special Scientific Interest
SuDS	Sustainable Drainage Systems
SWMP	Site Waste Management Plan
ZTV	Zone of Theoretical Visibility

Glossary

Term	Definition
Above ground level	Defines that the height of the infrastructure will be above the existing ground level of the Proposed Development.
Agricultural land classification	A framework for determining the physical quality of agricultural land at national, regional and local levels. This is based on the long-term physical limitations of land for agricultural use. There are a number of factors that affect the grade, and the main ones are climate, site and soil characteristics, and the interactions between them.
Air Quality Management Area	Areas that are likely to exceed the national air quality objective for a specific pollutant. They are determined by Local Planning Authorities.
Ambient sound	The total sound at a given place, usually a composite of sounds from many sources near and far.
Ancient woodland	An area that has been wooded continuously since at least 1600 AD. Ancient woodland is divided into ancient semi-natural woodland and plantations on ancient woodland sites.
Applicant	The organisation submitting the Development Consent Order Application (in the case of Peartree Hill Solar Farm, RWE Renewables UK Solar and Storage Ltd).
Aquifer	Underground layer of water-bearing permeable rock, rock fractures or unconsolidated materials (gravel, sand, or silt).
Archaeological interest	There will be archaeological interest in a heritage asset if it holds, or potentially may hold, evidence of past human activity worthy of expert investigation at some point. Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.
Balance of solar plant	Supporting infrastructure excluding Battery Energy Storage System. Balance of solar plant includes inverters and switchgear.

Term	Definition
Battery Energy Storage System	This comprises batteries and associated enclosures, monitoring systems, air conditioning, electrical cables and fire safety infrastructure. This equipment allows for the storage, importation and exportation of energy to the National Grid. Battery Energy Storage System units will form one element of hybrid packs, along with inverters, transformers and DC-DC converters.
Best and most versatile agricultural land	Defined as Grades 1, 2 and 3a in the Agricultural Land Classification by the National Planning Policy Framework and Planning Practice Guidance. This is the land which is determined to be most flexible, productive, and efficient in response to inputs and which can best deliver future crops for food and non-food uses such as biomass, fibres, and pharmaceuticals. Grades 3b, 4, and 5 are used to classify land that is of moderate quality to very poor quality.
Biodiversity	The biological diversity of the earth's living resources. The total range of variability among systems and organisms at the following levels of organisation: bioregional, landscape, ecosystem, habitats, communities, species, populations, individuals, genes, and the structural and functional relationships within and between these different levels.
Biodiversity Net Gain	An approach to development that leaves biodiversity in a better state than before.
Central inverter	Inverters that are distributed at regular intervals amongst the solar PV modules. They will form one element of hybrid packs, along with Battery Energy Storage System units, transformers and DC-DC converters.
Climate change	Large scale, long term shift in the Earth's weather patterns or average temperature.
Commitments Register	Document which provides a summary of the proposed mitigation measures and monitoring measures for the Proposed Development as identified in the Environmental Statement and sets out specific design commitments for the detailed design of the Proposed Development.
Construction compound	A secure area from which construction activities are managed and resourced, including but not limited to temporary offices, workshops, parking and storage. For the Proposed Development, these are divided into main compounds and satellite compounds.

Term	Definition
Contaminated land	Land where substances are causing or have a significant possibility to cause significant harm to people, property or protected species; or, where significant pollution is being caused or has a significant possibility of being caused to controlled waters.
Control documents	Documents listed in Schedule 14 of the Draft Development Consent Order which are proposed to be secured by the Development Consent Order and act as legal controls for the Proposed Development.
National Grid Creyke Beck Substation	The existing National Grid substation located near Cottingham that will facilitate the export and import of electricity from the Proposed Development to the National Grid.
DC-DC converter	Device that stabilises the voltage from the solar PV modules to the batteries. They will form one element of hybrid packs, along with inverters, Battery Energy Storage System units, transformers.
Decommissioning	The process of shutting down, and where relevant, removing the infrastructure comprised in the Proposed Development when it is no longer required once it has reached end of life.
Development Consent Order	A Statutory Instrument made by the Secretary of State pursuant to the Planning Act 2008.
Development Consent Order Application	The application for a Development Consent Order that is submitted by the Applicant to the Secretary of State for the Department for Energy Security and Net Zero.
Development Consent Order Requirement	The conditions which govern how the Proposed Development is to be delivered. These form part of the Schedule of Requirements which forms part of the Draft Development Consent Order.
Draft Development Consent Order	A Development Consent Order is a Statutory Instrument made by the Secretary of State pursuant to the Planning Act 2008. A draft version of the Development Consent Order is submitted in support of the Development Consent Order Application.
Embedded (primary) mitigation	Modifications to the location or design of the Proposed Development made during the pre-application phase that are an inherent part of the design of the Proposed Development and do not require additional action to be taken.

Term	Definition
Enhancement	Measures to improve the environment, such as landscape resource and the visual amenity of the Proposed Development and its wider setting, over and above its baseline condition.
Environmental Impact Assessment Regulations	For the purpose of the Development Consent Order Application, the Environmental Impact Assessment Regulations are the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Environmental Impact Assessment	A systematic means of assessing the significance of effects from the Proposed Development, undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Environmental Statement	A statement prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 that includes the information that is reasonably required to assess the likely effects of a development and which the Applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile.
European site	A designated area of land subject to protection through European legislation, including Special Areas of Conservation, Special Protection Areas and Ramsar sites.
Examining Authority	Planning Inspector(s) responsible for conducting the examination and recommending a decision on a Development Consent Order Application to the Secretary of State.
Field (e.g. Field B1)	Each Land Area is made up of a number of fields which have been assigned a unique reference code, for example Field B1 (in Land Area B).
Flood map for planning	Defines Flood Zones based on annual probability of flooding from fluvial and tidal sources to inform development planning and flood risk assessment, with a Nationally consistent delineation of 'high', 'medium' and 'low' flood risk.
Flood Risk Assessment	A document that reviews a development in its proposal form to assess it against the risk of flooding, whether that be from groundwater, river (fluvial), surface water (pluvial), estuary/coastal (tidal), or from sewer sources.

Term	Definition
Flood zones	Zones based on the annual probability of flooding from fluvial and tidal sources, as defined in the Flood Map for Planning. Areas are categorised into one of the following: Flood Zone 1, Flood Zone 2, Flood Zone 3a or Flood Zone 3b.
Flood Zone 1	Land assessed as having less than a 1 in 1,000 (0.1%) annual probability of flooding from rivers or the sea in any year.
Flood Zone 2	Land assessed as having between a 1 in 100 (1%) and 1 in 1000 (0.1%) annual probability of flooding from rivers, or between a 1 in 200 (0.5%) and 1 in 1,000 (0.1%) annual probability of flooding from the sea in any year.
Flood Zone 3a	Land assessed as having a 1 in 100 (1%) or greater annual probability of flooding from rivers or a 1 in 200 (0.5%) or greater annual probability of flooding from the sea in any year.
Flood Zone 3b	Land where water has to flow or be stored in times of flood.
Fluvial	Processes associated with rivers and streams and the deposits and landforms created by them.
Geophysical survey	A non-intrusive pre-construction archaeological evaluation technique that exploits a variety of physical or chemical characteristics of rocks and soils, in an attempt to locate underground features of archaeological interest. Types of geophysical survey include magnetometer survey, magnetic susceptibility survey and resistivity survey.
Glare	A continuous source of bright light typically received by static receptors or from large reflective surfaces.
Glint	A momentary flash of bright light typically received by moving receptors or from moving reflectors.
Greenhouse gas	Gases that absorb and emit reflected solar radiation which result in the warming of the Earth's atmosphere. It is absorbed and emitted at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere, and clouds. The six main greenhouse gases whose emissions are human caused are: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbon, and sulphur hexafluoride. In combination, these greenhouse gas emissions are commonly expressed in terms of 'carbon dioxide equivalents'

Term	Definition
	(CO ₂ e) according to their relative global warming potential. For this reason, the shorthand 'carbon' may be used to refer to greenhouse gases.
Green infrastructure	A network of multifunctional green space and other green features, urban and rural, which can deliver quality of life and environmental benefits for communities.
Grid connection	The export and import of electricity from the Proposed Development to or from the National Grid Creyke Beck Substation.
Grid connection cable route	The proposed corridor in which 132kV cabling will be laid to connect the solar PV development (from Land Area E) to National Grid Creyke Beck Substation.
Groundwater	Groundwater is the store of water present beneath Earth's surface in rock and soil pore spaces and in the fractures of rock formations.
Habitat	The environment in which populations or individual species live or grow.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017 (as amended) which covers the terrestrial environment.
Habitats Regulations Assessment	The stages of assessment carried out by the competent authority in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) to determine if a project may affect the protected features of a European site and European offshore marine site, before deciding whether to undertake, permit or authorise it.
Heavy Goods Vehicle	Vehicles with 3 axles (articulated) or 4 or more axles (rigid and articulated).
Heritage	The historic environment and especially valued assets and qualities such as historic buildings and cultural traditions.
Heritage asset	A building, monument, site, place, area, or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets and non-designated heritage assets.
Historic Environment Record	The record of archaeological and built heritage features in a county or district, usually held and maintained by the relevant County Council.

Term	Definition
Horizontal Directional Drilling	Low impact trenchless method of installing underground cables.
Hybrid Pack	An arrangement of four Battery Energy Storage System units, one inverter (including transformer) and four DC-DC converters.
Intra-project combined effects	The interaction and combination of different environmental residual (post-additional mitigation) effects from within the Proposed Development affecting a receptor.
Interconnecting cable routes	The cable routes that run between the Land Areas. These are labelled Cable B-B, Cable C-D, Cable E-E and Cable E-F (reflecting the Land Areas that they run between).
Internal Drainage Board	A public body that manages water levels in an area, known as an internal drainage district, where there is a special need for drainage. They undertake works to reduce flood risk to people and property and manage water levels for agricultural and environmental needs within their district.
Inverter	Inverters convert the direct current (DC) electricity collected by the solar PV modules into alternating current (AC), which allows the electricity generated to be exported to the National Grid. Battery Energy Storage System also use inverters to convert between DC and AC. The batteries function in DC and electricity must be converted to/from AC to pass into or from the grid.
Land Areas (B to F)	The Proposed Development comprises several areas of land connected by underground cables (the interconnecting cable routes). The Land Areas are identified as follows (note, there is no Land Area A): Land Area B: Land north-west of Long Riston; Land Area C: Land west of Arnold; Land Area D: Land south of the A1035; Land Area E: Land east of Weel; and Land Area F: Land north of Wawne.
Landscape	An area, as perceived by people, the character of which is a result of the action and interaction of natural and/or human factors.

Term	Definition
Landscape and Visual Impact Assessment	A tool used to identify and assess the likely significant effect of change resulting from development both on the landscape as an environmental resource in its own right and on people's views and visual amenity.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another.
Lead Local Flood Authority	The local authority responsible for taking the lead on local flood risk management as defined within the Flood and Water Management Act 2010.
Listed building	A building which is considered to be of special architectural or historic interest and listed in accordance with the Planning (Listed Buildings and Conservation Areas) Act 1990.
Local Development Plan	The set of documents and plans that sets out the Local Planning Authority's policies and proposals for the development and use of land in their area.
Local Wildlife Site	A site of local importance that has been identified and selected for its wildlife value.
Local Planning Authority	The function of a local authority that is empowered by law to exercise statutory town planning functions for a particular area of the UK.
Main compound	Designated area within a construction site that serves as the central hub for managing and supporting construction activities, containing staff welfare facilities and storage areas materials, plant and equipment. Seven main compounds are expected to be located across the Order Limits and would each have a footprint of up to 6,000 m ² .
Mitigation hierarchy	The mitigation hierarchy is a structured approach to managing environmental impacts in an Environmental Impact Assessment. It involves a sequence of actions to avoid, minimise, restore, and, as a last resort, offset negative environmental effects. This approach prioritises prevention and reduction of harm before considering compensation.
Mounting structure	Metal structure onto which the solar PV modules are mounted.
National Planning Policy Framework	The document that sets out the UK Government's planning policies for England and how these are expected to be applied. The National Planning Policy Framework was last revised in December 2024.

Term	Definition
National Policy Statement	Policy designated under the Planning Act 2008 concerning the planning and consenting of Nationally Significant Infrastructure Projects in the UK. Where applicable, they form the primary policy framework for the consenting of Nationally Significant Infrastructure Projects.
Nationally Significant Infrastructure Project	Projects which fall under one of the categories in Part 3 of the Planning Act 2008.
Nationally-designated ecological site	Areas of land subject to protection through UK legislation, including Sites of Special Scientific Interest and National Nature Reserves.
Noise sensitive receptor	Any identified receptor likely to be affected by noise. These are generally human receptors, and may include residential dwellings, workplaces, schools, hospitals, community facilities, places of worship, recreational spaces and ecological receptors.
Non-statutory consultation	Consultation with stakeholders on the Proposed Development which occurred in addition to the statutory consultation.
Non-statutory consultees	Consultees who, whilst not designated in law, are likely to have an interest in the Proposed Development and with whom the Applicant has therefore decided to consult.
On-site substation	The Proposed Development includes two on-site substations, which would receive the electricity from the solar PV modules and hybrid packs and step up the voltage from 33 kV to 132 kV ready to be exported to the National Grid Creyke Beck Substation via 132 kV underground cable. The substations would house electrical equipment such as transformers, switchgear and metering equipment. The two on-site substations are labelled Project Substation West and Project Substation East.
Order Limits	The boundary of the Proposed Development, i.e. the maximum extent of land potentially required temporarily and/or permanently for the construction, operation and decommissioning of the Proposed Development.
Outline Battery Safety Management Plan	A document that sets out the commitments/measures proposed to minimise the impact of potential BESS fire incidents during construction, operation and decommissioning of the Proposed Development.

Term	Definition
Outline Construction Environmental Management Plan	A document that details management methods to ensure that the Proposed Development will mitigate its potential impacts on the environment during construction.
Outline Construction Traffic Management Plan	A document that proposes measures to control the delivery of materials and staff to the Proposed Development during the construction phase in the interests of safety and efficiency and also to mitigate effects on the local highway network.
Outline Decommissioning Environmental Management Plan	A document that details management methods to ensure that the Proposed Development will mitigate its potential impacts on the environment during decommissioning.
Outline Landscape and Ecological Management Plan	A document that sets out the principles for how the land will be managed throughout the operation (including maintenance) phase, following the completion of the construction phase.
Outline Operational Environmental Management Plan	A document that sets out the principles and key measures that will be employed during the operation (including maintenance) phase of the Proposed Development to control and minimise the impacts on the environment, including best practice guidelines on waste and water management.
Outline Rights of Way and Access Management Plan	A document that sets out the principles and measures that will be employed to manage public rights of way and permissive paths during the construction, operation (including maintenance) and decommissioning of the Proposed Development.
Outline Site Waste Management Plan	A document that sets out principles and measures for implementing, monitoring, and managing waste.
Outline Soil Management Plan	A document that sets out measures for soil management and follow the principles of best practice to maintain the physical properties of the soil
Permissive path	A route for users on foot or with a horse, depending on what has been agreed to, that a private landowner has voluntarily opened up to the public, to enable them to cross his or her land. It does not constitute a public right of way.
Planning Inspectorate	The Government agency responsible for administering applications for development consent under the Planning Act 2008 on behalf of the relevant Secretary of State.

Term	Definition
Planning Practice Guidance	The Planning Practice Guidance provides context and guidance to the National Planning Policy Framework.
Pollution	The introduction of harmful materials into an environment.
Preliminary Environmental Information Report	A document that is prepared to inform statutory consultation by enabling interested parties to develop an informed view of the likely significant environmental effects of the Proposed Development as understood at that point in time, based on available environmental baseline information and design information.
Project Substation East	The on-site substation located in Land Area C.
Project Substation West	The on-site substation in Land Area E.
Ramsar site	A wetland site of international importance that has been designated under the criteria of the Ramsar Convention on Wetlands.
Receptor	A component of the natural, created or built environment that has the potential to be affected by the Proposed Development.
Recycle	Any recovery operation where waste is reprocessed into products, materials or substances whether for its original or other purposes. Recycling includes the reprocessing of organic material but excludes energy recovery and the reprocessing of waste into materials to be used as fuels or for backfilling operations.
Remediation	The removal of pollution or contaminants from the environment (usually soil, groundwater, sediment, or surface water).
Residual effects	Environmental effects arising from the Proposed Development that remain following the implementation of mitigation measures.
Risk	The likelihood of an impact occurring, combined with the effect or consequence(s) of the impact on a receptor if it does occur.
Rochdale envelope	An acknowledged way of dealing with an application where details of a project have not been fully resolved by the time the application is submitted. The term is used to describe those elements of a scheme that have not yet been finalised, but can be accommodated within certain parameters allowing the likely significant effects of a project to be presented in the Environmental Statement as a reasonable worst case. It also provides the opportunity to assess aspects of a development where the detailed design is

Term	Definition
	to be developed post grant of a Development Consent Order and approved by the Local Planning Authority under a Development Consent Order Requirement.
Satellite compound	Supplementary compound within the construction area, used to support the main compounds.
Secretary of State	In the case of the Proposed Development, this refers to the Secretary of State for Energy Security and Net Zero.
Setting	The surroundings within which a heritage asset is experienced and any element, which contributes to the understanding of its significance.
Significance	A measure of the importance of an effect defined by significance criteria specific to the environmental aspect.
Significant effects	It is a requirement of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 to determine the likely significant effects of development on the environment. The significance of an effect gives an indication as to the degree of importance (based on the magnitude of the effect and sensitivity of the receptor) that should be attached to the impact described. Whether an effect should be considered significant or not is not absolute and requires the application of professional judgement.
Solar photovoltaic (PV) modules	Panels comprised of photovoltaic cells beneath a layer of toughened glass that convert sunlight into electrical current.
Source Protection Zone	Areas which show the level of risk to the source of groundwater from contamination. Source Protection Zone 1 (Inner zone) is based on a 50 day travel time of pollutant to source with a 50 metres default minimum radius. Source Protection Zone 2 (outer zone) is based on a 400 day travel time of pollutant to source with 250 or 500 metres minimum radius around the source depending on the amount of water abstracted. Source Protection Zone 3 (total catchment) area around a source within which all the groundwater ends up at the abstraction point.
Special Area of Conservation	Areas of protected habitats and species as defined in the Habitats Directive.

Term	Definition
Special Protection Area	Sites classified in accordance with Article 4 of the EC Birds Directive (2009/147/EC). They are classified for rare and vulnerable birds (as listed on Annex 1 of the Directive), and for regularly occurring migratory species.
Species	A group of interbreeding organisms that seldom or never interbreed with individuals in other such groups, under natural conditions; most species are made up of subspecies or populations.
Statutory consultation	The Planning Act 2008 requires the Applicant to undertake public consultation in advance of submitting a Development Consent Order Application to the Secretary of State.
Statutory consultees	Bodies that the Applicant needs to consult with as part of the statutory consultation. Planning law prescribes circumstances where the Secretary of State is required to consult specified bodies prior to a decision being made on an application. Such bodies include Local Planning Authorities, Environment Agency, National Highways, Historic England and Natural England.
Statement of Community Consultation	The Planning Act 2008 requires the Applicant to undertake public consultation in advance of submitting a Development Consent Order Application to the Secretary of State. A Statement of Community Consultation must be prepared, setting out how the Applicant proposes to consult people living in the vicinity of the Proposed Development.
String inverter	Types of inverter that are mounted underneath the solar PV modules.
Sustainable drainage system	A collection of water management practices that aim to align modern drainage systems with natural water processes.
Switchgear	Combination of electrical disconnect switches, fuses or circuit breakers to control, protect and isolate electrical equipment.
Transformer	A static piece of apparatus with two or more windings which, by electromagnetic induction, transforms a system of alternating voltage and current into another system of voltage and current usually of different values and at the same frequency for the purpose of transmitting electrical power.

Term	Definition
Visual amenity	Overall enjoyment of a particular area, surroundings, or views in terms of people's activities - living, recreating, travelling through, visiting, or working.
Visual effect	An effect on specific views and on the general visual amenity experienced by people.
Visual receptor	Heritage assets, individuals and/or defined groups of people, that have the potential to be affected by changes to views or visual amenity as a result of the Proposed Development.
Waste	Any substance or object which the holder discards or intends or is required to discard.
Work Number	The Proposed Development is described in Schedule 1 of the Draft Development Consent Order, where the "authorised development" is split into work packages, with each one assigned a Work Number. Each Work Number corresponds to a specific aspect of the development, e.g. on-site substations, Battery Energy Storage System, construction compounds.
Zone of Influence	The areas or resources that may be affected by the changes caused by activities associated with the Proposed Development.
Zone of Theoretical Visibility	A digitally produced map showing the extent of land within which the Proposed Development is theoretically visible.

Executive Summary

This Planning Statement has been prepared in support of an application for a Development Consent Order for the construction, operation (including maintenance) and decommissioning of Pear tree Hill Solar Farm (the 'Proposed Development'). The Proposed Development consists of a solar photovoltaic array electricity generating facility and Battery Energy Storage System including solar photovoltaic modules and mounting structures, on-site supporting equipment including inverters, transformers and switchgears, two on-site substations and underground cabling to connect to the National Grid Creyke Beck Substation, associated infrastructure including fencing, drainage and storage containers and biodiversity and landscaping enhancement measures, together with temporary development during the construction phase.

The Proposed Development is a Nationally Significant Infrastructure Project under Section 14(1)(a) and Sections 15(1) and (2) of the Planning Act 2008 as it comprises a generating station in England with a capacity exceeding 50 megawatts. It therefore requires a Development Consent Order from the Secretary of State for the Department for Energy Security and Net Zero.

This Planning Statement has been prepared on behalf of RWE Renewables UK Solar and Storage Ltd to support the Development Consent Order Application and should be read in conjunction with the other documents submitted with the Development Consent Order Application.

1 Introduction

1.1 Foreword

- 1.1.1 This Planning Statement has been prepared on behalf of RWE Renewables UK Solar and Storage Ltd (the 'Applicant') in support of an application for a Development Consent Order (DCO) (the 'DCO Application') made to the Secretary of State for the Department for Energy Security and Net Zero (SoS), pursuant to the Planning Act 2008 (PA 2008) **[Ref. 1]**.
- 1.1.2 The DCO Application is for a Nationally Significant Infrastructure Project (NSIP) for the construction, operation (including maintenance) and decommissioning of a solar photovoltaic (PV) array electricity generating facility, Battery Energy Storage System (BESS) and associated infrastructure (the 'Proposed Development') which would allow for the generation and export of electricity. The **Location and Land Area Plan [EN010157/APP/2.1]** shows the Order Limits (the 'Order Limits') for the Proposed Development, which is approximately ~~894~~ **893** hectares of land located within East Riding of Yorkshire Council (ERYC or the 'Host Authority').
- 1.1.3 The Proposed Development includes infrastructure capable of generating more than 50 megawatts (MW) of renewable energy which is to connect to the National Electricity Transmission System (NETS) at National Grid's Creyke Beck Substation.

1.2 The Applicant

- 1.2.1 The Applicant is one of the largest solar developers in the UK and, as a company, has more than 125 years of energy expertise, through design, construction, and operation. It is the Applicant's ambition to have a carbon neutral energy portfolio by 2040, providing clean, secure, and affordable energy to millions of households.

1.3 Legislative Context Review

- 1.3.1 Section 7.2 of this Planning Statement sets out the legislative context, including the relationship between the PA 2008, applicable National Policy Statements (NPS), and the Proposed Development. Sections 7.4 and 7.5 outline relevant and important national and local planning policy frameworks. Section 7.6 outlines other national policy documents which are considered relevant to the determination of the DCO Application.

- 1.3.2 The Proposed Development is defined as a NSIP under Sections 14(1)(a), 15(1) and 15(2) of the PA 2008 **[Ref. 1]** as it is for the construction of an onshore generating station in England with a capacity exceeding 50 MW. The PA 2008 **[Ref. 1]** requires a DCO to be obtained for the development of an NSIP.
- 1.3.3 The PA 2008 **[Ref. 1]** prescribes that the relevant Secretary of State is responsible for determining DCO Applications, with the power to appoint an Examining Authority (ExA) of appointed person(s) to manage and examine the DCO Application.
- 1.3.4 The ExA, appointed through the Planning Inspectorate, will make procedural decisions and examine the DCO Application. The ExA will make a recommendation to the SoS who will then decide whether to approve the making of the DCO. The following Energy NPSs have effect for decisions by the SoS on applications for energy developments that are nationally significant under the PA 2008 **[Ref. 1]** and are the primary policy basis against which the DCO Application should be determined.
- Overarching National Policy Statement for Energy 2023 (NPS EN-1) (designated in January 2024) **[Ref. 2]**;
 - National Policy Statement for Renewable Energy 2023 (NPS EN-3) (designated in January 2024) **[Ref. 3]**; and
 - National Policy Statement for Electricity Networks Infrastructure 2023 (NPS EN-5) (designated in January 2024) **[Ref. 4]**.

1.4 Pre-Application Consultation

- 1.4.1 The PA 2008 **[Ref. 1]** requires applicants for DCOs to carry out formal, statutory pre-application consultation on their proposals. There are several requirements as to how this consultation must be undertaken that are set out in the PA 2008 **[Ref. 1]** and related regulations.
- 1.4.2 To meet these requirements, the Applicant has adopted a three-stage approach to pre-application consultation. A non-statutory consultation (Stage 1) was carried out between Monday 9 October 2023 and Monday 6 November 2023, and statutory consultation (Stage 2) in compliance with Sections 42 and 47 of the PA 2008 **[Ref. 1]** was undertaken between Wednesday 15 May 2024 to Wednesday 26 June 2024, and accompanied by a Preliminary Environmental Information Report (PEIR). Following ongoing design development and environmental assessments, a number of revisions to the Order Limits, which required additional land for construction and operation of the Proposed Development, were identified. A targeted consultation (Stage 3) took place between Tuesday 8 October and Friday 8 November 2024 to consult on these changes.

- 1.4.3 In addition to the three-stage approach outlined above, the Applicant has undertaken extensive engagement with ERYC, statutory prescribed bodies, relevant statutory undertakers, those with an interest in the Order Limits, as well as those who may be affected by the Proposed Development through the development of the proposals. This ongoing engagement with ERYC has included regular meetings during which updates have been provided on the Proposed Development, including the development of the design, and technical meeting with the Host Authority's relevant technical specialists.
- 1.4.4 The Applicant has had regard to all feedback it has received in response to its consultations and engagement when refining the Proposed Development.
- 1.4.5 The pre-application consultation undertaken by the Applicant and feedback from various consultees has served to inform the Proposed Development. This is documented and described within the **Consultation Report [EN010157/APP/5.1]**.

1.5 Special Category Land

- 1.5.1 A small area of Figham Common lies within the Order Limits, which will be used for the purposes of laying grid connection cable only. It is not proposed to seek compulsory acquisition of the freehold of this land.
- 1.5.2 Figham Common is identified as open space and common land and classified as Special Category Land for the purposes the DCO Application. The Beverley Commons Act 1836 **[Ref. 5]** placed the management, letting and use of Figham Common in the body of 12 elected Pasture Masters; the Figham Pasture Masters.
- 1.5.3 Once the grid connection cable works are completed Figham Common will look no different to how it looked prior to the undertaking of the grid connection cable works. Additionally, there will be no permanent disturbance to the surface soil or removal of trees or bushes and the land will be able to be used in the same manner as the Figham Pasture Masters and the public are entitled to use it currently. Considering the above, it is concluded that the land when burdened with the rights sought by the Applicant will be no less advantageous to the Figham Pasture Masters or the public. As a result, the requirement to undertake Special Parliamentary Procedure is not invoked. Further details on the Special Category Land are provided within the **Statement of Reasons [EN010157/APP/4.1]** and the **Special Category Land Plans [EN010157/APP/2.5]**.

1.6 Supporting Documents

- 1.6.1 The Proposed Development constitutes 'EIA development' as defined by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations') [Ref. 6] which means that an Environmental Impact Assessment (EIA) is required. An Environmental Statement (ES) has been prepared and is submitted with the DCO Application.
- 1.6.2 The reports, plans and figures that accompany the DCO Application are listed in the **Introduction to the Application [EN010157/APP/1.2]**.

1.7 Purpose and Structure of Document

- 1.7.1 The purpose of this Planning Statement is to provide an overview of the Proposed Development, its impacts, and to demonstrate the acceptability of the Proposed Development when assessed against the provisions of the legislation and policies relative to the nature and merits of the Proposed Development.
- 1.7.2 The remainder of the Planning Statement is structured as follows:
- **Section 2** describes the Vision and Project Principles which have driven the design development of the Proposed Development.
 - **Section 3** describes the need for the Proposed Development, highlights the urgent need for renewable energy and details the benefits of the Proposed Development.
 - **Section 4** describes the Order Limits (including its surrounding areas), summarises the site selection process and details all relevant planning history within the Order Limits.
 - **Section 5** provides an overview of the site selection process.
 - **Section 6** outlines the components of Proposed Development along with the Proposed Development's lifetime and areas of flexibility the Applicant is seeking to secure.
 - **Section 7** provides an overview of the decision-making framework, legislation, and policy context as well as other 'important and relevant' considerations.
 - **Section 8** provides an assessment of the Proposed Development against the legislation and policy considered by the Applicant to be 'important and relevant'.
 - **Section 9** presents the overall planning balance and conclusions of this Planning Statement.

2 Vision and Project Principles

2.1 Introduction

- 2.1.1 As described in **section 3** of this Planning Statement and within the **Statement of Need** at Appendix 3, large scale solar generation is expected to make an important contribution to achieving the Government's objectives for the UK's energy supply. As summarised in paragraph 3.2.1 of NPS EN-1, these objectives include ensuring that the supply of energy always remains secure, reliable, affordable, and enables the UK to transition to a low carbon economy in order to meet its carbon emission reduction commitments.
- 2.1.2 To support this objective, the Applicant's vision for the Proposed Development is to deliver a Proposed Development that will seek to maximise energy yield from the Order Limits whilst seeking to minimise any adverse effects on the environment and at the same time taking opportunities to deliver significant local benefit. Good design will influence every decision; conservation and enhancement of the local environment sits at the core of the design approach. Central to this is responding positively to the baseline landscape and the ecosystem services it provides and developing an understanding of what it is that the local community values. The project design principles seek to preserve features of the landscape that contribute to the character and identity of the local area, giving particular consideration to the natural, historic and recreational environment.
- 2.1.3 The vision for the Proposed Development was developed by the Applicant and consultant team by combining the corporate mission and values of the Applicant with their aspirations for the Proposed Development, whilst reflecting the urgent need for the UK to transition to low carbon energy generation.

2.2 Design Principles

- 2.2.1 The National Infrastructure Commission (NIC) provides expert impartial advice to Government on major infrastructure projects. The NIC's Design Group has identified four principles to guide the planning and delivery of major infrastructure projects being:
- **Climate** – Mitigate greenhouse gas emissions and adapt to climate change;
 - **People** – Reflect what society wants and share benefits widely;
 - **Places** – Provide a sense of identity and improve our environment; and
 - **Value** – Achieve multiple benefits and solve problems well.

- 2.2.2 The NIC defines the role of principles as “reminders to the delivery organisation, a steer in the right direction, and a means of restoring focus to the big picture... Design Principles should be a point of departure, setting out a common understanding of the issues to be addressed” [Ref. 7]. The Proposed Development has adopted the NIC Design Principles of climate, people, place and value to guide the design of the Proposed Development. These NIC Design Principles have been used to frame a set of specific project design principles which ensure the Proposed Development will fit sensitively into the local context, mitigates environmental effects, respects local communities, and provides enhancements where possible, and whilst delivering low carbon energy.

2.3 Project Design Principles

- 2.3.1 The NIC Design Principles [Ref. 7] have been used to frame the project design principles. The principles at the core of the design for the Proposed Development are set out below.

Table 1 | Project design principles

Theme	Project design principle
1. Climate	1.1 Designed to be <u>climate resilient</u> by incorporating, where reasonably practicable, mitigation measures and adaptations that respond to the impacts of climate change.
	1.2 Demonstrating <u>low carbon approaches</u> to design, construction and long-term maintenance.
	1.3 Designed to optimise <u>sustainability</u> in regard to design, construction and long-term maintenance.
2. People	2.1 Designed to respect the amenity of local residents and communities (giving consideration to environmental impacts including visual, transport, glint and glare and noise).
	2.2 Designed to optimise use and enjoyment of the site and surroundings, promoting active living for existing and future communities and be inclusive.
	2.3 Designed to ensure <u>effective, appropriate and on-going communication</u> with the local community.
3. Place	3.1 Designed to consider the <u>efficient use and multifunctionality</u> of the land.

	3.2 Designed to champion a <u>context driven approach</u> , which positively responds to the local context, including social, economic and environmental priorities.
	3.3 Designed to respond to <u>local character and distinctiveness</u> .
	3.4 Designed to secure <u>effective place-keeping</u> , by being subject to management arrangements that demonstrate a commitment to effectively implementing, establishing and maintaining features at all stages of the development process.
4. Environment	4.1 Designed to <u>maximise environmental net gains</u> .
	4.2 Designed with the intention to <u>avoid any harmful environmental impacts</u> as far as possible.
	4.3 Designed to deliver <u>climate resilient/sustainable water management</u> , using above ground features to manage flood risk, maintain the natural water cycle and improve water quality within the boundary of the project and at a catchment scale.
	4.4 Designed to deliver <u>wildlife/biodiversity enhancement</u> .
	4.5 Designed to <u>create effective links with existing and planned for ecological features and networks</u> beyond the boundary of the project.

- 2.3.2 The project design principles are set out in the **Design Approach Document [EN010157/APP/5.7]**.
- 2.3.3 The design process and an explanation of how the design has developed to date are set out in **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**, the **Design Approach Document [EN010157/APP/5.7]** and the **Design Parameters Document [EN010157/APP/5.8]**.

3 Need for and benefits of the Proposed Development

3.1 Introduction

- 3.1.1 This section sets out the need for the Proposed Development and how it is supported by national and local legislation and policy. This section summarises key points from the **Statement of Need**, at Appendix 3 of this Planning Statement and includes a summary of the benefits of the Proposed Development. The **Statement of Need** at Appendix 3 sets out a detailed case for why the Proposed Development is urgently required, concluding that it will be a critical part of the development of the UK's portfolio of renewable energy generation and required to decarbonise its energy supply both quickly and securely.
- 3.1.2 The Statement of Need reflects the NPS EN-1 policy at paragraph 3.3.20 that solar is a key part of the Government's strategy for low-cost decarbonisation of the energy sector, with a secure, reliable, affordable, net zero consistent system in 2050 likely to be composed predominantly of wind and solar. The Statement of Need provides evidence that new solar schemes are required to ensure that the UK remains on track to meet its legally binding carbon emissions reduction targets, while enhancing national security of supply.

3.2 Legislation and strategic policy context

- 3.2.1 Solar generation is a critical part of the UK's strategy to achieve net zero by 2050, a key step towards which is the government's national mission for clean power by 2030.
- 3.2.2 The Climate Change Act 2008 ('CCA 2008') [Ref. 8] legally bound the UK to reduce carbon emissions by at least 80% by 2050, compared to 1990 levels. In June 2019, legislation was passed (the Climate Change Act 2008 (2050 Target Amendment) Order 2019) [Ref. 9] to amend the CCA 2008 [Ref. 8] to set a new ambitious target requiring the UK to bring all greenhouse gas ('GHG') emissions to net zero (i.e. a 100% reduction) by 2050, compared with the previous target of at least 80% reduction from 1990 levels. UK electricity demand is expected to double by 2050. Decarbonisation requires the electrification of energy which is currently sourced from fossil fuels (including gas, petrol, and diesel), and the UK's pathway to achieving 'net zero' by 2050 must involve wider transitions outside of the power sector, including decarbonising transport, industry, agriculture, and homes. The development of large-scale solar in the UK will provide an essential

diversity to the UK's low-carbon generation portfolio, working with other technologies to deliver security of supply and value to UK consumers.

- 3.2.3 The British Energy Security Strategy (April 2022) **[Ref. 10]** set an ambition of 70GW of solar by 2035. Mission Zero **[Ref.11]**, published in January 2023 by Rt Hon Chris Skidmore MP, Chair of the Government's Independent Review of net zero, finds that "The benefits of net zero will outweigh the costs" and that "This is too important to get wrong". Mission Zero recommends the "Full-scale deployment of solar... to harness one of the cheapest forms of energy, increase our energy independence and deliver up to 70GW of British solar generation by 2035". The Government's Powering Up Britain strategy (updated April 2023) **[Ref. 12]** concludes that an acceleration of the deployment of renewables is critical to the delivery of the Government's plans: "Our goal is to develop up to 50GW of offshore wind by 2030 and to quintuple our solar power by 2035", noting that 14GW of solar was already installed in the UK at the time of writing the report. The current Labour government made major commitments to the delivery of clean energy in its election manifesto **[Ref. 13]**, including to achieve "Clean Power by 2030".
- 3.2.4 The new government's commitments include:
- Double onshore wind, triple solar power, and quadruple offshore wind by 2030;
 - Invest in carbon capture and storage, hydrogen and marine energy;
 - Take decisions on existing and new nuclear power;
 - Embrace the future of energy production and storage; and,
 - Through a new publicly-owned company, Great British Energy, partner with energy companies, local authorities, and co-operatives to install thousands of clean power projects, through a combination of onshore wind, solar, and hydropower projects.
- 3.2.5 In December 2024 the Government published a policy paper entitled The Clean Power 2030 Action Plan which, amongst other things, outlines the government's steps to achieving Clean Power by 2030 and outlines a Government ambition for 45-47 GW of solar power by 2030.
- 3.2.6 Solar generation is a critical element of the plan to decarbonise the UK electricity sector with urgency and is already a leading low-cost generation technology in the UK. The national need for solar generation is urgent, and the capacity required is significantly greater than the capacity of projects currently understood to be in development.

3.3 National Planning policy context

- 3.3.1 The DCO Application is to be determined under Section 104 of the PA 2008 [Ref. 1] because solar photovoltaic energy generation is a technology included within the current relevant Energy NPSs; NPS EN-1, NPS EN-3 and NPS EN-5. Section 104 of the PA 2008 [Ref. 1] makes clear that where an NPS exists relating to the type of development applied for, the SoS must have regard to it as a relevant NPS and must decide the application in accordance with that NPS. As outlined in Section 1.3 of this Planning Statement, the NPSs relevant to the Proposed Development are NPS EN-1, NPS EN-3 and NPS EN-5 and therefore apply as 'relevant' NPSs under Section 104 of the PA 2008 [Ref. 1].
- 3.3.2 Paragraph 2.3.3 of NPS EN-1 summarises the Government's objectives for the energy system are "to ensure our supply of energy always remains secure, reliable, affordable, and consistent with meeting our target to cut GHG emissions to net zero by 2050, including through delivery of our carbon budgets and Nationally Determined Contribution. This will require a step change in the decarbonisation of our energy system".
- 3.3.3 NPS EN-1 establishes a critical national priority (CNP) for nationally significant low-carbon infrastructure, the definition of which includes solar PV.
- 3.3.4 The urgent national need for energy generating infrastructure is set out in both NPS EN-1 and NPS EN-3 and is of significance to the determination of the Proposed Development. Paragraph 3.3.63 of NPS EN-1 states that:
- "The urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible".
- 3.3.5 Paragraph 2.10.9 of NPS EN-3 provides support for solar development in England and Wales stating that the government has "committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions by 2050. As such solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector". Paragraph 2.10.10 goes on to re-iterate the contribution that solar generation is expected to make to achieving net zero targets and the energy security goals set out in the British Energy Security Strategy, of "a five-fold increase in combined ground and rooftop solar deployment by 2035 (up to 70GW)" [Ref. 10].
- 3.3.6 Paragraph 2.2.3 of NPS EN-5 explains that "significant amounts of new electricity networks infrastructure is required". Paragraph 2.2.2 acknowledges that the siting of new electricity transmission infrastructure is determined by "the location of new generating stations or other infrastructure requiring connection to the network,

and/or system capacity and resilience requirements determined by the Electricity System Operator”.

- 3.3.7 The **Statement of Need** at Appendix 3 of this Planning Statement demonstrates the important contribution the Proposed Development will make to the three national energy policy aims:
- Net zero and the importance of urgently deploying low-carbon generation assets at scale
 - Security of supply (geographically and technologically diverse supplies)
 - Affordability and reducing exposure to volatile international markets

3.4 Local policy context

- 3.4.1 In February 2021 ERYC declared a climate emergency in line with the national government.
- 3.4.2 ERYC has developed a Climate Change Strategy 2022-2030 **[Ref. 14]**, which establishes a strategic vision and sets priorities for rapid decarbonisation and building climate resilience across the East Riding of Yorkshire.

3.5 Security of Supply

- 3.5.1 Paragraph 3.3.1 of NPS EN-1 explains that the Government needs to ensure there is sufficient electricity to always meet demand, with a margin that accommodates unexpectedly high demand and to mitigate risks. It continues in paragraph 3.3.2 that “the larger the margin, the more resilient the system will be in dealing with unexpected events, and consequently the lower the risk of a supply interruption”.
- 3.5.2 Paragraph 3.3.19 of NPS EN-1 identifies the benefits of having a diverse mix of all types of power generation, reducing dependency on any one type of generation or one source of fuel or power, which helps to ensure the security of supply. Paragraph 3.3.19 states, “Given the changing nature of the energy landscape, we need a diverse mix of electricity infrastructure to come forward so that we can deliver a secure, reliable, affordable, and net zero consistent system during the transition to 2050 for a wide range of demand, decarbonisation, and technology scenarios.”
- 3.5.3 While individual renewable energy generation assets can be variable in terms of output due to seasonal conditions, this is mitigated through the development of a portfolio which consists of different renewable technologies across a diverse geographical area. A large portfolio of interconnected assets from as broad as

possible a range of technologies and geography helps to deliver security of supply.

- 3.5.4 The Proposed Development would connect to an existing grid connection point on an existing part of the NETS, efficiently optimising the use of an already existing national infrastructure asset. By being connected to the transmission system, large-scale solar generation can and will play an important role in the resilience of the Great Britain electricity system from an adequacy and system operation perspective. This is because the transmission system is able to efficiently transfer bulk power from where it is in abundance to where it is needed. This connection means that it will be required to play its part in helping National Grid Electricity System Operator Limited (NGESO) manage the national electricity system.

3.6 Affordability

- 3.6.1 Paragraph 3.3.13 of NPS EN-1 states “The Net Zero Strategy sets out the government’s ambition for increasing the deployment of low carbon energy infrastructure consistent with delivering our carbon budgets and the 2050 net zero target. This made clear the commitment that the cost of the transition to net zero should be fair and affordable”.
- 3.6.2 Paragraph 3.3.14 of NPS EN-1 continues, “...Government will work to ensure there are market frameworks which promote effective competition and deliver an affordable, secure, and reliable energy system and government support for specific technologies and projects will be dependent on clear value for money for consumers and taxpayers” .
- 3.6.3 Paragraph 3.3.20 of NPS EN-1 confirms that “Wind and solar are the lowest cost ways of generating electricity, helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation). Our analysis shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar”.
- 3.6.4 As a result of technological advances, solar power is already among the cheapest forms of electricity generation in the UK and Government forecasts indicate that costs will continue to reduce in the future. Year-on-year cost reductions have made solar technology progressively more attractive compared with many other forms of electricity generation, promoting the commercial rationality for the UK to prioritise the development of solar capacity.
- 3.6.5 Scale of development is an important factor and maximising the generating capacity of schemes improves their economic efficiency, bringing power to

market at the lowest cost possible. It is shown that larger schemes deliver more quickly and at a lower unit cost than multiple independent schemes which make up the same total capacity.

- 3.6.6 The Proposed Development will be a substantial infrastructure asset which, if consented, will deliver large amounts of cheap, secure and low-carbon electricity which will help the UK achieve its Sixth Carbon Budget commitments and stay on track to achieve net zero by 2050. Maximising the capacity of generation in the proposed location for the Proposed Development represents a significant and commercially rational step forward in the fight against the global climate emergency.

3.7 Decarbonisation

- 3.7.1 Electricity meets a significant proportion of the UK's overall energy needs, and NPS EN-1 paragraph 3.3.1 confirms the reliance on electricity is likely to increase as the UK moves towards its 2050 GHG emission reduction goals.
- 3.7.2 Without a rapid increase in the supply of low-carbon electricity, the urgent requirement to decarbonise other sectors (as will be required to meet future Carbon Budgets) is unlikely to be achieved.
- 3.7.3 Solar generation is increasing in both scale and importance within emerging government policy. Not only for the benefits it delivers to decarbonisation, but also because of the need for secure and affordable energy supplies. As noted above, this is reinforced by the new government's ambition is to triple solar capacity by 2030, alongside doubling onshore wind and quadrupling offshore wind.
- 3.7.4 To deliver the government's ambition, the equivalent of approximately one large-scale solar scheme would need to be switched on each and every month between August 2024 and 2030.
- 3.7.5 Schemes which make use of existing grid infrastructure are valuable to help deliver the government's ambition to deliver Clean Power by 2030. It is important to continue to bring forward schemes with connection dates in the 2030s to meet future growth in electricity demand and in case Clean Power by 2030 is not achieved.
- 3.7.6 The Proposed Development will, if consented, make an important and significant contribution towards achieving the government's current targets.

3.8 Summary of Need Case

- 3.8.1 Section 3 of EN-1 includes assessments of the need for new major renewable electricity infrastructure. Paragraph 2.1.6 of EN-3 accordingly clarifies that ‘the Secretary of State should act on the basis that the need for infrastructure covered by this NPS has been demonstrated.’
- 3.8.2 Notwithstanding that the need for large-scale solar development has been demonstrated by the NPS, the **Statement of Need** at Appendix 3 of this Planning Statement sets out a detailed case for why the Proposed Development is urgently required. It concludes that the Proposed Development will be a critical part of the UK’s portfolio of renewable energy generation and required to decarbonise its energy supply both quickly and securely.
- 3.8.3 The **Statement of Need** at Appendix 3 of this Planning Statement reflects the adopted Government policy that solar is a key part of the Government’s strategy for low-cost decarbonisation of the energy sector. It provides evidence that specific schemes are required to ensure that the UK remains on track to meet its legally binding carbon emissions reduction targets, while enhancing national security of supply.
- 3.8.4 In conclusion, the meaningful and timely contributions offered by the Proposed Development to UK decarbonisation and security of supply, while helping lower bills for consumers throughout its operational life will be critical on the path to net zero.

3.9 Benefits of the Proposed Development

- 3.9.1 The Proposed Development will deliver up to 320 MW of low-carbon, low-cost and UK-located solar electricity generation capacity connecting to the National Electricity Transmission System from National Grid Creyke Beck Substation. In addition to meeting the urgent national need for secure and affordable low-carbon energy infrastructure the Proposed Development will deliver wider benefits to the environment and the local community.
- 3.9.2 The vision and project design principles described in the **Design Approach Document [EN010157/APP/5.7]** and summarised in **section 2** of this Planning Statement have shaped the design of the Proposed Development to date, to ensure that embedded mitigation is provided through the design and layout of the proposals. In addition, the design of the Proposed Development has identified opportunities for enhancement. These are outlined within the **ES Volume 2, Chapters 6-15 [EN010157/APP/6.2]**.

Biodiversity

- 3.9.3 The Proposed Development will deliver biodiversity improvements including landscaping, habitat management and biodiversity enhancement to retain and enhance ecological and recreational connectivity.
- 3.9.4 The existing hedgerows, woodland and field margins are proposed to be retained as part of the Proposed Development, with the exception of gaps required for new access points, visibility at vehicle turning points and for the installation of cabling. Existing agricultural tracks would be used for access points where reasonably practicable and, if required, the width of any new gaps would be kept to a minimum.
- 3.9.5 Approximately 19.5 km of new hedgerows, 10,240 m² of structural woodland and 30,363 m² of scrub planting is proposed to be planted, as well as new wildflower meadows and grassland areas within the Order Limits. These will further improve visual screening and habitat creation and support local ecology, as set out in **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** and secured by the **Outline LEMP [EN010157/APP/7.5]**.
- 3.9.6 In addition, the Proposed Development will provide further habitat creation, including through new bird and bat boxes in accordance with the **Outline LEMP [EN010157/APP/7.5]**.
- 3.9.7 The ground underneath and around solar PV modules would be sown with a flower and legume rich grass mix to provide an insect rich foraging habitat during the breeding season, and 1-5% of the margins between the solar PV modules and security fence will be sown with a winter seed mix for foraging birds with the rest of the margins sown to a similar legume rich grass mix to underneath the solar PV modules. Further details are provided within **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**. This is secured by the **Outline LEMP [EN010157/APP/7.5]**.
- 3.9.8 Surveys and trapping using humane specific traps for American mink (*Neovison vison*) will be undertaken on each watercourse within the Land Areas for a minimum of the first three years of operation. Any caught mink will be humanely dispatched. The surveys and trapping will be undertaken by a specialist contractor. Appropriate regular monitoring and mink control may likely be required throughout the lifespan of the Proposed Development. Mink control would provide a beneficial long-term impact on many native species in particular water voles. This is secured by the **Outline LEMP [EN010157/APP/7.5]**.
- 3.9.9 As a result of these measures, the Proposed Development is expected to achieve at least 10% BNG. Details of the BNG are provided in **ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]**. Details of the proposed hedgerows and habitat creation are provided in the **ES Volume 3,**

Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]. The **Outline LEMP [EN010157/APP/7.5]** outlines the habitat management strategies.

Climate

- 3.9.10 Renewable energy developments such as the Proposed Development have a major role to play in the transition to a low carbon economy, and the decarbonisation of the UK national electricity network. Without projects such as the Proposed Development, the GHG intensity of the UK's electricity generation would not decrease as projected and would severely compromise the UK's ability to meet its carbon reduction targets.
- 3.9.11 The nature of the Proposed Development offers an enhancement to the original environment in terms of GHG emissions. Emissions from the construction, operation (including maintenance) and decommissioning of the Proposed Development total 1,998,798 tCO₂e. When taking into account whole lifecycle emissions, the net GHG savings, compared against equivalent gas-fired electricity generation, are over 4.1 million tCO₂e. When assessed against whole lifecycle emissions, the Proposed Development has a carbon payback period of 13 years. Further details regarding the Proposed Developments impact on climate are contained within **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]**.

Air Quality

- 3.9.12 The Proposed Development will produce energy from the sun, which is a clean, sustainable source of energy. It will help to reduce the energy requirements from fossil fuels, which emit harmful air emissions, such as carbon dioxide, nitrogen dioxide, sulphur dioxide, and particulate matters. The Proposed Development contributes towards the transition to clean energy on a national scale and the reduction in harmful air emissions would be possible through phasing out fossil fuels uses. Further details regarding air quality and emissions are provided within **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**.

Cultural Heritage

- 3.9.13 The Proposed Development proposes incorporating information boards on the heritage of the local area, in the vicinity of and to allow public access to Scheduled Monuments NHLE 1007843 (Site of Meaux Cistercian Abbey) and NHLE 1015305 (Meaux duck decoy, 420 m south west of Meaux Decoy Farm). Moreover, discussions with Historic England, Humber Field Archaeology and Albanwise Estate regarding the implementation of a community heritage project focussed on the local population's historic and present relationship to sunlight and wetland landscapes are ongoing. Further detail on this is provided in **ES**

Volume 4, Appendix 9.4: Detailed Settings Impact Assessment [EN010157/APP/6.4].

Land, Soil and Groundwater

- 3.9.14 A reinstatement and habitat creation programme would commence following the construction phase, which will enhance soil quality. This would include landscaping, habitat management and biodiversity enhancement. Areas under the solar PV modules and the landscape buffers would be planted with native grassland, wildflower mixes, scrub and hedgerows. Woodland blocks and belts would be planted strategically to provide visual screening and ecological habitats to achieve a biodiversity net gain. The reinstatement and creation of the landscape and habitat will be undertaken in accordance with the **Outline LEMP [EN010157/APP/7.5]**.
- 3.9.15 The cessation of agricultural activity on some parts of the Land Areas during construction and operation could lead to the stabilisation of soil and may reduce soil-laden runoff into non-designated watercourses within the Order Limits. A reduction in the application of herbicides, pesticides or fertilizers as a result of changes in land management from agricultural producer to solar farm will result in a reduction of surface water runoff from the Land Areas polluted with herbicides, pesticides or fertilizers.
- 3.9.16 Furthermore, there is potential that soil health could be enhanced over the 40 year period of operation of the Proposed Development due to the implementation of the **Outline Soil Management Plan (SMP) [EN010157/APP/7.8]** and due to the permanent cover of grassland which would reduce the impact of soil erosion.

Permissive Paths and Recreation

- 3.9.17 The Proposed Development will include recreation and amenity improvements through the creation of approximately 12.6 km of new permissive paths at the following locations:
- New permissive path creating a loop around Field B2, connecting to the existing Riston Footpath No. 2 at the north western and south western points of the field with a length of approximately 476 m;
 - New permissive path connecting Carr Lane to the existing Riston Footpath No. 2, along the north of Field B8 with a length of approximately 306 m;
 - New permissive path circuit around a number of fields in Land Area D and providing a link to the existing Tickton Footpath No. 6. This circuit includes a loop around Field D18 and Field E6, both of which have been set aside for ecological enhancement. The path has a length of approximately 9.6 km. The

circuit of permissive paths within Land Areas D and E will be made available for horse riding;

- New permissive path running along the eastern boundary of Field F6, through the area set aside for ecological enhancement in F9, F10 and F14, connecting with the existing Wawne Footpath No. 1 to the south of Field F16. The path has a length of approximately 2.1 km; and
- New permissive path, approximately 290 m in length, running along the eastern boundary of Field C8.

3.9.18 In addition to the permissive paths, community accessible land areas are proposed. These areas are secured and detailed within the **Outline LEMP [EN010157/APP/7.5]** and **ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]**.

Community Benefit Fund

3.9.19 In addition to the environmental and recreational benefits set out above, the Applicant is committed to providing a Community Benefit Fund of approximately £4.2 million across the 40-year operational lifespan of the Proposed Development. Typically, on previous projects delivered by the Applicant, the funds are managed by an independent third party who support fund applicants to ensure the funds are as accessible as possible, and recruit a panel of local people to make decisions on fund allocations.

3.9.20 On previous projects delivered by the Applicant, a Community Benefit Fund has helped to fund projects such as a community café and garden centre as well as a wellbeing garden project. The wellbeing garden project has engaged school students to get involved with the planting and maintenance of the garden space. Additionally, the Community Benefit Fund has been used by the Applicant to deliver initiatives such as providing electric vehicle charging points, Public Right of Way (PRoW) improvements in the wider area, fuel poverty measures, picnic benches, rooftop solar for community buildings and funding for other local sustainable initiatives.

3.9.21 It is recognised by the Applicant, and within this Planning Statement, that the Community Benefit Fund sits outside of the DCO Application and, as such, should carry no weight and should not be taken into account as part of the overall planning balance to be considered by the ExA and SoS.

4 Site Context

4.1 Introduction

- 4.1.1 This section provides a summary of the physical characteristics of the Order Limits and its surrounding context, including policy allocations and designations.
- 4.1.2 The Order Limits comprise of approximately ~~894~~ 893 hectares of land located within the administrative boundary of East Riding of Yorkshire, presented in **ES Volume 3, Figure 1.1: Order Limits and Administrative Boundaries [EN010157/APP/6.3]**. The Order Limits are the anticipated maximum area of land that would be required to facilitate the construction, operation (including maintenance) and decommissioning of the Proposed Development pursuant to the DCO.

4.2 Site Description

- 4.2.1 **ES Volume 1, Chapter 2: Location of the Proposed Development [EN010157/APP/6.1]** includes a full description of the Order Limits. The Proposed Development is located on land between the villages of Tickton, Riston, Wawne, Weel and Woodmansey and predominantly consists of agricultural fields (mostly arable with some grassland) interspersed with hedgerows, ditches, small woodland blocks and farm access tracks. The hedgerows within the Order Limits range from dense tall vegetation to sporadic shrubs and trees present. The fields are bordered by a mix of hedgerows, wet ditches and some of the many major named drains and dykes in the area.
- 4.2.2 The Proposed Development is made up of five Land Areas (B-F, there is no Land Area A), interconnecting underground cables between Land Areas, 132 kilovolts (kV) underground cable route options to National Grid Creyke Beck Substation, and sections of highway land. These are presented on **ES Volume 3, Figure 1.2: Land Areas and Cable Routes Plan with Field Numbering System [EN010157/APP/6.3]**. The five Land Areas are:
- **Land Area B:** This area comprises two separate sections. One lies west of the A165 and is bounded to the north by the A1035, to the west by Meaux and Routh East Drain, to the east by an unnamed ditch, and to the south by Land Area C. Monk Dike runs through the centre of this section. The other smaller section of Land Area B lies east of the A165 and north of Long Riston and is bounded by agricultural fields and ditches.
 - **Land Area C:** This area lies adjacent to the southern boundary of Land Area B. It is bounded to the west by Arnold West Carr Drain/Arnold and Riston

Drain and to the south by Kidhill Lane. Along the eastern boundary are ditches and agricultural land.

- **Land Area D:** This area is located in the centre of the overall Proposed Development. It is adjacent to Land Area E, which lies to the south-west. The area is bounded by various drains and ditches and crosses Meaux Lane. On the eastern border is Cote Wood Local Wildlife Site and semi-natural ancient woodland. Meaux Abbey Scheduled Monument lies to the south.
- **Land Area E:** This area comprises three separate sections. The westernmost of these, located approximately 300 m east of Weel at the closest point, lies either side of Carr Lane and is bounded by ditches and agricultural land. The largest section of Land Area E is primarily bounded to the west and south by Holderness Drain, to the east by Meaux West ditch, and to the north-east by Land Area D. To the north is agricultural land, within which is Meaux duck decoy Scheduled Monument. Beyond this is the third section of Land Area E, which is divided in two by a strip of woodland. Meaux Abbey Scheduled Monument lies to the south-east of Land Area E.
- **Land Area F:** This is the southernmost area, lying approximately 730 m north-east of Wawne at the closest point. It is largely bounded to the north and east by Holderness Drain. In other directions are agricultural fields. To the north, beyond Holderness Drain, is Meaux Abbey Scheduled Monument. Meaux Road runs north to south through this Land Area.

- 4.2.3 Each Land Area described above corresponds to the associated Panel Area described within the Work No 1 description of the **Draft DCO** Schedule 1 [EN010157/APP/3.1].

4.3 Designations and Allocations

Landscape

- 4.3.1 The land within the Order Limits has been selected and designed to avoid any statutory landscape designations. The nearest National Landscapes (previously known as Areas of Outstanding Natural Beauty) to the Order Limits are the Lincolnshire Wolds and Howardian Hills National Landscapes, both of which are more than 30 km from the Order Limits. However, the Site is located within the centre of a National Character Area (NCA) 40 Holderness.
- 4.3.2 More detailed information regarding the landscape is provided within **ES Volume 2, Chapter 11: Landscape and Visual** [EN010157/APP/6.2].

Ecological and biodiversity

- 4.3.3 There are no statutory ecological designations within the Order Limits however there are a number of internationally and nationally statutorily designated sites as well as non-statutorily designated sites within the surrounding area. These include five international statutory designations covering three sites within 10 km of the Order Limits, two statutory nationally designated sites within 2 km of the Order Limits and seven non-statutory designated sites (Local Wildlife Sites) within 1 km of the Order Limits, including Cote Wood Local Wildlife Site, which borders Land Area D.
- 4.3.4 There is one area of ancient semi-natural woodland within 1 km of the Order Limits, Cote Wood Local Wildlife Site, which is adjacent to Fields D11 and D17, though on the other side of a ditch.
- 4.3.5 In addition, there are areas of priority deciduous woodland (in the central and western sections of the Order Limits) and areas of floodplain grazing marsh (to the south-west of the Order Limits).
- 4.3.6 More detailed information regarding biodiversity is provided within **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**.

Water Resources

- 4.3.7 The Site is located in predominantly low-lying land, which relies on a network of drainage systems including ditches, culverts and pumping stations and is located within the area administered by the Beverley and North Holderness Internal Drainage Board.
- 4.3.8 The Site is predominantly located in Flood Zones 2 and 3, albeit benefitting from the presence of flood defences including the River Hull Tidal Surge Barrier. Flood Zone 3 indicates an area that has a high probability of flooding, defined as a 1% or greater annual probability of river or sea flooding. Flood Zone 2 is defined as having between a 0.1% and 1% annual probability of river or sea flooding.

Geology

- 4.3.9 Bedrock geology across the Order Limits is recorded as chalk (Flamborough Chalk Formation).
- 4.3.10 The superficial geological units within the Order Limits include alluvium, till, glaciofluvial sand and gravel deposits.

- 4.3.11 The Order Limits are underlain by superficial geological units that are classified as a secondary A aquifer and a secondary undifferentiated aquifer. A principal aquifer is present across the Order Limits within the chalk bedrock.
- 4.3.12 A large Zone One Source Protection Zone (SPZ), with respect to a groundwater abstraction source, is present close to Cottingham, with large sections of the Order Limits being within the Zone One (inner protection zone), Zone Two (outer protection zone) and Zone Three (total catchment) sections of the SPZ.
- 4.3.13 More detailed information regarding geology is provided within **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.

Cultural heritage

- 4.3.14 There are no known designated heritage assets within the Order Limits.
- 4.3.15 The following heritage assets are located within 5 km of the Order Limits.
- 35 Scheduled Monuments. Three of the Scheduled Monuments (Hayholme moated site (NHLE 1008043), Baynard Castle (NHLE 1019823) and Haltemprice Augustinian Priory (NHLE 1019825)) are on the Heritage at Risk Register;
 - Two Grade II Registered Parks and Gardens. One of the Registered Parks and Gardens (Thwaite Hall, NHLE 1000137) is on the Heritage at Risk Register;
 - 14 Grade I Listed Buildings;
 - 51 Grade II* Listed Buildings;
 - 573 Grade II Listed Buildings; and
 - 26 Conservation Areas. One of the Conservation Areas (Beverley Road, Hull) is on the Heritage at Risk Register
- 4.3.16 The following assets border or are located in close proximity to the Order Limits:
- Scheduled Monument NHLE 1007843 (Site of Meaux Cistercian Abbey), which borders the Order Limits to the north of Land Area F;
 - Scheduled Monument NHLE 1015305 (Meaux Duck Decoy, 420 m South East of Meaux Decoy Farm), which lies between Fields E6, E7 and E9;
 - Scheduled Monument NHLE 1008039 (Medieval Moated Tile Kiln 250 m North East of North Grange Farm), to the east of Land Area D;
 - Grade II Listed Building NHLE 1103426 (Meaux Abbey Farm), which lies c.125 m to the east of Field D17; and

- Grade II Listed Building NHLE 1346995 (Wawne Grange), which lies between Fields F9/F10 and F15.

4.3.17 There are no Registered Battlefields or World Heritage Sites within 5 km of the Order Limits.

4.3.18 More detailed information regarding cultural heritage is provided within **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]**.

4.4 Relevant Planning History

4.4.1 A summary of planning history within the Order Limits is provided below.

Table 2 | Planning history

Reference	Address	Description	Decision
23/02826/PLF	Land East of Wawne Hill Farm Meaux Lane Meaux East Riding of Yorkshire HU17 9SS	Erection of an additional free range egg unit with associated feed bins, egg conveyor, hardstanding and dirty water tank. <i>Application 23/02826/PLF boundary overlaps with the Proposed Developments Order Limits at Land Area F. However, the area proposed for development as part of application 23/02826/PLF, does not overlap with the Proposed Developments Order Limits.</i>	Approved
00/01122/PLF	Storage Land Caravan Wanlass Farm Park Lane Cottingham East Riding of Yorkshire HU16 5SB	Change of use of land to use for storage of caravans. <i>Application 00/01122/PLF boundary is adjacent to, minimally overlaps with the Proposed Developments grid connection cable route corridor west of Dunswell Road.</i>	Approved
20/01589/STPLF	Land South East of Springdale Farm Weel Road Weel East Riding Of Yorkshire HU17 0SQ	Alterations to subsurface cable corridor connected to Dogger Bank Offshore Wind Farm. <i>Application 20/01589/STPLF boundary</i>	Approved

		<i>and development area is located within the Proposed Developments Order Limits south of Land Area E, within the grid connection cable route corridor.</i>	
20/01590/STPLF	Land North East of Fieldview Cottage Long Lane Woodmansey East Riding Of Yorkshire HU17 0RN	Alterations to subsurface cable corridor connected to Dogger Bank Offshore Wind Farm. <i>Application</i> 20/01590/STPLF boundary is adjacent to, minimally overlaps with the Proposed Developments grid connection cable route corridor south of Woodmansey.	Approved
20/01592/STPLF	Skidby Parish Dogger Bank Wind Farm Cable Construction Land Creyke Beck Electricity Sub Station Access Road Skidby East Riding of Yorkshire	Alterations to subsurface cable corridor connected to Dogger Bank Offshore Wind Farm. <i>Application</i> 20/01592/STPLF boundary is adjacent to, and overlaps with, the Proposed Developments grid connection cable route corridor north of National Grid Creyke Beck Substation.	Approved
22/01811/EIASCR	Carr Farm Carr Lane Tickton East Riding of Yorkshire HU17 9SD	Installation of solar farm of up to 49.9 MW. <i>EIA screening for the below planning application (22/03648/STPLF).</i>	Enquiry Answered
22/03648/STPLF	Carr Farm Carr Lane Tickton East Riding of Yorkshire HU17 9SD	Construction of 49.9 MW Solar Farm comprising of ground mounted solar panels, underground cabling, a temporary construction compound, access tracks, perimeter fencing with CCTV cameras, access gates and associated ancillary grid infrastructure and work. <i>Application</i> 22/03648/STPLF boundary and development area adjoins and overlaps with part of the Proposed	Refused (6/12/2024) <i>Reasons for refusal were due to the cumulative visual impact of the proposal.</i>

		<i>Developments Order Limits near Land Area E.</i>	
23/00696/EIASCR	Land East of Kenley House Farm Ferry Road Wawne East Riding of Yorkshire HU7 5XY	Proposed solar farm with a 49.9 MW output for a temporary period of 40 years, including associated infrastructure, permanent grid connection hub and environmental enhancements. <i>Application 23/00696/EIASCR overlaps with, the Proposed Developments grid connection cable route corridor north-west of Wawne.</i>	Withdrawn
23/30279/CON-DET	DC Partner Authority Cross Street Beverley East Riding of Yorkshire	Discharge of requirements 17(2) (Written Scheme of Investigation) of planning application 21/04142/SOS. <i>The boundary associated with this application (EN010098 - Hornsea Project Four Offshore Wind Farm) overlap the Proposed Developments Order Limits at and near the National Grid Creyke Beck Substation.</i>	Approved
24/30260/CON-DET	DC Partner Authority Cross Street Beverley East Riding of Yorkshire	Discharge of requirement 17(2) (Written Scheme of Investigation) of Development Consent Order 21/04142/SOS for Hornsea Four Offshore Wind Farm (further to 23/30279/CON-DET). <i>The boundary associated with this application (EN010098 - Hornsea Project Four Offshore Wind Farm) overlap the Proposed Developments Order Limits at and near the National Grid Creyke Beck Substation.</i>	Approved

5 Site Selection

- 5.1.1 The **Site Selection Assessment** at Appendix 2 to this Planning Statement provides an overview of the site selection process undertaken to identify the Order Limits. It also provides a description of the development design evaluation undertaken and the main alternatives considered.
- 5.1.2 **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** explains the legal and policy background of the consideration of alternatives and background to the design development. The Applicant has been guided by the principles described and by the technical and environmental baseline and requirements of a large-scale solar farm development project as set out in Sections 2.3 and 2.10 of NPS EN-3 'Factors influencing site selection and design'. The sections below refer to the site selection factors set out in paragraphs 2.10.18 to 2.10.45 of NPS EN-3, which is divided into the following parts:
- Irradiance and site topography
 - Network connection
 - Proximity of a site to dwellings
 - Agricultural land classification and land type
 - Accessibility
 - Public rights of ways
 - Security and lighting
- 5.1.3 The starting point for the site selection was the availability of the grid connection at National Grid Creyke Beck Substation.
- 5.1.4 A 12 km radius from National Grid Creyke Beck Substation was then established as a viable search area ('Search Area') for a potential solar scheme. The distance of the Search Area was restricted by the cable length distance, with a 12 km radius the maximum viable cable distance for a Proposed Development of this capacity. However, areas closest to the substation were preferred in principle on the basis that a shorter cable route has benefits in terms of ease and timeliness of the delivery of key infrastructure, disruption to residents and businesses along the route, and cost.
- 5.1.5 Within this Search Area, the site selection process seeks to identify locations which meet or come close to meeting those criteria which are important in considering the suitability of specific locations for large scale solar developments.

5.2 Irradiance and Topography

- 5.2.1 East Riding of Yorkshire is generally flat, with gently undulating topography, which is suitable and beneficial for solar, increasing the likelihood of being able to identify a suitable site that is capable of producing a large amount of electricity. This therefore influenced the location of the Order Limits within proximity to the National Grid Creyke Beck Substation. The general topography of the area immediately surrounding the substation is flat.
- 5.2.2 It is noted that solar irradiance in East Riding of Yorkshire is sufficiently high to support solar development.

5.3 Grid Connection and Capacity

- 5.3.1 The Applicant has secured a grid connection agreement in respect of the Proposed Development to allow export and import of electricity to and from the National Grid. The National Grid Creyke Beck Substation would facilitate the export and import of electricity from the Proposed Development to the National Grid.

5.4 Proximity of Site to dwellings

- 5.4.1 The area surrounding the National Grid Creyke Beck Substation is characterised by concentrated development surrounding the towns of Hull and Beverley, with small, dispersed settlements in the surrounding areas.
- 5.4.2 Land within the built-up areas of Hull and Beverley where there is a higher density of dwellings has been discounted. There is sufficient space within the Search Area outside of the major settlement areas to support a solar development of this scale while minimising visual amenity impacts.
- 5.4.3 The Proposed Development has been located away from the major settlements to ensure there is sufficient separation between the Proposed Development and surrounding towns to minimise adverse visual amenity impacts.
- 5.4.4 There are some scattered dwellings in proximity to the Order Limits, however, the visual amenity impacts to these dwellings will be appropriately managed through a combination of setbacks, natural topography, detailed design and landscaping.

5.5 Agricultural land classification and land type

- 5.5.1 The Applicant has taken into account the agricultural land classification (ALC) and land type when identifying the Order Limits and the solar PV development within it. This is based on the publicly available national level data and field surveys, alongside engagement with the landowners regarding the quality and viability of the land for agriculture.
- 5.5.2 A detailed survey for agricultural land quality has subsequently been undertaken and presented in the ES which confirms the majority of the land within the Order Limits is classified as Grade 3B agricultural land, which is not considered 'best and most versatile' (Grades 1 – 3A). Further information on ALC is provided in **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.

5.6 Accessibility

- 5.6.1 The Proposed Development is accessible by the Rural Road Network. The area benefits from access to the A1035, which runs from Beverley to Bridlington, the A165 which runs from Hull to just south of Leven and the A1079 which runs from Hull to York.
- 5.6.2 Access routes to the Order Limits are assessed in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**.

5.7 Conclusion

- 5.7.1 As concluded in the **Site Selection Assessment**, the land within the Order Limits is concluded to be suitable for the scale of solar development proposed and the basis on which the Applicant has selected the Order Limits accords with the approach to the consideration of alternatives set out in NPS EN-3.

6 The Proposed Development

- 6.1.1 This section provides an overview description of the Proposed Development, including the components of the Proposed Development, alongside the proposed construction, operation and decommissioning activities. The full description is contained within **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.

6.2 Components of the Proposed Development

- 6.2.1 The main elements of the Proposed Development include:
- Solar photovoltaic (PV) modules and associated mounting structures (groupings of solar PV modules are referred to as 'arrays');
 - On-site supporting equipment including inverters, transformers, direct current (DC)-DC converters and switchgear;
 - A battery energy storage system (BESS) including batteries and associated enclosures, monitoring systems, air conditioning, electrical cables and fire safety infrastructure;
 - Two on-site 132 kV substations, including transformers, switchgear, circuit breakers, control equipment buildings, control functions, material storage, parking, as well as wider monitoring and maintenance equipment;
 - Low voltage and 33 kV interconnecting cabling within and between the Land Areas to connect the solar PV modules together and to transmit electricity from the solar PV modules and BESS to one of the two on-site 132 kV substations;
 - 132 kV underground cables (two 132 kV export cables) connecting the on-site substations to the National Grid Creyke Beck Substation;
 - Works at the National Grid Creyke Beck Substation to facilitate the connection of the 132 kV underground cabling into the substation;
 - Associated infrastructure including access tracks, parking, security measures, gates and fencing, lighting, drainage infrastructure, storage containers, earthworks, surface water management, maintenance and welfare facilities, security cabins and any other works identified as necessary to enable the development;
 - Highways works to facilitate access for construction vehicles, comprising passing places where necessary to ensure that heavy goods vehicles (HGVs) can be safely accommodated amongst existing traffic, new or improved site accesses and visibility splays;

- A series of new permissive paths connecting to the existing public right of way network;
- Environmental mitigation and enhancement measures, including landscaping, habitat management, biodiversity enhancement and amenity improvements; and,
- Temporary development during the construction phase of the Proposed Development including construction compounds, parking and laydown areas.

6.3 Flexibility, development capacity and project lifetime

- 6.3.1 Paragraph 4.3.11 of NPS EN-1 recognises that in some instances, it may not be possible at the time of a DCO application for development consent for all aspects of a proposal to have been settled in precise detail. Paragraph 4.3.12 of NPS EN-1 clarifies that where some details are still to be finalised, the ES should set out to the best of the Applicant's knowledge, what the likely worst-case environmental, social, and economic effects of the Proposed Development may be and assess on that basis to ensure that the impacts of the Proposed Development, as it may be constructed, have been properly assessed.
- 6.3.2 Paragraph 2.10.70 of NPS EN-3 states that not all aspects of the proposal may have been settled in precise detail at the point of application. Such aspects including the type, number and dimensions of panels, layout and spacing are among aspects which are not settled down to a final design.
- 6.3.3 The Applicant wishes to retain flexibility regarding the design detail of certain components of the Proposed Development, as is acknowledged in NPS EN-1 paragraph 4.3.11 and paragraph 2.10.70 of NPS EN-3. The extent of flexibility sought by the Applicant is described in **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]**.
- 6.3.4 For the components described in paragraph 6.2.1 above the degree of flexibility and Limits of Deviation are controlled by a combination of documents that would be secured pursuant to the DCO as a requirement. The following core documents describe and define the design of the Proposed Development:
- The **Design Parameters Document [EN010157/APP/5.8]** which sets out parameters and principles with which the Proposed Development is required to comply.
 - The spatial extent of the layout (including access tracks, cable routing and solar PV modules) are set by the **Works Plans [EN010157/APP/2.2]**.

- Parameters including maximum heights and extents of individual components are described in **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**.
 - Design guidance and the project design principles are provided within the **Design Approach Document [EN010157/APP/5.7]**.
- 6.3.5 Solar panels generate electricity in direct current (DC) form. PV modules feed into inverters which convert electricity to alternating current (AC). Paragraph 2.10.50 of the NPS EN-3 recognises that because the inverter is separate from the panels, the total capacity of a solar farm can be measured either in terms of the combined capacity of installed solar panels (measured in DC) or in terms of the combined capacity of installed inverters (measured in AC).
- 6.3.6 Paragraph 2.10.51 of NPS EN-3 confirms that for the purposes of determining the capacity thresholds in Section 15 of the PA 2008 **[Ref. 1]**, all forms of generation other than solar are currently assessed on an AC basis, while solar farms are assessed on their DC capacity. It continues that from the dates of designation of the new NPS, for the purpose of Section 15 of the PA 2008 **[Ref. 1]**, the combined capacity of the installed inverters (measured in AC) should be used for determining the solar capacity of a site.
- 6.3.7 Paragraph 2.10.55 of NPS EN-3 states the DC installed generating capacity of a solar farm will decline over time in correlation with the reduction in panel array efficiency, and that applicants may account for this by overplanting solar panel arrays. Footnote 92 of NPS EN-3 confirms that ““Overplanting” refers to the situation in which the installed generating capacity or nameplate capacity of the facility is larger than the generator’s grid connection”. Section 7.6 within the **Statement of Need** (Appendix 3 to this Planning Statement) describes the Proposed Developments approach to overplanting.
- 6.3.8 Paragraph 2.10.56 continues, “AC installed export capacity should not be seen as an appropriate tool to constrain the impacts of a solar farm. Applicants should use other measurements, such as panel size, total area and percentage of ground cover to set the maximum extent of development when determining the planning impacts of an application”.
- 6.3.9 BESS and other electricity storage systems will play an important role in the development of a low-carbon energy system. These can be stand-alone installations or combined with electricity generating development where a grid connection allows or can be made suitable.
- 6.3.10 A BESS is being proposed as part of the Proposed Development. The Proposed Development will connect to the NETS through spare capacity at National Grid’s Creyke Beck Substation.

6.4 Lifetime of the Development

- 6.4.1 NPS EN-3 discusses typical project lifetimes for solar photovoltaic generation projects in Section 2.10. Paragraph 2.10.65 notes that an upper limit of 40 years is typical for a solar farm, although applicants may seek consent without a time-period or for differing time-periods of operation. Paragraph 2.10.68 goes on to note that decommissioning can sometimes be achieved relatively easily and cheaply.
- 6.4.2 Impacts on the use of the land are addressed and assessed in **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**. The Applicant is seeking a time limited consent for a development lifetime of 40 years. However, as noted in NPS EN-3, it is recognised that solar panel efficiency deteriorates over time, and the electrical infrastructure will have an operational lifespan, after which it will need to be replaced or removed.
- 6.4.3 In line with paragraph 2.10.69 of NPS EN-3, the **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** sets out how the Proposed Development would be decommissioned at the end of the operational life of the Proposed Development.

6.5 Construction, Operation and Decommissioning

Construction

- 6.5.1 The construction phase is anticipated to be 24 months in duration and subject to the Proposed Development being granted consent the earliest anticipated date for construction commencing is Q3 2026. However, the final construction programme will be dependent on the final detailed layout design and any potential environmental constraints that occur.
- 6.5.2 An **Outline Construction Environmental Management Plan (CEMP) [EN010157/APP/7.2]** has been prepared to support the DCO Application. The Outline CEMP sets out the mitigation measures identified through the EIA process to be employed during the construction phase. The Outline CEMP will form the framework for a CEMP that will be agreed with the local planning authority prior to construction.
- 6.5.3 Additionally, an **Outline Construction Traffic Management Plan (CTMP) [EN010157/APP/7.7]** has been prepared and submitted with the DCO Application. This includes details on construction logistics and construction worker travel, in addition to information which will guide the delivery of material, plant, equipment and staff during this proposed construction phase.

- 6.5.4 Prior to implementation, both the CEMP and CTMP will be submitted to and approved by the local planning authority pursuant to a requirement within the **Draft DCO [EN010157/APP/3.1]**.

Operation

- 6.5.5 On-site activities that are anticipated to be completed during the operational phase of the Proposed Development would include routine servicing, maintenance, and replacement of solar equipment as and when required, as well as management of mitigation areas.
- 6.5.6 It is worth noting that should there be a need to replace elements of the operational equipment of the Proposed Development, there may be a level of HGV activity required to replace equipment on-site. However, this is expected to be on an ad-hoc, low-frequency basis only.
- 6.5.7 A LEMP will be secured pursuant to the **Draft DCO [EN010157/APP/3.1]** as a requirement, which will focus on the management of both the landscape and ecological features. This must be substantially in accordance with the **Outline LEMP [EN010157/APP/7.5]**, which has been submitted as part of this DCO Application.

Decommissioning

- 6.5.8 As part of the decommissioning process, all solar infrastructure would be removed and recycled or disposed of in accordance with good practice following the waste hierarchy, with materials being reused or recycled wherever possible. It is anticipated at this stage that underground cabling would be left in-situ to avoid unnecessary ground disturbance. Any proposals to leave certain infrastructure, for example access tracks, would be discussed and agreed within landowners as part of the decommissioning process. If on-site substations are to be retained at the request of the DNO, this will be subject to further discussions and agreements/approvals as necessary.
- 6.5.9 At the time that decommissioning would take place, the regulatory framework, good industry practices and the future baseline could have altered. A Decommissioning Environmental Management Plan (DEMP) would be secured pursuant to the DCO as a requirement and would be prepared in advance of the commencement of decommissioning works, which must be substantially in accordance with the **Outline DEMP [EN010157/APP/7.4]** which has been submitted as part of this DCO Application.
- 6.5.10 Any landscape structural planting, such as tree planting, hedgerows and scrub created to deliver biodiversity mitigation and enhancement associated with the

Proposed Development that have the potential to contain protected species would be left in situ with the agreement of the landowner.

6.5.11 The decommissioning process is expected to take between 18 to 24 months.

7 Legislation and Policy Framework

- 7.1.1 This section provides an overview of the legislation and policy context for the Proposed Development. It specifically looks to outline how the Proposed Development complies with the legislation expanded upon below.
- 7.1.2 This section is divided into subheadings that focus on the legislative context, including the relationship between the PA 2008, NPSs, NPPF, local policy and the Proposed Development.

7.2 Legislative Context

Planning Act 2008 [Ref. 1]

- 7.2.1 The PA 2008 established the legal framework for applying for, examining, and determining applications for NSIPs.
- 7.2.2 The Proposed Development constitutes an NSIP development, in accordance with the PA 2008, as it comprises:

“The construction or extension of a generating station (Part 3, Section 14(1)(a) of the PA 2008) with a generating capacity of more than 50MW (Part 3, Section 15(2)(c))” .
- 7.2.3 In accordance with Part 4 of the PA 2008, development consent is required for development to the extent that it is or forms part of an NSIP.
- 7.2.4 Part 5 of the PA 2008 demonstrates that an application for an order granting development consent must be made to the SoS. In accordance with Section 42 of the PA 2008, the Applicant must consult persons, organisations, and local authorities as set out in the legislation. A **Consultation Report [EN010157/APP/5.1]** has been prepared that details compliance with Section 42 of the PA 2008.
- 7.2.5 Part 6 of the PA 2008 is to be applied when determining applications for orders granting development consent. Sections 103 to 107 provide the framework for decision-making. Section 104 applies when an NPS has effect for a specified NSIP.
- 7.2.6 Section 104 applies to the Proposed Development as the designated NPSs apply to solar projects. This means the SoS must have regard to:

(a) any national policy statement which has effect in relation to development of the description to which the application relates (a “relevant national policy statement”),

(aa) the appropriate marine policy documents (if any), determined in accordance with section 59 of the Marine and Coastal Access Act 2009,

(b) any local impact report (within the meaning given by Section 60(3)) submitted to the Secretary of State before the deadline specified in a notice under Section 60(2),

(c) any matters prescribed in relation to development of the description to which the application relates, and

(d) any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision.

7.3 National Policy Statements

7.3.1 The designated energy NPSs form the primary policy basis against which the DCO Application must be assessed.

7.3.2 NPS EN-1 **[Ref. 2]** and EN-3 **[Ref. 3]** contain the relevant national policies for solar PV NSIPs. NPS EN-5 **[Ref. 4]** is also applicable given its relevance to the Proposed Development's connection to the national electricity grid.

Overarching National Policy Statement for Energy (EN-1) **[Ref. 2]**

7.3.3 NPS EN-1 sets out the current national policy for delivering NSIP energy infrastructure in England and Wales. NPS EN-1 has effect in combination with the relevant technology-specific NPS, in this case, NPS EN-3.

7.3.4 Part 3 of NPS EN-1 identifies the need for nationally significant energy infrastructure to address energy security objectives and carbon reduction requirements, replace closing generating capacity, and support an increase in renewables supply. The assessment principles (part 4) and generic impacts (part 5) provide a framework of considerations across energy technologies.

7.3.5 Crucially, NPS EN-1 introduces CNP for low carbon infrastructure. Set out in Section 4.2 of NPS EN-1, the CNP explicitly identifies the need for nationally significant low carbon infrastructure in order to meet Government decarbonisation targets and achieve net zero ambitions. Paragraph 4.2.5 confirms that solar photovoltaic generation is a form of CNP infrastructure.

7.3.6 Paragraph 4.2.6 states that substantial weight should be given to the overarching need case for CNP infrastructure, as a starting point for determination of energy infrastructure applications. It is clarified in paragraphs 4.2.7 - 4.2.9 that this need case is to be considered taking into account the impacts of the project and the application of the mitigation hierarchy, however the CNP policy will influence how residual impacts are considered in the overall planning balance. Whilst further detail on this is provided in Chapter 5 of this Planning Statement, NPS EN-1 is referring here to the policy position that for CNP infrastructure, residual impacts remaining after application of the mitigation hierarchy are unlikely to outweigh the urgent need for its development. Exceptions to this relate to a limited, specified set of unacceptable risks presented by residual impacts. Paragraph 4.2.16 states that the starting point for SoS decision-making is that CNP infrastructures should be treated as if it has met any tests set out in policy requiring a clear outweighing of harm, exceptionality or very special circumstances.

7.3.7 That position is different for residual impacts relating to a Habitats Regulations Assessment (HRA) or Marine Conservation Zone (MCZ), neither of which are relevant to the Proposed Development.

National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) [Ref. 3]

7.3.8 NPS EN-3 together with NPS EN-1, provide the primary basis for decisions on renewable energy NSIPs.

7.3.9 The importance of the generation of electricity from renewable sources is stated in paragraph 1.1.2 of NPS EN-3:

“Electricity generation from renewable sources of energy is an essential element of the transition to net zero and meeting our statutory targets for the sixth carbon budget (CB6). Our analysis suggests that demand for electricity is likely to increase significantly over the coming years and could more than double by 2050”.

7.3.10 NPS EN-3 provides a framework for assessment and technology-specific information for specified renewable energy technologies. Solar PV is included in NPS EN-3 under Section 2.10, which includes relevant information on the technology to inform assessment and decision-making.

National Policy Statement for Electricity Networks Infrastructure (EN-5) [Ref. 4]

7.3.11 The NPS for Electricity Networks Infrastructure (NPS EN-5) is the primary basis for decisions on transmission and distribution system NSIPs and associated infrastructure. NPS EN-5's relevance to the Proposed Development is limited to

the grid connection. NPS EN-1 paragraph 4.11.4 on grid connection refers to NPS EN-5 for further guidance on relevant considerations.

7.4 National Planning Policy Framework (NPPF) [Ref. 15]

- 7.4.1 The National Planning Policy Framework (NPPF) was published in March 2012 and most recently updated in December 2024. Paragraph 5 of the NPPF confirms that it does not contain specific policies for NSIPs, and so does not have direct effect in relation to the Proposed Development. However, the NPPF may be a relevant matter in the SoS's decision making.
- 7.4.2 Paragraph 187 of the NPPF states that local planning authorities should balance the economic and other benefits of best and most versatile agricultural land. Furthermore, and as stated in footnote 65 to paragraph 188 of the NPPF, where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek developers to use areas of poorer quality land in preference as opposed to that of a higher quality.
- 7.4.3 Paragraph 168 of the NPPF encourages local planning authorities to support planning applications for all forms of renewable and low carbon development. When determining planning applications, local planning authorities should give significant weight to the benefits associated with renewable and low carbon energy generation and the proposals contribution to a net zero future.
- 7.4.4 The NPPF is supported by the National Planning Practice Guidance (NPPG) [Ref. 16], which provides guidance on implementing NPPF policies. It includes guidance on a range of topics, including climate change and renewable and low-carbon energy, in terms of plan-making and decision-making. The renewable and low carbon energy guidance includes specific detail regarding large-scale ground-mounted solar photovoltaic farms at paragraph: 013 Reference ID: 5-013-20150327.

7.5 Local Planning Policy Context

- 7.5.1 Local Impact Report(s) prepared by local planning authorities would typically be informed by the relevant local planning policy context.
- 7.5.2 The Proposed Development lies within the administrative boundary of ERYC. Based on this, the local planning policies that are relevant comprise:
- East Riding Local Plan (ERLP) 2012 – 2029 (adopted April 2016) [Ref. 17];

- East Riding Local Plan Update (ERLPU) 2020 – 2039 (emerging plan – Proposed Submission Strategy Update October 2022) **[Ref. 18]**;
- East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 (adopted November 2019) **[Ref. 19]**.

7.6 Other Policy and Legislation

The Climate Change Act 2008 [Ref. 8]

- 7.6.1 The Climate Change Act 2008 set up a framework for the UK to achieve its long-term goals of reducing GHG emissions and to ensure steps are taken towards adapting to the impact of climate change. The Act committed the UK to reducing its GHG emissions by 80% by 2050 when compared with 1990 levels.

The Climate Act 2008 (2050 Target Amendment) Order 2019 [Ref. 9]

- 7.6.2 In June 2019, legislation was passed to amend the Climate Change Act 2008 to set a new ambitious target requiring the UK to bring all GHG emissions to net zero (i.e. 100% reduction by 2050, compared with the previous target of at least 80% reduction from 1990 levels).

Net Zero Strategy: Build Back Greener [Ref. 20]

- 7.6.3 The Net Zero Strategy, published by the Government in October 2021, builds on the Government's commitments made in the Energy White Paper (2020) **[Ref. 21]** and sets out the long-term strategy, policy and proposals to keep the UK on track for future carbon budgets and sets the vision for a decarbonised economy by 2050. Page 19 of the Strategy sets out key policies related to UK power generation, including:

“By 2035 the UK will be powered entirely by clean electricity, subject to security of supply; [...] 40 GW of offshore wind by 2030, with more onshore, solar and other renewables – with a new approach to onshore and offshore electricity networks to incorporate new local carbon generation and demand in the most efficient manner that takes account of the needs of local communities [...]”

National Infrastructure Strategy [Ref. 22]

- 7.6.4 The National Infrastructure Strategy (NIS) published in November 2020 sets out plans to transform UK infrastructure, with one of the aims being to put the UK on the path to meeting its net zero emissions target by 2050. The NIS acknowledges that the UK's commitment to achieving net zero emissions by 2050

will require profound changes that will provide huge opportunities for the UK to build back better.

- 7.6.5 The NIS identifies that to deliver net zero, the share of generation from renewables needs to dramatically increase, and notes that greater generation capacity will need to come from onshore wind and solar. To support this the Government has included solar in the 2021/22 Contracts for Difference Allocation Round (AR4) to help “*deliver a diverse generation mix at low cost*” and to realise “the rate and scale of new projects needed in the near-term to support decarbonisation of the power sector and meet the Net Zero commitment” while providing other benefits such as diversity of supply through different resource requirements and a geographical separation from other significant renewable technologies.

Net Zero: Opportunities for the Power Sector [Ref. 23]

- 7.6.6 In June 2019 the Government raised the UK's ambition on tackling climate change by legislating for a net-zero GHG emissions target for the whole economy by 2050. Decarbonising the power sector is integral to achieving this goal and requires major investment in proven technologies, such as solar, which are supported by planning policy at local and national levels.
- 7.6.7 The NIC, the official advisor to the Government on infrastructure, has subsequently produced a report, ‘NetZero: Opportunities for the Power Sector’, in March 2020, which sets out the infrastructure required in order to meet the 2050 target, including the amount of new renewable energy development that would need to be deployed. Importantly, the NIC recommends that the generation mix is up to around 90% renewables. The report recommends that across all scenarios, significant solar, onshore wind, and offshore wind, with between 129-237 GW of renewable capacity, is in operation by 2050, including:
- 56-121 GW of Solar;
 - 18-27 GW of onshore wind; and
 - 54-86 GW of offshore wind.
- 7.6.8 The above requires an increase in installed capacity, including up to nine times more solar than is currently installed in the UK, which is presently around 17.1GW according to the Solar Photovoltaics deployment, August 2024 published by the Department for Energy Security and Net Zero.
- 7.6.9 Although the above figures are high-level, they demonstrate the amount of new infrastructure that is required. The scale of this need is such that it must be shared throughout the UK and in recognition that climate change is both a national and global issue.

British Energy Security Strategy [Ref. 10]

- 7.6.10 In April 2022, the Government published the British Energy Security Strategy, which demonstrates the need for secure, clean and affordable British energy for the long term. This states that the Government will be supportive of the effective use of land by encouraging large-scale projects to be located on previously developed or lower-value land, where possible, and to ensure projects are designed to avoid, mitigate, and, where necessary, compensate for the impacts of using greenfield sites. The Government will also support solar that is co-located with other functions (for example, agriculture, onshore wind generation, or storage) to maximise the efficiency of land use.

Powering up Britain (March 2023) [Ref. 12]

- 7.6.11 Powering up Britain sets out the Government's plan to enhance the UK's energy security, seize economic opportunities in the transition and deliver on net zero commitments. The paper is focused on the transition between UK oil and gas to renewable energy sources. In order to meet its goal of quintupling its solar power by 2035, the paper states, regarding large-scale solar development. "Government seeks large scale solar deployment across the UK, looking for development mainly on brownfield, industrial and low/medium grade agricultural land. The Government will therefore not be making changes to categories of agricultural land in ways that might constrain solar deployment."

A Green Future: Our 25-Year Plan to Improve the Environment [Ref. 24]

- 7.6.12 The 25-Year Environment Plan published in 2018 sets out the Government's 25-year plan to improve the environment within a generation. It aims to deliver cleaner air and water in our cities and rural landscapes, protect threatened species, and provide richer wildlife habitats. It calls for an approach to agriculture, forestry, land use and fishing that puts the environment first.
- 7.6.13 It sets out 10 goals which include the achievement of and management of pressure by providing: clean air, clean and plentiful water, thriving plants and wildlife, reduced risk of harm from environmental hazards like flooding and drought; the more sustainable and efficient use of resources from nature; enhanced beauty; heritage and engagement with the natural environment; mitigation and adaption to climate change; minimisation of waste; management of exposure to chemicals; and enhanced biosecurity.

The Environment Act 2021 [Ref. 25]

- 7.6.14 The Environment Act 2021 makes provisions about targets, plans and policies for improving the natural environment and has introduced the concept of mandatory

biodiversity net gain (BNG) for new development, including for NSIPs. The provisions relating to NSIPs are not yet in force, but are widely expected to be introduced from late 2025. Schedule 15 of the Environment Act 2021, when commenced, will amend the Planning Act 2008 to introduce a “biodiversity gain statement” to the NPS. It is expected that the biodiversity gain statement will specify a requirement for new NSIPs to provide a minimum 10% BNG.

Clean Power 2030 Action Plan [Ref 29]

- 7.6.15 The Clean Power 2030 Action Plan, published in December 2024 emphasises the need to accelerate the pace and scale of renewable energy development to maintain a secure and affordable energy supply and protect the environment from the most damaging effects of climate change. The Clean Power 2030 Action Plan outlines the DESNZ’s ambition for 45-47 GW of solar power by 2030 as well as onshore and offshore wind. The Clean Power 2030 Action Plan outlines the government’s steps to achieving Clean Power by 2030 which includes reforming the grid connections process and reducing the queue to connect, speeding up the planning and consenting process, reforming the electricity markets and focusing on supply chains and workforces.

8 Planning Assessment

8.1 Overview

- 8.1.1 This section provides an assessment of how the Proposed Development complies with relevant policy, including the Energy NPSs which are the primary policy basis for the SoS's decision. However, reference has still been made to the NPPF and local planning policies where they could constitute important and relevant considerations for the SoS's decision.
- 8.1.2 This section assesses the Proposed Development against Part 4 of NPS EN-1 (Assessment Principles), Section 2.10 of NPS EN-3 (solar photovoltaic generation) and Sections 2.3 and 2.9 of NPS EN-5. It provides a summary of the Proposed Development's compliance with the key relevant policy(s) on a topic-by-topic basis.
- 8.1.3 This Planning Statement should be read alongside Appendix 1 **Policy Accordance Tables**, the purpose of which is to provide a comprehensive assessment of the Proposed Development's compliance against each relevant national and local planning policy.

8.2 General principles of assessment

- 8.2.1 Paragraph 4.1.3 of NPS EN-1 states that, given the level and urgency of the need for infrastructure projects of the types covered by the energy NPSs, the SoS will start with a presumption in favour of granting consent to applications for energy NSIPs, and that presumption applies unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused.
- 8.2.2 When weighing the adverse impacts against the benefits of energy NSIPs, paragraph 4.1.5 of NPS EN-1 states that the SoS should take into account both the potential benefits, including the contribution to meeting the need for energy infrastructure, job creation, reduction of geographical disparities, environmental enhancements, and any long-term or wider benefits. In addition, any potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce, mitigate, or compensate for any adverse impacts, following the mitigation hierarchy, should be taken into account.
- 8.2.3 Paragraph 4.1.6 of NPS EN-1 outlines that environmental, social, and economic benefits and adverse impacts both nationally, regionally and locally should be taken into account.

- 8.2.4 As set out previously in **section 7.3** of this Planning Statement, NPS EN-1 paragraphs 4.2.4-5 outline that there is a CNP for the provision of nationally significant low carbon infrastructure. Paragraph 4.2.7 of NPS EN-1 adds that the CNP policy applies following the normal consideration of the need case, the impacts of the project, and the application of the mitigation hierarchy. Paragraph 4.2.14 of NPS EN-1 states that the SoS will consider the impacts and benefits of CNP Infrastructure on a case-by-case basis. However, paragraph 3.3.63 of NPS EN-1 states that 'the urgent need for CNP Infrastructure will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy'.
- 8.2.5 NPS EN-1 paragraph 4.1.7 states that: 'For projects which qualify as CNP Infrastructure, it is likely that the need case will outweigh the residual effects in all but the most exceptional cases. This presumption, however, does not apply to residual impacts which present an unacceptable risk to, or interference with, human health and public safety, defence, irreplaceable habitats or unacceptable risk to the achievement of net zero. Further, the same exception applies to this presumption for residual impacts which present an unacceptable risk to, or unacceptable interference offshore to navigation, or onshore to flood and coastal erosion risk'. Further detail on compliance with the policies for CNP infrastructure is provided later below.
- 8.2.6 ERYC Local Plan Policy EC5 states that proposals for the development of the energy sector, will be supported where any significant adverse impacts are addressed satisfactorily, and the residual harm is outweighed by the wider benefits of the proposal.
- 8.2.7 Paragraph 4.1.12 of NPS EN-1 specifies that other matters that the SoS may consider both important and relevant to their decision-making may include local development plan documents or other documents in the Local Development Framework. However, NPS EN-1 confirms at paragraph 4.1.15 that the NPS is the primary policy document and would take precedence in the event of a conflict between the NPS and the documents specified in paragraph 4.1.12 of NPS EN-1.
- 8.2.8 **Section 7.5** of this document sets out the local policy context for the Proposed Development, and tables 4 and 5 of the **Policy Accordance Tables** at Appendix 1 also provide an assessment and appraisal of the relationship between the Proposed Development with the NPPF and relevant local planning policies.
- 8.2.9 It is noted within paragraph 4.1.18 of NPS EN-1 that the SoS may also decide to take into account any development consent obligations under Section 106 of the Town and Country Planning Act as amended by Section 174 of the PA 2008 that

the Applicant decides to agree with the local authorities prior to the determination of the DCO Application.

- 8.2.10 Paragraph 4.1.21 of NPS EN-1 requires applicants to have considered the financial and technical feasibility of developments. For the Proposed Development, the Applicant has considered both the commercial and financial matters through the submitted **Funding Statement [EN010157/APP/4.3]**. The Applicant has significant experience in delivering solar and other renewable energy developments. The **Works Plans [EN010157/APP/2.2]** have been informed by technical studies carried out by the Applicant and their professional team which has informed the areas identified for solar PV modules, BESS and associated infrastructure. The **Grid Connection Statement [EN010157/APP/7.1]** also demonstrates how the Proposed Development will connect to the NETS.
- 8.2.11 Paragraph 4.1.19 of NPS EN-1 emphasises the importance of early engagement with stakeholders of the Proposed Development. This process of engagement with both public regulators and statutory bodies, alongside those likely to have an interest in the application is set out within the submitted **Consultation Report [EN010157/APP/5.1]**.
- 8.2.12 It is emphasised within NPS EN-1 at paragraph 4.7.5 that there is an importance of good design for NSIPs. With the document highlighting that 'Design Principles' should be established from the outset of the project to guide the development from conception to operation.
- 8.2.13 Paragraphs 8.2.45 to 8.2.52 of this Planning Statement, demonstrate how the DCO Application has incorporated good design into the Proposed Development in accordance with Section 4.7 of NPS EN-1. The **Design Approach Document [EN010157/APP/5.7]** and **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** identify how the project design principles have influenced the design development of the Proposed Development.

Section 4.2 of NPS EN-1 – Critical national priority for low carbon infrastructure

- 8.2.14 Paragraph 4.2.2 of NPS EN-1 explains that ensuring a smooth transition to abundant, low carbon energy generation will ensure the UK is energy independent, resilient and secure. It identifies the criticality of the deployment of "new low carbon sources of energy at speed and scale" in terms of our energy security and net zero ambitions.
- 8.2.15 Paragraph 4.2.4 of NPS EN-1 is fundamental in highlighting the government's position on the criticality of the delivery of low carbon energy generation. It states

that the government has "concluded there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure".

- 8.2.16 Paragraph 4.2.5 of NPS EN-1 relates to definitions of low carbon infrastructure for the purposes of the CNP policy. It states that "for electricity generation, all onshore and offshore generation that does not involve fossil fuel combustion" is included. This confirms that NSIP scale solar PV development is CNP. It also advises the infrastructure relating to the electricity grid is covered, including "network reinforcement and upgrade works, and associated infrastructure such as substations".
- 8.2.17 Paragraph 4.2.6 of NPS EN-1 expands further on how low carbon energy infrastructure should be considered, and references earlier paragraphs in NPS EN-1, namely 3.2.6 to 3.2.8 which confirm that applications for NSIPs covered by NPS EN-1 should be assessed "on the basis that the government has demonstrated that there is a need for those types of infrastructure which is urgent". Paragraph 3.2.7 of NPS EN-1 goes on to state that the SoS has "determined that substantial weight should be given to this need when considering applications for development consent". Paragraph 3.2.8 of NPS EN-1 further advises that there is no requirement on the SoS to consider separately the specific contribution of any individual project in satisfying the need established in NPS EN-1.
- 8.2.18 Paragraph 4.2.7 of NPS EN-1 advises that the CNP policy applies "following the normal consideration of the need case, the impacts of the project, and the application of the mitigation hierarchy". It points out that it is therefore relevant during SoS decision making, and with particular reference to any residual impacts that have been identified and should be given consideration by the ExA when making its recommendation to the SoS.
- 8.2.19 Paragraphs 4.2.10 to 4.2.12 of NPS EN-1 cover the Applicant's assessment and require the Applicant to show how their proposals meet the requirements of NPS EN-1, applying the mitigation hierarchy and any other relevant legal requirements. Applicants are required to "apply the mitigation hierarchy and demonstrate that it has been applied" and demonstrate that all "residual impacts are those that cannot be avoided, reduced or mitigated". It further advises applicants to demonstrate, as far as possible, how residual effects may be compensated for to the extent that the relevant topic specific policy requires compensation.
- 8.2.20 Paragraph 4.2.15 of NPS EN-1 refers to SoS decision making. It states that "where residual non-HRA or non-MCZ impacts remain after the mitigation hierarchy has been applied, these residual impacts are unlikely to outweigh the urgent need for this type of infrastructure. Therefore, in all but the most

exceptional circumstances, it is unlikely that consent will be refused on the basis of these residual impacts".

- 8.2.21 This section of the Planning Statement alongside relevant chapters from the **ES Volume 2, Chapters 6 to 15 [EN010157/APP/6.2]** and the **Design Approach Document [EN010157/APP/5.7]** set out how potential impacts are addressed including the measures taken to avoid, reduce or mitigate such impacts. The instances where CNP is required to be relied upon due to residual significant effects is in relation to the topics of:
- Landscape and Visual; and
 - Land, Soil and Groundwater.
- 8.2.22 Paragraph 4.2.19 of NPS EN-1 states that, "where, following Appropriate Assessment, CNP Infrastructure has residual adverse impacts on the integrity of sites forming part of the UK national site network, either alone or in combination with other plans or projects, the Secretary of State will consider making a derogation under the Habitats Regulations."
- 8.2.23 The Conservation of Habitats and Species Regulations 2017 require that consideration should be given as to whether a project may have a significant effect on a protected site or any site to which the same degree of protection is applied as a matter of policy, either alone or in combination with other plans and projects. Applicants are required to supply such information as the 'competent authority' (i.e. the SoS) may reasonably require for the purposes of the assessment or to enable it to determine whether an Appropriate Assessment is required.
- 8.2.24 Paragraph 4.1.19 of NPS EN-1 confirms that applicants should seek early engagement from the appropriate Statutory Nature Conservation Bodies (SNCB). The **Habitats Regulations Assessment – Information to inform Appropriate Assessment [EN010157/APP/5.3]** submitted as part of this DCO Application sets out at Stage 1 Screening that likely significant effects (alone or in combination) could not be ruled out and therefore further assessment was required. The subsequent Appropriate Assessment concludes that, with the implementation of mitigation measures secured through the **Outline CEMP [EN010157/APP/7.2]**, **Outline DEMP [EN010157/APP/7.4]** and **Outline LEMP [EN010157/APP/7.5]**, there would be no adverse effects (alone or in combination) on the integrity of the European sites screened into the assessment, as a result of the Proposed Development.

Section 4.3 of NPS EN-1 - Environmental Effects/Considerations

- 8.2.25 Paragraphs 4.3.1 and 4.3.2 of NPS EN-1 discuss that project proposals are required to be accompanied by an Environmental Statement (ES) describing the

aspects of the environment likely to be significantly affected by the project, if the project is subject to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Paragraph 4.3.3 of NPS EN-1 specifies the range of effects, their duration, and measures for avoiding or mitigating significant effects that must be considered at all project stages.

- 8.2.26 An ES has been submitted with this DCO Application. The scope of the submitted ES is in accordance with the **ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]**. In accordance with NPS EN-1, the ES has been structured to enable a clear understanding of the Proposed Development's construction, operational, and decommissioning phases. In addition, the ES has been prepared in accordance with the policy contained in paragraphs 4.3.1 and 4.3.4 of NPS EN-1.
- 8.2.27 NPS EN-1 paragraph 4.3.11 acknowledges that it may not be possible for all elements of an application to be settled in precise detail at the time of submission and that the Applicant should explain where details are yet to be finalised. Paragraph 4.3.12 goes on to state that where details are still to be finalised, the ES should assess likely worst-case environmental, social and economic effects of the proposed development. This is also known as the application of the 'Rochdale Envelope' approach. Section 3.5 of **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** sets out the Applicant's approach which involves: specifying parameter ranges; including details of the maximum and, where relevant, the minimum size (footprint, width, and height relative to above ordnance datum (AOD)); technology, and; locations of the different elements of the Proposed Development, where flexibility needs to be retained.

Section 4.3 of NPS EN-1 and Section 2.3 of NPS EN-3 - Alternatives and Site Selection

- 8.2.28 **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** sets out the Applicant's approach to alternatives and how the design has developed having regard to environmental and other factors. The **Site Selection Assessment** at Appendix 2 to this Planning Statement demonstrates a consideration of the relevant policy and its applicability to the early site selection process that the Applicant has undertaken.
- 8.2.29 Paragraph 4.3.9 of NPS EN-1 states that: "...the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to a proposed development is in the first instance matter of law". It goes on to state that "This NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option from a policy perspective. Although there are specific requirements in relation to

compulsory acquisition and habitats sites, the NPS does not change requirements in relation to compulsory acquisition and habitats sites”.

- 8.2.30 Paragraph 4.3.15 of NPS EN-1 advises that applicants are “obliged to include in their ES, information about the reasonable alternatives they have studied. This should include an indication of the main reasons for the Applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility”.
- 8.2.31 NPS EN-1 paragraphs 4.3.16 and 4.3.17 further note that: “In some circumstances, the NPSs may impose a policy requirement to consider alternatives” and that where “there is a policy or legal requirement to consider alternatives, the Applicant should describe the alternatives considered in compliance with these requirements”.
- 8.2.32 Paragraph 4.3.22 of NPS EN-1 helps set the framework for decision making around alternatives and provides the key principles which should be considered when attributing weight:
- The consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; and
 - Only alternatives that can meet the objectives of the proposed development need to be considered.
- 8.2.33 Paragraph 4.3.23 of NPS EN-1 advises the SoS should be guided by whether there is a “realistic prospect of the alternative delivering the same infrastructure capacity... in the same timescale as the proposed development”. Paragraph 4.3.24 importantly recognises that the SoS should not “refuse an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure”. The paragraph continues to say that the SoS should have regard to the possibility that “all suitable sites for energy infrastructure of the type proposed may be needed for future proposals”. There are also specific circumstances where there is a requirement to consider alternatives. The circumstances relating to when they are required and the Applicant's response to these circumstances is set out, below:
- Where a proposal would involve the compulsory acquisition of land or interests in land (NPS EN-1 paragraph 4.3.9). The DCO Application is seeking compulsory acquisition powers. Please see the **Statement of Reasons [EN010157/APP/4.1]** and **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** and the **Site Selection Assessment** at Appendix 2 to this Planning Statement regarding consideration of alternatives, which together demonstrate that there are no alternatives to compulsory acquisition.

- Where a development would be located near a sensitive receptor site for air quality (NPS EN-1 paragraph 5.2.7). The Proposed Development is not within an Air Quality Management Area (AQMA) nor are there any AQMAs declared within the East Riding of Yorkshire Council administrative area.
- Where a development would lead to significant harm to biodiversity and geological conservation interests (NPS EN-1 Section 5.4). Biodiversity and geological conservation considerations of reasonable alternatives have informed the design of the Proposed Development from the outset and have been integrated as part of the design process, as described in the **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** and **Design Approach Document [EN010157/APP/5.7]**. This has facilitated an approach to mitigating impacts that first seeks to avoid impacts, then minimise them, and then take on-site measures to rehabilitate or restore biodiversity.
- Where a development would result in an adverse effect on the integrity of a European site that cannot be avoided (NPS EN-1 Section 5.4). The **Habitats Regulations Assessment - Information to Inform Appropriate Assessment [EN010157/APP/5.3]** has been submitted with the DCO Application which concludes that the Proposed Development would not result in an adverse impact on the integrity of a European Site, therefore there is no requirement to consider alternatives in this context.
- Where a development would be located within, or partially within, Flood Zone 2 or Flood Zone 3 (NPS EN-1 Section 5.8). In this case the Sequential Test should be undertaken. If following application of the Sequential Test, it is not possible for the Proposed Development to be located in areas of lower flood risk the Exception Test can be applied, which provides a method of allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available. With regard to applying the Sequential Test, paragraph 5.8.23 of NPS EN-1 sets out that consideration of alternative sites should take account of the policy on alternatives described in Section 4.3 of NPS EN-1. The majority of the land within the Order Limits is within Flood Zones 2 and 3. Detail on how the sequential and Exception Tests have been met are provided below and in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**.
- Where a development would be located within a National Park, the Broads or an Areas of Outstanding Natural Beauty (now National Landscape) (NPS EN-1 Section 5.10). The Proposed Development is not located in or near such designations, therefore no further consideration of alternatives in this regard is required.

- 8.2.34 The policy is clear that work should be undertaken on a proportionate basis and any alternative would need to be a reasonable alternative and so would be expected to deliver the same capacity in the same timeframes. Indeed, there is acknowledgement that other sites may exist which potentially have lesser impacts than the Proposed Development but that they may equally be required for further energy infrastructure in the future (NPS EN-1 paragraph 4.2.24). This goes to the core of the approach to planning in England and Wales, which is that applications should be judged on their own merits.
- 8.2.35 In terms of legislative requirements on alternatives, Regulation 14(2)(d) of the EIA Regulations 2017 states that an ES should “include a description of the reasonable alternatives studied by the Applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment”.
- 8.2.36 **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** outlines the reasonable alternatives that have been considered by the Applicant. A **Site Selection Assessment** has also been prepared and is included in Appendix 2 to this Planning Statement. These reports should also be read in conjunction with the **Statement of Need** at Appendix 3 to this Planning Statement.
- 8.2.37 **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** and the **Site Selection Assessment** at Appendix 2 to this Planning Statement conclude that there were no alternative technologies or sites studied by the Applicant that could deliver the same outcome as the Proposed Development. The following conclusions were drawn in these documents:
- Alternative types of renewable energy generation technologies, such as wind and hydrogen, were not considered viable for the Order Limits by the Applicant.
 - Several alternative solar technologies and design options have been considered throughout the design process to date. The parameters of the DCO Application will seek to maintain a degree of flexibility under the Rochdale Envelope to allow for the latest solar technology to be utilised at the time of construction.
 - The design and layout of the Proposed Development has been developed through an iterative process which has been informed by the ongoing environmental assessment process, site selection assessment and taking into consideration the design principles and controls and engagement with stakeholders and consultees. The evolution of the design has informed the determination of the proposed Order Limits.

Section 4.4 of NPS EN-1 and Section 4.3 of the NPS EN-3 - Health

- 8.2.38 Paragraph 4.4.1 of NPS EN-1 highlights that energy infrastructure has the potential to impact the health and well-being of the population. Paragraph 4.4.4 of NPS EN-1 goes on to state that where development has the potential to affect human beings, the ES should assess those effects for each element of the project, identifying any adverse health impacts and measures to avoid, reduce, or compensate for the impacts as appropriate.
- 8.2.39 Paragraph 4.4.7 of NPS EN-1 advises that the aspects of energy infrastructure which are “most likely to have a significantly detrimental impact on health are subject to separate regulation (for example air pollution) which will constitute suitable mitigation of them, so that it is unlikely that health concerns will either by themselves constitute a reason to refuse consent or require specific mitigation”. Paragraph 4.4.8 of NPS EN-1 continues, however, to advise that not all potential sources of health impacts will be mitigated in such a way and the “SoS may want to take account of health concerns when setting requirements relating to a range of impacts such as noise”.
- 8.2.40 Health was scoped out of the Environmental Statement as an individual topic, however, impacts upon human health are assessed across **ES Volume 2, Chapter 6: Air Quality, Chapter 11: Landscape and Visual, Chapter 12: Noise and Vibration, Chapter 13: Population, Chapter 14: Transport and Access [EN010157/APP/6.2]** and **ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4]**.
- 8.2.41 In regard to health impacts in relation to **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**, reports on potential impacts on human health in relation to dust and particulate matter emissions during construction and decommissioning phases, including the operation of equipment. The chapter concludes there is negligible risk of impact and therefore no significant residual effects are expected. In terms of human health impacts as a result of road traffic exhaust emissions during construction, operation and decommissioning, the ES again reports that, following the implementation of additional mitigation, residual impacts are not significant.
- 8.2.42 **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** addresses potential impacts on human health in relation to residents’ wellbeing and users of the public rights of way and minor road network as well as impacts on residents’ amenity. Visual mitigation is primarily delivered through embedded mitigation (such as planting) while mitigation from the impacts of construction itself is secured within the **Outline CEMP [EN010157/APP/7.2]**. In addition, the **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]** includes measures to ensure safety of the public rights of way users. There is no

assessment of the significance of impacts on health and wellbeing as an individual receptor in Chapter 11, however the impacts are addressed across a range of receptors set out within **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**.

- 8.2.43 **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** addresses potential impacts on human health in relation to residents' wellbeing during the construction and decommissioning phases. This chapter concludes that there are not anticipated to be any adverse noise and vibration effects that may adversely affect residents' wellbeing to a significant level.
- 8.2.44 **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** reports on potential impacts to human health in relation to mental and physical health and wellbeing to users of the proposed permissive paths during the operation (including maintenance) phase. This chapter concludes there is likely to be a direct, permanent, long term slight beneficial residual effect on users of public rights of way, following the implementation of additional mitigation measures, which is considered to be not significant.
- 8.2.45 **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** reports on potential impacts to human health caused by disruption to amenity or safety, and where community links and access to facilities and employment may be materially changed during the construction and decommissioning phases. The chapter concludes there is not anticipated to be significant adverse effects on human health. This is because no significant adverse fear and intimidation effects on road users (including assessed cycle networks) are anticipated, and no significant adverse community severance effects or driver and passenger delay effects are anticipated.
- 8.2.46 **ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4]** reports on potential impacts to human health caused by nuisance to people living in nearby residential properties during the operation (including maintenance) phase. The report concludes adverse effects on people living in nearby residential properties are not anticipated to experience significant adverse glint and glare effects. This is principally because the potentially affected residential properties are located a sufficient distance away from the nearest reflective source (in this instance these are the solar panels) as well as because of the limited duration that the sun is in position in the sky where reflections on those properties is possible.

Section 4.6 of NPS EN-1– Environment and Biodiversity Net Gain

- 8.2.47 Paragraph 4.6.1 of NPS EN-1 outlines that “Environmental net gain is an approach to development that aims to leave the natural environment in a

measurably better state than beforehand. Projects should therefore not only avoid, mitigate and compensate harms, following the mitigation hierarchy, but also consider whether there are opportunities for enhancements”.

- 8.2.48 Paragraph 4.6.2 of NPS EN-1 explains how BNG is an essential component of environmental net gain (although it is not yet a mandatory requirement for NSIPs in England). Projects in England are encouraged to consider and seek to incorporate improvements in natural capital, ecosystem services and the benefits they deliver when planning how to deliver biodiversity net gain.
- 8.2.49 Project design principle 4.4, as set out in the **Design Approach Document [EN010157/APP/5.7]**, requires that the Proposed Development is designed to deliver wildlife/biodiversity enhancement. The mitigation and enhancement areas will deliver a minimum 10% net gain in biodiversity as outlined in **ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]**. Paragraph 4.6.15 of NPS EN-1 advises that applications for development consent should be accompanied by a statement demonstrating how opportunities for delivering wider environmental net gains have been considered and, where appropriate, incorporated into the project's design (including any relevant operational aspects). Opportunities to deliver wider environmental gains are outlined by topic in the **ES Volume 2, Chapters 6-15 [EN010157/APP/6.2]** and the **Outline LEMP [EN010157/APP/7.5]**.

Section 4.7 of NPS EN-1 and Section 2.5 of NPS EN-3 - Criteria for good design for Energy Infrastructure

- 8.2.50 NPS EN-1 Paragraph 4.7.2 states, "Applying good design to energy projects should produce sustainable infrastructure sensitive to place, including impact on heritage, efficient in the use of natural resources, including land-use, and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible".
- 8.2.51 Paragraph 4.7.4 of NPS EN-1 states that design principles should be established during the early stages of the project lifecycle. Footnote 122 of NPS EN-1 states that "Design principles should take into account any national guidance on infrastructure design, this could include for example the Design Principles for National Infrastructure published by the National Infrastructure Commission".
- 8.2.52 NPS EN-1 paragraph 4.7.6 states that whilst applicants may have very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the Applicant to demonstrate good design in terms of siting relative to existing landscape character, land form and vegetation. Furthermore, the design and sensitive use of materials in any associated development such as electricity substations will assist in ensuring that such development contributes to

the quality of the area. Applicants should also, so far as is possible, seek to embed opportunities for nature inclusive design within the design process.

- 8.2.53 Paragraph 4.7.7 of NPS EN-1 requires applicants to demonstrate in their application documents how the design process was conducted and how the proposed design evolved.
- 8.2.54 Paragraph 4.7.10 of NPS EN-1 states that given the importance the PA 2008 places on good design and sustainability, the SoS needs to be satisfied that energy infrastructure developments are sustainable and, having regard to regulatory and other constraints, are as attractive, durable, and adaptable (including taking account of natural hazards such as flooding) as they can be.
- 8.2.55 Paragraphs 2.5.1 to 2.5.2 of NPS EN-3 refers to Section 4.7 of NPS EN-1 and emphasise that proposals for renewable energy infrastructure should demonstrate good design with respect to landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage.
- 8.2.56 Paragraph 2.10.60 of NPS EN-3 relates specifically to solar development and notes that applicants should consider several factors when designing and laying out the proposed sites. These include proximity to available grid capacity to accommodate the scale of generation, orientation, topography, previous land use, and the ability to mitigate environmental impacts and flood risk.
- 8.2.57 Further detail is set out in **section 2** of this Planning Statement, **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** and in the **Design Approach Document [EN010157/APP/5.7]** which set out in detail the Applicant's actions which demonstrate compliance with the design related policy within NPS EN-1 and NPS EN-3.

Section 4.10 of NPS EN-1– Climate Change Adaptation and Resilience

- 8.2.58 Paragraph 4.10.8 of NPS EN-1 states that applicants must consider the impacts of climate change when planning the location, design, build, operation and, where appropriate, decommissioning of new energy infrastructure. Paragraph 4.10.5 of NPS EN-1 states that applications should consider nature-based solutions. This can also result in biodiversity benefits as well as increasing absorption of carbon dioxide from the atmosphere in adapting to climate change.
- 8.2.59 Paragraph 2.3.2 of NPS EN-5 requires the consideration of the effects of flooding (particularly on substations that are vital for the electricity transmission and distribution network), winds and storms (on overhead lines), higher average temperatures (leading to increased transmission losses), earth movement or

subsidence caused by flooding or drought (on underground cables) and coastal erosion (for the landfall of offshore transmission cables and their associated substations in the inshore and coastal locations respectively).

- 8.2.60 The design has taken into account impacts from climate change. Site-specific hydraulic modelling has been carried out to assess the actual risk of fluvial flooding to the Proposed Development and includes a simulation of the Credible Maximum Scenario. The Credible Maximum Scenario accounts for the plausible worst-case impacts of climate change and has been applied in accordance with the requirements set out in paragraph 4.10.12 of NPS EN-1 to ensure the design and layout of the safety critical elements (exporting substations) are sufficiently resilient to extreme climate change. Further detail on the flood modelling undertaken is provided in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**.

Section 4.11 of NPS EN-1 and Section 2.10 of NPS EN-3 Network Connection

- 8.2.61 Paragraph 4.11.1 of NPS EN-1 notes that the grid connection point of a generating station to the electricity network is an important consideration for applicants.
- 8.2.62 Paragraph 2.10.21 of NPS EN-3 notes that applicants should consider issues relating to network connection in Section 4.11 of NPS EN-1 and in NPS EN-5. In particular, and where appropriate, applicants should proceed in a manner consistent with the regulatory regime for offshore transmission networks.
- 8.2.63 The **Grid Connection Statement [EN010157/APP/7.1]** submitted with the DCO Application demonstrates that a connection to National Grid Creyke Beck Substation is secured.

Section 4.12 of NPS EN-1– Pollution Control and Other Environmental Regulatory Regimes

- 8.2.64 Paragraph 4.12.1 of NPS EN-1 states that discharges or emissions from a proposed project, and which lead to other direct or indirect impacts on terrestrial, freshwater, marine, onshore, and offshore environments, or which include noise and vibration may be subject to separate regulation under the pollution control framework or other consenting and licencing regimes.
- 8.2.65 Paragraph 4.12.9 of NPS EN-1 states that the SoS should focus on whether the development itself is an acceptable use of the land or sea, and that the impact of that use, rather than the control of processes, emissions and discharges themselves. Paragraph 4.12.10 notes that the SoS should work on the

assumption that the relevant pollution control regime and other environmental regulatory regimes will be properly applied and enforced by the relevant regulator.

- 8.2.66 The DCO Application is accompanied by an **Other Consents and Licences Document [EN010157/APP/5.9]**. This outlines the consents, permits and licenses that would be required to facilitate the Proposed Development other than those incorporated within the DCO.
- 8.2.67 The construction phase environmental impacts of the Proposed Development would be managed through the implementation of a CEMP. An **Outline CEMP [EN010157/APP/7.2]** has been submitted with the DCO Application and sets out a series of measures, based on best-practice guidance, to control the environmental effects of construction of the Proposed Development. The CEMP, in accordance with the requirements of the draft DCO, must be approved prior to the commencement of works and is to be substantially in accordance with the outline CEMP. These measures will form an important part of the Applicant's efforts to control construction phase impacts.
- 8.2.68 Ongoing impacts arising from the operational phase of the Proposed Development are assessed to be few and minor. However, any arising impacts will be controlled through the **Outline Operational Environmental Management Plan (OEMP) [EN010157/APP/7.3]** submitted with the DCO Application. The **Outline DEMP [EN010157/APP/7.4]** will control environmental effects as identified in **ES Volume 2, Chapters 6-15 [EN010157/APP/6.2]** during the decommissioning of the Proposed Development. In accordance with the requirements of the **Draft DCO [EN010157/APP/3.1]**, the OEMP and DEMP must be substantially in accordance with the Outline OEMP and Outline DEMP.

Section 4.13 of NPS EN-1 - Safety

- 8.2.69 Paragraph 4.13.1 of NPS EN-1 explains that the Health and Safety Executive (HSE) is responsible for enforcing a range of occupational health and safety legislation, some of which is relevant to the construction, operation and decommissioning of energy infrastructure. Paragraph 4.13.3 confirms that some energy infrastructure will be subject to the Control of Major Accident Hazards Regulations 2015 (COMAH Regulations).
- 8.2.70 The DCO Application is accompanied by an **Outline Battery Safety Management Plan [EN010157/APP/7.6]**, which sets out the key fire safety provisions for the BESS including measures to reduce fire risk and fire protection measures.

Section 4.14 of NPS EN-1 – Hazardous Substances

- 8.2.71 Paragraph 4.14.1, NPS EN-1 states that all establishments wishing to hold stocks of certain hazardous substances above a certain threshold require Hazardous Substances Consent (HSC).
- 8.2.72 There is no requirement for storage or use of hazardous substances at or above Controlled Quantities for the Proposed Development and HSC is not required. Notwithstanding this, pollution prevention and control measures with management provisions are set out in the **Outline CEMP [EN010157/APP/7.2]** which is secured pursuant to the **Draft DCO** as a requirement **[EN010157/APP/3.1]**.

Section 4.15 of NPS EN-1– Common Law Nuisance and Statutory Nuisance

- 8.2.73 Paragraph 4.15.5 of NPS EN-1 states that the application stage of an energy NSIP, it is important that possible sources of nuisance under Section 79(1) of the Environmental Protection Act 1990, and how they may be mitigated or limited, are considered by the SoS so that appropriate requirements can be included in any subsequent order granting consent. Paragraph 4.15.6 of NPS EN-1 advises that at the application stage of an energy NSIP, it is important that the SoS consider possible sources of nuisance under Section 79(1) of the Environmental Protection Act 1990 and how they may be mitigated or limited so that appropriate requirements can be included in any subsequent DCO.
- 8.2.74 The Applicant has prepared and submitted with the DCO Application a **Statement of Statutory Nuisance [EN010157/APP/5.4]** as required under APFP Regulation 5(2)(f) and paragraph 4.15.5 of NPS EN-1. Measures including obtaining Section 61 consent for control of noise on construction sites, which would include agreed construction noise limits for nearby noise sensitive receptors, are set out in the **Outline CEMP [EN010157/APP/7.2]** and **Outline DEMP [EN010157/APP/7.4]** and are secured pursuant to the DCO as a requirement.
- 8.2.75 Article 11 of the submission version of the **Draft DCO [EN010157/APP/3.1]** deals with defence to proceedings in respect of statutory nuisance and provides that no person is able to bring statutory nuisance proceedings under the Environmental Protection Act 1990 in respect of noise, if the noise is created in the course of carrying out construction, maintenance or decommissioning of the authorised development and for which notice has been given under Section 60 or consent obtained under Section 61(9) of the Control of Pollution Act 1974 or which cannot be reasonably avoided as a consequence of the authorised development. This approach is preceded in all made solar DCOs to date, including the recently made Gate Burton Energy Park Order 2024, the Mallard Pass Solar Farm Order 2024 and the Sunnica Energy Farm Order 2024.

Section 4.16 of NPS EN-1 – Security Considerations

- 8.2.76 Paragraph 4.16.1 of NPS EN-1 explains that national security considerations apply across all national infrastructure sectors. Paragraph 4.16.2 of EN-1 notes that the Department for Energy Security and Net Zero works closely with Government security agencies including the National Protective Security Authority (NPSA) and the National Cyber Security Centre (NCSC) to provide advice to the most critical infrastructure assets on terrorism and other national security threats, as well as on risk mitigation.
- 8.2.77 Paragraph 4.16.4 of NPS EN-1 states that Government policy is to ensure that proportionate protective security measures are designed into new infrastructure projects at an early stage.
- 8.2.78 Security requirements for the Proposed Development have been embedded into the design of the proposals from the outset and are considered proportionate. Fencing and CCTV are employed across the Proposed Development to secure and monitor solar infrastructure and the assessment of the visual impact is included in **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**.

8.3 Landscape and Visual

- 8.3.1 This section reviews the Proposed Development in the context of the relevant planning policies related to landscape and visual impacts. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 1 to this Planning Statement.
- 8.3.2 Paragraph 2.10.97 of NPS EN-3 refers to the requirement for Landscape and Visual Impact Assessments (LVIA) and states that visualisations may be required to demonstrate the effects of a proposed solar farm on the setting of heritage assets and any nearby residential areas or viewpoints.
- 8.3.3 An LVIA of the construction, operation and decommissioning phases of the Proposed Development is included at **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**. Visualisations are included at **ES Volume 4, Appendix 11.6: Viewpoints and Visualisations [EN010157/APP/6.4]**.
- 8.3.4 Paragraph 187 of the NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment, including by protecting and enhancing valued landscapes, recognising the intrinsic character and beauty of the countryside.

- 8.3.5 ERYC Local Plan outlines a number of key objectives relating to the Proposed Development, including ERYC Local Plan objective 14 which seeks to “Support a wide portfolio of energy infrastructure and businesses, and maximise the potential of renewable and low carbon energy generation whilst minimising adverse impacts, including any cumulative landscape and visual effects”.
- 8.3.6 ERYC Local Plan, Policy EC5: Supporting the energy sector states “proposals for the development of the energy sector, excluding wind energy but including the other types of development listed in Table 7, will be supported where any significant adverse impacts are addressed satisfactorily and the residual harm is outweighed by the wider benefits of the proposal. Developments and their associated infrastructure should be acceptable in terms of ... 2. The character and sensitivity of landscapes to accommodate energy development, with particular consideration to the identified Important Landscape Areas”.
- 8.3.7 The **Design Approach Document [EN010157/APP/5.7]** and **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** discuss the design process and the decisions that were made, including the project design principles identified to frame the design decisions, in order to minimise landscape and visual impacts and consider the LVIA analysis at **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**. The layout design at submission has also been influenced by consultation feedback throughout both stages of consultation.
- 8.3.8 In response to paragraphs 2.10.93 and 2.10.98 of NPS EN-3, Section 5.10 of NPS EN-1 and local policy, considerable effort by the Applicant has been taken to minimise landscape and visual effects from the Proposed Development, including through the implementation of Biodiversity Enhancement Areas, new hedgerow and occasional tree planting, infilling of existing hedgerows and new and /or extensions of existing woodland areas. Detailed descriptions of the type and location of the biodiversity enhancement areas are contained within Table 11-10 of the LVIA at **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**.
- 8.3.9 Section 2.9 of NPS EN-5 refers to landscape and visual impacts where it is encouraged to reasonably mitigate possible impacts of transmission infrastructure on visual and landscape amenity (such as effects resulting from cabling and substations). The Proposed Development addresses this via principally installing cabling underground and through screening of transmission infrastructure. Table 3 at Appendix 1 to this Planning Statement includes a response to NPS EN-5 policies.
- 8.3.10 Paragraph 2.10.100 of NPS EN-3 states that applicants should “consider as part of the design, layout, construction, and future maintenance plans how to protect

and retain, wherever possible, the growth of vegetation on site boundaries, as well as the growth of existing hedges, established vegetation, including mature trees within boundaries”.

- 8.3.11 Paragraph 2.10.101 of NPS EN-3 further states, “The impact of the proposed development on established trees and hedges should be informed by a tree survey and arboricultural / hedge assessment as appropriate”.

Landscape Character

- 8.3.12 NPS EN-1 paragraph 3.1.2 states “it will not be possible to develop the necessary amounts of such infrastructure without some significant residual adverse impact”. Paragraph 5.10.5 also notes specifically with regard to landscape and visual effects that: “Virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation”.
- 8.3.13 NPS EN-1 paragraph 4.2.2 states “energy security and net zero ambitions will only be delivered if we can enable the development of new low carbon sources of energy at speed and scale”. Complementary to this, NPS EN-1 paragraph 5.10.26 recognises that any reduction in the scale of a project, to mitigate adverse effects, may result in a significant operational constraint or reduction in function, such that the SoS should balance the loss of function, with any potential reduction in adverse landscape and / or visual effects.
- 8.3.14 NPS EN-1 paragraph 5.10.14 further states that the SoS should judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.
- 8.3.15 **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** was informed by a series of Zone of Theoretical Visibility (ZTV) figures (see **ES Volume 1, Figure 11.2: Solar PV Modules ZTV [EN010157/APP/6.3]** and **ES Volume 1, Figure 11.3: Substation ZTV and Viewpoints [EN010157/APP/6.3]**). A study area of 3 km from the boundaries of Land Areas B to F (i.e. the fields which would host the solar PV modules, the battery energy storage units and substations) and land up to 100 m either side of the interconnecting cable routes and grid connection cable route where these extend outside the wider 3 km study area for Land Areas B to F was considered as part of the LVIA. It is considered the study area set within **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**, is proportionate and appropriate to identify all non-negligible effects on landscape and visual receptors and is appropriate to identify all likely significant effects.

- 8.3.16 **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** sets out the relevant landscape character areas in the study area. An assessment of effects on LCA 16F: Beverley Parks Farmland, LCA 18A: River Hull Corridor, LCA 18F: Figham and Swine Moor Common and LCA 19D: Central Holderness Open Farmland is provided in **ES Volume 4, Appendix 11.3: Landscape Sensitivity Appraisal [EN010157/APP/6.4]**. These LCAs were scoped into the assessment because the Proposed Development extends across them and as such there is the potential for a large scale of change to the character of the landscape. The remainder of the LCAs were scoped out of the assessment as the Proposed Development, when presented in the visualisations in **ES Volume 4, Appendix 11.6: Viewpoints and Visualisations [EN010157/APP/6.4]** and viewpoint analysis in **ES Volume 4, Appendix 11.4: Viewpoint Analysis [EN010157/APP/6.4]** were considered to be barely perceptible beyond the host LCAs 19D and 18A.
- 8.3.17 Table 11-11 of **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** summarises the principal findings of the landscape sensitivity appraisal presented in **ES Volume 4, Appendix 11.3: Landscape Sensitivity Appraisal [EN010157/APP/6.4]**. This sets out that landscape sensitivity, including how the landscape might respond to different development scenarios, is considered to be low for each of the assessed LCAs.
- 8.3.18 In accordance with paragraphs 2.10.100 and 2.10.101 of NPS EN-3, the **Outline CEMP [EN010157/APP/7.2]** details that construction should be undertaken in a sensitive manner with regard to the existing landscape fabric within the Order Limits. It details where existing hedgerows, trees and woodland would be retained and explains the proposed protection measures to be implemented during construction (except where removal is indicated in the **Tree Preservation Order and Hedgerow Plan [EN010157/APP/2.8]**).
- 8.3.19 During the construction, operation and decommissioning phases, effects on landscape character are assessed within **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** as being not significant, with the exception of landscape character effects during year 1 of operation on LCA 19D. There is likely to be a moderate adverse effect on existing landscape character, which is considered to result in significant adverse effects on the tract of LCA 19D: Central Holderness Open Farmland located on the arable landscape between the villages of Tickton, Leven, Long Riston, Skirlaugh, Wawne and Weel.

Visual Effects

- 8.3.20 It is referred to in NPS EN-1 paragraph 5.10.35 that the scale of energy projects means they will often be visible across a wide area. Paragraph 2.10.97 of NPS EN-3 states that visualisations may be required to demonstrate the effects of a

proposed solar farm on the setting of heritage assets and any nearby residential areas or viewpoints.

- 8.3.21 Paragraphs 5.10.13 to 5.10.14 of NPS EN-1 state that all proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites, and a judgement is required on whether effects upon sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.
- 8.3.22 **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** identifies visual impact receptor groups and contains an assessment of visual effects.
- 8.3.23 In summary, unmitigated significant adverse effects on visual amenity during the construction, operation and decommissioning phases could potentially be experienced by residential receptors, users of PRowS, the National Cycle Network (NCN), regional trails and road users up to 1 km from the Order Limits.
- 8.3.24 To understand in detail the potential impacts on residential properties, a **Residential Visual Amenity Assessment (RVAA)** has been undertaken and its detailed findings are presented in **ES Volume 4, Appendix 11.5 [EN010157/APP/6.4]**. The RVAA sets out the methodology behind the properties that were extended an invitation to have their property visited by a landscape architect in order to understand the individual circumstances of each property.
- 8.3.25 Resulting from the RVAA within **ES Volume 4, Appendix 11.5 [EN010157/APP/6.4]**, four residential property receptors were identified as having significant adverse visual effects after the implementation of additional mitigation measures. These properties are:
- Carr House Farm
 - Woodhouse
 - Meaux Decoy Farm
 - Springdale Farm
- 8.3.26 Of these four properties, significant adverse visual effects after the implementation of additional mitigation measures would likely occur during construction and at year 1 of operation of the Proposed Development. At year 10 of operation, significant adverse effects are assessed as likely to remain at the residential properties of Carr House Farm, Woodhouse and Meaux Decoy Farm. It has been assessed that adverse effects on the residential property at Springdale Farm would reduce to being not significant at year 10 of operation.

- 8.3.27 In reducing the significance of visual impacts, mitigation measures specific to reducing visual amenity effects, such as setbacks of the Proposed Development from PRowS and bridleways, new hedgerows, gapping up of existing hedgerows and additional planting of woodland copse have reduced the severity of anticipated adverse visual effects as far as reasonably practicable.
- 8.3.28 Adverse effects on visual amenity for the residential properties at Carr House Farm, Woodhouse, Meaux Decoy Farm and Springdale Farm during decommissioning are considered to be similar, or no greater than, those identified for the construction phase. Planting established during the operation (including maintenance) phase would have matured, resulting in potential increased screening. Therefore, any visual effects during decommissioning would be the same or less than those identified during construction.

Proposed mitigation

- 8.3.29 The following landscape and visual mitigation and enhancement measures have been embedded into the Proposed Development through various design iterations and consultations:
- Biodiversity Enhancement Areas which will improve biodiversity, landscape character, green infrastructure and assist wildlife around the study area.
 - New hedgerow planting to soften views and provide screening and softening of views from nearby footpaths, highways and properties.
 - Infilling of existing boundary hedgerows to soften and provide screening and provide a link between existing hedgerows.
 - Planting of new, and extension of existing, woodland copse to assist in the long term screening of the Project Substation East, provide green infrastructure enhancements, soften views and provide screening from nearby footpaths and properties.
 - Low level shrub planting and small tree planting to soften views from proposed permissive paths.
- 8.3.30 It is considered that NPS EN-1 Section 5.10 and NPS EN-3 paragraphs 2.10.93–2.10.101 and local policies are addressed through the above embedded mitigation measures which have been factored into the assessment of landscape, visual and residential amenity impacts.
- 8.3.31 Additional mitigation measures are contained within Section 11.8 of **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]**. These measures seek to further reduce adverse landscape and visual effects (in addition to those mitigation measures that are embedded into the design of the Proposed

Development). Such measures include implementing the following management plans:

Construction phase:

- **Outline CEMP [EN010157/APP/7.2]** – details vegetation protection measures to be implemented during construction.
- **Outline CTMP [EN010157/APP/7.7]** – details that construction vehicle movements would be routed in accordance with an agreed routeing strategy and avoid additional landscape and visual effects.
- **Outline SMP [EN010157/APP/7.8]** – would ensure that the soils are suitable following construction for establishment of the habitats proposed including the strategic planting proposed for mitigation of landscape and visual effects.

Operational phase:

- **Outline LEMP [EN010157/APP/7.5]** – details how planting would be managed throughout the operational phase of the Proposed Development including how defective planting is to be replaced and how to ensure new planting establishes successfully.

Residual landscape and visual effects

8.3.32 After the implementation of both embedded and additional mitigation measures, there are anticipated to be residual adverse landscape and visual effects, which is expected for projects of this nature as acknowledged by NPS EN-1 paragraphs 5.10.13 to 5.10.14. Section 11.13 of **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** contains a full summary of the anticipated landscape and visual effects. Table 3 below summarises receptors that are anticipated to have significant residual adverse effects remaining during each phase of the Proposed Development:

Table 3: Summary of residual significant adverse landscape and visual effects

Proposed Development Phase	Receptor	Explanation of remaining residual effect
Construction	Visual effect: PRoW Riston footpath no.2 (including Leven footpath no.5)	A significant major/moderate adverse effect on views for users of PRoW Riston footpath no.2 (including Leven footpath no.5) due to the

		predicted scale of visual change during construction.
	Visual effect: PRow Riston footpath no.1	A significant major/moderate adverse effect on views for users of Riston footpath no.1 due to the predicted scale of visual change during construction.
Operation (Year 1)	Landscape effect: Landscape fabric	A significant moderate adverse effect in year 1 of operation on existing landscape fabric due to initial loss of a small extent of existing hedgerows.
	Landscape effect: LCA 19D: Central Holderness Open Farmland	A significant moderate adverse effect in year 1 of operation, on the landscape character of the arable landscape between the villages of Tickton, Leven, Long Riston, Skirlaugh, Wawne and Weel. By year 10 of operation, due to the proposed levels of new planting, the level of effect is considered not significant.
	Visual effect: PRow Riston footpath no.2 (including Leven footpath no.5)	The footpath is adjacent to a solar farm and often on a raised embankment overlooking the host fields. Effects cannot be mitigated to the point that they are not significant.
	Visual effect: PRow Riston footpath no.1	The footpath is adjacent to a solar farm. Effects cannot

		be mitigated to the point that they are not significant.
	Visual effect: Tickton bridleway no.5	A moderate adverse effect on views for users of Tickton bridleway no.5, as the Proposed Development will be located within close proximity to Tickton bridleway no.5. due to existing gaps in hedgerows and other vegetative screening.
	Visual effect: Kidhill Lane	A significant major/moderate adverse effect in year 1 of operation on users of this road, which is adjacent to Field C7 and in close proximity to other fields in Land Areas C and F. By year 10 of operation, due to the proposed levels of new planting, the level of effect is considered not significant.
	Visual effect: Meaux Lane/Meaux Road	A significant moderate adverse effect in year 1 of operation on users of this road, which runs directly through Land Areas D and F. By year 10 of operation, due to the proposed levels of new planting, the level of effect is considered not significant.
Operation (Year 10)	Landscape effect: Landscape fabric	By year 10 of operation, due to the proposed levels of new planting, there would be significant

		major/moderate beneficial effects on landscape fabric.
	Visual effect: PRoW Riston footpath no.2 (including Leven footpath no.5)	The footpath is adjacent to a solar farm and often on a raised embankment overlooking the host fields. Effects cannot be mitigated to the point that they are not significant.
	Visual effect: PRoW Riston footpath no.1	The footpath is adjacent to a solar farm. Effects cannot be mitigated to the point that they are not significant.
Decommissioning	Visual effect: PRoW Riston footpath no.2 (including Leven footpath no.5)	A significant major/moderate adverse effect on views for users of PRoW Riston footpath no.2 (including Leven footpath no.5) due to the predicted scale of visual change during decommissioning.
	Visual effect: PRoW Riston footpath no.1	A significant major/moderate adverse effect on views for users of Riston footpath no.1 due to the predicted scale of visual change during decommissioning.

8.3.33 In considering the potential effects on landscape character with NPS EN-1 paragraphs 3.1.2, 4.2.2, 5.10.14, 5.10.26 and 5.10.5, these impacts can be anticipated from the development of nationally significant energy infrastructure projects, and on balance, are expected, as the UK increases the deployment of renewable energy generation. It is expected that there will be adverse effects, particularly due to the scale of which nationally significant renewable energy projects must be deployed at to work towards achieving UK energy security and net zero ambitions.

8.3.34 NPS EN-1 is clear that it is not possible to develop the Proposed Development, an essential part of the UK's transition to a low carbon economy, without some

significant residual adverse effects. It is recognised that due to the nature of solar farms, covering large land areas, they are expected to have the majority of those significant effects contained within landscape and visual effects. However, it is considered the significant mitigation proposed as part of the Proposed Development, in addition to the delivery of low carbon energy generation and biodiversity net gain, outweighs these adverse effects, particularly given the minimal residual effects remaining at Year 10 of operation.

- 8.3.35 While there are some residual significant adverse effects, this is provided for by NPS EN-1 paragraphs 5.10.35, 5.10.13 to 5.10.14 and 5.10.26 where due to the scale of the Proposed Development, the avoidance of significant effects may not be possible without reduction in function, in this instance electricity output. It is considered with the mitigation measures proposed, and the need to achieve the UK's energy security and net zero ambitions by 2050, the anticipated impacts on landscape and visual amenity are acceptable.

Landscape and Visual Cumulative effects

- 8.3.36 Paragraph 2.10.157 of NPS EN-3 states visual impacts and impacts upon landscape character should be considered together with the possible cumulative effect with any existing or proposed development.
- 8.3.37 **ES Volume 2, Chapter 16: Cumulative Effects [EN010157/APP/6.2]** includes an assessment of cumulative effects, including cumulative visual effects. This assessment concludes that intra-project significant adverse effects by year 10 of operation are anticipated on views from PRoW Riston footpath no.1, PRoW Riston footpath no.2 and Leven footpath no.5. Significant adverse effects by year 10 of operation are also anticipated on views from Figham Common (in conjunction with Wilberforce Way long distance path and Figham Pastures LWS).
- 8.3.38 Intra-project significant positive effects are anticipated on landscape fabric by year 10 of operation as a result of the additional hedgerow planting proposed. Approximately 19.5 km of new hedgerows, 10,240 m² of structural woodland and 30,363 m² of scrub planting is proposed to be planted. As a result of the Proposed Development, there is anticipated to be 5.88 km loss of hedgerow, with 5.44 km of this loss to be reinstated.

Summary

- 8.3.39 The LVIA at **ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]** has concluded that the Proposed Development will result in some adverse landscape and visual effects. As recognised in NPS EN-1 paragraph 3.1.2, significant adverse effects can be expected for new nationally significant infrastructure projects. It is also expected in NPS EN-1 paragraphs

5.10.5 and 5.10.13 that there will likely be adverse landscape and visual effects for many receptors. However, considerable effort has been made to minimise landscape and visual impacts of the Proposed Development, which is in accordance with NPS EN-1 5.10.19 where landscape and visual effects were considered in the early stages of siting and design. Critically the SoS should consider how well designed a project is and whether an Applicant has genuinely sought to minimise harm to the landscape including by way of use of appropriate mitigation. EN-3 expands on this point and advises applicants to minimise landscape and visual impacts through screening.

- 8.3.40 Identified adverse landscape and visual effects have been reduced as far as practicable through embedded and additional mitigation measures, while also seeking to preserve the ability for an effective, well sited, renewable energy development to be constructed and operated. This is necessary to achieve sustained growth in Solar PV, as referenced in paragraph 2.10.9 of EN-3, which is required to meet the UK's net zero emissions 2050 target.
- 8.3.41 It is considered that the wider benefits of the Proposed Development, including the delivery of significant level of low carbon energy generation, biodiversity net gain and the provision of Permissive Paths, outweigh these adverse landscape and visual effects and that the Proposed Development is considered acceptable in terms of overall landscape, visual and residential amenity impacts. The Proposed Development is compliant with the NPS EN-1, NPS EN-3, NPS EN-5 and other national and local planning policy.

8.4 Cultural Heritage

- 8.4.1 This section considers the Proposed Development in the context of the relevant planning policies relating to cultural heritage. This section should be read in conjunction with **Policy Accordance Tables** included in Appendix 1 of this Planning Statement.
- 8.4.2 Paragraph 5.9.10 of NPS EN-1 states that 'as part of the ES, the Applicant should provide a description of the significance of the heritage assets affected by the proposed development, including any contribution made by their setting'. Paragraph 5.9.11 goes on to state "where a site on which development is proposed includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation" .
- 8.4.3 In accordance with paragraph 5.9.10 and 5.9.11 of NPS EN-1, and the aforementioned relevant paragraphs contained within the NPPF, **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]** includes a Cultural Heritage

Assessment of the construction, operation, and decommissioning phases of the Proposed Development, encompassing assessment of built heritage and the historic landscape.

- 8.4.4 The sources of information, including relevant historic records, used to inform the Archaeological Desk-Based Assessment are set out in **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]**. This includes **ES Volume 4, Appendix 9.1: Archaeological Desk-Based Assessment, Appendix 9.2: Geophysical Survey Report** and **Appendix 9.3: Archaeological Trial Trenching Report [EN010157/APP/6.4]**.
- 8.4.5 **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]** notes that there are no known designated heritage assets within the Order Limits. However, a number of designated heritage assets, within the wider surrounding area, were scoped into further assessment and these include:
- Scheduled Monument NHLE 1007843 (Site of Meaux Cistercian Abbey), which borders the Order Limits to the north of Land Area F;
 - Scheduled Monument NHLE 1015305 (Meaux Duck Decoy, 420m South East of Meaux Decoy Farm), which lies between Fields E6, E7 and E9;
 - Scheduled Monument NHLE 1008039 (Medieval Moated Tile Kiln 250m North East of North Grange Farm), to the east of Land Area D;
 - Grade II Listed Building NHLE 1103426 (Meaux Abbey Farm), which lies c.125m to the east of Field D17; and
 - Grade II Listed Building NHLE 1346995 (Wawne Grange), which lies between Fields F9/F10 and F15.
- 8.4.6 There are 41 known non-designated heritage assets included within the Order Limits and these are listed in Section 9.5.7 of **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]**.
- 8.4.7 Section 4.7 of NPS EN-1, and Section 2.5 of NPS EN-3 refers to Criteria for “Good Design” for Energy Infrastructure, and the importance of responding sensitively to context, including heritage assets.
- 8.4.8 Paragraph 5.9.13 of NPS EN-1 encourages applicants, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment. Paragraph 2.10.116 of NPS EN-3 states applications should take account of the results of historic environment assessments in their design.
- 8.4.9 NPS EN-1 paragraph 5.9.25 sets out the presumption in favour of conservation and, where appropriate, enhancing the significance of heritage assets.

- 8.4.10 In response to paragraph 5.9.13 – 5.9.15 and 5.9.25 of NPS EN-1, opportunities for environmental enhancement in relation to cultural heritage are detailed in **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]**. Proposed cultural heritage enhancements include incorporating information boards on the heritage of the local area, in the vicinity of, and to allow public access to, Scheduled Monuments NHLE 1007843 (Site of Meaux Cistercian Abbey) and NHLE 1015305 (Meaux duck decoy, 420 m south west of Meaux Decoy Farm). Further, historic assets, including those scoped into the cultural heritage assessment in **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]**, have been conserved through careful consideration of the layout of the Proposed Development, and substantial setbacks which allow the existing characteristics of their setting to prevail.
- 8.4.11 Alongside the proposed enhancement opportunities to physical heritage assets, retention, management and new hedgerow planting as detailed in the **Outline LEMP [EN010157/APP/7.5]** would serve to minimise adverse cultural heritage effects upon historic features outside of the Order Limits, such as adverse effects on their settings. Further detail on the impact of proposed planting on nearby heritage features is contained within **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]**.
- 8.4.12 Paragraph 5.9.9 of NPS EN-1 sets out the process for considering the impacts of proposed developments upon the significance of heritage assets.
- 8.4.13 During operation, the siting of solar panels within the Order Limits has the potential to result in a change to the setting of surrounding designated and non-designated assets. However, the key elements of the asset's value, derived from their surviving historic fabric and form, and from where they are experienced, would be preserved.
- 8.4.14 In summary, **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]** states that during the construction, operation and decommissioning phases of the Proposed Development, adverse cultural heritage effects on known and unknown heritage assets are anticipated to be not significant, and temporary in nature. It is also noted that due to required excavations for the Proposed Development being limited, that the potential to encounter unknown heritage assets is also limited and, in any event, would be appropriately managed by the **Archaeological Management Strategy [EN010157/APP/7.11]**.

Substantial Harm Assessment

- 8.4.15 NPS EN-1 paragraph 5.9.27 states “When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State should give great weight to the asset's conservation. The more important

the asset, the greater the weight should be. This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance”.

- 8.4.16 NPS EN-1 paragraph 5.9.32 states “where the proposed development will lead to less than substantial harm to the significance of the designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate securing its optimum viable use”. NPS EN-1 continues “In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset”.
- 8.4.17 NPPF Paragraph 207 requires an application to describe the significance of any heritage asset affected by development applications, including any contribution made by their setting. Paragraph 206 states that when considering the impact of the proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. Paragraphs 213-215 set out how levels of harm to designated heritage assets should be considered and weighed, with paragraph 216 setting out the process for non-designated heritage assets. The detailed policy response to these paragraphs is provided in Table 4 of Appendix 1.
- 8.4.18 **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]** provides criteria for classifying the magnitude of impacts to cultural heritage. ‘Major’ impacts are considered to be ‘substantial harm’ and anything less than ‘major’ is considered as being ‘less than substantial harm’. The Proposed Development, after the implementation of additional mitigation measures, is not anticipated to have a greater than minor impact magnitude on any known heritage assets, and therefore, substantial harm to those assets because of the Proposed Development is not anticipated. For undiscovered heritage assets, the implementation of the **Archaeological Management Strategy [EN010157/APP/7.11]** will act to manage potential adverse cultural heritage effects to a less than substantial harm impact magnitude.
- 8.4.19 The assessment conclusions set out in Section 9.9 of **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]** have determined there is the potential for a minor effect on the settings of Meaux Abbey Farm (Grade II Listed Building NHLE 1103426) and Wawne Grange (Grade II Listed Building NHLE 1346995) during both construction and operational phases. However, with the proposed mitigation measures in place the effects are assessed as being ‘less than substantial harm’ and therefore not significant. The remainder of adverse cultural heritage effects on known heritage assets are assessed as being negligible or as having no effect. Therefore, with the implementation of embedded and additional mitigation measures, the Proposed Development will have effects on known

heritage assets that are no greater than minor, which is considered to be 'less than substantial harm'.

- 8.4.20 In recognising that the Proposed Development will result in harm of a 'less than substantial' nature, the key policy test (as per paragraph 5.9.32 of NPS EN-1) is that such harm is weighted against the public benefits outlined in Section 3. Given the clear and urgent need to deploy renewable energy at speed and scale, the Proposed Development demonstrably gives rise to substantial public benefits, which outweigh the less than substantial harm identified.

Summary

- 8.4.21 The Proposed Development has been designed taking into account known heritage assets, their status and their settings. The Proposed Development and associated works will be sited to minimise adverse effects on the settings of designated heritage assets: Meaux Abbey Farm (Grade II Listed Building NHLE 1103426) and Wawne Grange (Grade II Listed Building NHLE 1346995) during both construction and operational phases. This has resulted in the Applicant avoiding significant effects on designated heritage assets and minimising to an acceptable level any other harms to identified heritage assets or their settings.
- 8.4.22 Further, with the implementation of embedded and additional mitigation measures, the Proposed Development will have effects on known non-designated heritage assets that are no greater than negligible, which is considered less than substantial harm.
- 8.4.23 In accordance with NPS EN-1 paragraph 5.9.32 (and taking account of the principles set out by 4.2.16 and 4.2.7 of NPS EN-1), the substantial public benefits and need for the Proposed Development as set out in earlier sections of this Planning Statement, including the delivery of CNP infrastructure to contribute towards meeting national energy security objective's and carbon reduction commitments, clearly and demonstrably outweigh the less than substantial harm to designated heritage assets and policy tests relating to substantial harm are therefore not triggered.
- 8.4.24 The Proposed Development is therefore considered to comply with all relevant cultural heritage planning policy by minimising harm to heritage assets through sensitive design and protecting as much of their significance as possible during the life of the Proposed Development.

8.5 Climate Change and Greenhouse Gas Emissions

- 8.5.1 This section reviews the Proposed Development in the context of the relevant planning policies relating to climate change. This section should be read in

conjunction with the **Policy Accordance Tables** included in Appendix 1 of this Planning Statement.

- 8.5.2 The potential impacts of the Proposed Development on climate change, as well as the vulnerability of the Proposed Development to the effects of climate change, are considered in **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]** which has been prepared in accordance with the relevant policy.
- 8.5.3 Over the lifespan of the Proposed Development, **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]** confirms that 4.1 million tCO₂e will be saved when compared to Combined Cycle Gas Turbine-generated electricity. As set out in **ES Volume 2, Chapter 8: Climate** in the absence of any more appropriate identified methodology, this assessment considers that this approach, i.e. a comparison to Combined Cycle Gas Turbine emissions, is a robust and appropriate method to understand the level of GHG savings from the Proposed Development.
- 8.5.4 Paragraph 2.2.1 of NPS EN-1 notes the legally binding targets upon the UK Government to cut GHG emissions, the challenging nature of the transition, and the major investment in new technologies required. The resulting urgent need for new nationally significant electricity infrastructure projects is set out in paragraph 3.3.1 of NPS EN-1. Section 3.3 of NPS EN-1 sets out the resulting need for solar at paragraphs 3.3.20 to 3.3.24. The **Statement of Need** at Appendix 3 of this Planning Statement refers to the relevant NPS' and elaborates on the role of the Proposed Development in contributing to net zero and reducing GHG emissions.
- 8.5.5 Section 2.4 of NPS EN-3 notes climate change adaptation and resilience confirming that solar development sites need to be resilient to an increased risk of flooding and also the impact of higher temperatures on the planet.
- 8.5.6 NPPF paragraph 161 states the planning system should support the transition to net zero by 2050 and shape places in ways that contribute to radical reductions in GHG emissions. Paragraph 168 of the NPPF states that local planning authorities should not require applicants to demonstrate the overall need for renewable or low carbon energy and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse emissions. Table 4 in Appendix 1 of this Planning Statement includes a **Policy Accordance Table** which addresses NPPF policy.
- 8.5.7 At a local level, the ERYC Local Plan notes at policy S2 'Addressing climate change', that development decisions will support a reduction in GHG emissions and adaptation to the expected impacts of climate change.

- 8.5.8 Policy EC5 'Supporting the energy sector' of the ERYC Local Plan notes that "proposals for the development of the energy sector will be supported where any significant adverse impacts are addressed satisfactorily and the residual harm is outweighed by the wider benefits of the proposal".
- 8.5.9 The following sections set out the specific responses to the relevant Greenhouse Gas Emissions and Climate policy within NPS EN-1 and NPS EN-3.

Climate Change

- 8.5.10 Paragraph 4.10.1 of NPS EN-1 states that new energy infrastructure must be sufficiently resilient against the possible impacts of climate change or else it will not be able to satisfy the energy needs outlined in Part 3 of the NPS.
- 8.5.11 Paragraph 4.10.8 of NPS EN-1 requires applicants to consider the impacts of climate change when planning the location, design, build, operation, and where appropriate, decommissioning of new energy infrastructure.
- 8.5.12 NPS EN-1 continues at paragraph 4.10.13 to advise that the SoS 'should be satisfied that applicants for new energy infrastructure have taken into account the potential impacts of climate change'. At paragraph 4.10.15 it continues to state that SoS should 'be satisfied that there are not features of the design of the new energy infrastructure critical to its operation which may be affected by more radical changes to the climate beyond that projected by the latest set of UK climate projections'.
- 8.5.13 NPS EN-3 Paragraph 2.4.11 discusses the introduction of solar photovoltaics and how they are typically proposed within low-lying exposed sites. For these types of proposals, applicants should consider how the equipment is resilient to increased risk of flooding and the impact of higher temperatures.
- 8.5.14 Paragraph 2.3.2 of NPS EN-5 requires the consideration of the effects of flooding (particularly on substations that are vital for the electricity transmission and distribution network), winds and storms (on overhead lines), higher average temperatures (leading to increased transmission losses), earth movement or subsidence caused by flooding or drought (on underground cables) and coastal erosion (for the landfall of offshore transmission cables and their associated substations in the inshore and coastal locations respectively).
- 8.5.15 In response to these paragraphs, the **Design Approach Document [EN010157/APP/5.7]** describes how the Proposed Developments project design principles were developed and have been applied in the design evolution of the Proposed Development from the outset. The project design principles have been

split into four themes, with a specific theme dedicated to climate. The project design principles under the theme of climate include:

- 1.1 - Designed to be climate resilient by incorporating, where reasonably practicable, mitigation measures and adaptations that respond to the impacts of climate change.
- 1.2 - Demonstrating low carbon approaches to design, construction and long-term maintenance.
- 1.3 - Designed to optimise sustainability in regard to design, construction and long-term maintenance.

8.5.16 The **Site Selection Assessment** at Appendix 2 of this Planning Statement, and **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**, outlines the process for identifying the Order Limits for the Proposed Development. Climate resilience has been embedded throughout the design of the Proposed Development, through the setting of technical parameters for solar infrastructure, and how it is laid out.

Greenhouse Gas emissions

8.5.17 Notwithstanding the meaningful contribution to decarbonisation delivered by renewable energy generating stations such as the Proposed Development, paragraph 5.3.1 of NPS EN-1 acknowledges that the construction, operation, and decommissioning of energy infrastructure will itself lead to GHG emissions.

8.5.18 Paragraph 5.3.4 of NPS EN-1 states that all proposals for energy infrastructure should include a GHG assessment as part of their ES. This should include:

- A whole life carbon assessment showing construction, operational and decommissioning carbon impacts;
- An explanation of the steps that have been taken to drive down the climate change impacts at each of those stages;
- Measurement of embodied carbon impact from the construction stage;
- How reduction in energy demand and consumption during operation has been prioritised in comparison with other measures;
- How operational emissions have been reduced as much as possible through the application of best available technology for that type of technology;
- Calculation of operational energy consumption and associated carbon emissions; and
- Whether and how any residual carbon emissions will be (voluntarily) offset or removed using a recognised framework.

- Where there are residual emissions, the level of emissions and the impact of those on national and international efforts to limit climate change, both alone and where relevant in combination with other developments at regional or national level, or sector level, if sectoral targets are developed.
- 8.5.19 In response to paragraph 5.3.4 the influences of the Proposed Development on climate change have been estimated through the emission or reduction in emissions of CO₂ caused by the construction, operation and decommissioning of the Proposed Development. This assessment is based on an approach that calculates the difference between the embodied GHG emissions across all phases of the Proposed Development and the concentration of GHG which will be both reduced and offset through the decarbonisation of energy generation associated with the Proposed Development. This approach is in accordance with the Institute of Environmental Management and Assessment (IEMA) Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022), which outlines the principles for assessment criterion for GHG emission assessments. The assessment methodology is set out in Section 8.4 of **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]**.
- 8.5.20 Further responding NPS EN-1 paragraph 5.3.4, given the significant positive contribution to reducing GHG emissions, no net residual offsetting is required. Additionally, while no net residual GHG emissions result from the Proposed Development, the cumulative effect of the Proposed Development with other UK renewables generation is considered to be a fundamental change in the climate effects of UK energy supply, which is a major beneficial effect that is significant under the EIA regulations and will contribute to the UK's legally binding emission reduction targets.
- 8.5.21 The Proposed Development, in conjunction with other renewable energy development, will contribute to the UK's aims to reduce carbon emissions and achieve its ambitious GHG emissions reduction targets.
- 8.5.22 **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]** includes a GHG assessment that considers the effects of GHG emissions generated at all stages of the Proposed Development, i.e. construction, operation, and decommissioning in accordance with paragraph 5.3.4 of NPS EN-1.
- 8.5.23 A series of measures are included to minimise and offset the GHG footprint of the Proposed Development, which are detailed in **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]**. Some of the key measures are summarised below:
- A lean design will be constructed which will minimise the use of construction materials.

- Cleared vegetation will be compensated by a planting scheme that equals or exceeds current levels of vegetation.
- Construction materials and infrastructure will be responsibly sourced.
- Energy efficiencies will be maximised where possible during construction by turning off idle vehicles and ensuring they are well maintained and conform to current emissions standards.
- Use of sustainable fuels and electric vehicles during construction will be promoted.
- Recycled aggregate materials will be used during construction, where appropriate, for foundations, subbases, hard-standings and pavement materials.
- Locally sourced and/or produced materials will be used during construction.
- Actions will be taken during construction to meet the waste hierarchy in accordance with the principles of the Government's Resources and waste strategy for England 2018.

8.5.24 Construction staff will be encouraged to minimise GHG emissions associated with commuting to site through the provision of a staff minibus and lower carbon modes of transport. When assessed against whole lifecycle emissions, the Proposed Development has a carbon payback period of 13 years, and all savings beyond that would be a net benefit of the Proposed Development to reducing GHG emissions, relative to the baseline. Over 40 years, the saving, compared against equivalent gas-fired electricity generation, is estimated at approximately 4.1 million tonnes of CO₂.

Summary

8.5.25 The Proposed Development provides a significant beneficial effect in terms of impacts on GHG emissions and is the type of infrastructure that is defined as urgent and of CNP by the UK Government. **ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]** concludes that 4.1 million tCO₂e will be saved over the lifespan of the Proposed Development when compared to Combined Cycle Gas Turbine-generated electricity. It is considered that the Proposed Development strongly complies with the relevant policy set out in NPS EN-1 and NPS EN-3 and that the beneficial impact attracts substantial weight in the planning balance.

8.5.26 The Proposed Development fulfils the policy requirements of NPS EN-1, and in doing so meets the objectives of NPPF paragraph 161.

8.6 Ecology and Biodiversity

- 8.6.1 This section reviews the Proposed Development in the context of planning policies related to ecology and biodiversity. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 1 to this Planning Statement.
- 8.6.2 Paragraph 5.4.4 of the NPS EN-1 confirms the highest level of biodiversity protection is afforded to sites identified through international conventions and that the Habitats Regulations identifies sites for which a HRA will assess the implications. Paragraph 5.4.49 of NPS EN-1 confirms the SoS must consider whether a project is likely to have a significant effect on a protected site which is part of the National Site Network (a habitat site), or any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans and projects.
- 8.6.3 Paragraph 5.4.12 of NPS EN-1 states that ‘sites of regional and local biodiversity and geological interests, which include ... Local Wildlife Sites, are areas of substantive nature conservation value and make an important contribution to ecological networks and nature’s recovery’. Paragraph 5.4.52 of NPS EN-3 states that the SoS should give due consideration to regional or local designations, however given the need for new nationally significant infrastructure, these designations should not be used in themselves to refuse development consent.
- 8.6.4 NPS EN-1 paragraph 5.4.22 states that the “design of energy NSIP proposals will need to consider the movement of mobile/migratory species such as birds, fish and marine and terrestrial mammals and their potential to interact with infrastructure”.
- 8.6.5 Paragraph 5.4.17 of NPS EN-1 states that projects should include an ES that clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity.
- 8.6.6 NPS EN-1 paragraph 5.4.19 states that applicants should show how projects have taken opportunities to conserve and enhance biodiversity conservation interests. Paragraph 5.4.21 of NPS EN-1 adds that the design process should embed opportunities for nature-inclusive design, and applicants should consider how proposals can contribute towards Biodiversity Net Gain.
- 8.6.7 Paragraph 5.4.39 of the NPS EN-1 states that the SoS should have regard to the aims and goals of the Government’s 25-year Environmental Plan, recognising that failure to address the challenge of climate change will result in significant adverse impacts to biodiversity. NPS EN-3 paragraph 2.3.7 also refers to the ambition set out in the 25-year Environment Improvement Plan.

- 8.6.8 NPS EN-3 paragraph 2.5.2 states proposals for renewable energy infrastructure should demonstrate good design to mitigate impacts such as noise and effects on ecology.
- 8.6.9 NPPF Section 15: 'Conserving and enhancing the natural environment' paragraph 187 states that planning decisions should contribute to and enhance the natural and local environment, and paragraph 192 seeks to encourage opportunities to incorporate biodiversity improvements, particularly where this can secure measurable net gains for biodiversity. Table 4 of Appendix 1 to this Planning Statement addresses NPPF policies with regard to biodiversity.
- 8.6.10 In terms of local policy, the adopted ERYC Local Plan Policy ENV4 'Conserving and enhancing biodiversity and geodiversity' states that development should seek to optimise opportunities to enhance biodiversity and to achieve a net gain in biodiversity where possible. Table 5 of Appendix 1 to this Planning Statement includes a response to local policy.
- 8.6.11 **ES Volume 4, Appendix 7.3: Breeding Bird Survey Report: [EN010157/APP/6.4]** undertaken to inform the assessment contained within **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**, identified seven notable ground nesting bird species within the Order Limits. These are presented within Table 7-5: Notable bird species associated with arable habitats (ground nesting) of **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**. Based on the species conservation status, abundance, and diversity of the species assemblage, the breeding bird assemblage of the Order Limits (which includes the aforementioned notable species) is assessed as being of District importance.
- 8.6.12 There are anticipated to be significant beneficial effects on ground nesting birds during the operation (including maintenance) phase of the Proposed Development. Such benefits are principally provided for, amongst other measures, through the creation of approximately 95 hectares of flower-rich neutral grassland managed for the benefit of ground nesting birds. This accords with NPPF Paragraphs 187 and 192, as described in paragraph 8.6.9 of this Planning Statement.
- 8.6.13 **A Habitats Regulations Assessment - Information to inform Appropriate Assessment [EN010157/APP/5.3]** has been prepared in accordance with the requirements of The Habitats Regulations to set out whether the Proposed Development is likely to have any significant effect on European designated sites. This document is submitted in support of this DCO Application.
- 8.6.14 The **Habitats Regulations Assessment - Information to inform Appropriate Assessment [EN010157/APP/5.3]** concludes there will be no significant effects to European Sites either from the construction, operation and decommissioning

of the Proposed Development or in combination with other plans and projects, such that an appropriate assessment is not required.

- 8.6.15 The submitted **Outline CEMP [EN010157/APP/7.2]** and **Outline DEMP [EN010157/APP/7.4]** includes specific measures to manage and avoid any further impact on the local areas of biodiversity and ecological importance from accidental damage and other indirect effects during construction or decommissioning.
- 8.6.16 From the outset of the site selection stage the Applicant has sought to embed good design into the design approach. One of the key considerations at the site selection stage, as set out in the **Site Selection Assessment** at Appendix 2 to this Planning Statement, was to avoid land which contained sensitive ecological and biodiversity related designation and the Proposed Development was successful in this regard, with no international or nationally statutory designations being potentially impacted by the Proposed Development.
- 8.6.17 The ecology and biodiversity impacts of the Proposed Development are considered in **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**. The Chapter sets out all the designated sites (international, national, and local) of ecological and geological conservation importance; protected species; and habitats and other species identified as being of principal importance for the conservation of biodiversity within the study area for the Order Limits.
- 8.6.18 The **Design Approach Document [EN010157/APP/5.7]** describes how the Proposed Developments project design principles were developed and have been applied in the design evolution of the Proposed Development from the outset. The project design principles have been split into four themes, with a specific theme dedicated to environment. The project design principles under the theme of environment include:
- 4.1 - Designed to maximise environmental net gains.
 - 4.2 - Designed with the intention to avoid any harmful environmental impacts as far as possible.
 - 4.3 - Designed to deliver climate resilient/sustainable water management, using above ground features to manage flood risk, maintain the natural water cycle and improve water quality within the boundary of the project and at a catchment scale.
 - 4.4 - Designed to deliver wildlife/biodiversity enhancement.
 - 4.5 - Designed to create effective links with existing and planned for ecological features and networks beyond the boundary of the project.

- 8.6.19 **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** outlines the surveys completed that informed the DCO Application. A description of the ecological baseline conditions identified is set out in Section 7.4 of that chapter.
- 8.6.20 This has facilitated an approach in line with the requirements of paragraph 5.4.42 of NPS EN-1, that first seeks to avoid potential impacts, then minimise them, and then take on-site measures to rehabilitate or restore biodiversity, before compensating for residual, unavoidable impacts.
- 8.6.21 The embedded mitigation is described in Section 7.6 of **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**.
- 8.6.22 Figham Pastures LWS would be temporarily impacted by the proposed Horizontal Directional Drilling and open cut trench works and associated temporary compound and access route.
- 8.6.23 Paragraph 5.4.32 of NPS EN-1 refers to ancient woodlands and veteran trees. **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** confirms the presence of ancient woodland abutting the Order Limits (but not within), and ~~three~~ two veteran trees ~~within or~~ adjacent to the Order Limits. In response to this, the Proposed Development design has incorporated a minimum 15 m offset distance from the canopy edge of any ancient woodland, and veteran trees (other than at access tracks) from the edge of the canopy where reasonably practicable. This measure seeks to avoid potential impacts on ancient woodland and veteran trees, which is in accordance with the 5.4.42 of the NPS EN-1.
- 8.6.24 There are ~~three~~ two veteran trees ~~within or~~ adjacent to the Order Limits in locations where access routes are proposed, as shown on **ES Volume 3, Figure 2.1: Environmental Features Plan [EN010157/APP/6.3]**. Where it is not possible to retain a 15m offset from any works, tree protection fencing will be installed prior to works commencing and, where relevant, works will be undertaken under arboricultural supervision and 'no dig' construction methods will be used to protect the soil from compaction and minimise root impacts. For further details, see **ES Volume 4, Appendix 7.11: Arboricultural Impact Assessment [EN010157/APP/6.4]**. These measures are secured in the **Outline CEMP [EN010157/APP/7.2]**.
- 8.6.25 Given the avoidance of impacts and embedded mitigation described above, no compensation strategy for the loss or deterioration of ancient woodland or veteran trees is required, as described in Paragraph 5.4.32 of NPS EN-1.

Biodiversity Net Gain

- 8.6.26 Paragraph 4.6.1 of NPS EN-1 explains that “biodiversity net gain is an approach to development that aims to leave the natural environment in a measurably better state than beforehand. Projects should therefore not only avoid, mitigate and compensate harms, following the mitigation hierarchy, but also consider whether there are opportunities for enhancement”.
- 8.6.27 Paragraph 4.6.6 of NPS EN-1 explains that energy NSIP proposals should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity where possible and, paragraph 4.6.7, encourages applicants to use the most current version of the DEFRA biodiversity metric to calculate their biodiversity baseline and inform their biodiversity net gain outcomes and to present this data as part of their application. Paragraph 4.6.10 adds that BNG should be “applied after compliance with the mitigation hierarchy and does not change or replace existing environmental obligations, although compliance with those obligations will be relevant to the question of the baseline for assessing net gain and if they deliver an additional enhancement beyond meeting the existing obligation, that enhancement will count towards net gain”.
- 8.6.28 Paragraph 2.3.7 of NPS EN-3 advises proposed enhancements should aim to achieve environmental and biodiversity net gain in line with the ambition set out in the Environmental Improvement Plan 2023 and any statutory targets set under the Environment Act (2021) or elsewhere.
- 8.6.29 NPS EN-1 paragraph 5.4.46 discusses opportunities for building in beneficial biodiversity or geological features as part of good design, NPS EN-1 paragraph 5.4.20 adds that this can help towards delivering biodiversity net gain, and that wider ecosystem services and benefits of natural capital should also be considered when designing enhancement measures.
- 8.6.30 **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** sets out the design process which resulted in the layout of the Proposed Development being designed to maximise the opportunities around enhancing and conserving biodiversity and geological conservation interests. A key aspect of this design process has been around identifying and retaining landscape features which are beneficial into the layout of the Proposed Development.
- 8.6.31 The Proposed Development will include the retention of strategic areas within the Order Limits, which will be managed as suitable habitat for ground nesting birds. Additionally, there will be a creation of addition habitat for both the ground nesting birds and foraging bats present. Finally, there are proposals to protect the existing woodlands, hedgerows and trees; as well as new hedgerows to be created for habitats and enhancements.

- 8.6.32 Compensatory habitat creation, hedgerow re-instatement and improvement measures (such as tree planting, gapping-up existing hedgerows, improving species diversity) are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**.
- 8.6.33 A BNG Assessment is included within **ES Volume 4, Appendix 7.10 Biodiversity Net Gain Assessment [EN010157/APP/6.4]**, and the assessment for Biodiversity Net Gain utilises Defra's Statutory Biodiversity Metric. The BNG Assessment confirms that the Proposed Development will achieve at least 10% BNG. This is considered to be a substantial contribution towards the objectives as set out within the 25 Year Environment Plan **[Ref. 26]**.

Mitigation and Management

- 8.6.34 NPS EN-1 paragraph 5.4.35 requires applicants to include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of proposed developments. NPS EN-1 paragraph 5.4.36 states applicants should produce and implement a Biodiversity Management Strategy as part of their development proposals and paragraph 5.4.44 of NPS EN-1 indicates that appropriate requirements should be attached to any consent to ensure any mitigation measures are delivered and maintained. Paragraph 2.10.90 of NPS EN-3 states applicants should consider enhancement, management and monitoring of biodiversity.
- 8.6.35 To ensure the beneficial effects of the newly created habitats are fully realised an **Outline LEMP [EN010157/APP/7.5]** forms part of the control documents submitted alongside this DCO Application. The **Outline LEMP [EN010157/APP/7.5]** sets the framework for the LEMP which will be required to be submitted and approved by East Riding of Yorkshire Council and will set out how the newly created and retained habitats onsite will be managed throughout the operational phase of the Proposed Development. An **Outline LEMP [EN010157/APP/7.5]** is included as part of the DCO Application, which the LEMP will be substantially in accordance with.
- 8.6.36 The DCO Application is also accompanied by an **Outline CEMP [EN010157/APP/7.2]** and **Outline DEMP [EN010157/APP/7.4]**. These include mitigation measures which are intended to avoid negative impacts during the construction and decommissioning phases. The **Outline CEMP [EN010157/APP/7.2]** and **Outline DEMP [EN010157/APP/7.4]** set out locations of sensitive and retained features, and the measures for the protection of these features. The production of the CEMP and DEMP is secured via requirements of the DCO and they will need to be approved by the relevant local planning authority prior the relevant stage of either construction or decommissioning, and will be substantially in accordance with the outline versions. Some examples of

the types of measures included in the **Outline CEMP [EN010157/APP/7.2]** and **Outline DEMP [EN010157/APP/7.4]** include management of earthworks associated with the construction compounds, access roads, and cable trenching.

- 8.6.37 In respect of NPS EN-3 paragraph 2.10.82, lighting impacts on local ecology have been considered. During operation, construction and decommissioning phases, no part of the Proposed Development would be continuously lit and any lighting would be directional (directed downwards and away from boundary features and vegetation which may be used by bats and birds) and manually or sensor operated for operational and security purposes. Additionally, infrared sensor triggered security lighting would be required around key electrical infrastructure during all phases of development. This lighting would be sensor triggered and not continuous. Therefore, lighting is not anticipated to impact upon retained habitats (such as woodland and hedgerows) and any assessed sensitive receptors (such as bats and birds) using such habitats.
- 8.6.38 In response to NPS EN-3 paragraph 2.10.83, mammal gates will be installed in perimeter fencing to allow badgers and other small mammals access into fields for foraging. Details of these mammal access points are detailed in and secured by the **Outline LEMP [EN010157/APP/7.5]**. Details regarding the monitoring of the fencing and mammal access points (if required) are detailed in and secured by the **Outline OEMP [EN010157/APP/7.3]**.

Summary

- 8.6.39 From the outset of the Proposed Development, the Applicant has sought to embed biodiversity and nature conservation considerations into the design process. This is evident at the site selection phase where the Applicant purposefully sought land which did not include any highly sensitive ecological/biodiversity related designations.
- 8.6.40 As explained in the **Statement of Need**, at Appendix 3 of this Planning Statement, and summarised above in **section 3**, the Proposed Development has the potential to deliver significant amounts of low-carbon electricity and make a material contribution to help meet the UK's commitments to decrease carbon emissions and reach net zero by 2050. Failure to deliver infrastructure projects that deliver low carbon electricity, damage the UK's prospects of meeting its climate change targets and will result in significant adverse impacts to biodiversity.
- 8.6.41 The Order Limits associated with the cable corridor do include part of Figham Common which is an LWS. Once the Proposed Development is operational that land will be able to be used in the same manner as prior to the Proposed Development. There will be no permanent disturbance to the surface soil, or

removal of trees or bushes. In addition, a number of notable species have been identified within the Order Limits for which the Applicant has sought to provide suitable protection, mitigation and, where possible, enhancement. **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]** confirms that there is no significant adverse residual effect for either the Figham Common LWS or ecological species within the Order Limits.

- 8.6.42 Mitigation of potential impacts is embedded into the design of the Proposed Development with avoidance of impacts being prioritised. Additionally, for all phases of the Proposed Development, a suite of detailed management plans will be developed and implemented across each phase as relevant, as outlined within the **Outline CEMP [EN010157/APP/7.2]**, **Outline OEMP [EN010157/APP/7.3]**, **Outline LEMP [EN010157/APP/7.5]** and **Outline DEMP [EN010157/APP/7.4]**. These management plans will include mitigation measures intended to avoid or reduce adverse effects, in accordance with the mitigation requirements of NPS EN-1 paragraph 5.4.35 and monitoring requirements of NPS EN-3 paragraph 2.10.90.
- 8.6.43 Additional habitats are created across the Order Limits, improving links between habitats within and adjacent to the Order Limits, resulting in at least a 10% net gain in area habitats, hedgerows and watercourses. The **Outline LEMP [EN010157/APP/7.5]** includes measures to ensure biodiversity net gain is achieved and maintained throughout the operation phase of the Proposed Development.
- 8.6.44 The significant beneficial effect on ground nesting birds during operation (including maintenance) is an integral part of the Proposed Development. This is in substantial accordance with paragraphs 187 and 192 of the NPPF, paragraph 2.10.90 of NPS EN-3 and ERYC Local Plan Policy ENV4 which seek enhancement of natural environments, local environments and biodiversity.
- 8.6.45 It is considered that the Proposed Development is compliant with the relevant NPSs, the NPPF and local policies relating to ecology and biodiversity.

8.7 Glint and Glare

- 8.7.1 This section reviews the Proposed Development in the context of planning policies relating to glint and glare. This section should be read in conjunction with the **Policy Accordance Tables** in Appendix 1 of this Planning Statement.
- 8.7.2 Paragraph 2.10.27 of NPS EN-3 states that the two main impact issues related to utility-scale solar farms that determine distances to sensitive receptors are likely to be visual amenity and glint and glare. A glint and glare assessment, included as **ES Volume 4, Appendix 5.4: Glint and Glare Assessment**

[EN010157/APP/6.4] has been undertaken, as well as a residential visual amenity assessment at **ES Volume 4, Appendix 11.5: Residential Visual Amenity Assessment [EN010157/APP/6.4]**, to consider the significance of effects on the private views of surrounding properties and the acceptability of living conditions.

- 8.7.3 Regarding glint and glare, paragraph 2.10.102 of NPS EN-3 defines ‘glint’ as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. ‘Glare’ is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel. The effect occurs when the solar panel is stationed between or at an angle of the sun and the receptor.
- 8.7.4 Paragraphs 2.10.102 - 2.10.106 of NPS EN-3 sets out the specific assessment impact considerations for solar PV development with regard to glint and glare.
- 8.7.5 Paragraph 2.10.105 of NPS EN-3 states that glint and glare assessment may need to account for ‘tracking’ panels if they are proposed as these may cause differential seasonal impacts. The potential for solar PV panels, frames, and supports to have a combined reflective quality should be assessed. This assessment needs to consider the likely reflective capacity of all of the materials used in the construction of the solar PV farm.
- 8.7.6 The ERYC Local Plan does not include policies which relate to glint and glare.
- 8.7.7 As per the requirement in NPS EN-3 paragraph 2.10.105, the assessment considered a single-axis ‘tracking’ solar panel layout. This is because ‘tracking’ panels present the greatest opportunity for worst case glint and glare effects. The full assessment method is included in **ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4]**. NPS EN-3 paragraph 2.10.158 confirms that solar PV panels are designed to absorb, not reflect, irradiation, and states that assessment should consider the potential impact of glint and glare on nearby homes and motorists. Additionally, paragraph 2.10.134 of NPS EN-3 states that Applicants should consider using, and in some cases the Secretary of State may require, solar panels to comprise of (to be covered with) anti-glare/anti-reflective coatings. The **Glint and Glare Assessment** has been undertaken on a worst case basis, where panels have been modelled without the use of anti-glare/anti-reflective coatings. Whether the Applicant will use of these will be decided prior to construction.

Road Users

- 8.7.8 Significant screening in the form of existing vegetation and proposed screening planting is predicted to obstruct views of the reflecting panels from those on the

local highways. Therefore, road users along the surrounding major national, and regional roads are not predicted to be subjected to any significant adverse effects.

- 8.7.9 A combination of setbacks and screening via existing hedgerows means that road users along the surrounding local roads would not be subject to significant adverse impacts. As such, it is considered that the proposals are in accordance with paragraph 2.10.158 of NPS EN-3.

Dwellings

- 8.7.10 Solar reflections are geometrically possible towards 89 of the 225 assessed dwelling locations. No impacts are predicted on 64 of these dwellings, because there is significant screening such that views of reflecting panels are not expected to be possible in practice. A low impact is predicted on 24 dwellings, but because significant visual screening exists and is proposed as part of the Proposed Developments mitigation measures, solar reflections are predicted to be experienced for a period of less than three months per year and less than 60 minutes on any given day. A moderate impact is predicted on one dwelling under baseline conditions due to the duration of effects and a lack of sufficient mitigating factors. Proposed vegetation screening along panel boundaries to the west of the dwelling will reduce the duration of effects to less than three months per year and less than 60 minutes on any given day, once it matures to 2.5 metres above ground level. The impact will be reduced to low impact, and further mitigation is not therefore recommended. Therefore, in accordance with the assessment methodology the effects of solar reflection on the 25 affected dwellings are not considered significant.
- 8.7.11 Therefore, the potential effects of glint and glare upon dwellings are considered acceptable with regard to paragraph 2.10.158 of NPS EN-3.

Aviation Receptors

- 8.7.12 Paragraph 2.10.159 of NPS EN-3 confirms that SoS decision-making will be made on the basis that there is no evidence that glint and glare from solar farms interferes in any way with aviation navigation or pilot and aircraft visibility or safety. The paragraph continues to state that, “unless a significant impairment can be demonstrated, the Secretary of State is unlikely to give any more than limited weight to claims of aviation interference because of glint and glare from solar farms”.
- 8.7.13 **ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4]** has shown that solar reflections with a maximum intensity of ‘low potential for temporary after image’ (‘green’ glare) are geometrically possible towards parts of the 1-mile splayed approach paths and visual circuits

at both Beverley Airfield and Hill Farm & Burton-Constable Airfield. In Appendix D to **ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4]**, relevant guidance documents have been considered, as well as industry best practice pertaining to approach paths, which states that this level of glare is acceptable. It is concluded that this level of glare is also acceptable for the 1-mile splayed approach paths and visual circuits. No significant impacts are predicted, and no mitigation is required.

- 8.7.14 In summary, there is considered to be no potential impact upon surrounding aviation activity, which is in line with paragraph 2.10.159 of NPS EN-3.

Summary

- 8.7.15 NPS EN-3 paragraph 2.10.158 requires the SoS to assess potential impact on nearby homes, motorists, public rights of way and aviation infrastructure. This section sets out the findings of the Glint and Glare Assessment and reports that the Proposed Development with existing screening in combination with mitigation measures (i.e. provision of visual screening), does not result in any unacceptable impacts on motorists, nearby homes or aviation infrastructure. The proposed screening will be secured through the **Outline LEMP [EN010157/APP/7.5]**. As such, the Proposed Development is considered to address the policy expectations on glint and glare set out in NPS EN-3.

8.8 Air Quality

- 8.8.1 This section reviews the Proposed Development in the context of planning policies related to air quality. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 1 to this Planning Statement.
- 8.8.2 NPS EN-1 paragraph 5.2.8 requires development that is likely to have adverse effects on air quality to undertake an assessment of the impacts of the proposed project as part of the ES. An air quality assessment has been undertaken and the impacts of the Proposed Development are reported in **ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4]**.
- 8.8.3 NPS EN-1 paragraph 5.2.9 described what the ES should include with regard to air quality. The content of **ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4]** accords with this policy requirement. NPS EN-1 paragraph 5.2.16 states that great weight will generally be given to air quality considerations where a project would lead to a deterioration in air quality.
- 8.8.4 East Riding Local Plan 2012 – 2029 (adopted April 2016) Policy EC5 states energy sector developments will be supported by East Riding of Yorkshire Council if the effects of development on local amenity, including air quality, are

acceptable. Table 5 of Appendix 1 to this Planning Statement includes a response to local policy. It is considered given the results of the air quality assessment at Section 6.9 of **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**, and embedded mitigation, the Proposed Development accords with local policy.

- 8.8.5 The nature of the Proposed Development means that the operational phase is unlikely to result in any significant emissions to the air. Traffic related to operation and maintenance is minimal, as described in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**. There will also be no combustion plant as part of the Proposed Development. As such, there are no likely significant environmental effects from the operational phase of the Proposed Development upon air quality.
- 8.8.6 The construction and decommissioning phases have the potential to cause some emissions to the air and in relation to the transportation of required materials into and from the Order Limits, and from dust generating activities that are required during the lifetime of the Proposed Development.
- 8.8.7 The **Outline CTMP [EN010157/APP/7.7]**, **Outline CEMP [EN010157/APP/7.2]**, and **Outline DEMP [EN010157/APP/7.4]** prepared in support of the DCO Application set out measures to manage any potential air quality effects that may arise from construction and decommissioning activities.
- 8.8.8 As concluded in Section 6.9 of **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**, on the basis that the application of appropriate mitigation measures is in place, there are expected to be no likely significant effects on air quality or decommissioning, either in isolation or in combination with other projects.

Summary

- 8.8.9 **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]** concludes that with the embedded mitigation and additional mitigation measures described in Sections 6.6 and 6.8 respectively of **ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]**, the Proposed Development would not lead to a deterioration in air quality locally or lead to any air quality breaches elsewhere. In accordance with NPS EN-1 paragraph 5.2.14, mitigation measures have been identified and included within the **Outline CTMP [EN010157/APP/7.7]**, **Outline CEMP [EN010157/APP/7.2]**, and **Outline DEMP [EN010157/APP/7.4]**. These measures are considered to appropriately mitigate adverse effects of the Proposed Development on air quality.
- 8.8.10 The Proposed Development is not anticipated to have any significant residual adverse effects on air quality during the construction, operational or

decommissioning phases. s. Therefore, there is no requirement for substantial weight to be afforded against the Proposed Development in the planning balance as per the advice within paragraph 5.2.16 of EN-1. It is considered that there are no implications in terms of the tests required to be applied by the SoS in decision making as set out in paragraphs 5.2.15 - 5.2.19 of EN-1.

8.9 Noise and Vibration

- 8.9.1 This section considers the Proposed Development in the context of planning policies related to noise and vibration. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 1 to this Planning Statement.
- 8.9.2 Paragraph 5.12.5 of NPS EN-1 identifies the factors that will determine the likely noise and vibration impacts of developments, including inherent operational noise, proximity to sensitive noise receptors, proximity to ‘quiet places’ and potential impacts upon wildlife. Paragraph 5.12.6 of NPS EN-1 sets out specific requirements for noise and vibration assessments.
- 8.9.3 **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** includes a noise and vibration assessment of the Proposed Development which was prepared in accordance with the requirements set out in paragraph 5.12.6 of NPS EN-1. The assessment considers construction/decommissioning affects and impacts of operational noise on human receptors in accordance with NPS EN-1 paragraph 5.12.9. The assessment considers the noise and vibration generating activities during each phase of the Proposed Development and assesses the worst-case scenario in terms of duration of impact, time of day/night it could potentially occur and proximity of the activity to sensitive receptors.
- 8.9.4 Paragraph 5.12.8 of NPS EN-1 states that the noise impact of ancillary activities, including increased traffic, should be considered. The noise impact of the construction traffic is based on the assessment of the projected changes in traffic flow as set out in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**.
- 8.9.5 Paragraph 5.12.15 of EN-1 requires developments to demonstrate good design through the selection of the quietest cost-effective plant available; containment of noise within buildings where possible; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission.
- 8.9.6 Section 2.10.161 of the NPS EN-3 refers to impacts arising from construction including traffic and transport noise and vibration. The focus is on mitigating construction and decommissioning phase transport impacts, such as noted in

NPS EN-3 paragraph 2.10.139 where the local highways authority may request that the SoS impose controls on the number of vehicle movements to and from the solar farm site in a specified period. However, it is discussed that the SoS should be satisfied that environmental effects related to construction traffic after mitigation are acceptable, as consistent with the generic policy set out in NPS EN-1. It is noted that NPS EN-3 paragraph 2.10.161 confirms that once solar farms are in operation, traffic movements to and from the Proposed Development are generally ‘very light’. As set out above and in **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** the construction and decommissioning impacts have been properly assessed and proposed mitigation measures ensures that there would be no significant effects arising.

- 8.9.7 Paragraph 5.12.17 of NPS EN-1 states that consent should not be granted unless development proposals meet with the following aims:
- Avoid significant adverse impacts on health and quality of life from noise;
 - Mitigate and minimise other adverse impacts on health and quality of life from noise; and
 - Where possible, contribute to improvements to health and quality of life through the effective management and control of noise.
- 8.9.8 Paragraph 5.12.13 of NPS EN-1 refers to the consideration by the SoS for the need for mitigation measures both for operational and construction noise over and above any which may form part of the DCO Application. Paragraph 5.12.13 of NPS EN-1 refers to a requirement to take into account guidance in the NPPF with regard to setting requirements to secure appropriate additional mitigation.
- 8.9.9 Paragraph 187 of the NPPF states that planning policies and decisions should prevent new development from contributing to unacceptable levels of noise pollution. Paragraph 198 of the NPPF also requires new development to mitigate, and reduce to a minimum, potential adverse impacts resulting from noise and to avoid significant adverse impacts of noise on health and quality of life. Table 4 at Appendix 1 to this Planning Statement includes a policy response to the NPPF.
- 8.9.10 Policy EC5 (Supporting the energy sector) of the ERYC Local Plan states that developments and their associated infrastructure should be acceptable in terms of local amenity, including noise, air and water quality, traffic, vibration, dust and visual impact.

Mitigation and Management

- 8.9.11 The predicted impacts of noise and vibration generated from the Proposed Development are considered in **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]**. This chapter summarises that the greatest potential noise

effects are predicted to occur during the construction and decommissioning phases of the development, with operational noise generally limited to the hybrid packs (consisting of BESS units, DC-DC converters and central inverters) and the two on-site substations.

- 8.9.12 Specific measures to mitigate noise and vibration impacts are embedded into the design of the Proposed Development. Further management of potential impacts is secured through measures identified in the **Outline CEMP [EN010157/APP/7.2]**, **Outline OEMP [EN010157/APP/7.3]**, and **Outline DEMP [EN010157/APP/7.4]**. These include standard good practice measures such as use of Best Practicable Means to reduce disturbance associated with noise and vibration during construction as far as reasonably practicable, with reference to relevant guidance. The implementation of final management plans, which will effectively manage adverse effects that may impact local amenity in relation to noise and vibration, will ensure the Proposed Development is in specific accordance with ERYC Local Plan Policy EC5, NPS EN-1 paragraph 5.12.15 and 5.12.17 and NPS EN-3 paragraphs 2.10.139 and 2.10.161.
- 8.9.13 The noise assessment in **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** confirms that beyond the construction phase, it is not predicted that there will be significant adverse effects generated by the Proposed Development. This is in accordance with paragraph 5.12.8 of NPS EN-1.
- 8.9.14 The technical specifications of the plant associated with the Proposed Development is not yet determined. However, good design with regard to minimising noise and vibration impacts is demonstrated through embedded mitigation. The **Outline OEMP [EN010157/APP/7.3]** includes parameters for ensuring that noise impacts of installed plant are minimised. To mitigate impact during the operational phase, general project design principles have been set out for the Proposed Development meaning that inverters will be located at a minimum distance of 200 m from residential properties unless it can be demonstrated to the satisfaction of East Riding of Yorkshire Council that the location of inverters within 200 m of existing residential receptors, would not give rise to materially new or materially different noise effects compared to those reported within **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]**. These setback parameters are secured in the **Design Parameters Document [EN010157/APP/5.8]**. It is considered that the Proposed Development accords with paragraph 5.12.15 of NPS EN-1.
- 8.9.15 **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** confirms that there is no predicted significant adverse noise or vibration impacts predicted upon any receptors, or upon the quality of life or human health. The Chapter demonstrates that residual noise and vibration effects (with embedded and additional mitigation) during construction, operation and decommissioning would

be not significant. It is considered that the assessment of noise and vibration has been undertaken in accordance with Section 5.12 of NPS EN-1.

- 8.9.16 As a result of the outcome of the noise and vibration assessment, and in response to paragraph 5.12.13 of NPS EN-1, it is not anticipated that the SoS will need to consider additional mitigation measures above those already embedded within the design.

Summary

- 8.9.17 **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** concludes that with the embedded mitigation and additional mitigation measures described in Sections 12.6 and 12.8 respectively of **ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]** means the Proposed Development would not lead to significant adverse noise and vibration effects, which addresses NPPF paragraph 187 and 198 and ERYC Local Plan policy EC5.
- 8.9.18 Further, the implantation of final management plans as outlined within the **Outline CEMP [EN010157/APP/7.2]**, **Outline OEMP [EN010157/APP/7.3]**, and **Outline DEMP [EN010157/APP/7.4]** during each relevant phase of the Proposed Development, will reduce adverse noise and vibration effects addressing relevant policy across NPS EN-1 and NPS EN-3.
- 8.9.19 Therefore, it is considered that the Proposed Development is in accordance with NPS EN-1, NPS EN-3, the NPPF and relevant local plan policies.

8.10 Population Impacts

- 8.10.1 This section reviews the Proposed Development in the context of planning policies related to population impacts. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 1 to this Planning Statement.
- 8.10.2 Paragraph 5.13.2 of NPS EN-1 states that applicants should undertake and include in their application an assessment of socio-economic impacts where the project is likely to have impacts at a local and regional level.
- 8.10.3 In response, the potential socio-economic impacts of the Proposed Development on the local economy during the construction, operation and decommissioning phases is assessed in detail in **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]**.

- 8.10.4 NPS EN-1 paragraph 5.13.4 outlines that the assessment should consider all relevant socio-economic impacts. The full wording of the paragraph, along with the Proposed Development response, is set out in Table 1 at Appendix 1 to this Planning Statement.
- 8.10.5 **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** considers the potential effects of the Proposed Development on employment. The assessment finds that the majority of socio-economic impacts experienced during the construction and decommissioning phases relate to the creation of employment opportunities and increased spend on local services. Once operational, impacts on local labour market arising from operational and maintenance jobs would be more limited.
- 8.10.6 It is estimated that there will be an average of 250 full time equivalent jobs on-site per day during the construction phase. A peak number of 350 staff are expected on site during peak construction periods. The peak construction period is assumed to be when Land Areas D and E and the grid connection cable route to National Grid Creyke Beck Substation are being constructed concurrently, which is anticipated to occur in late 2027 and to last four months. The total duration of the construction phase is anticipated to be 24 months.
- 8.10.7 During operation (including maintenance), it is anticipated the Proposed Development will generate approximately four full time equivalent jobs. Therefore, impacts on the local labour market and associated Gross Value Added would be more limited in comparison to the construction and decommissioning phases.
- 8.10.8 The estimated duration of the decommissioning phase is expected to take between 18 and 24 months, and it is anticipated that the employment effects over this period will be similar to the construction phase, although over a shorter term. These impacts are assessed as having slight beneficial impacts on the local economy.
- 8.10.9 The impacts of the changing influx of workers associated with each phase of the Proposed Development upon the local population, services and facilities is also considered in **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]**. Impacts are anticipated to be limited to the potential reduction in beds available in visitor accommodation for tourists principally during the construction and decommissioning phases. It has been estimated that during the peak construction period where 350 staff are anticipated to be working on the project, 18 workforce staff will require visitor accommodation. **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** concludes that there is likely to be a slight beneficial effect on occupancy rates in the local area, which is considered to be not significant.

- 8.10.10 There are no nearby developments within the region where the Proposed Development is located that, during the construction stage, may adversely affect the availability of construction staff from a cumulative perspective.
- 8.10.11 In terms of job creation and training opportunities, it is anticipated that the workforce will learn new skills by working on a renewable energy project which they may not have done previously. The inherent on-the-job training opportunities for workforce staff will aid the efficient construction of future renewable energy projects that these upskilled workers may be involved in which is needed for the UK's transition to Net Zero.
- 8.10.12 As outlined within the **Statement of Reasons [EN010157/APP/4.1]**, the Proposed Development would involve works at Figham Common, a common land area. Once the Proposed Development is operational, the land at Figham Common will be no less advantageous to the persons to whom it is vested, those entitled to rights of common or other rights and the public than it currently is. Once the cable works are completed Figham Common will look no different than it did prior to the undertaking of the cable works. Furthermore, the land will be able to be used in the same manner as prior to the Proposed Development. There will be no permanent disturbance to the surface soil, or removal of trees or bushes. Rights will be sought as part of the DCO, including rights to adjust, alter, construct, use maintain, repair, renew, inspect, remove and replace the electric cables. These rights will involve physical works, including access to the land, however, only in rare cases and for short periods. This receptor was therefore scoped out from assessment for the operation (including maintenance) and decommissioning phases as the works affecting this common land were not considered to have a potential significant adverse effect on public use of Figham Common once the construction phase was completed. This position is confirmed in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]**. As the installation of the grid connection cable route falls (in part) within Figham Common, construction phase effects on Figham Common were scoped into the assessment.
- 8.10.13 Construction phase effects on Figham Common are addressed within **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]**. The assessment focused on if there is potential for users of Figham Common to experience a change in accessibility or use of the land at Figham Common, from construction activities. It is proposed that the cable works required within Figham Common will be via a combination of Horizontal Directional Drilling (HDD) and open cut trenching within a 30 m working width corridor. There is proposed to be approximately 1.7 km of HDD within Figham Common, which will cause no impact to the surface of this area. Sections of the cabling works within Figham Common are anticipated to be undertaken via open cut trenching. During the undertaking of the cable works, the 30 m working width will be fenced off during that phase of construction with appropriate crossing points. Therefore, the assessment

contained within **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** concludes that no significant adverse effects on users of Figham Common is anticipated.

8.10.14 **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** concludes that recreation and tourism impacts of the Proposed Development are not significant at any phase and can be effectively mitigated through implementation of management plans secured in the DCO Application. It also concludes that adverse effects generated by the Proposed Development on recreation and tourism during the construction phase will be minor in impact magnitude, with a slight adverse residual effect post implementation of mitigation measures, which is considered not significant.

8.10.15 Paragraph 5.13.8 of NPS EN-1 refers to the possible requirement to mitigate adverse socio-economic effects. Mitigation measures to manage and minimise potential socio-economic effects are set out in the **Outline CEMP [EN010157/APP/7.2]**, the **Outline DEMP [EN010157/APP/7.4]** and the **Outline LEMP [EN010157/APP/7.5]**.

8.10.16 It is considered that the above measures adequately mitigate socio-economic impacts in accordance with paragraphs 5.13.2 – 5.13.8 of NPS EN-1.

8.10.17 Paragraph 39 of the NPPF advises that developments that seek to improve the economic, social, and environmental conditions of an area should be approached in a positive and creative way by local planning authorities. Table 4 at Appendix 1 to this Planning Statement includes a policy response to the NPPF. It is considered that the results of the assessment of socio-economic effects included in **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** accords with the NPPF with regard to socio-economic impacts.

8.10.18 The ERYC Local Plan policy EC1 (Supporting the growth and diversification of the East Riding economy) seeks to “strengthen and encourage growth of the East Riding economy, employment development will be supported where the proposal is of a scale suitable to the location” and that proposals will be encouraged where they “develop and strengthen the East Riding's key employment sectors and clusters including: renewable energy”. While the Order Limits have not been allocated as employment land, the Proposed Development will bring a range of employment opportunities to the local area and therefore in support of the above policy.

Public Rights of Way

8.10.19 All public rights of way would be kept open during construction as far as is practicable and safe. Where it would not be practicable and safe, there may be a

requirement for some public rights of way to be temporarily managed or closed for a short duration. **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** considers the impact to users of public rights of way and concludes that there are no significant adverse effects as a result of this.

8.10.20 During operation (including maintenance) of the Proposed Development all existing public rights of way will be retained. The Proposed Development design incorporates a minimum offset distance of 10 m from all public rights of way including new planting, where reasonably practicable, as secured within the **Works Plans [EN010157/APP/2.2]** and there will be no requirement for temporary or permanent closures of any public rights of way during operation (including maintenance). Further detail on retaining and managing public rights of way during the operation (including maintenance) phase are outlined in the **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]**.

8.10.21 The Applicant is also proposing to provide approximately 12.6 km of additional permissive paths which will be available during the operational (including maintenance) phase and are detailed in the **ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]** and are secured by the **Outline LEMP [EN010157/APP/7.5]**. The new permissive paths have been designed to retain and enhance recreational connectivity across the Proposed Development.

Summary

8.10.22 **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** sets out the proposed effects in relation to population and identifies slight beneficial effects to the employment and skills labour market and increased occupancy rates of local accommodation and workforce spending. NPS EN-1 paragraph 5.13.11 states that the SoS should consider those positive effects in decision making. However, it is also noted that beneficial impacts aren't identified as being significant in EIA terms.

8.10.23 Figham Common, as common land affected by the laying of the cable route is not anticipated to be significantly affected by the Proposed Development as the burdened land will be no less advantageous to the persons to whom it is vested, those entitled to rights of common or other rights and the public than it currently is. It has been confirmed within **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]** as being appropriate to scope the operation (including maintenance) and decommissioning phases out of the assessment contained within **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]**. During the construction phase it has been assessed that adverse population effects would not be significant because the disturbance necessary to enable the laying of the

grid connection cable within Figham Common, will be short term with appropriate crossing points provided.

- 8.10.24 **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** anticipates that there is a potential reduction in beds available in visitor accommodation for tourists principally during the construction and decommissioning phases. **ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]** concludes that there is likely to be a slight beneficial effect on occupancy rates in the local area, which is considered to be not significant and there will be no significant impacts to recreation and tourism as a result of the Proposed Development.
- 8.10.25 It is considered that the Proposed Development addresses the relevant socio-economic policies and guidance set out in the NPS EN-1, the NPPF, and the ERYC Local Plan.

8.11 Traffic and Transport

- 8.11.1 This section reviews the Proposed Development in the context of planning policies related to traffic and transport. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 1 to this Planning Statement.
- 8.11.2 In accordance with paragraph 5.14.5 of NPS EN-1, **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** assesses the impact of the Proposed Development on traffic and transport and is supported by **ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]**.
- 8.11.3 Paragraph 5.14.7 of NPS EN-1 states the Applicant should prepare a travel plan including demand management measures to mitigate transport impacts. An **Outline Travel Plan** is submitted as Appendix 1 to the **Outline CTMP [EN010157/APP/7.7]** which will be secured pursuant to a requirement in the **Draft DCO [EN010157/APP/3.1]**.
- 8.11.4 NPS EN-1 paragraph 5.14.18 notes that new NSIPs may give rise to substantial impacts on surrounding transport infrastructure and that applicants should seek to mitigate these impacts, including during the construction phase of the Proposed Development.
- 8.11.5 The nature of the Proposed Development is such that the greatest traffic and transport impacts are likely to occur during both the construction and decommissioning phases. This is acknowledged in paragraph 2.10.161 of the NPS EN-3 which confirms that once solar farms are in operation, traffic movements to and from the Proposed Development are generally 'very light'. All road users during the operational phase have been scoped out of the ES

assessment as agreed in **ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4]** due to the impacts of the local road system being minimal during the operational phase, as stated in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**.

8.11.6 In response to NPS EN-1 paragraph 5.14.18, the mitigation measures that have been embedded into the design of the Proposed Development are set out in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]**. In summary, the mitigation measures include:

- Provision of passing places on Carr Lane (Long Riston), Arnold Lane West, Carr Lane (Arnold) and Meaux Lane/Meaux Road.
- Provision of new access junctions into Land Area B, D, E and F. Affecting A165 White Cross Road and Meaux Lane/Meaux Road.
- Widening the Carr Lane (Long Riston)/A165 White Cross Road junction bell mouth and the Black Tup Lane/Carr Lane (Arnold) junction bell mouth.
- Widening bends in the carriageway on Meaux Lane/Meaux Road.
- Temporary speed reduction (from 40 mph to 30 mph) during the construction phase on Meaux Lane/Meaux Road between junction with A1035 and a point approximately 40 m north of Tippet Lane as well as a second section on Meaux Road in the vicinity of the two proposed accesses to Land Area F. The temporary speed reduction is set out in the **Traffic Measures Plan [EN010157/APP/2.9]**.

8.11.7 **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** concludes that following the application of mitigation measures, the potential for adverse traffic and transport related effects during the construction and decommissioning phases arising from the Proposed Development would be not significant.

8.11.8 Paragraph 5.14.11 of NPS EN-1 states where mitigation is needed possible demand management measures must be considered before requirements for provisions of new infrastructure to deal with any remaining transport related impacts. Paragraph 5.14.15 of NPS EN-1 states: the SoS should have regard to the cost-effectiveness of demand management measures.

8.11.9 In response, as concluded in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** mitigation is embedded into the design of the Proposed Development and set out in the **Outline CTMP [EN010157/APP/7.7]**. As a result of the mitigation measures proposed, impacts of the Proposed Development are such that provision of new transport infrastructure is not required which is in accordance with NPS EN-1 paragraph 5.14.11.

- 8.11.10 Paragraph 5.14.12 of NPS EN-1 states that maritime and inland waterway transport methods or rail transport are preferred over road transport at all stages of the project, where cost-effective. However, given the location of the Site, duration of the construction and decommissioning phases and the limited impact on the Local Road Network as concluded in **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** it is considered that rail and/or water transport methods would not be the most suitable.
- 8.11.11 Paragraph 5.14.14 of NPS EN-1 refers to requirements that the SoS may attach to a consent where there is likely to be substantial HGV traffic to control the timing of these movements. The **Outline CTMP [EN010157/APP/7.7]** sets out that the Principal Contractor will coordinate deliveries and collections associated with the Proposed Development to optimise the frequency of deliveries, reduce congestion and make efficient use of delivery vehicles.
- 8.11.12 NPS EN1 paragraph 5.14.21 states that the SoS should only consider refusing the Proposed Development on 'highways grounds if there would be an unacceptable impact on highway safety, residual cumulative impacts on the road network would be severe, or it does not show how consideration has been given to the provision of adequate active public or shared transport access and provision.' **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** states that there are no anticipated significant residual effects and no unacceptable impacts on highway safety. It is also not anticipated to have a significant adverse effect on the strategic or local highway networks in terms of their capacity and highway safety.
- 8.11.13 NPS EN-3 paragraph 2.10.35 states that applicants need to consider suitability of access routes and that access for the delivery of solar arrays and associated infrastructure during construction can be a significant consideration for solar farm siting. The **Site Selection Assessment** at Appendix 2 of this Planning Statement explains how the location of the Proposed Development was selected. **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** and the **Outline CTMP [EN010157/APP/7.7]** provide further details regarding the suitability of access and delivery arrangements.
- 8.11.14 Paragraphs 2.10.120 to 2.10.126 of NPS EN-3 refers to construction impacts including traffic and transport in addition to general traffic and transport impacts set out in NPS EN-1. Paragraph 2.10.125 of the NPS EN-3 states that the Applicant should assess whether the access roads are suitable for the transportation of components which will include whether they are sufficiently wide for the proposed vehicles, or bridges sufficiently strong for the heavier components to be transported to the Proposed Development.

- 8.11.15 In response to paragraph 2.10.125 of the NPS EN-3, **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** has identified sections of the surrounding road network that HGVs and LGVs will utilise during the construction phase. **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** assesses the suitability of each of these road network sections and has considered the necessary works required to facilitate HGV and LGV traffic.
- 8.11.16 NPS EN-3 paragraph 2.10.126 refers to cumulative impacts of traffic and transportation. Cumulative effects related to transport and traffic are considered in **ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2]**, which confirms no significant adverse cumulative traffic and transportation effects are anticipated.
- 8.11.17 Paragraph 2.10.139 of NPS EN-3 states that in some cases, the local highways authority may request that the SoS impose controls on the number of vehicle movements to and from the Proposed Development in a specified period during its construction and, possibly, on the routing of such movements particularly by heavy vehicles. Paragraph 2.10.141 of NPS EN-3 refers to residential amenity and potential cumulative impacts arising from traffic and transport during construction.
- 8.11.18 In response to paragraphs 2.10.139 and 2.10.141 of the NPS EN-3, to mitigate the impacts upon local amenity and the local road networks more generally, deliveries to Site will be distributed across the working day, with the vast majority of deliveries occurring between 09:00 and 16:00 in order to remain outside the peak hours. Shuttle bus services will be provided, and car and van sharing promoted for construction workers to reduce single occupancy vehicle travel, as secured by the **Outline CTMP [EN010157/APP/7.7]**.
- 8.11.19 The NPPF, at paragraph 109, also expects consideration and mitigation of transport impacts of development including the environmental impacts and impacts on transport networks. NPPF paragraph 116 notes that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe, taking into account all reasonable future scenarios. Table 4 at Appendix 1 to this Planning Statement includes a policy response to the NPPF. It is considered that the mitigation measures outlined above and results of the transport assessment accord with the NPPF in regard to transport impacts.
- 8.11.20 Policy EC4: Enhancing sustainable transport of the ERYC Local Plan seeks to increase overall accessibility, minimise congestion and improve safety from new developments. Through the implementation of a Travel Plan, provided for within the **Outline CTMP [EN010157/APP/7.7]**, the Proposed Development responds

to Policy EC4 of the ERYC Local Plan as this will reduce adverse effects on the transport network, such as through implementing a construction staff shuttle bus, limiting HGV movements during peak travel periods and encouraging sustainable transport methods for construction staff travel to and from the Proposed Development. The Travel Plan, within the **Outline CTMP [EN010157/APP/7.7]**, contains the full suite of mitigatory measures to be implemented during the construction phase.

8.11.21 Policy EC5 (Supporting the energy sector) of the ERYC Local Plan states that Development proposals and their associated infrastructure should be acceptable in terms of local amenity including traffic, as well as investigating the potential to use waterways and rail for the transportation of materials and fuel.

8.11.22 **ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]** assesses the impact of added HGVs to the road network during the construction phase of the Proposed Development on non-motorised user amenity. Through the implementation of the **Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]** and **Outline CTMP [EN010157/APP/7.7]** it is considered that adverse effects would be mitigated to be not significant. Therefore, the Proposed Development is in line with relevant ERYC Local Plan policies.

Summary

8.11.23 The assessment concludes that adverse traffic and transport effects during all phases of the Proposed Development are anticipated to be not significant.

8.11.24 Mitigation has been considered and embedded into the design of the development of the Proposed Development, including through the implementation of the **Outline CTMP [EN010157/APP/7.7]**.

8.11.25 Paragraph 5.14.21 of NPS EN-1 advises that the SoS should only consider “refusing development on highways grounds if there would be an unacceptable impact on highway safety, residual cumulative impacts on the road network that would be severe”. There are no grounds relating to highways impacts in this regard and therefore the Applicant considers that it is compliant with the relevant policy tests in this regard.

8.11.26 Overall, the Proposed Development is considered to be in compliance with NPS EN-1, NPS EN-3, NPPF, and local planning policy with regard to traffic and transport effects.

8.12 Waste Management

- 8.12.1 This section reviews the Proposed Development in the context of planning policy related to waste management. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 3 of this Planning Statement.
- 8.12.2 Paragraph 5.15.2 of NPS EN-1 states sustainable waste management is implemented through the “waste hierarchy” , which sets out the priorities that must be applied when managing waste.
- 8.12.3 Paragraphs 3.6.35 to 3.6.38, 3.7.8 and 3.8.7 of **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** considers waste streams during the construction, operation and decommissioning phases of the Proposed Development.
- 8.12.4 The waste hierarchy principles are embedded into the **Outline Site Waste Management Plan (SWMP) [EN010157/APP/7.10]** that forms part of the DCO Application.
- 8.12.5 The decommissioned materials will follow the waste hierarchy and will be reused where possible before recycling and disposal are considered in accordance with the **Outline DEMP [EN010157/APP/7.4]**.
- 8.12.6 These documents include measures to control and manage waste on-site in line with the Waste Hierarchy, as per paragraph 5.15.2 of NPS EN-1, and are secured pursuant to a requirement in the **Draft DCO [EN010157/APP/3.1]**.
- 8.12.7 Paragraph 5.15.8 of NPS EN-1 requires development proposals to set out waste managing arrangements and to produce a SWMP. The DCO Application is supported by an **Outline SWMP [EN010157/APP/7.10]**. A SWMP will be produced for the Proposed Development prior to the construction commencing, pursuant to requirement in the **Draft DCO [EN010157/APP/3.1]** and will be largely in accordance with the **Outline SWMP [EN010157/APP/7.10]**. The **Outline SWMP [EN010157/APP/7.10]** identifies the Proposed Development’s obligations with regard to waste legislation. It provides the details regarding roles and responsibilities of the Applicant and its Principal Contractor (including any subcontractors).
- 8.12.8 The nature of the Proposed Development means there are very few waste streams that arise from the operational phase. No materials are required to be processed and the solar PV arrays do not produce any waste while in operation. The only waste arising from the operational phase is expected to be related to any ad-hoc maintenance and replacement of components that may arise. The details of how the aforementioned waste will be dealt with is set out within the **Outline OEMP [EN010157/APP/7.3]**.

- 8.12.9 At the decommissioning phase, the above ground solar infrastructure that is to be removed will be dismantled and removed per industry best practices. The decommissioned materials will follow the waste hierarchy such that they will be reused where possible before recycling and disposal are considered, as secured in the **Outline DEMP [EN010157/APP/7.4]**.
- 8.12.10 The NPS EN-1 paragraph 5.15.12 states that applicants are encouraged to source materials from recycled or reused sources and use low-carbon materials, local supplies, and sustainable sources. To ensure that material is reused or recycled on-site where possible, construction best practices are proposed to be followed.
- 8.12.11 Paragraph 8 of the NPPF states the planning system has three overarching objectives in order to achieve sustainable development; an economic objective, a social objective, and finally an environmental objective. The environmental objective is based around protecting and enhancing the natural, built, and historic environment, by among other things, minimising waste and pollution. Table 4 at Appendix 1 to this Planning Statement includes a policy response to the NPPF. It is considered that the results of the assessment of waste effects included in the **Outline CEMP [EN010157/APP/7.2]**, the **Outline OEMP [EN010157/APP/7.3]**, the **Outline DEMP [EN010157/APP/7.4]** and in the **Outline SWMP [EN010157/APP/7.10]**, to accord with the NPPF.
- 8.12.12 ERYC Local Plan discusses at Policy ENV1 (Integrating high quality design) that Proposed Developments will be supported where it incorporates energy efficient design and arrangements to manage waste.

Summary

- 8.12.13 In summary, through the application of the measures set out in the suite of relevant management plans, as set out above, the Proposed Development is in accordance with the relevant NPSs, the NPPF and the Local Policy.

8.13 Water Quality and Resources

- 8.13.1 This section reviews the Proposed Development in the context of planning policies related to water quality and resources. This section should be read in conjunction with the **Policy Accordance Tables** included in Appendix 1 to this Planning Statement.
- 8.13.2 Paragraph 5.16.3 of NPS EN-1 requires the Applicant to undertake an assessment of the existing status of and impacts of the Proposed Development on water quality, water resources, and physical characteristics of the water environment as part of the ES. The full paragraph wording of paragraph 5.16.7 of

NPS EN-1, which describes what an assessment should include, is included in Table 1 at Appendix 1 of this Planning Statement.

- 8.13.3 As set out in **ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1]**, the topic of water quality has been scoped out of the EIA as a stand-alone chapter. The Applicant has undertaken extensive consultation with the Environment Agency, which is detailed within **ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]** and **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**. This engagement has resulted in the Environment Agency agreeing that water can be scoped out of the assessment on the basis that a Flood Risk Assessment and Water Framework Assessment are submitted with the DCO Application. The Environment Agency confirmed that in relation to the Proposed Development, any concerns they may have are in relation to potential impacts on groundwater. An assessment of effects on groundwater is presented in **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.
- 8.13.4 **ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1]** confirms that measures to control potential impacts to water quality during construction, operation (including maintenance) and decommissioning are detailed in and secured by the **Outline CEMP [EN010157/APP/7.2]**, **Outline OEMP [EN010157/APP/7.3]** and **Outline DEMP [EN010157/APP/7.4]**, respectively. Furthermore, a Horizontal Directional Drilling Breakout Plan is included in the **Outline CEMP [EN010157/APP/7.2]**. It is concluded that, in resulting in a negligible overall effect, the Proposed Development is in accordance with policy relating to water quality.
- 8.13.5 The assessment of potential impacts on surface water resources is included in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**. The assessment of potential impacts on groundwater Source Protection Zones (groundwater SPZs), existing status of the local groundwater environment and the likely effects of the Proposed Development are included within **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.
- 8.13.6 Paragraph 5.16.12 of NPS EN-1 notes that impacts on the water environment will generally be given more weight where a project would have an adverse effect on the achievement of the environmental objectives established under the Water Framework Directive. Water Framework Directive classified watercourse waterbodies within the study area are detailed within Table 3-1 of **ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]**. Following the implementation of mitigation measures, the anticipated water quality impacts on WFD waterbodies is assessed as having a residual adverse effect that is not significant.

- 8.13.7 **ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]** considers the potential for water quality to be affected by a bentonite breakout during construction and a BESS battery fire, both scenarios considered unlikely to occur. There is a potential low impact from a bentonite breakout and a minor to moderate adverse impact to surface waters, both of which are assessed to have effects that are not significant.
- 8.13.8 Paragraph 5.16.14 of NPS EN-1 states that a proposal should regard the River Basin Management Plans and meet the requirement of the Water Framework Directive Regulations 2017. It adds the overall aim of development should be to prevent deterioration in status of water bodies to support the achievement of the objectives in the River Basin Management Plans and not to jeopardise the future achievement of good status for any affected water bodies.
- 8.13.9 It is acknowledged in **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** that the reduction in the application of herbicides and fertilisers, as well as including a grassed easement, would result in a reduction of pollution of surface water resources.
- 8.13.10 The Groundwater (Water Framework Directive) (England) Direction 2016 sets out obligations to protect groundwater. **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** describes the groundwater source protection zones present within the Order Limits.
- 8.13.11 Paragraph 5.16.6 of NPS EN-1 states protective measures to control the risk of pollution to groundwater beyond those outlined in River Basin Management Plans and Groundwater Protection Zones are encouraged. Additional mitigation measures, beyond those mitigation measures that are embedded, are proposed in Section 10.8 of **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.
- 8.13.12 With the additional mitigation measures, Section 10.9 of **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** concludes that groundwater impacts of the Proposed Development are not significant at any phase and can be effectively mitigated through implementation of the additional mitigation measures, including the implementation of the **Outline CEMP [EN010157/APP/7.2]**.
- 8.13.13 Paragraph 5.16.8 of NPS EN-1 states the SoS should consider whether mitigation measures are needed over and above any which may form part of the DCO Application. In response, **ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1]**, **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**, **Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]** and **ES Volume 4, Appendix 5.6:**

Flood Risk Assessment [EN010157/APP/6.4] include additional mitigation measures through the implementation of the **Outline CEMP [EN010157/APP/7.2]**, **Outline OEMP [EN010157/APP/7.3]** **Outline DEMP [EN010157/APP/7.4]** and **Outline SMP [EN010157/APP/7.8]**.

8.13.14 Paragraph 5.16.9 of NPS EN-1 states “the risk of impacts on the water environment can be reduced through careful design to facilitate adherence to good pollution control practice” .

8.13.15 In response to paragraph 5.16.9 of NPS EN-1, the Proposed Development has employed good design including avoidance measures in order to minimise the risk of impacts on the water environment. The NPPF at paragraph 187(e) states that planning policies and decisions should “contribute to and enhance the natural and local environment by...preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability” . Mitigation measures during the construction phase of the Proposed Development will be undertaken according to best practice and implemented through the **Outline CEMP [EN010157/APP/7.2]**. Vegetation management, secured through **Outline LEMP [EN010157/APP/7.5]** will also aid in the mitigating adverse effects on the water environment.

8.13.16 ERYC Local Plan discusses within Policy ENV6 (Managing environmental hazards) that “Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable consequences to its users, the wider community, and the environment”.

8.13.17 Table 5 at Appendix 1 to this Planning Statement includes a policy response to the ERYC Local Plan. It is considered that the results of the assessment of water effects included in **ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]**, and assessment of groundwater effects included as part of **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** accords with the local policy with regard to water quality impacts.

Summary

8.13.18 **ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]** concludes that adverse water quality and resources effects during all phases of the Proposed Development are anticipated to be not significant. Additionally, the environmental objectives established under the Water Framework Directive are anticipated to not be affected by the Proposed Development with no adverse effects upon the water environment are anticipated

to occur during the lifetime of the Proposed Development, including the construction and decommissioning phases.

8.13.19 **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** concludes there is anticipated to be no significant effects on the groundwater environment after the implementation of additional mitigation measures.

8.13.20 Mitigation has been considered and embedded into the careful design of the Proposed Development, as well as through additional mitigation measures. These mitigation measures include the implementation of the **Outline CEMP [EN010157/APP/7.2]**, **Outline OEMP [EN010157/APP/7.3]**, **Outline SMP [EN010157/APP/7.8]** and **Outline DEMP [EN010157/APP/7.4]** which will inform the development of final management plans prior to construction.

8.13.21 The Proposed Development is considered to be in compliance with the relevant NPS', the NPPF, and local planning policies.

8.14 Flood Risk and Drainage

8.14.1 This section reviews the Proposed Development in the context of the relevant planning policies relating to flood risk. This section should be read in conjunction with the **Policy Accordance Tables** included at Appendix 1 of this Planning Statement.

8.14.2 NPS EN-1 paragraph 5.8.13 states that applications for energy projects of 1 hectare or greater in Flood Zone 1 in England and all proposals for energy projects located in Flood Zone 2 and 3 in England should be accompanied by a flood risk assessment (FRA). The Order Limits include land identified within Flood Zones 2 and 3 and therefore requires an FRA. An FRA is included at **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**, and has been prepared in accordance with the requirements of Section 5.8 of NPS EN-1 (and the NPPF). Table 1 of Appendix 1 to this Planning Statement confirms that the FRA has been prepared in full accordance with the requirements of NPS EN-1. The likely effects of the Proposed Development associated with flood risk have been assessed in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**. The FRA concludes that the Proposed Development will be safe from all forms of flooding and will provide a betterment in terms of downstream flood risk and pollution.

8.14.3 Paragraph 5.8.18 of NPS EN-1 states that projects which may be affected by, or may add to, flood risk should arrange pre-application discussions with the EA, and, where appropriate, other bodies. Pre-application engagement has been carried out with the EA's National Infrastructure Team to agree the approach to hydraulic modelling and flood risk mitigation and with the Lead Local Flood

Authority (LLFA) and Beverley and North Holderness Internal Drainage Board (IDB) to agree the approach to drainage. Further details on the engagement undertaken to date is provided within **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**. Paragraph 5.8.21 of NPS EN-1 ensures that a sequential, risk-based approach is followed to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites with medium risk areas and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas.

- 8.14.4 NPS EN-1 paragraph 5.8.23 goes on to state that the consideration of alternative sites should take account of the policy on alternatives and that all projects should apply the Sequential Test to locating development within the Order Limits. Paragraph 5.8.29 continues on the theme of design, advising that the sequential approach should be applied to layout and design. It states that "vulnerable aspects of development should be located on parts of the site at lower risk and residual risk of flooding".
- 8.14.5 Paragraph 2.4.11 of NPS EN-3 states that "solar photovoltaic (PV) sites may also be proposed in low lying exposed sites. For these proposals, applicants should consider, in particular, how plant will be resilient to:
- increased risk of flooding; and
 - impact of higher temperatures".
- 8.14.6 NPPF paragraph 170 states that "inappropriate development in areas at risk of flooding should be avoided and that development should be directed away from areas at highest risk. Where development is necessary in areas of flood risk, the development should be made safe for its lifetime without increasing flood risk elsewhere"
- 8.14.7 ERYC Local Plan outlines at Policy ENV6 (Managing environmental hazards) that "Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable consequences to its users, the wider community, and the environment.". ERYC Local Plan Policy ENV6 b) outlines that the "risk of flooding to development will be managed by applying a Sequential Test to ensure that development is steered towards areas of lowest risk, as far as possible. The Sequential Test will, in the first instance, be undertaken on the basis of the East Riding of Yorkshire Strategic Flood Risk Assessment (SFRA) and the Environment Agency's Flood Map, within appropriate search areas. Where development cannot be steered away from Flood Zone 3, the sub-delineation of Zone 3a, detailed within the relevant SFRA, will be used to apply the Sequential Test, with preference given to reasonably

available sites that are in the lower risk/hazard zones. Where necessary, development must also satisfy the Exception Test.

- 8.14.8 If, following application of the Sequential Test, it has not been possible to successfully steer development to Flood Zone 1 or a sequentially preferable site, a Sequential Approach will be taken to site layout and design, aiming to steer the most vulnerable uses towards the lowest risk parts of the site and upper floors”.

Sequential and Exception Tests

- 8.14.9 The EA's Flood Map for Planning defines substantial areas of the Order Limits as Flood Zone 2 and 3, as shown in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**. The Order Limits benefit from substantial defences, including the River Hull Tidal Surge Barrier and extensive raised defences along the Humber Estuary and the tidally influenced River Hull and Monk Dike, which discharges to it. **Table 2-1 in ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** provides a summary of stakeholder engagement and confirms the EA confirmed that it did not consider the Order Limits to be at significant risk of tidal flooding due to the presence of the tidal barrier and associated defences.
- 8.14.10 Areas at risk of flooding from surface water have also been identified using the Risk of Flooding from Surface Water (RoFSW) mapping. The RoFSW mapping shows the majority of the Order Limits to be at Very Low risk of flooding from surface water with risk areas generally associated with watercourses and isolated low points across the Order Limits.
- 8.14.11 In accordance with paragraph 5.8.21 of NPS EN-1 the Applicant has applied a sequential, risk-based approach to steer new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account.

Location

- 8.14.12 As outlined in **section 5** of this Planning Statement and within the **Site Selection Assessment** at Appendix 2, the starting point for the Proposed Development was the identification of 320 MW capacity at National Grid Creyke Beck Substation. A 12 km radius from the National Grid Creyke Beck Substation was then established as a viable search area (the 'search area') for a potential solar scheme.
- 8.14.13 Having had regard to the factors influencing site selection as set out in NPS EN-3, the Applicant in the first instance sought to avoid areas of higher quality agricultural land, notably the large swathe of provisional Grade 2 to the west of

Hull and Beverley. However, large areas of the search area are located in Flood Zones 2 and 3 albeit on land of provisional lower quality. The Applicant considered the constraints, and the policy implications set out in NPS EN-1 and NPS EN-3. On the basis that it was considered that there was a greater capability to mitigate potential impacts of developing in the Flood Zone, the Applicant focussed the site selection around the area of higher flood zone sensitivity and sought to avoid the higher quality agricultural land as per the provisional ALC mapping.

8.14.14 Considering the above, and taking into account other environmental, planning and design factors including proximity to communities and landscape and visual, the **Site Selection Assessment** at Appendix 2 of this Planning Statement, concludes that there were no more suitable, reasonably available sites within areas at lower risk of flooding.

8.14.15 The Order Limits include a small portion of Flood Zone 3b, which is located primarily along the eastern and western edges of Land Areas B and C and northwestern edges of Land Areas D and E. Paragraph 5.8.41 of NPS EN-1 states that energy projects should not normally be consented within Flood Zone 3b, however, where essential energy infrastructure has to be located in such areas, for operational reasons, they should only be consented if the development will not result in a net loss of floodplain storage and will not impede water flows. The Government's guidance on flood risk and coastal change [Ref. 27] provides information on flood vulnerability classification at Annex 3. Annex 3 defines essential infrastructure as:

- Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk.
- Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including infrastructure for electricity supply including generation, storage and distribution systems; including electricity generating power stations, grid and primary substations storage; and water treatment works that need to remain operational in times of flood.
- Wind turbines.
- Solar farms.

8.14.16 Based on the above definition, the Proposed Development is classified as essential infrastructure. As outlined in the in the **Site Selection Assessment** at Appendix 2 and **section 5** above, the location of the Proposed Development was determined by the proximity to the point of connection for operational reasons. On this basis, it is considered that the Proposed Development meets the first part of paragraph 5.8.41 of NPS EN-1. Section 6 of **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** sets out the approach to mitigation to ensure that the development will be safe for its lifetime. The hydraulic

modelling work demonstrates that the impact of the panel supports on storage and flow in the floodplain will be insignificant and will not increase flood risk to third parties. Section 7 of **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** outlines that the surface water drainage strategy will effectively manage any minor change in runoff and ensure no detriment. On this basis, it is considered the Proposed Development meets both parts of paragraph 5.8.41 of NPS EN-1 and can be located within Flood Zone 3b.

- 8.14.17 The areas of Flood Zone 3b also predominantly lie along the edges of field boundaries which would otherwise be suitable for solar panels. As they can be technically accommodated to the satisfaction of the EA, not locating panels in these areas would not make the most of the available land and reduce the renewable energy generation capacity of the Proposed Development.

Layout and Design

- 8.14.18 Following the selection of the Order Limits, the Applicant applied a sequential approach to the layout and design of the Proposed Development.
- 8.14.19 The design process sought to avoid higher risk areas of Flood Zone 3b and all sensitive infrastructure such as hybrid packs and on-site substations have been located outside of areas identified to be Flood Zone 3b.
- 8.14.20 During the design stages, Land Area A was removed from the Order Limits. Hydraulic modelling of the Order Limits showed partial flooding of Area A associated with the Hull and Holderness Drain in the west and the Monk Dike, Meaux and Routh East Drain and Arnold and Riston Drain in the east. Drainage through the Holderness Drain was heavily restricted by high tide levels which results in flooding in the eastern part of Land Area A. Flooding was generally modelled at less than 0.5 m but in some places it was up to 1 m deep. As such, the decision was made to remove this area from solar PV Development and the Order Limits. Further details of the design stages are provided within **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**.
- 8.14.21 The two on-site substations have been located on high ground outside the flood extents for the Credible Maximum Flood Scenario (to 2100) and the maximum breach extents. All water sensitive infrastructure within the on-site substations will be at least 300 mm above the Credible Maximum Flood Level.
- 8.14.22 The containerised infrastructure and BESS are almost entirely outside the design flood event. The layout has been developed so that BESS and containerised infrastructure are outside the breach extents wherever practicable. Where this is not the case, they will be set above the maximum breach flood level.

- 8.14.23 The BESS and containerised infrastructure will, as standard, be raised 500 mm above the ground. The hydraulic modelling work demonstrates that 300 mm is sufficient freeboard above the design event level to account for uncertainty. 300 mm is also the maximum difference between the design event level and the Credible Maximum Scenario level. Consequently 300 mm of freeboard would also safeguard against extreme climate change to 2100.
- 8.14.24 Solar arrays, BESS and containerised infrastructure will be set at least 300 mm freeboard above the modelled 1-in-100 year plus climate change flood level which will be sufficient to mitigate to account for uncertainty and floating debris. Additionally, they will be set above the maximum breach flood level.
- 8.14.25 The above mitigation also means that no water-sensitive equipment would be located within the modelled 1 in 20 year event extent, which represents the Flood Zone 3b. In addition, during the construction phase, stockpiles or similar would be located outside the extent of the 1 in 20 year event.
- 8.14.26 This approach set out above has been agreed with the Environment Agency and is further detailed in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**.
- 8.14.27 To this end the Applicant considers that it has demonstrated compliance with the relevant sections of paragraph 5.8.36 of NPS EN-1 in relation to the Sequential Test.

Exception Test

- 8.14.28 Following the completion of the Sequential Test and in accordance with the requirements of paragraph 5.8.9 of NPS EN-1, the Applicant has applied the Exception Test to the proposed solar PV development within Flood Zone 3. In accordance with paragraph 5.8.10 of NPS EN-1, the Applicant considers it appropriate to apply the Exception Test as the Sequential test has demonstrated that there are no reasonably available lower risk sites to locate the required solar PV development that would deliver the same amount of renewable energy in the same time period.
- 8.14.29 NPS EN-1 paragraph 5.8.11 outlines the two elements required to be satisfied in order to pass the Exception Test as follows:
- the project would provide wider sustainability benefits to the community that outweigh flood risk; and
 - the project will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible will reduce flood risk overall.

8.14.30 In relation to the first bullet point, above, the Applicant considers that the substantial benefits that the Proposed Development would deliver, as set out in **section 3** of this Planning Statement and considered further in the planning balance at **section 9**, would clearly outweigh the flood risk, particularly given that this risk would be entirely removed through design (see below). As articulated in the **Statement of Need** at Appendix 3 of this Planning Statement, these are considered to be sustainability benefits to the wider community because significant renewable energy schemes at scale are required to be able to meet the legal binding commitment to Net Zero and make energy more affordable and reliable for all. The Proposed Development also delivers local community benefits including biodiversity net gain, environmental enhancements and improved connectivity across the Order Limits via a number new permissive paths, as set out in **section 3** of this Planning Statement.

8.14.31 In relation to the second bullet point, the mitigation measures included as part of the Proposed Development will ensure that the Proposed Development will be safe for its lifetime. The hydraulic modelling work undertaken as part of **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** demonstrates that the impact of the panel supports on storage and flow in the floodplain will be insignificant and will not increase flood risk to third parties. The surface water drainage strategy will effectively manage any minor change in runoff and ensure no detriment.

8.14.32 The Proposed Development includes the following mitigation measures:

- Solar panel edges, BESS and containerised infrastructure will be raised to the design event flood level plus 300 mm freeboard. The hydraulic modelling work demonstrates that 300 mm is sufficient freeboard above the design event level to account for uncertainty and is also the maximum difference between the design event level and the Credible Maximum Scenario level. As such, 300 mm of freeboard would also safeguard against extreme climate change to 2100.
- The two on-site substations have been located outside the combined breach flood extents and the Credible Maximum Scenario. To further safeguard against extreme climate change all associated water-sensitive infrastructure will be raised at least 300 mm above the worst-case flood level of the combined breach outputs and the H++ scenario.

8.14.33 **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** concludes that the Proposed Development will be safe for the lifetime of the Proposed Development and not increase flood risk elsewhere. The Applicant therefore considers that the Proposed Development complies with the Exception Test requirements set out in paragraph 5.8.11 of NPS EN-1. The Applicant

considers that its approach to site selection and design demonstrates compliance with the requirements of paragraphs 5.8.21, 5.8.23 and 5.8.29 in NPS EN-1.

- 8.14.34 The Applicant considers that the Proposed Development is aligned with the aims and intentions of the Hull and Coastal Streams Catchment Flood Management Plan. The Order Limits and surroundings fall within the Upper Hull sub-catchment. Policy for this area seeks to “Continue with existing or alternative actions to manage flood risk at the current level”. As concluded in **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** and referenced above, the Proposed Development will be safe for the lifetime of the development and not increase flood risk elsewhere. The Applicant considers that it is compliant with the relevant section of 5.8.36 in this regard.
- 8.14.35 In reference to the section of paragraph 5.8.36 that requires the Proposed Development to provide safe access and escape routes as part of an emergency plan, the **Outline CEMP [EN010157/APP/7.2]**, **Outline OEMP [EN010157/APP/7.3]** and **Outline DEMP [EN010157/APP/7.4]** each set out a requirement for an Emergency Response Plan, which specifically requires flood risk to be addressed. These documents are all secured pursuant to requirements in the **Draft DCO [EN010157/APP/3.1]**. The Applicant therefore considers that it is compliant with the relevant section of paragraph 5.8.36 of NPS EN-1.
- 8.14.36 Section 7 of **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** provides a drainage strategy for the Proposed Development, which sets out hydrological impact of the proposal, Sustainable Drainage Systems (SuDS) hierarchy, infrastructure drainage strategy and operation and construction management. **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** concludes that the cessation of intensive agriculture across the Order Limits will allow establishment of natural grassland and a commensurate improvement in soil structure. This will reduce runoff rates and volumes, soil erosion and pollution. The Applicant therefore considers that it is compliant with the relevant section of 5.8.36.

Summary

- 8.14.37 The Applicant considers that the section above demonstrates the Applicant's compliance with the key policy tests and requirements from NPS EN-1, notably paragraph 5.8.36, in relation to Flood Risk. It is considered that the site selection process has had due regard to the Sequential Test and that the design and layout has considered the flood risk characteristics of the Order Limits, which is predominantly Flood Zone 2 and 3. The Applicant considers that the Proposed Development is acceptable in flood risk terms.

8.15 Agricultural Land

- 8.15.1 This section reviews the Proposed Development in the context of planning policy for agricultural land and soils. This section should be read in conjunction with **Policy Accordance Tables** at Appendix 1 to this Planning Statement.
- 8.15.2 **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** assesses the impact of the Proposed Development on land use and soils. This chapter is supported by **ES Volume 4, Appendix 10.2: Agricultural Land Classification Report [EN010157/APP/6.4]**.
- 8.15.3 Agricultural land quality is assessed by the system of Agricultural Land Classification (ALC) decided by Natural England. The ALC system divides land into five grades 1 to 5, with grade 3 divided into subgrades of 3a and 3b.
- 8.15.4 Paragraph 5.11.12 of NPS EN-1 states that applicants should seek to minimise impacts on the Best and Most Versatile (BMV) agricultural land (defined as land in grades 1, 2 and 3a of the ALC) and preferably use land in areas of poorer quality (grades 3b, 4 and 5).
- 8.15.5 Paragraph 5.11.34 advises that the Secretary of State should ensure that applicants "do not site their scheme on the best and most versatile agricultural land without justification". NPS EN-1 needs to be read in the context of the more specific focus in relation to ground mounted solar PV projects in NPS EN-3. Paragraph 2.10.30 of NPS EN-3 notes that "development of ground mounted solar arrays is not prohibited on Best and Most Versatile agricultural land". This approach is also reflected in the 2024 Written Ministerial Statement: Solar and protecting our Food Security and Best and Most Versatile Land (BMV) Land **[Ref. 30]** which emphasises that BMV land should be avoided where possible and that due weight be given to proposed use of such land when considering whether planning consent should be granted for solar developments.
- 8.15.6 Paragraph 2.10.29 of NPS EN-3 states that, where possible, ground mounted solar PV projects should avoid the use of BMV cropland. However, it notes that land type should not be a predominating factor in determining the suitability of the site location. Paragraph 2.10.30 to 2.10.31 of NPS EN-3 state that ground mounted solar arrays are not prohibited on BMV agricultural land, however the choice of site should be explained by the Applicant, noting a preference for development to be situated on suitable brownfield, industrial and low and medium grade agricultural land.
- 8.15.7 The NPPF requires, in paragraph 187 b), that the economic and other benefits of the Best and Most Versatile (BMV) agricultural land be recognised in planning decisions. BMV agricultural land is defined as land in grades 1, 2 and 3a of the Agricultural Land Classification. In the context of plan making, footnote 65 to

paragraph 188 of the NPPF, requires plan makers to seek to use poorer quality land for development in preference to that of a higher quality.

- 8.15.8 ERYC Policy S4 states that development will be supported where it does not involve a significant loss of BMV agricultural land. ERYC Policy EC5 states that proposals for the development of the energy sector will be supported where significant adverse impacts on soil resources (among other matters), are addressed satisfactorily and the residual harm is outweighed by the wider benefits of the proposal.
- 8.15.9 The East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 (adopted November 2019) (Joint Minerals Plan), Policy DM4 states that proposals which result in the loss of BMV agricultural land will only be supported if the loss is temporary, with no overall loss of soil quality following final restoration.
- 8.15.10 **ES Volume 4, Appendix 10.2: Agricultural Land Classification Report [EN010157/APP/6.4]** provides details of the soil type and Agricultural Land Classification of soil within Land Areas B to F, and these are summarised in Table 10-10 of **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.
- 8.15.11 The **Site Selection Assessment** at Appendix 2 to this Planning Statement identifies that the development of the Order Limits by the Applicant took into account agricultural land quality, with a preference to reduce the area of BMV agricultural land included within the Order Limits. With the Order Limits at the point of submission, the total percentage makeup of soil types recorded across Land Areas B to F (Land Area A was removed from the Order Limits as part of the iterative design process) are summarised below:
- Grade 1 (excellent quality agricultural land) 1.2%
 - Grade 2 (very good quality) 13.6%
 - Grade 3a (good quality) 20.3%
 - Grade 3b (moderate quality) 46.4%
 - Grade 4 (poor quality) 17.5%
 - Non-agricultural land 1.1%
- 8.15.12 BMV agricultural land is anticipated to make up 35.1% of Land Areas B to F, with the remainder considered either not BMV agricultural land or non-agricultural land.

Embedded mitigation

- 8.15.13 Several measures have been taken to reduce the amount of BMV agricultural land within the Order Limits where solar PV modules and supporting infrastructure are located. Further measures have been taken to ensure the soil resource of the BMV agricultural land is preserved, as set out below and within **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.
- 8.15.14 As outlined in **section 5** of this Planning Statement and the **Site Selection Assessment** at Appendix 2, the starting point for the Proposed Development was the identification of 320 MW capacity at National Grid Creyke Beck Substation. A 12 km radius from the National Grid Creyke Beck Substation was then established as a viable search area for a potential solar scheme. Having had regard to the factors influencing site selection as set out in NPS EN-3, the Applicant in the first instance sought to avoid areas of higher quality agricultural land. As set out in the **Site Selection Assessment** at Appendix 2 to this Planning Statement, land in the western half of the search area (west of Beverley and the River Hull) was identified as predominately Provisional Grade 2 agricultural land. The search therefore focussed on the land in the north east which was identified as predominantly provisional Grade 3 agricultural land. A detailed ALC survey was then carried out to understand the specific quality of the land in the area being considered, to seek to reduce impacts on BMV agricultural land. On that basis, the Proposed Development has taken an approach that is consistent with the NPS EN-3 through prioritising development on non-BMV agricultural land where possible.
- 8.15.15 While the search area focussed on non-BMV agricultural land, it has not been possible to remove all BMV agricultural land from the Order Limits, or from the areas solar PV modules and related infrastructure are to be sited. To do so would reduce the renewable energy generation capability in a location where there is available grid capacity, at a time when the need for such development is a priority, as confirmed in the **Statement of Need**, at Appendix 3 to this Planning Statement. This is consistent with paragraph 2.10.31 of NPS EN-3 where it is recognised that at this scale, it is likely that applicants' developments may use some agricultural land.
- 8.15.16 Where not used for solar PV development, the use of non-BMV agricultural land has been prioritised for the areas of environmental mitigation and enhancement, where reasonably practicable, and is an embedded mitigation measure. This aims to reduce the impact upon and enhance the high-quality BMV agricultural land and ensure the retention and best use of available resources where availability allows. This is secured by the **Works Plans [EN010157/APP/2.2]**.
- 8.15.17 Internal access tracks and cable routes propose to use existing tracks, crossings and/or gaps in the hedgerows, where reasonably practicable, and is a further embedded mitigation measure. This aims to reduce the impact on the identified

receptors (mainly soil quality and availability of agricultural land) and the environment. This is secured by the **Outline CEMP [EN010157/APP/7.2]**.

Impacts upon BMV agricultural land

- 8.15.18 Natural England in their Technical Information Note TIN049 (2012) **[Ref. 31]** estimates that 42% of agricultural land in England is within the BMV category. Therefore, BMV agricultural land is not a scarce resource nationally. In the regional context, the East Riding of Yorkshire region is estimated to contain approximately 172,403.6 hectares of BMV agricultural land, making up approximately 73.4% of agricultural land within the region.
- 8.15.19 The Proposed Development will temporarily impact 712.1 hectares of land (of which 249.9 ha are BMV agricultural land); with 1.3 ha of land being permanently lost (none of which is categorised as BMV agricultural land). The Proposed Development will comprise of approximately 35.1% BMV agricultural land. When compared to approximately 42% in England being BMV agricultural land, and approximately 73.4% within the East Riding of Yorkshire region being BMV agricultural land, the Proposed Development occupies substantially less BMV agricultural land, at 35.1%, than is available at both the national and regional scales.
- 8.15.20 It is also recognised that there are no national or local policies that require agricultural land (including BMV agricultural land) to be farmed, or to be farmed in a particular way.
- 8.15.21 The Agricultural Land Classification grade will not be changed by the Proposed Development and any impact to the quality of soil would be temporary and reversible (with works all being completed in accordance with the **Outline SMP [EN010157/APP/7.8]** and **Outline CEMP [EN010157/APP/7.2]**. The **Draft DCO [EN010157/APP/3.1]** is also time limited to a 40-year duration, with decommissioning to be complete by the end of this period, where the land, with the exception of 1.3 hectares on non-BMV agricultural land, returned to its previous agricultural land use. Therefore, there is not anticipated to be a permanent residual loss in BMV agricultural land as a result of the Proposed Development.

Soil impacts and management

- 8.15.22 NPS EN-1 paragraph 5.11.13 states applicants should identify any effects and seek to minimise impacts on soil quality, taking into account any mitigation measures proposed. NPS EN-1 paragraph 5.11.14 states that a SMP is encouraged to be developed by the Applicant to minimise potential land contamination.

8.15.23 An **Outline SMP [EN010157/APP/7.8]** has been prepared as part of the DCO Application. A SMP will be secured pursuant to the **Draft DCO [EN010157/APP/3.1]** as a requirement, which must be substantially in accordance with the **Outline SMP [EN010157/APP/7.8]**. The **Outline SMP [EN010157/APP/7.8]** seeks to identify the importance and sensitivity of the soil resource and to provide specific measures for the management of the soil resource to maintain the physical properties of the soil on within the Order Limits and to ensure that there is no significant adverse effect on the soil resource as a result of the Proposed Development. The **Outline SMP [EN010157/APP/7.8]** provides detail on the following during the construction, operation (including maintenance) and decommissioning phases of the Proposed Development:

- A description of the soil types and their resilience to being trafficked;
- Measures for soil handling;
- Description of works and how soil damage will be minimised; and
- Monitoring measures for soil condition and criteria against which compliance will be assessed.

8.15.24 Therefore, impacts upon soil structure and quality during the construction and decommissioning phases of the Proposed Development are limited, and will be protected through the operational phase in a way which will permit unrestricted agricultural use to be facilitated after decommissioning.

8.15.25 Land beneath the solar PV modules is proposed to be used for ecological mitigation and enhancements, which could include planting (including establishment of grassland and wildflowers), which would help to reduce soil degradation and erosion during the operation (including maintenance) phase.

8.15.26 Due to the nature and scale of the Proposed Development as anticipated by NPS EN-1 paragraph 3.1.1, **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** has assessed that it is likely for some BMV agricultural land (grades 1 and 2) to have significant residual effects. These adverse effects are resultant from the compaction and subsequent deterioration to the more sensitive soils, which are more susceptible to structural damage from the use of machinery and vehicular activity during the construction phase of the Proposed Development.

8.15.27 For a development of this scale, it is considered impracticable to locate on land that is entirely outside of very high sensitivity Best and Most Versatile agricultural land. The **Site Selection Assessment** contained within Appendix 2 to this Planning Statement has given appropriate consideration and weight to first attempt to reasonably avoid best and most versatile agricultural land. Where found to be unavoidable, the implementation of management plans, provided for by the **Outline SMP [EN010157/APP/7.8]** and **Outline CEMP**

[EN010157/APP/7.2] will effectively manage the significant adverse effects as far as reasonably practicable. It is considered that the site selection approach and mitigation measures are appropriate, with some residual significant adverse effects provided for by NPS EN-1 paragraph 3.1.2.

8.15.28 All concrete, hardstanding areas and foundations for the infrastructure (with the exception of any retained internal access tracks, highways improvements and the two retained on-site substations) will be removed to a depth of up to 1 m. Where infrastructure is removed, land will be reinstated to conditions prior to the Proposed Development, in consultation with the landowner, in accordance with the DEMP(s). All the below ground cables will be left in-situ as these are likely to be located at a depth greater than 1 m, therefore limiting the disturbance and impact to the soil quality. The two on-site substations will remain in-situ. The locations of the BESS and internal access tracks are anticipated to be restored using soil retained on-site, which could have been retained in managed bunds, or with new topsoil that will be brought to the Order Limits.

8.15.29 All of the aforementioned measures with regard to soil impacts and management will ensure compliance with paragraph 5.11.13 and 5.11.14 of NPS EN-1.

Summary

8.15.30 The **Site Selection Assessment** at Appendix 2 to this Planning Statement outlines the process in locating the Order Limits in proximity to the available capacity at National Grid Creyke Beck Substation. A review of provisional and predictive Agricultural Land Classification mapping (Defra and Natural England) was undertaken and the Applicant took into account agricultural land quality when considering land within the search area.

8.15.31 Agricultural Land Classification surveys were then undertaken to confirm land grades across the Order Limits, and the results were taken into account to reduce the potential impact on BMV agricultural land.

8.15.32 In line with paragraph 2.10.29 of NPS EN-3, some areas of BMV agricultural land are required to deliver the Proposed Development, as noted in the **Site Selection Assessment** at Appendix 2 to this Planning Statement. **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]** confirms it is likely for some BMV agricultural land (grades 1 and 2) to have significant residual effects. These adverse effects are resultant from the compaction and subsequent deterioration to the more sensitive soils, which are more susceptible to structural damage from the use of machinery and vehicular activity during the construction phase of the Proposed Development. Due to the nature of the Proposed Development and construction methods, which will include adherence to a SMP, impacts upon the soil resource are minimised.

- 8.15.33 The land management regimes will not adversely affect soil quality, soil health, or land quality and there is the potential for overall benefits to soils. The potential benefits are a result of arable soils reverting to pasture, and include improved soil structure from long-term grassland allowing build-up of organic matter, reduced vulnerability to erosion by wind or water and enhanced soil micro bacterial activity.
- 8.15.34 Post decommissioning, agricultural land management could resume following removal of the above ground solar infrastructure.
- 8.15.35 NPS EN-3 paragraph 2.10.29 states that the development of large-scale solar PV is not prohibited on agricultural land and that agricultural land classification should not be a predetermining factor in the consideration of Development Consent applications. However, as a requirement of NPS EN-1 and NPS EN-3, justification for the use of agricultural land for the purposes of energy generation, specifically solar PV in NPS EN-3, is required. The **Site Selection Assessment** at Appendix 2 to this Planning Statement and **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** set out the process that determined the extent of the Order Limits, areas excluded from selection and the justification for such decisions.
- 8.15.36 It is also important to recognise that through the site selection process, including a 12 km search area radius around the Creyke Beck Substation and the exclusion of BMV agricultural land being prioritised within the first stages of site selection, that the Order Limits represent the most appropriate area for a development of the required scale to make best use of available grid capacity. For national, and local renewable energy needs to be met, some BMV agricultural land is required to be temporarily used for the delivery of solar electricity as without it, the electricity output would not fulfil the available grid capacity at Creyke Beck Substation and would be an inefficient use of land from an energy generation perspective. Therefore, with regard to agricultural land, the Proposed Development is considered acceptable pursuant to NPS EN-1, NPS EN-3, NPS EN-5, NPPF and local planning policy.

9 Conclusion and Planning Balance

9.1 The Planning Balance

- 9.1.1 The Proposed Development is required to be determined in accordance with Section 104 of the PA 2008 **[Ref. 1]**. As set out in **section 7** of this Planning Statement, Section 104(2) of the PA 2008 **[Ref. 1]** requires that, in deciding an application for development consent, the Secretary of State must have regard to:
- (a) Any relevant national policy statement;
 - (aa) The appropriate marine policy documents;
 - (b) Local impact reports;
 - (c) Prescribed matters, and;
 - (d) Any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision.
- 9.1.2 In respect of part (a) the NPSs which have effect in relation to the Proposed Development are:
- NPS EN-1 Overarching National Policy Statement for Energy;
 - NPS EN-3 National Policy Statement for Renewable Energy Infrastructure; and
 - NPS EN-5 National Policy Statement for Electricity Network Infrastructure.
- 9.1.3 In regard to section 104(2)(aa) there are no relevant marine policy documents to the Proposed Development therefore the SoS is not required to consider this matter.
- 9.1.4 In regard to section 104(2)(b), a Local Impact Reports (LIR) is expected to be submitted by the host authority. The Proposed Development is in accordance with the relevant local policy, as set out in Table 5 of Appendix 1 to this Planning Statement.
- 9.1.5 In regard to section 104(2)(c) it has been demonstrated that a decision to grant a DCO for the Proposed Development would have regard to the matters prescribed by Regulation 3 and 7 of the Infrastructure Planning (Decisions) Regulations 2010 (as amended) **[Ref. 28]**. The Proposed Development has regard to preserving heritage assets and their setting as set out in **section 8** of this Planning Statement and **ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]**. Biodiversity and conservation enhancement is also

addressed in **section 8** of this Planning Statement and **ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]**.

- 9.1.6 Section 104(3) of the PA 2008 [**Ref. 1**] requires that applications for development consent must be determined by the SoS in accordance with any relevant national policy statement except to the extent that one or more of subsections 104(4) to 104(8) apply.
- 9.1.7 None of the limited exceptions in subsections 104(4) to 104(8) of the PA 2008 [**Ref. 1**] are engaged, for the reasons summarised below.
- 9.1.8 Section 104(4) applies if deciding an application in accordance with any relevant national policy would lead to the UK being in breach of any of its international obligations. There is no evidence to suggest that the granting of the DCO for the Proposed Development would lead to the UK being in breach of any of its international obligations.
- 9.1.9 Section 104(5) applies if deciding an application in accordance with any relevant national policy would lead to the Secretary of State being in breach of any duty imposed on the Secretary of State by or under any enactment. There is no evidence to suggest that the granting of the DCO for the Proposed Development would lead the Secretary of State to be in breach of any such duty.
- 9.1.10 Section 104(6) applies if deciding an application in accordance with any relevant national policy would be unlawful by virtue of any enactment. There is no evidence to suggest that the granting of the DCO for the Proposed Development would be unlawful by virtue of any enactment.
- 9.1.11 Section 104(7) applies if the adverse impact of a proposed development would outweigh its benefits. **Section 8** of this Planning Statement sets out how the Proposed Development is in accordance with NPS EN-1, NPS EN-3 and NPS EN-5 and relevant local policy. The overall planning balance of the Proposed Development is considered below. The very limited adverse impacts of the Proposed Development remaining after mitigation (which are limited to impact on BMV agricultural land, a single landscape character area and views from PRoWs) are not considered to outweigh its substantial benefits.
- 9.1.12 Section 104(8) applies if any condition prescribed for deciding an application otherwise in accordance with an NPS is met. There is no evidence to suggest that any condition is met in relation to the Proposed Development.
- 9.1.13 This Planning Statement sets out how the Proposed Development complies with the relevant planning policy and other matters that the Applicant considers to be

important and relevant to the SoS's decision as to whether to grant development consent.

- 9.1.14 Critical to determining the overall planning balance, is the strength of the needs case that has been established through the NPSs. Paragraph 3.3.62 of NPS EN-1 defines low carbon energy infrastructure as a CNP, which is integral to meeting legally binding Government decarbonisation targets and delivering ambitious national strategies to achieve net zero, increase affordability of energy and improve energy security. The Proposed Development, a solar generation NSIP, is low carbon infrastructure and its needs case is therefore afforded the very substantial weight set out in NPS EN-1.
- 9.1.15 As a CNP project, the Proposed Development benefits from the strongest policy position set out in national planning policy. Pursuant to NPS EN-1, subject to consideration of the impacts of the Proposed Development and the application of the mitigation hierarchy, any residual impacts of CNP infrastructure should not outweigh the urgent need for its delivery.
- 9.1.16 This Planning Statement confirms that the Proposed Development complies with NPS EN-1, NPS EN-3 and NPS EN-5, the NPPF and Local Plans. Where significant adverse effects have been identified the Applicant has demonstrated its application of the mitigation hierarchy and careful consideration of design. However, impacts on limited landscape and visual receptors and soils in terms of agricultural land which cannot be avoided, reduced or mitigated, as per paragraph 4.2.11 of NPS EN-1, remain. Paragraph 4.2.15 of NPS EN-1 is therefore engaged which states that, “Where residual non-HRA or non-MCZ impacts remain after the mitigation hierarchy has been applied, these residual impacts are unlikely to outweigh the urgent need for this type of infrastructure. Therefore, in all but the most exceptional circumstances, it is unlikely that consent will be refused on the basis of these residual impacts”.
- 9.1.17 The residual effects in this case are limited to the following. The first is temporary landscape and visual effects before planting has matured. In all but two instances these residual effects are then reduced to not significant by year 10. The second is a temporary loss of BMV as a result of compaction and subsequent deterioration of some Grade 1 and 2 soil, which is more susceptible to structural damage from the use of machinery and vehicular activity during the construction phase of the Proposed Development. It is considered that the residual impacts set out above do not meet the “exceptional circumstances” test and therefore do not warrant refusal. Furthermore, there is no unacceptable interference with human health and public safety, defence, irreplaceable habitats or unacceptable risk to the achievement of net zero. Accordingly, the balance is firmly in favour of granting consent. On this basis, in order to determine the planning balance, the

following section identifies the benefits of the Proposed Development, its residual adverse impacts and whether any of those impacts present an unacceptable risk.

Benefits of the Proposed Development

- 9.1.18 **Section 3** of this Planning Statement establishes the urgent need for the Proposed Development. Its delivery would respond to this need through the delivery of 320 MW of low-carbon, low-cost and UK-located solar electricity generation capacity connecting to the National Electricity Transmission System from National Grid Creyke Beck Substation.
- 9.1.19 In addition to meeting the urgent national need for secure and affordable low-carbon energy infrastructure, the Proposed Development will deliver wider benefits to the environment and the local community. The wider benefits of the Proposed Development include:
- Biodiversity improvements including landscaping, habitat management and biodiversity enhancement to retain and enhance ecological and recreational connectivity, expecting to achieve at least a 10% net gain in area habitats, hedgerows and watercourses.
 - Retention of existing hedgerows, woodland and field margins, with the exception of gaps required for new access points, visibility at turnings and for the installation of cabling.
 - Approximately 19.5 km of new hedgerows, 10,240 m² of structural woodland and 30,363 m² of scrub planting is proposed to be planted to further improve visual screening and habitat creation are proposed, as well as new wildflower meadows and grassland areas across the Proposed Development, to support local ecology.
 - Habitat creation through the provision of new bird and bat boxes.
 - The creation of approximately 12.6 km of new permissive paths as shown on the **ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**, providing improved access to open space for users of the existing public rights of way.
 - 4.1 million tCO₂e saved over lifespan of the Proposed Development when compared to Combined Cycle Gas Turbine-generated electricity.
 - Creation of approximately 95 ha of flower-rich neutral grassland managed for the benefit of ground nesting birds, which will be in key, open and connected areas.
 - Creation of new information boards on the heritage of the local area, in the vicinity of and to allow access to Scheduled Monuments NHLE 1007843

(Site of Meaux Cistercian Abbey) and NHLE 1015305 (Meaux duck decoy, 420 m south west of Meaux Decoy Farm).

- Enhancement of soil quality through a reinstatement and habitat creation program.
- Reduction in surface water run off which is polluted with herbicides, pesticides or fertilizers through the cessation of agricultural activity on some parts of the Land Areas.

9.1.20 The combined nature of these additional benefits are considered to carry substantial weight in favour of the Proposed Development.

Residual adverse impacts of the Proposed Development

9.1.21 **ES Volume 2, Chapters 6-15 [EN010157/APP/6.2]** provides a robust assessment of the potential impacts of the Proposed Development and finds that there are limited significant adverse residual effects remaining after mitigation. These are:

- Compaction and deterioration of soil and agricultural land, loss of BMV agricultural land;
- Landscape and Visual in relation to LCA 19D: Central Holderness Open Farmland and visual effects from users of some PRoWs. These impacts predominantly occur during construction, up to year 10 of operation, and decommissioning and therefore are not present for the majority of the overall lifetime of the Proposed Development; and
- Cumulative in relation to an intra-project significant adverse cumulative effects on views from three footpaths and Figham Common by year 10 of operation

9.1.22 As summarised above, residual adverse impacts of the Proposed Development relate to two areas: compaction and deterioration of soil and loss of BMV agricultural land and landscape and visual impacts, including cumulative visual impacts. None of these effects present unacceptable risks to the matters identified in NPS EN-1.

9.1.23 The Applicant set out with the objective to deliver a significant quantity of renewable energy, of NSIP scale, to the National Grid and contribute to the UK's wider decarbonisation of energy supply. Through the careful selection of an appropriate land area which benefited from suitable topography and irradiance and connection to the National Grid through to the detailed design measures the Applicant has developed a proposal which is sensitive to local context. NPS EN-1 paragraph 4.1.3, notes that given the urgency for the type of infrastructure

covered in the energy NPSs, the Secretary of State will start with a presumption in favour of granting consent to applications for energy NSIPs.

- 9.1.24 The need for low carbon development is such that the UK Government has concluded that there is a CNP for the provision of nationally significant low carbon infrastructure (paragraph. 4.2.4 of NPS EN-1). Paragraph 4.2.5 of NPS EN-1 confirms that solar development falls within the category of CNP by stating that low carbon infrastructure for the purposes of that policy means all onshore and offshore electricity generation that does not involve fossil fuel combustion.
- 9.1.25 The policy landscape set by the relevant NPSs; NPS EN-1, NPS EN-3 and NPS EN-5, illustrates the Government's position in a very clear way and confirms that the principle of the development is not just accepted, it is of critical importance and priority at a national level. This landscape paves the way for well-considered projects to receive favourable recommendations from the Planning Inspectorate and an eventual grant of consent by the SoS. However, despite the strength of the policy it does not immediately imply that all proposals for such infrastructure will receive approval. There are a number of tests and justification required to be demonstrated by the Applicant as to why a chosen site is an appropriate location for the proposed infrastructure and that any adverse environmental impacts have been mitigated as far as practicable with the application of the mitigation hierarchy. NPS EN-1 also places significant emphasis on the importance of good design throughout the NSIP process. This means more than sensitive siting of infrastructure and includes consistent decision making based on sound environmentally led principles.
- 9.1.26 Good design has been embedded into the Proposed Development from the outset of the site selection process with the search process seeking to avoid areas of higher landscape sensitivity. In this context the first tier of the mitigation hierarchy, has been applied as there are no local or national landscape designations which would be impacted by the Proposed Development. At a site specific level a comprehensive mitigation package has been embedded into the design of the Proposed Development to date with further commitments made to minimise any likely significant impacts. However, the nature of the Proposed Development, the sensitivity of receptors and the existing rural context mean that there are some impacts which cannot be mitigated. The Applicant considers, given the acute need for the Proposed Development, it has taken all reasonable measures to minimise these likely significant effects. In a policy context, paragraph 5.10.5 of NPS EN-1 accepts that there will likely be some impact in terms of landscape and visual effects as a result of DCO scale energy projects, stating, "virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation".

- 9.1.27 On land use, the Applicant acknowledges that there will be approximately 35.1% of the Order Limits which is BMV agricultural land that will be temporarily used for the purposes of accommodating solar PV development and associated infrastructure.
- 9.1.28 As with landscape impact, the general nature of the type of land that lends itself to large scale solar development is rural and often in agricultural use. Nevertheless, the Applicant has sought to limit the amount of higher-grade agricultural land within the Order Limits and, once the Order Limits were defined and the detailed characteristics of the soil quality were understood, the Applicant sought to avoid the use of BMV, where possible.
- 9.1.29 NPS EN-3, while setting a preference for the type of land to be used for solar development, is clear at paragraph 3.10.14 that the land type should not be a predominating factor in determining the suitability of a site. It goes further to accept that it is likely that agricultural land will form part of an applicant's proposals, and that ground mounted solar PV development is not prohibited on BMV. It is also important to note that there is no planning policy which requires agricultural land to be farmed and farmers are actively encouraged to take land out of arable use to help regenerate soil and combat the biodiversity crisis.
- 9.1.30 The land to be used for the Proposed Development will be used temporarily and will be returned to agricultural use at the end of the Proposed Development's lifetime. Nevertheless, **ES Volume 2, Chapter 10: Land, Soils and Groundwater [EN010157/APP/6.2]** has confirmed that a temporary significant effect to some areas of Grade 1 and 2 soil is encountered during the construction phase as a result of compaction and deterioration given the Grade 1 and 2 soil is more susceptible to structural damage from the use of machinery and vehicular activity.
- 9.1.31 The Proposed Development will make a significant contribution towards the UK's solar targets for reaching Net Zero. The Applicant is well resourced and in a strong position to deliver the Proposed Development and within a timeframe that means the generation of low carbon energy will also occur in a timely manner and contribute to 2030 and 2035 pathway targets.
- 9.1.32 As a CNP project, the Proposed Development benefits from the strongest policy position set out in national planning policy. NPS EN-1 sets out a presumption in favour of energy related development. This Planning Statement and **Policy Accordance Tables** at Appendix 1 to this Planning Statement, confirm that the Proposed Development complies with NPS EN-1, NPS EN-3, NPS EN-5, the NPPF and Local Plan. Where significant adverse effects have been identified the Applicant has demonstrated its application of the mitigation hierarchy and careful consideration of design. However, impacts on landscape and visual receptors

and soils and agricultural land which cannot be avoided, reduced or mitigated, as per paragraph 4.2.11 of NPS EN-1, remain. Cumulative impacts are also considered, as per the requirements of paragraph 4.2.12 of NPS EN-1, and identify intra-project significant adverse cumulative effects on views from three footpaths and Figham Common by year 10 of operation. An intra-project significant positive cumulative effect is identified on landscape fabric by year 10 of operation as a result of substantial hedgerow, structural woodland and scrub planting (an additional approximately 19.5 km and approximately 10,240 m² and 30,363 m² respectively) alongside 5.88 km of hedgerows lost, with 5.44 km of this loss being reinstated.

9.2 Conclusion

- 9.2.1 In accordance with the provisions of NPS EN-1 and NPS EN-3, it is concluded that the limited residual effects of the Proposed Development do not outweigh its urgent need, and do not represent an unacceptable risk that would negate the presumption in favour of consent for this CNP infrastructure. The Proposed Development would deliver greater benefit than adverse effects and would contribute to an urgent national need for low carbon infrastructure.
- 9.2.2 In addition, there are a significant number of additional benefits that would be achieved by the Proposed Development, as outlined above.
- 9.2.3 The Proposed Development is a well-considered and effectively designed proposal that responds to the locality and is sensitive to the local environment. On this basis, it is concluded that development consent should be granted.

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Peartree Hill Solar Farm

Planning Statement

Appendix 1 – Policy Accordance Tables

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Table 1: Overarching National Policy Statement for Energy

Overarching National Policy Statement for Energy (NPS EN-1)		
Generic Impacts - The generic impacts set out in Part 5 of NPS EN-1 (2023) (designated in January 2024) are considered below.		
Policy Section	Policy Text	Assessment
5.2 Air Quality and Emissions		
<i>Applicant Assessment</i>	5.2.8 Where the project is likely to have adverse effects on air quality the applicant should undertake an assessment of the impacts of the proposed project as part of the ES.	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] assesses anticipated effects of the Proposed Development on local air quality. The assessment provides an overview of the existing baseline conditions for the study area, followed by an assessment of likely significant effects arising from the construction, operation (including maintenance), and decommissioning stages of the Proposed Development on air quality.
	5.2.9 The ES should describe: - existing air quality concentrations and the relative change in air quality from existing levels; - any significant air quality effects, mitigation action taken and any residual effects, distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] confirms the following: The baseline data sources are sufficient to provide an assessment of potential air quality impacts arising from the Proposed Development and have been agreed with East Riding of Yorkshire Council during technical consultation. The assessment provides a characterisation of the existing air quality conditions and a qualitative assessment of the air quality impacts and potential for likely significant effects due to the construction, operation (including maintenance) and decommissioning stages of the Proposed Development, including those associated with road traffic exhaust

	- the predicted absolute emissions, concentration change and absolute concentrations as a result of the proposed project, after mitigation methods have been applied; and - any potential eutrophication impacts.	emissions. Based upon the outcomes of the assessment, ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] outlines additional mitigation measures to mitigate the air quality impacts of the Proposed Development. With the inclusion of additional mitigation measures, no significant residual adverse effects were identified. There will be no potential eutrophication impacts. Mitigation measures are documented and secured within the following: Outline Construction Environmental Management Plan (CEMP) [EN010157/APP/7.2]; Outline Operational Environmental Management Plan (OEMP) [EN010157/APP/7.3]; Outline Decommissioning Environmental Management Plan (DEMP) [EN010157/APP/7.4]; and, Outline Construction Traffic Management Plan (CTMP) [EN010157/APP/7.7].
	5.2.10 In addition, applicants should consider the Environment Targets (Fine Particulate Matter) (England) Regulations 2022 and associated Defra guidance.	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] has carried out a qualitative assessment of the likely significant effects of construction and decommissioning phase dust and particulate matter at sensitive receptors following the Environment Targets (Fine Particulate Matter) (England) Regulations 2023 and Department for Environment, Food and Rural Affairs (Defra) Local Air Quality Management Technical Guidance. Potential dust impacts have been considered in ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]. Three potential dust impacts have been considered in Chapter 6:

		- Annoyance due to dust soiling; - The risk of health effects due to an increase in exposure to Particulate Matter with a diameter of 10 microns or less (PM10); and - Harm to ecological receptors. The effect of construction dust and particulate matter from the Proposed Development on human receptors and designated sites (habitats) is considered not significant with the implementation of site-specific mitigation measures, which are secured by the Outline CEMP [EN010157/APP/7.2], Outline DEMP [EN010157/APP/7.4] and the Outline CTMP [EN010157/APP/7.7].
	5.2.11 Defra publishes future national projections of air quality based on estimates of future levels of emissions, traffic, and vehicle fleet. Projections are updated as the evidence base changes and the applicant should ensure these are current at the point of an application. The applicant's assessment should be consistent with this but may include more detailed modelling and evaluation to demonstrate local and national impacts. If an applicant believes they have robust additional supporting evidence, to the extent they could affect the conclusions of the assessment, they should include this in their representations to the Examining Authority along with the source.	In 2023, the Environmental Improvement Plan (EIP) outlined updates to the PM_{2.5} Air Quality Objective for future years. These are a long term target of 10 µg/m³ by 2040 and an interim target of 12 µg/m³ by 2028. In 2028, the first anticipated year of operation, Defra predicted background concentrations of NO₂ is 4.9 µg/m³, PM₁₀ is 13.0 µg/m³ and PM_{2.5} is 5.5 µg/m³ at the approximate centre of the Order Limits. These are slight decreases from 2024 where concentrations of NO₂, PM₁₀ and PM_{2.5} are 5.5 µg/m³, 13.3 µg/m³ and 5.7 µg/m³ respectively. It is noted that estimated 2022 annual average background NO₂, PM₁₀ and PM_{2.5} concentrations at the Site were 5.8 µg/m³, 13.4 µg/m³ and 5.9 µg/m³ respectively, which were below the relevant Air Quality Objectives (NO₂: 40 µg/m³, PM₁₀: 40 µg/m³ and PM_{2.5}: 20 µg/m³). No future projections have been made by Defra past 2040. There are not expected to be significant sources of PM₁₀ and PM_{2.5} when the Proposed Development is operational due to low levels of traffic generated during this phase

		alongside expected reduction in emissions to air resulting from new vehicle technology (e.g electric vehicles), as set out in ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2]. At the time of submission there had been no further updates to relevant Air Quality Objectives for other pollutants considered in ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2].
	5.2.12 Where a proposed development is likely to lead to a breach of any relevant statutory air quality limits, objectives or targets, or affect the ability of a non-compliant area to achieve compliance within the timescales set out in the most recent relevant air quality plan/strategy at the time of the decision, the applicant should work with the relevant authorities to secure appropriate mitigation measures to ensure that those statutory limits, objectives or targets are not breached.	As set out in ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] the Proposed Development would not lead to a breach of any relevant statutory air quality thresholds or affect the ability of a non-compliant area to achieve compliance.
	5.2.13 The Secretary of State should consider whether mitigation measures are needed both for operational and construction emissions over and above any which may form part of the project application. A construction management plan may help codify mitigation at this stage. In doing so the Secretary of State should have regard to the Air Quality Strategy in England, or the Clean Air Plan for Wales in Wales, or any successors to these and should consider relevant advice within Local Air Quality Management guidance and PM2.5 targets guidance	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] conducts a qualitative assessment of anticipated significant effects of construction and decommissioning phase dust and particulate matter at sensitive receptors following the Defra Local Air Quality Management Technical Guidance and PM_{2.5} Target Guidance. The assessment concludes that there are no anticipated significant residual adverse effects on air quality as a result of the Proposed Development. Mitigation measures following Institute of Air Quality Management (IAQM) guidance are discussed and presented in the Outline CEMP [EN010157/APP/7.2], the

		Outline DEMP [EN010157/APP/7.4], and the Outline CTMP [EN010157/APP/7.7].
	5.2.14 The mitigations identified in Section 5.14 on traffic and transport impacts will help mitigate the effects of air emissions from transport.	When the Proposed Development is operational, access will be required from time to time for routine maintenance, and less frequently for major maintenance and upgrades. As planned maintenance will be minimal and would comprise limited planned site visits, ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] concludes that adverse effects associated with operational road traffic exhaust emissions are anticipated to be not significant. Any effects on air quality from traffic during construction and decommissioning of the Proposed Development will be temporary (i.e. during the construction/decommissioning period only) and can be suitably controlled by the employment of mitigation measures, documented within the Outline CTMP [EN010157/APP/7.7], which has been prepared and is submitted in support of the Development Consent Order (DCO) Application. ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] confirms that no specific operational phase mitigation measures are required for road traffic exhaust emissions during operation (including maintenance). Nevertheless, best practice mitigation measures can be considered to further reduce any residual effects on air quality. An Outline OEMP [EN010157/APP/7.3] has been prepared and is submitted in support of the DCO Application.
	5.2.15 Many activities involving air emissions are subject to pollution control. The considerations set out in Section 4.12 on the interface between	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] concludes that there are no anticipated significant residual

<i>Secretary of State decision making</i>	planning and pollution control therefore apply. The Secretary of State must also consider duties under other legislation including duties under the Environment Act 2021 in relation to environmental targets and have regard to policies set out in the Government's Environmental Improvement Plan 2023.	adverse effects on air quality as a result of the Proposed Development. Mitigation measures following IAQM guidance are presented in the Outline CEMP [EN010157/APP/7.2] , the Outline OEMP [EN010157/APP/7.3] , the Outline DEMP [EN010157/APP/7.4] , and the Outline CTMP [EN010157/APP/7.7] .
	5.2.16 The Secretary of State should give air quality considerations substantial weight where a project would lead to a deterioration in air quality. This could for example include where an area breaches any national air quality limits or statutory air quality objectives. However, air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of statutory limits, objectives or targets.	
	5.2.17 The Secretary of State should give air quality considerations substantial weight where a project is proposed near a sensitive receptor site, such as an education or healthcare facility, residential use or a sensitive or protected habitat.	The following designated sites (habitats) have been identified within 200 m of the Order Limits (see ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] for more detail): • Figham Pastures Local Wildlife Site (LWS) (within the Order Limits - the grid connection cable route to National Grid Creyke Beck Substation passes through Figham Pastures LWS); • Cote Wood LWS/ancient semi-natural woodland (borders Fields D11 and D17 in Land Area D, abutting the Order Limits); • Meaux LWS (the northern end directly abuts the Order Limits and the southern end is 20 m north of Field F6 within Land Area F); and

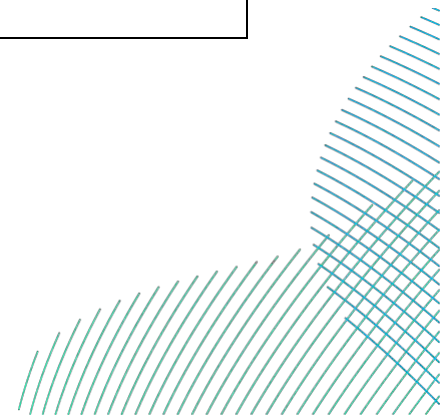
		• Arnold Drain LWS (approximately 50 m from the Order Limits at its closest point (Field C7 in Land Area C)). Five European designated sites have been considered in the road traffic exhaust emission assessments to support the Habitats Regulations Assessment – Information to inform Appropriate Assessment [EN010157/APP/5.3]: • Hornsea Mere Special Protection Area (SPA); • Humber Estuary Ramsar, SPA and Special Area of Conservation (SAC); and • Greater Wash SPA. ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] concludes that the construction, operation and decommissioning of the Proposed Development is not anticipated to have significant adverse effects on air quality. The residual adverse effects of dust and particulate matter emissions during construction and decommissioning and the road traffic exhaust emissions during construction, operation and decommissioning on human receptors and designated sites (habitats) following the implementation of additional mitigation measures are anticipated to be not significant.
	5.2.18 Where a project is proposed near to a sensitive receptor site for air quality, if the applicant cannot provide justification for this location, and a suitable mitigation plan, the Secretary of State should refuse consent.	As set out in the Site Selection Assessment, at Appendix 2 to the Planning Statement [EN010157/APP/5.5] proximity to sensitive receptors was considered as part of the initial site selection process. Furthermore, ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] sets out how proximity to sensitive receptors was considered in the design stage. The Proposed Development is located in a rural area, with the villages of Riston and Woodmansey within 250 m of the

		Order Limits, with human receptors residing within these villages considered as being sensitive receptors. However, the implementation of mitigation measures identified within the Outline CEMP [EN010157/APP/7.2], the Outline OEMP [EN010157/APP/7.3], the Outline DEMP [EN010157/APP/7.4], and the Outline CTMP [EN010157/APP/7.7] is anticipated to prevent significant adverse effects on human health. Residual adverse effects are therefore assessed as being not significant.
	5.2.19 In all cases, the Secretary of State must take account of any relevant statutory air quality limits, objectives and targets. If a project will lead to non-compliance with a statutory limit, objective or target the Secretary of State should refuse consent.	As concluded in ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2], the Proposed Development would not lead to non-compliance with any statutory air quality limit, objective or target.
5.3 Greenhouse Gas Emission <i>Applicant Assessment</i>	5.3.4 All proposals for energy infrastructure projects should include a GHG assessment as part of their ES (See Section 4.3). This should include: • A whole life GHG assessment showing construction, operational and decommissioning GHG impacts, including impacts from change of land use. • An explanation of the steps that have been taken to drive down the climate change impacts at each of those stages. • Measurement of embodied GHG impact from the construction stage. • How reduction in energy demand and consumption during operation has been prioritised in comparison with other measures.	ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2] presents a greenhouse gas (GHG) assessment over the lifetime of the Proposed Development. It concludes that renewable energy generation from the Proposed Development during the first year of operation is estimated to be 522,161 MWh, and the total energy generation from the proposed 40-year operational life is approximately 17,285,004 MWh. Total operational emissions over the design life of the Proposed Development are estimated at 1,998,798 tCO₂e, which gives a total lifecycle carbon intensity value of 115.6 gCO₂e/kWh. The GHG impact during construction, operation and decommissioning is assessed as having a significant beneficial effect as it will contribute towards achieving the rate of transition required by nationally set policy

	• How operational emissions have been reduced as much as possible through the application of best available techniques for that type of technology. • Calculation of operational energy consumption and associated carbon emissions. • Whether and how any residual GHG emissions will be (voluntarily) offset or removed using a recognised framework. • Where there are residual emissions, the level of emissions and the impact of those on national and international efforts to limit climate change, both alone and where relevant in combination with other developments at a regional or national level, or sector level, if sectoral targets are developed.	commitments and supporting the trajectory towards Net Zero. GHG mitigation measures are outlined in ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]. For construction and decommissioning these include: • Responsible spicing of materials and infrastructure. • Members of the supply chain will provide a carbon reduction plan where feasible. • Implementing measures to decrease fuel use • Promoting the use of sustainable fuels in vehicles. • Using locally sources and/or produced materials. • Actions to meet the waste hierarchy in accordance with the principles of the Government's Resources and waste strategy for England 2018. No mitigation measures are proposed for the operation period as the overall impact on climate during this phase is positive.
<i>Mitigation</i>	5.3.5 A GHG assessment should be used to drive down GHG emissions at every stage of the proposed development and ensure that emissions are minimised as far as possible for the type of technology, taking into account the overall objectives of ensuring our supply of energy always remains secure, reliable and affordable, as we transition to net zero.	Emissions from the construction, operation (including maintenance) and decommissioning of the Proposed Development total 1,998,798 tCO₂e. When taking into account whole lifecycle emissions, the net GHG savings, compared against equivalent gas-fired electricity generation, are over 4.1 million tCO₂e. This is considered a significant beneficial effect. An Outline CEMP [EN010157/APP/7.2], Outline Landscape and Environmental Management Plan (LEMP) [EN010157/APP/7.5] and Outline Construction Traffic Management Plan (CTMP) [EN010157/APP/7.7] and the Outline Travel Plan at Appendix 1 to the Outline CTMP [EN010157/APP/7.7] have been prepared to accompany
	5.3.6 Applicants should look for opportunities within the proposed development to embed nature-based or technological solutions to mitigate or offset the emissions of construction and decommissioning	

	5.3.7 Steps taken to minimise and offset emissions should be set out in a GHG Reduction Strategy, secured under the Development Consent Order. The GHG Reduction Strategy should consider the creation and preservation of carbon stores and sinks including through woodland creation, hedgerow creation and restoration, peatland restoration and through other natural habitats.	the DCO Application. These identify a range of mitigation measures that have been embedded into the Proposed Development to limit the GHG impact. Specifically, the Outline CEMP includes a commitment that members of the supply chain will provide a carbon reduction plan where feasible, allowing for the optimization of emissions associated with the supply chain. Additionally, the Outline LEMP [EN010157/APP/7.5] provides for many of the measures prescribed by paragraph 5.3.7 including setting out woodland creation and hedgerow creation that will take place as a result of the Proposed Development.
<i>Secretary of State decision making</i>	5.3.8 The Secretary of State must be satisfied that the applicant has as far as possible assessed the GHG emissions of all stages of the development.	ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2] presents a greenhouse gas (GHG) assessment over the lifetime of the Proposed Development. It concludes that renewable energy generation from the Proposed Development during the first year of operation is estimated to be 522,161 MWh, and the total energy generation from the proposed 40-year operational life is approximately 17,285,004 MWh. Total operational emissions over the design life of the Proposed Development are estimated at 1,998,798 tCO₂e, which gives a total lifecycle carbon intensity value of 115.6 gCO₂e/kWh. When assessed against whole lifecycle emissions, the Proposed Development has a carbon payback period of 13 years. The GHG impact during construction, operation and decommissioning is assessed as having a significant beneficial effect as it will play a part in achieving the rate of transition required by nationally set policy commitments and supporting the trajectory towards Net Zero.
	5.3.9 The Secretary of State should be content that the applicant has taken all reasonable steps to reduce the GHG emissions of the construction and decommissioning stage of the development.	
	5.3.10 The Secretary of State should give appropriate weight to projects that embed nature-based or technological processes to mitigate or offset the emissions of construction and decommissioning within the proposed development. However, in light of the vital role energy infrastructure plays in the process of economy wide decarbonisation, the Secretary of State must accept that there are likely to be some residual emissions from construction and decommissioning of energy infrastructure.	

	5.3.11 Operational GHG emissions are a significant adverse impact from some types of energy infrastructure which cannot be totally avoided (even with full deployment of CCS technology). Given the characteristics of these and other technologies, as noted in Part 3 of this NPS, and the range of non-planning policies that can be used to decarbonise electricity generation, such as the UK ETS (see Section 2.4), government has determined that operational GHG emissions are not reasons to prohibit the consenting of energy projects or to impose more restrictions on them in the planning policy framework than are set out in the energy NPSs (e.g. the CCR requirements). Any carbon assessment will include an assessment of operational GHG emissions, but the policies set out in Part 2, including the UK ETS, can be applied to these emissions.	To assess the GHG savings of the Proposed Development, operational emissions from a Combined Cycle Gas Turbine have been used as a comparison, as it is currently the most carbon-efficient fossil-fueled technology available. The carbon intensity of a Combined Cycle Gas Turbine is 354 gCO₂e/kWh. The Proposed Development would emit 238 g fewer CO₂e per kWh than if the same electricity were generated by a gas fired Combined Cycle Gas Turbine, representing savings of 67%. As set out in ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2], in the absence of any more appropriate identified methodology, this assessment considers that this approach, i.e. a comparison to Combined Cycle Gas Turbine emissions, is a robust and appropriate method to understand the level of GHG savings from the Proposed Development.
	5.3.12 Operational emissions will be addressed in a managed, economy-wide manner, to ensure consistency with carbon budgets, net zero and our international climate commitments. The Secretary of State does not, therefore need to assess individual applications for planning consent against operational carbon emissions and their contribution to carbon budgets, net zero and our international climate commitments.	Over the proposed 40-year lifetime of the Proposed Development, this equates to GHG savings of over 4.1 million tonnes CO₂e, when compared to Combined Cycle Gas Turbine-generated electricity. It should be noted that, like the UK grid carbon intensities published by the UK government, this comparison does not account for the embodied carbon in the Combined Cycle Gas Turbine and is therefore a conservative estimate.



5.4 Biodiversity and Geological Conservation <i>Applicant Assessment</i>	5.4.17 Where the development is subject to EIA, the applicant should ensure that the ES clearly sets out any effects on internationally, nationally, and locally designated sites of ecological or geological conservation importance (including those outside England), on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] provides an assessment of potential effects on internationally, nationally and locally designated sites of ecological or geological importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity, including irreplaceable habitats.
	5.4.18 The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Secretary of State consider thoroughly the potential effects of a proposed project.	This is not relevant, as an Environmental Impact Assessment (EIA) is required for the Proposed Development.
	5.4.19 The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] explains that the Proposed Development has been designed to avoid sites statutorily designated for their biodiversity importance and to avoid or minimise impacts on sites that are non-statutorily designated for their biodiversity importance. It has also been designed to avoid key nature conservation and ecological features present within or adjacent to the Order Limits. Measures embedded within the Proposed Development design, as set out within the chapter, will ensure that adverse effects on designated sites are reduced as far as reasonably practicable during construction, operation (including maintenance) or decommissioning. Mitigation and enhancement measures have been designed to not only mitigate for the effects of the Proposed Development but be locally appropriate delivering local biodiversity priorities including extending the calcareous
	5.4.20 Applicants should consider wider ecosystem services and benefits of natural capital when designing enhancement measures.	
	5.4.21 As set out in Section 4.7, the design process should embed opportunities for nature inclusive design. Energy infrastructure projects have the potential to deliver significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains (see Section 4.6 on Environmental and Biodiversity Net Gain). The	

	scope of potential gains will be dependent on the type, scale, and location of each project.	grassland resource to buffer existing local wildlife sites and improved ecosystem services and function locally. These will be secured within the Outline CEMP [EN010157/APP/7.2] and Outline LEMP [EN010157/APP/7.5]. The Outline CEMP [EN010157/APP/7.2] ensures a variety of bat boxes would be installed in suitable locations on trees within hedges, individual trees or woodland, to improve roosting opportunities. The Outline LEMP [EN010157/APP/7.5] ensures the provision of barn owl nest boxes, bat boxes and bird nest boxes to be installed on poles and trees in key locations to improve roosting opportunities. It also contains details of all ecological mitigation and enhancements. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] confirms that the Proposed Development is expected to achieve at least 10% Biodiversity Net Gain (BNG). The post-development habitats will be created, enhanced, managed and maintained in accordance with the LEMP (which will be produced pursuant to the Draft DCO [EN010157/APP/3.1] as a requirement and will be substantially in accordance with the Outline LEMP [EN010157/APP/7.5]), so that the habitats achieve their target condition. The Proposed Development has therefore taken advantage of opportunities to conserve and enhance biodiversity and accords with this policy.
	5.4.22 The design of energy NSIP proposals will need to consider the movement of mobile/migratory species such as birds, fish and marine and terrestrial mammals and their potential to interact with	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] sets out the surveys and site appraisal work that have been undertaken to identify species and habitats within the study area of the Proposed

	infrastructure. As energy infrastructure could occur anywhere within England and Wales, both inland and onshore and offshore, the potential to affect mobile and migratory species across the UK and more widely across Europe (transboundary effects) requires consideration, depending on the location of development.	Development. This includes breeding birds and non-breeding birds. Surveys undertaken are reported in the appendices to ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and include the following: - ES Volume 4, Appendix 7.1: Preliminary Ecological Appraisal Report [EN010157/APP/6.4] - ES Volume 4, Appendix 7.3: Breeding Bird Survey Report [EN010157/APP/6.4] - ES Volume 4, Appendix 7.4: Wintering Bird Survey Report [EN010157/APP/6.4] Additionally, the Habitats Regulations Assessment – Information to inform Appropriate Assessment [EN010157/APP/5.3] includes consideration of migratory marine species such as lamprey.
	5.4.23 Energy projects will need to ensure vessels used by the project follow existing regulations and guidelines to manage ballast water.	The Proposed Development will not use marine vessels and will not be managing ballast water.
<i>Habitats Regulations</i>	5.4.25 The applicant should seek the advice of the appropriate SNCB and provide the Secretary of State with such information as the Secretary of State may reasonably require, to determine whether an HRA Appropriate Assessment (AA) is required. Applicants can request and agree ‘Evidence Plans’ with SNCBs, which is a way to record upfront the information the applicant needs to supply with its application, so that the HRA can be efficiently carried out. If an AA is required, the applicant must provide the Secretary of State with such information as may reasonably be required to enable the Secretary of State to conduct the AA. This should include information on any mitigation measures that are	A Habitats Regulations Assessment – Information to inform Appropriate Assessment [EN010157/APP/5.3] has been prepared in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) to set out whether the Proposed Development is likely to have any significant effect on European designated sites. This report is submitted in support of the DCO Application for the Proposed Development. The HRA concludes there will be no significant adverse effects to European Sites either from the construction, operation or decommissioning of the Proposed Development or in combination with other plans and

	proposed to minimise or avoid likely significant effects.	projects. As such, no further stages of the Habitats Regulations Assessment process are required.
5.4.26 If, during the pre-application stage, the SNCB indicate that the proposed development is likely to adversely impact the integrity of habitat sites, the applicant must include with their application such information as may reasonably be required to assess a potential derogation under the Habitats Regulations	5.4.27 If the SNCB gives such an indication at a later stage in the development consent process, the applicant must provide this information as soon as is reasonably possible and before the close of the examination. This information must include assessment of alternative solutions, a case for Imperative Reasons of Overriding Public Interest (IROPI) and appropriate environmental compensation.	
5.4.28 Provision of such information will not be taken as an acceptance of adverse impacts and if an applicant disputes the likelihood of adverse impacts, it can provide this information as part of its application 'without prejudice' to the Secretary of State's final decision on the impacts of the potential development. If, in these circumstances, an applicant does not supply information required for the assessment of a potential derogation, there will be no expectation that the Secretary of State will allow the applicant the opportunity to provide such information following the examination.		

	5.4.29 It is vital that applicants consider the need for compensation as early as possible in the design process as ‘retrofitting’ compensatory measures will introduce delays and uncertainty to the consenting process.	The Habitats Regulations Assessment – Information to inform Appropriate Assessment [EN010157/APP/5.3] concludes there will be no significant adverse effects to European sites either from the construction, operation and decommissioning of the Proposed Development or in combination with other plans and projects. Therefore, there are no environmental compensation requirements to be considered.
	5.4.30 Applicants should work closely at an early stage in the pre-application process with SNCB and Defra/Welsh Government to develop a compensation plan for all protected sites adversely affected by the development. Applicants should engage with the relevant Local Planning Authority at an early stage regarding the proposed location of compensatory measures. Applicants should also take account of any strategic plan level compensation plans in developing project level compensation plans.	
	5.4.31 Before submitting an application, applicants should seek the views of the SNCB and Defra/Welsh Government as to the suitability, securability and effectiveness of the compensation plan to ensure the development will not hinder the achievement of the conservation objectives for the protected site. In cases where such views are provided, the applicant should include a copy of this information with the compensation plan in their application for further consideration by the Examining Authority.	
<i>Ancient woodland, ancient trees, veteran trees and</i>	5.4.32 Applicants should include measures to mitigate fully the direct and indirect effects of development on ancient woodland, ancient and	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] confirms that there are no ancient woodlands contained within the Order Limits. There are however ~~three~~ <u>two</u> veteran trees ~~within or~~ adjacent to the

<i>other irreplaceable habitats</i>	veteran trees or other irreplaceable habitats during both construction and operational phases.	Order Limits. The chapter concludes there would be no loss of ancient woodland or veteran trees as a result of the Proposed Development. The Outline CEMP [EN010157/APP/7.2] and Outline LEMP [EN010157/APP/7.5] details and secures measures to minimise effects on the ~~three~~ veteran trees.
<i>Protection and enhancement of habitats and species</i>	5.4.33 Applicants should consider any reasonable opportunities to maximise the restoration, creation, and enhancement of wider biodiversity, and the protection and restoration of the ability of habitats to store or sequester carbon as set out under Section 4.6.	ES Volume 4, Appendix 7.10 Biodiversity Net Gain Assessment [EN010157/APP/6.4] confirms that the Proposed Development is expected to achieve a 62.36% net gain for area habitat units, 46.58% net gain for hedgerow units and 12.50% net gain for watercourse units, substantially exceeding the statutory requirement to deliver a minimum of 10%. The post-development habitats will be created, enhanced, managed and maintained in accordance with the LEMP (which will be produced pursuant to the Draft DCO [EN010157/APP/3.1] as a requirement and will be substantially in accordance with the Outline LEMP [EN010157/APP/7.5]), so that the habitats achieve their target condition.
	5.4.34 Consideration should be given to improvements to, and impacts on, habitats and species in, around and beyond developments, for wider ecosystem services and natural capital benefits, beyond those under protection and identified as being of principal importance. This may include considerations and opportunities identified through Local Nature Recovery Strategies, and national goals and targets set through the Environment Act 2021 and the Environmental Improvement Plan 2023.	
<i>Mitigation</i>	5.4.35 Applicants should include appropriate avoidance, mitigation, compensation and enhancement measures as an integral part of the proposed development. In particular, the applicant should demonstrate that:	Embedded mitigation measures are outlined in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and are set out within the Outline CEMP [EN010157/APP/7.2] , Outline OEMP [EN010157/APP/7.3] and Outline LEMP [EN010157/APP/7.5] . These include habitat avoidance, mitigation, creation and replacement measures enhancement; mitigation relating to protected and notable

	• during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works; • the timing of construction has been planned to avoid or limit disturbance; • during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements; • habitats will, where practicable, be restored after construction works have finished; • opportunities will be taken to enhance existing habitats rather than replace them, and where practicable, create new habitats of value within the site landscaping proposals. Where habitat creation is required as mitigation, compensation, or enhancement, the location and quality will be of key importance. In this regard habitat creation should be focused on areas where the most ecological and ecosystems benefits can be realized; and • mitigations required as a result of legal protection of habitats or species will be complied with.	species; and standard mitigation measures that comply with industry good practice and environmental legislation. The Outline CEMP [EN010157/APP/7.2] includes best practice measures and mitigations in accordance with this policy including, but not limited to: • That activities will be confined to the minimum areas required for the works during construction; • There will be no night time working, unless otherwise agreed with the local planning authority, and any artificial lighting kept to a minimum and not directed towards hedgerows, tree lines, watercourses, badger setts, ecological mitigation and enhancement areas. • Where possible, the proposed development will avoid development on areas of important or priority habitat; • All work, including habitat re-instatement, within Figham Pastures LWS would be completed within six weeks between April and September to avoid the wintering and passage bird season, where reasonably practicable. Production of a CEMP, OEMP and LEMP will be secured via a requirement within the Draft DCO [EN010157/APP/3.1].
	5.4.36 Applicants should produce and implement a Biodiversity Management Strategy as part of their development proposals. This could include provision for biodiversity awareness training to employees and contractors so as to avoid unnecessary adverse	Measures to avoid unnecessary adverse impacts to biodiversity during construction, operation (including maintenance) and decommissioning of the Proposed Development are secured via the Draft DCO [EN010157/APP/3.1]. The individual measures are set out within:

	impacts on biodiversity during the construction and operation stages.	• Outline CEMP [EN010157/APP/7.2] • Outline OEMP [EN010157/APP/7.3] • Outline DEMP [EN010157/APP/7.4] • Outline LEMP [EN010157/APP/7.5]
<i>Secretary of State decision making</i>	5.4.39 The government's 25 Year Environment Plan and the Environment Act 2021 mark a step change in ambition for wildlife and the natural environment. The Secretary of State should have regard to the aims and goals of the government's Environmental Improvement Plan 2023, and in Wales the objectives of the Nature Recovery Plan, and any relevant measures and targets, including statutory targets set under the Environment Act or elsewhere.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] has been produced with regard to the aims of the 25 Year Environment Plan and Environmental Improvement Plan 2023, as evidenced by the extensive habitat to be provided pursuant to the Outline LEMP [EN010157/APP/7.5]. The Applicant has also considered the Environment Act 2021, as evidenced by ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4]. It is therefore considered the Proposed Development is compliant with this policy. The Proposed Development has the potential to deliver significant amounts of low-carbon electricity and make a material contribution to help meet the UK's commitments to decrease carbon emissions and reach Net Zero by 2050, which in turn is beneficial for biodiversity and geological conservation interests.
	5.4.41 The benefits of nationally significant low carbon energy infrastructure development may include benefits for biodiversity and geological conservation interests and these benefits may outweigh harm to these interests. The Secretary of State may take account of any such net benefit in cases where it can be demonstrated.	The Proposed Development has the potential to deliver biodiversity benefits as a result of its embedded mitigation and enhancement measures, as set out in the Outline LEMP [EN010157/APP/7.5]. This includes a significant (beneficial) effect on ground nesting birds during the operation phases through the creation of areas of flower-rich neutral grassland managed for their benefit. Additionally, the Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP

		[EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] confirms that the Proposed Development is expected to achieve a 62.36% net gain for area habitat units, 46.58% net gain for hedgerow units and 12.50% net gain for watercourse units, substantially exceeding the statutory requirement to deliver a minimum of 10%. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development has the potential to achieve significant biodiversity net gain on site. The Proposed Development has therefore taken advantage of opportunities to conserve and enhance biodiversity and accords with this policy.
	5.4.42 As a general principle, and subject to the specific policies below, development should, in line with the mitigation hierarchy, aim to avoid significant harm to biodiversity and geological conservation interests, including through consideration of reasonable alternatives (as set out in Section 4.3 above). Where significant harm cannot be avoided, impacts should be mitigated and as a last resort, appropriate compensation measures should be sought.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] identified the mitigation measures that are proposed for the Proposed Development, demonstrating that the mitigation hierarchy has been followed. As set out within the Planning Statement, it is not anticipated that the Proposed Development would result in any significant harm to biodiversity.
	5.4.43 If significant harm to biodiversity resulting from a development cannot be avoided (for example through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then the Secretary of State will give significant weight to any residual harm.	

	5.4.44 The Secretary of State should consider what appropriate requirements should be attached to any consent and/or in any planning obligations entered into, in order to ensure that any mitigation or biodiversity net gain measures, if offered, are delivered and maintained. Any habitat creation or enhancement delivered including linkages with existing habitats for compensation or biodiversity net gain should generally be maintained for a minimum period of 30 years, or for the lifetime of the project, if longer.	The ongoing maintenance of proposed planting and habitat creation is detailed in the Outline LEMP [EN010157/APP/7.5] and secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1]. This would provide maintenance for the full 40-year operation of the Proposed Development.
	5.4.45 The Secretary of State will need to take account of what mitigation measures may have been agreed between the applicant and the SNCB and the MMO/NRW (where appropriate). The Secretary of State will also need to consider whether the SNCB or the MMO/NRW has granted or refused, or intends to grant or refuse, any relevant licences, including protected species mitigation licences.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] sets out the stakeholder engagement conducted in relation to biodiversity. The Consultation Report Appendices [EN010157/APP/5.2] set out the feedback received during non-statutory, statutory and targeted consultation and how regard has been afforded by the Applicant to each matter raised. Natural England were first consulted on mitigation measures on 8 March 2024. The biodiversity mitigation strategy was discussed and mitigation requirements agreed. These matters and how they were resolved are outlined within Table 7-1: Summary of stakeholder engagement within ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2].
	5.4.46 Development proposals provide many opportunities for building-in beneficial biodiversity or geological features as part of good design. The Secretary of State should give appropriate weight to environmental and biodiversity enhancements, although any weight given to gains provided to meet	Mitigation and enhancement measures have been incorporated into the Proposed Development, as set out in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and secured pursuant to a requirement in the Draft DCO [EN010157/APP/3.1]. The ongoing maintenance of proposed planting and habitat

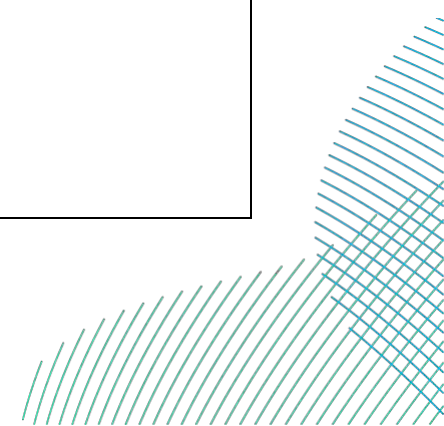
	a legal requirement (for example under the Environment Act 2021) is likely to be limited.	creation is detailed in the Outline LEMP [EN010157/APP/7.5] and secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1] .
	5.4.47 When considering proposals, the Secretary of State should maximise such reasonable opportunities in and around developments, using requirements or planning obligations where appropriate. This can help towards delivering biodiversity net gain as part of or in addition to the approach set out at Section 4.6.	The Proposed Development is committed to delivering a minimum of 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5] . This demonstrates that the Proposed Development proposes to conserve and enhance biodiversity.
	5.4.48 In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national, and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] sets out the assessment methodology employed for assessing the likely significant effects on biodiversity arising from the Proposed Development, taking into account the nature of the effect and significance of the receptor (i.e.: the level of importance afforded to sites of international, national, or local importance). Appropriate significance of effect weightings was then applied to the effects assessment within ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] .
<i>Secretary of State decision making – Habitats Regulations</i>	5.4.49 The Secretary of State must consider whether the project is likely to have a significant effect on a protected site which is part of the National Site Network (a habitat site), a protected marine site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination with other plans or projects.	A Habitats Regulations Assessment - Information to inform Appropriate Assessment [EN010157/APP/5.3] has been prepared in accordance with the requirements of The Habitats Regulations to set out whether the Proposed Development is likely to have any significant adverse effect on European designated sites. This document concludes there will be no significant adverse effects to European Sites either from the construction, operation and decommissioning of the Proposed Development or in combination with other plans

		and projects, such that an appropriate assessment is not required.
<i>Secretary of State decision making – Sites of Special Scientific Interest (SSSIs)</i>	5.4.50 The Secretary of State should use requirements and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest.	No Sites of Special Scientific Interest (SSSI) were scoped into the assessment for reasons detailed within ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] . This approach was consulted on, and agreed with, Natural England.
<i>Secretary of State decision making – Regional and Local Sites</i>	5.4.52 The Secretary of State should give due consideration to regional or local designations. However, given the need for new nationally significant infrastructure, these designations should not be used in themselves to refuse development consent.	The Order Limits associated with the grid connection cable route includes part of Figham Common which is a LWS (Figham Pastures LWS). After construction the land will be able to be used in the same manner as prior to the Proposed Development. There will be no permanent disturbance to the surface soil, or removal of trees or bushes. ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] identifies that there is anticipated to be a residual significant adverse effect at a local level while grassland recovers and re-grows following the disturbance works. This adverse effect is described as being short-term and small scale in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] . It is anticipated to result in an adverse effect on Figham Pastures LWS that is not significant.
<i>Secretary of State decision making – Ancient woodland, ancient trees, veteran trees and</i>	5.4.53 The Secretary of State should not grant for any development that would result in the loss or deterioration of any irreplaceable habitats, including ancient woodland, and ancient and veteran trees unless there are wholly exceptional reasons and a suitable compensation strategy exists.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] concludes there would be no loss or deterioration of ancient woodland or veteran trees as a result of the Proposed Development.

<i>other irreplaceable habitats</i>		
<i>Secretary of State decision making – Protection and enhancement of habitats and species</i>	5.4.54 The Secretary of State should ensure that species and habitats identified as being of importance for the conservation of biodiversity are protected from the adverse effects of development by using requirements, planning obligations, or licence conditions where appropriate.	Mitigation and enhancement measures proposed in the DCO Application are secured via the Draft DCO [EN010157/APP/3.1] . This includes measures to protect species and habitats from adverse effects of development. ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] sets out that there would be no anticipated residual significant adverse effects on any species and habitats because of the Proposed Development. In addition, there is anticipated to be a residual significant beneficial effect at the local level on ground nesting birds which would have a long-term effect.
	5.4.55 The Secretary of State should refuse consent where harm to a protected species and relevant habitat would result, unless there is an overriding public interest and the other relevant legal tests are met. In this context the Secretary of State should give substantial weight to any such harm to the detriment of biodiversity features of national or regional importance or the climate resilience and the capacity of habitats to store carbon, which they consider may result from a proposed development.	
5.5 - Civil and military aviation and defence interests <i>Applicant Assessment</i>	5.5.37 Where the proposed development may affect the performance of civil or military aviation CNS, meteorological radars and/or other defence assets an assessment of potential effects should be set out in the ES (see Section 4.3).	ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] has undertaken an assessment of the potential impacts of glint and glare on surrounding road users, dwellings, PRoW, bridleways and aviation activity. This Assessment concludes no significant impacts predicted on aviation activity associated with Beverley Airfield, Hill Farm Airfield and Burton-Constable Airfield.
	5.5.38 The requirement for ATC and non-cooperative surveillance – i.e. radar/tracking technologies – forms part of the environmental baseline for proposed developments.	

5.5.39 The applicant should consult the MOD, Met Office, Civil Aviation Authority (CAA), NATS and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation, meteorological or other defence interests.		The Applicant has considered all relevant guidance in relation to glint and glare and further detail on the guidance and methodology used for the assessment is set out below.
	5.5.40 Any assessment of effects on aviation, meteorological or other defence interests should include potential impacts of the project upon the operation of CNS infrastructure, flight patterns (both civil and military), generation of weather warnings and forecasts, other defence assets (including radar) and aerodrome operational procedures. It should also assess the demonstratable cumulative effects of the project with other relevant projects in relation to aviation, meteorological and defence.	The Consultation Report Appendices [EN010157/APP/5.2] sets out engagement that the Applicant has had with the Ministry of Defence (MOD), the Civil Aviation Authority (CAA), National Air Traffic Services (NATS) and Beverley Airfield. The Applicant also sought to consult Hull Aero Club however no response was received. The MOD confirmed the Proposed Development is not located within a MOD safeguarding area, and therefore they do not have safeguarding concerns regarding the proposal. The glint and glare assessment methodology considers relevant flight patterns and aerodrome operational procedures of any licensed and unlicensed airports within 10 km of a solar development. In the case of the Proposed Development, this has involved the assessment of 1-mile splayed approach paths, and final sections of visual circuits and joins for three unlicensed general aviation airfields. This is standard assessment methodology for unlicensed general aviation airfields where aviation activity is dynamic and does not necessarily follow the typical approaches / flight paths of a larger licensed aerodrome or airport. It is not possible to assess every single location of airspace that an aircraft travels in flight around an aerodrome; however, it is possible to assess the most frequently flown flight paths and the most critical stages of flight, which would cover most, or all, of the relevant locations. There are no known effects of glint and glare upon CNS infrastructure, generation of weather warnings and forecasts, and radar. These have therefore not been considered any further, nor is it standard practice to do so.

	5.5.41 In addition, consideration of developments near aerodromes should take into account the following factors: • Bird Strike Risk – Aircraft are vulnerable to wildlife strike, in particular bird strike. Birds and other wildlife may be attracted to the vicinity of an aerodrome by various types of development, for example, large buildings with perching/roosting opportunities for birds. It is therefore important that infrastructure, buildings and other elements from energy installations, as well as environmental mitigation are designed in such a way so as not to increase the bird strike risk to the airport for developments within 13km (this can vary). • Building Induced Turbulence – If a significant building or structure is proposed close to the airport/runways, there is potential for building induced turbulence/wind shear to be created which has the potential to impact on aircraft on take-off and landing. Studies may be required to identify the extent of any turbulence resulting from the energy infrastructure. • Thermal Plume Turbulence – This is caused under certain conditions by the release of hot air from a power plant equipped with a dry cooling system. The plumes generated by these facilities have the potential to create invisible turbulence that can affect the manoeuvrability of aircraft.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] considers the impacts to birds. The chapter does not anticipate an increase in risk of bird strike due to the Proposed Development as there are no proposals to create wetland or significant areas of woodland or scrub which would attract significant assemblages of birds. The Proposed Development does not propose significant buildings or structures; therefore, turbulence has not been assessed. Thermal Plume Turbulence is not considered relevant as the Proposed Development does not propose dry cooling systems.



	5.5.42 If any relevant changes are made to proposals during the pre-application and determination period, it is the responsibility of the applicant to ensure that the relevant aviation, meteorological and defence consultees are informed as soon as reasonably possible.	The Consultation Report Appendices [EN010157/APP/5.2] (Appendix G specifically) sets out that the Applicant will notify the MOD of any changes to the parameters of the Proposed Development and provide them with an opportunity for comment.
<i>Mitigation</i>	5.5.43 The applicant should include appropriate mitigation measures as an integral part of the proposed development.	Consultation Report Appendices [EN010157/APP/5.2] sets out that the Applicant has consulted early in the Proposed Development design process with relevant civil and military aviation and defence stakeholders, including the MOD, the Civil Aviation Authority (CAA), National Air Traffic Services (NATS) and Beverley Airfield. The Applicant also sought to consult Hull Aero Club however no response was received. Consultation will continue where appropriate to do so (such as when design changes may affect civil and military aviation and defence interests). No concerns were raised as part of this engagement and, as such, no mitigation measures are proposed relating to Civil and military aviation and defence interests as part of the Proposed Development.
	5.5.46 Mitigation for effects on meteorological radar and CNS systems may include reducing the scale of a project, although it is likely to be unreasonable for the Secretary of State to require mitigation by way of a reduction or alteration in the scale of development.	
	5.5.47 There may be exceptional circumstances where a small reduction in the scale of a development and any associated reduction in generating capacity, will result in proportionately greater mitigation for radar and CNS systems. In these cases, the Secretary of State may consider that the benefits to CNS and radar mitigation outweighs this loss of capacity.	
	5.5.48 Consideration from energy stakeholders should also be given to the possibility of introducing commercially viable radar mitigation technology as windfarm assets are renewed and replaced e.g., by using non-radar reflecting materials to manufacture turbine blades.	

<i>Secretary of State decision making</i>	5.5.49 The Secretary of State should be satisfied that the effects on meteorological radars, civil and military aerodromes, aviation technical sites and other defence assets or operations have been addressed by the applicant and that any necessary assessment of the proposal on aviation, NSWWS or defence interests has been carried out.	ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] has been undertaken to assess the potential impacts of glint and glare on surrounding road users, dwellings, PRoW, bridleways and aviation activity. This Assessment concludes no significant impacts predicted on aviation activity associated with Beverley Airfield, Hill Farm Airfield and Burton-Constable Airfield. Consultation Report Appendices [EN010157/APP/5.2] sets out that the Applicant has consulted early in the Proposed Development design process with the MOD, the CAA, NATS and Beverley Airfield. The Applicant also sought to consult Hull Aero Club however no response was received. The MOD confirmed the Proposed Development does not locate within a MOD safeguarding area, and therefore they do not have safeguarding concerns regarding the proposal. It is not considered that there is a conflict between the Proposed Development and the general workings of defence and aviation. This is demonstrated by the consultation, set out in the above document, to date.
	5.5.50 In particular, the Secretary of State should be satisfied that the proposal has been designed, where possible, to minimise adverse impacts on the operation and safety of aerodromes and that realistically achievable mitigation is carried out on existing surveillance systems such as radar/tracking technologies. It is incumbent on Operators of aerodromes to regularly review the possibility of agreeing to make reasonable changes to operational procedures.	
	5.5.51 When assessing the necessity, acceptability, and reasonableness of operational changes to aerodromes, the Secretary of State should be satisfied that they have the necessary information regarding the operational procedures along with any demonstrable risks or harm of such changes, taking into account the cases put forward by all parties. When making such a judgement in the case of military aerodromes, the Secretary of State should have regard to interests of defence and national security.	
	5.5.53 If there are conflicts between the government's energy and transport policies and	

	military interests in relation to the application, the Secretary of State should expect the relevant parties to have made appropriate efforts to work together to identify realistic and pragmatic solutions to the conflicts. In so doing, the parties should seek to protect the aims and interests of the other parties as far as possible, recognising simultaneously the evolving landscape in terms of the UK's energy security and the need to tackle climate change, which necessitates the installation of wind turbines and the need to maintain air safety and national defence and the national weather warning service.	
	5.5.54 There are statutory requirements concerning lighting to tall structures. Where lighting is requested on structures that goes beyond statutory requirements by any of the relevant aviation and defence consultees, the Secretary of State should be satisfied of the necessity of such lighting taking into account the case put forward by the consultees. The effect of such lighting on the landscape and ecology may be a relevant consideration.	ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] outlines the security measures, including lighting, incorporated in the Proposed Development's design. The Proposed Development's security and lighting have been designed to respond sensitively to ecology and landscape features, including the use of infrared sensor lighting where practicable. Lighting is also proposed to not be continuous and will be downward/inward facing, further reducing potential lighting impacts.
	5.5.55 Lighting must also be designed in such a way as to ensure that there is no glare or dazzle to pilots and/or ATC, aerodrome ground lighting is not obscured and that any lighting does not diminish the effectiveness of aeronautical ground lighting and cannot be confused with aeronautical lighting. Lighting may also need to be compatible with night vision devices for military low flying purposes.	ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] has been undertaken to assess the potential impacts of glint and glare on surrounding road users, dwellings, PRow, bridleways and aviation activity. The Assessment concludes no significant effects on surrounding road safety and aviation activity and, with proposed vegetation screening mitigation, a low impact to one dwelling.

	5.5.57 Where suitable technological solutions have not yet been developed or proven, the Secretary of State will need to consider the likelihood of a solution becoming available within the time limit for implementation of the Development Consent Order.	The Applicant has considered all relevant guidance in relation to glint and glare and further detail on the guidance and methodology used for the assessment is set out below. Guidelines exist in the UK (produced by the CAA) and in the USA (produced by the Federal Aviation Administration) with respect to solar developments and aviation activity. The UK CAA guidance is relatively high-level and does not prescribe a formal methodology. Pager Power has produced guidance for glint and glare and solar photovoltaic developments which was published in early 2017, with the fourth edition published in 2022. This methodology defines a comprehensive process for determining the impact upon aviation activity and this has been used to inform the glint and glare assessment provided in ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4].
	5.5.60 Provided that the Secretary of State is satisfied that the impacts of proposed energy developments do not present risks to national security and physical safety, and where they do, provided that the Secretary of State is satisfied that appropriate mitigation can be achieved, or appropriate requirements can be attached to any Development Consent Order to secure those mitigations, consent may be granted.	The Proposed Development is not considered to present risks to national security and physical safety. This is confirmed in the Consultation Report Appendices [EN010157/APP/5.2] where no civil and military aviation and defence stakeholders presented concerns regarding the Proposed Development. Should the design be amended, these stakeholders will be informed and comment sought.
5.7 - Dust, odour, artificial light, smoke, steam and insect infestation	5.7.5 The applicant should assess the potential for insect infestation and emissions of odour, dust, steam, smoke, and artificial light to have a detrimental impact on amenity, as part of the ES.	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] assesses the effects of the Proposed Development on emissions of dust. The Air Quality Assessment, provided as ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4] and described in Chapter 6, provides for all the considerations set out in paragraph 5.7.6. The Outline Battery Safety Management Plan
	5.7.6 In particular, the assessment provided by the applicant should describe:	

<i>Applicant Assessment</i>	- the type, quantity, and timing of emissions; - aspects of the development which may give rise to emissions; - premises or locations that may be affected by the emissions; - effects of the emission on identified premises or locations; - measures to be employed in preventing or mitigating the emissions.	[EN010157/APP/7.6] sets out the safety measures proposed to be installed to reduce fire risk as well as fire protection measures. The Proposed Development is not anticipated to cause any effects from insect infestation, steam, odour or other effluvia. Construction and decommissioning activities will be undertaken using best practice measures to minimise air emissions, as set out in the Outline CEMP [EN010157/APP/7.2], and Outline DEMP [EN010157/APP/7.4]. These good practice mitigation measures are considered to be embedded mitigation and represent good industry practices that are part of the Proposed Development. The mitigation measures proposed to be implemented during construction will also be appropriate for decommissioning as set out in the Outline DEMP [EN010157/APP/7.4]. ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] contains an assessment of the potential impacts of glint and glare on surrounding road users, dwellings and aviation activity. Adverse glint and glare effects are assessed as being not significant.
	5.7.7 The applicant is advised to consult the relevant local planning authority and, where appropriate, the EA about the scope and methodology of the assessment.	As detailed in ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2], the Applicant has consulted and agreed the scope and assessment methodology with the East Riding of Yorkshire Council Environmental Control Principal Officer.
<i>Mitigation</i>	5.7.8 Mitigation measures may include one or more of the following: engineering: prevention of a specific emission at the point of generation; control,	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] considers the likely significant effects of the Proposed Development on air quality and sets out measures for mitigation specific for each phase of the Proposed

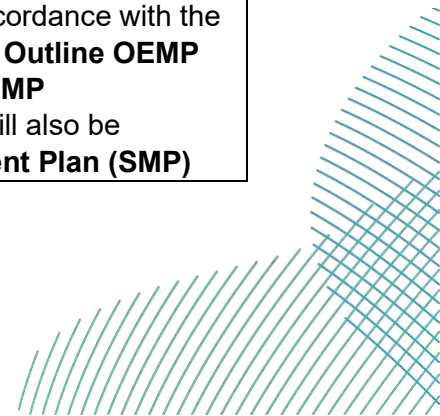
	containment and abatement of emissions if generated; • lay-out: adequate distance between source and sensitive receptors; reduced transport or handling of material; • administrative: limiting operating times; restricting activities allowed on the site; implementing management plans.	Development. These include but are not limited to, proper preparation and maintenance of the Proposed Development, sustainable travel, waste management, setbacks from environmental designated sites and residential properties, continued communication with the community and relevant stakeholders, site management and site monitoring/inspections. Mitigation measures are documented within and will be secured by the Outline CEMP [EN010157/APP/7.2] and the Outline DEMP [EN010157/APP/7.4]. ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/5.4] has undertaken an assessment of potential impacts of glint and glare on surrounding road users, dwellings, PRow, bridleways and aviation activity. The assessment concludes that no significant adverse effects are anticipated from glint and glare; therefore, no glint and glare specific mitigation measures are proposed.
	5.7.9 Construction should be undertaken in a way that reduces emissions, for example the use of low emission mobile plant during the construction, and demolition phases as appropriate, and consideration should be given to making these mandatory in Development Consent Order requirements.	ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] considers the likely significant effects of construction and decommissioning and from demolition works (during decommissioning phase) of the Proposed Development. A detailed dust risk assessment for the construction and decommissioning phases is presented in ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4].
	5.7.10 Demolition considerations should be embedded into designs at the outset to enable demolition techniques to be adopted that remove the need for explosive demolition.	Mitigation measures are documented within and will be secured by the Outline CEMP [EN010157/APP/7.2] and Outline DEMP [EN010157/APP/7.4]. This includes, commitment that any emissions from non-road mobile machinery can be reduced by ensuring that any plan used on-site comply with the nitrogen oxides, matriculate matter
	5.7.11 A construction management plan may help clarify and secure mitigation.	

		and carbon monoxide emissions standards specified in the Regulation (EU) 2016/1628 of the European Parliament and of the Council (as amended) as a minimum, where they have net power of between 37 kW and 560 kW. Chapter 6 concludes that, after appropriate mitigation is applied, effect from emissions (including dust) are not significant.
<i>Secretary of State decision making</i>	5.7.12 The Secretary of State should satisfy itself that: • an assessment of the potential for artificial light, dust, odour, smoke, steam and insect infestation to have a detrimental impact on amenity has been carried out • that all reasonable steps have been taken, and will be taken, to minimise any such detrimental impacts	The Statement of Statutory Nuisance [EN010157/APP/5.4] identifies relevant potential sources of nuisance and how they have been assessed in the ES. And includes that the only matters addressed by the EPA 1990 which have been assessed as potentially being significant for the Proposed Development are those associated with noise, dust, health, light and vibration. However, it is demonstrated in the ES [EN010157/APP/6.1 – 6.4] that the Proposed Development would not have significant adverse effects following the implementation of the identified mitigation measures. Dust and artificial light are considered as below and subject to the controls proposed in the DCO, would not be a source of statutory nuisance. ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] assesses the effects of the Proposed Development on emissions of dust. An Air Quality Assessment is provided as ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4]. Detailed information on lighting is provided in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]. During the construction and decommissioning phases of the Proposed Development, it is envisaged that artificial lighting may be required to
	5.7.13 If development consent is granted for a project, the Secretary of State should consider whether there is a justification for all of the authorised project (including any associated development) to be covered by a defence of statutory authority against nuisance claims. If the Secretary of State cannot conclude that this is justified, the Secretary of State should disapply in whole or in part the defence through a provision in the Development Consent Order.	

		facilitate construction areas where there is limited natural light and during core working hours within winter months. The use of artificial lighting during construction will be controlled by the Outline CEMP [EN010157/APP/7.2], adopting the necessary mitigation hierarchy to protect ecological and residential receptors. The use of artificial lighting during operation will be controlled by the Outline OEMP [EN010157/APP/7.3], adopting the necessary mitigation hierarchy to protect ecological and residential receptors. As outlined above, measures to mitigate potential sources of nuisance and reduce emissions as identified in the Statement of Statutory Nuisance [EN010157/APP/5.4] are secured via relevant management plans, comprising: • Outline CEMP [EN010157/APP/7.2] • Outline OEMP [EN010157/APP/7.3] • Outline DEMP [EN010157/APP/7.4] These plans are secured pursuant to requirements of the Draft DCO [EN010157/APP/3.1]. Due to the nature of the Proposed Development, decommissioning would not require explosive demolition.
	5.7.14 Where the Secretary of State believes it appropriate, the Secretary of State may consider attaching requirements to the development consent, to secure certain mitigation measures.	The Applicant considers that all relevant mitigation has been secured via appropriate mechanisms within the Draft DCO [EN010157/APP/3.1].
	5.7.15 In particular, the Secretary of State should consider whether to require the applicant to abide by a scheme of management and mitigation concerning insect infestation and emissions of odour, dust, steam, smoke, and artificial light from the	No such effects are anticipated. The Applicant considers that all relevant mitigation has been secured via appropriate mechanisms within the Draft DCO [EN010157/APP/3.1].

	development. The Secretary of State should consider the need for such a scheme to reduce any loss to amenity which might arise during the construction, operation and decommissioning of the development. A construction management plan may help codify mitigation at that stage.	
Part 5.8 - Flood Risk	5.8.12 Development should be designed to ensure there is no increase in flood risk elsewhere, accounting for the predicted impacts of climate change throughout the lifetime of the development. There should be no net loss of floodplain storage and any deflection or constriction of flood flow routes should be safely managed within the site. Mitigation measures should make as much use as possible of natural flood management techniques.	The Proposed Development includes land identified within Flood Zones 2 and 3 and is supported by ES Volume 4: Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. The FRA includes considerations of the impact of climate change and concludes that the Proposed Development will be safe from all forms of flooding for the lifetime of the development. The site-specific modelling demonstrates the Proposed Development would not increase flood risk elsewhere, whilst potentially resulting in minor benefit to third parties in terms of runoff and soil erosion. The Proposed Development has been designed considering flood risk and includes mitigation measures as set out in the Design Parameters Document [EN010157/APP/5.8] including the following key measures: • Solar PV modules which are affected by simulated fluvial flooding will be raised to mitigate against fluvial flood risk. These will be raised a minimum of 300 mm freeboard above the modelled 1-in-100 year plus climate change flood level (the design event flood level) and also be above the maximum flood level predicted by the simulated breach scenarios during a 1 in 100 year plus climate change event. • Balance of the solar plant which are affected by simulated fluvial flooding will be raised to mitigate against fluvial flood risk. These will be raised a

		minimum of 300 mm freeboard above the modelled 1-in-100 year plus climate change flood level (the design event flood level) and also be above the maximum flood level predicted by the simulated breach scenarios during a 1 in 100 year plus climate change event. • BESS will be raised to mitigate against fluvial flood risk. These will be raised a minimum of 300 mm freeboard above the modelled 1-in-100 year plus climate change flood level (the design event flood level) and also be above the maximum flood level predicted by the simulated breach scenarios during a 1 in 100 year plus climate change event. • The two on-site substations will be located on high ground outside the flood extents for the Credible Maximum Flood Scenario (to 2100) and the maximum breach extents. All sensitive infrastructure contained within the substations will be at least 300 mm above the Credible Maximum Flood Level. The FRA also presents a drainage strategy that proposes to allow rain falling on the Proposed Development, including permeable access roads and the minimal hardstanding, to percolate to the ground locally, mimicking the existing conditions. Further mitigation relating to water is provided within the CEMP, OEMP and DEMP, which will be secured by the DCO and required to be in substantial accordance with the Outline CEMP [EN010157/APP/7.2], the Outline OEMP [EN010157/APP/7.3] and the Outline DEMP [EN010157/APP/7.4]. The construction will also be supported by an Outline Soil Management Plan (SMP)



		[EN010157/APP/7.8], which details and secures measures to manage soil compaction.
<i>Application Assessment</i>	5.8.13 A site-specific flood risk assessment should be provided for all energy projects in Flood Zones 2 and 3 in England or Zones B and C in Wales. In Flood Zone 1 in England or Zone A in Wales, an assessment should accompany all proposals involving: • sites of 1 hectare or more • land which has been identified by the EA or NRW as having critical drainage problems • land identified (for example in a local authority strategic flood risk assessment) as being at increased flood risk in future • land that may be subject to other sources of flooding (for example surface water) • where the EA or NRW, Lead Local Flood Authority, Internal Drainage Board or other body have indicated that there may be drainage problems.	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] (FRA) provides an assessment of flood risk to and from the Proposed Development from all sources of flooding. The FRA demonstrates how flood risk will be managed during the construction, operation and decommissioning of the Proposed Development. The FRA confirms that the Proposed Development will be safe from all forms of flooding for the lifetime of the development and that the site-specific modelling demonstrates the Proposed Development would not increase flood risk elsewhere. The FRA meets all requirements set out within the policy.
	5.8.14 This assessment should identify and assess the risks of all forms of flooding to and from the project and demonstrate how these flood risks will be managed, taking climate change into account.	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] assesses flood risk to and from the Proposed Development from all sources of flooding. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] demonstrates how residual flood risk will be managed during the construction, operation and decommissioning of the Proposed Development. Section 8.14 of the Planning Statement [EN010157/APP/5.5] outlines how the requirements of the Sequential Test and Exceptions Test are satisfied.

	5.8.15 The minimum requirements for Flood Risk Assessments (FRA) are that they should: • be proportionate to the risk and appropriate to the scale, nature and location of the project; • consider the risk of flooding arising from the project in addition to the risk of flooding to the project; • take the impacts of climate change into account, across a range of climate scenarios, clearly stating the development lifetime over which the assessment has been made; • be undertaken by competent people, as early as possible in the process of preparing the proposal; • consider both the potential adverse and beneficial effects of flood risk management infrastructure, including raised defences, flow channels, flood storage areas and other artificial features, together with the consequences of their failure and exceedance; • consider the vulnerability of those using the site, including arrangements for safe access and escape; • consider and quantify the different types of flooding (whether from natural and human sources and including joint and cumulative effects) and include information on flood likelihood, speed-of-onset, depth, velocity, hazard and duration;	The DCO Application is supported by ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] which has been prepared in accordance with the requirements outlined within (NPS EN-1 paragraph 5.8.15). A response to each of the bullet points is provided below. The ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] : • Has been prepared by a suitably qualified expert and is proportionate to the scale, nature and location of the Proposed Development. This is reinforced through the consultation undertaken, and subsequent agreement with, relevant authorities (such as the Lead Local Flood Authority (LLFA), Beverly and North Holderness Internal Drainage Board (IDB) and Environment Agency) that the FRA scope and methodology was appropriate for the Proposed Development. • Provides an assessment of flood risk to and from the Proposed Development from all sources of flooding. • Includes considerations of the impact of climate change over the lifetime of the Proposed Development. • Was undertaken by suitably qualified flood risk and hydrology experts. • Considers the effects of the existing flood defenses, including the impact of any breach event. • Includes details on safe access and egress at Section 5.3. In addition, an Emergency Response Plan (including Flood Risk) will be prepared as part of the CEMP, OEMP and DEMP and is secured by the Outline CEMP [EN010157/APP/7.2], the

	• identify and secure opportunities to reduce the causes and impacts of flooding overall, making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management; • consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes; • include the assessment of the remaining (known as ‘residual’) risk after risk reduction measures have been taken into account and demonstrate that these risks can be safely managed, ensuring people will not be exposed to hazardous flooding; • consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of the project may affect drainage systems. Information should include: i. Describe the existing surface water drainage arrangements for the site ii. Set out (approximately) the existing rates and volumes of surface water run-off generated by the site. Detail the proposals for restricting discharge rates iii. Set out proposals for managing and discharging surface water from the site using sustainable drainage systems and accounting for the predicted impacts of climate change.	Outline OEMP [EN010157/APP/7.3] and the Outline DEMP [EN010157/APP/7.4]. • Considers flooding from all sources, including: ○ Tidal Flooding – from the sea. ○ Fluvial Flooding – from rivers and streams. ○ Surface Water Flooding – from intense rainfall events. ○ Groundwater flooding – from elevated groundwater levels or springs. ○ Flooding from sewers – from existing sewer systems. ○ Artificial sources – from reservoirs, canals etc. • Identifies opportunities to reduce causes to impacts of flooding overall, including through reducing runoff rates and volumes, soil erosion and pollution, through the cessation of intensive agriculture across the Order Limits, which will allow establishment of natural grassland and a commensurate improvement in soil structure. • Includes site-specific hydraulic modelling which has been carried out to assess the actual risk of fluvial flooding to the development during the design event as well as the residual risk should there be a breach of defences or should key sections of defences be removed entirely. The modelling work also includes a simulation of the Credible Maximum Scenario (Section 5.9) to ensure the proposals for the safety critical elements (exporting substations) are sufficiently resilient to extreme climate change. The modelling work has been submitted to the Environment Agency who has confirmed that the modelling is fit-for-purpose.

	If sustainable drainage systems have been rejected, present clear evidence of why their inclusion would be inappropriate iv. Demonstrate how the hierarchy of drainage options has been followed. v. Explain and justify why the types of SuDS and method of discharge have been selected and why they are considered appropriate. vi. Explain how sustainable drainage systems have been integrated with other aspects of the development such as open space or green infrastructure, so as to ensure an efficient use of the site vii. Describe the multifunctional benefits the sustainable drainage system will provide viii. Set out which opportunities to reduce the causes and impacts of flooding have been identified and included as part of the proposed sustainable drainage system ix. Explain how run-off from the completed development will be prevented from causing an impact elsewhere x. Explain how the sustainable drainage system been designed to facilitate maintenance and, where relevant, adoption. Set out plans for ensuring an acceptable standard of operation	• ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] demonstrates how flood risk will be managed during the construction, operation (including maintenance) and decommissioning phases of the Proposed Development. The Proposed Development has been designed considering flood risk and includes mitigation measures as set out in the Design Parameters Document [EN010157/APP/5.8]. Further mitigation relating to water is provided within the CEMP, OEMP and DEMP, which will be secured by the DCO and required to be in substantial accordance with the Outline CEMP [EN010157/APP/7.2], the Outline OEMP [EN010157/APP/7.3] and the Outline DEMP [EN010157/APP/7.4]. The construction will also be supported by an Outline SMP [EN010157/APP/7.8], which details and secures measures to manage soil compaction. • Presents a drainage strategy to mitigate against the potential downstream impacts of the Proposed Development at Section 7. The FRA describes the existing drainage scenario within the Land Areas and explores drainage solutions in accordance with the Sustainable Drainage Systems (SuDS) hierarchy. It was agreed with the LLFA and IDB that conventional discharge methods would not be practicable for the site (given the presence of features such as wet or low permeable soils and flood zones). Therefore, it was agreed to use the gravel bases beneath the BESS, substation and isolated infrastructure to store and spread runoff. It was also agreed that the remaining infrastructure

	and maintenance throughout the lifetime of the development • detail those measures that will be included to ensure the development will be safe and remain operational during a flooding event throughout the development’s lifetime without increasing flood risk elsewhere; • identify and secure opportunities to reduce the causes and impacts of flooding overall during the period of construction; and • be supported by appropriate data and information, including historical information on previous events.	located within the Land Areas would enable rainwater to slowly percolate into the ground, as occurs currently at the existing site. • Includes details of flood risk mitigation measures within Section 6, which will be secured within the Design Parameters Document [EN010157/APP/5.8]. The FRA concludes that the Proposed Development will be safe from all forms of flooding and will provide a betterment in terms of downstream flood risk and pollution. The simulation of the Maximum Credible Scenario flood using H++ allowances demonstrates that the Proposed Development will have a high level of climate resilience. The modelling work and calculations demonstrate the Proposed Development would not increase flood risk elsewhere. • Includes details on construction management at Section 7.5. Mitigation relating to water and flooding is provided within the CEMP which will be secured by the DCO and required to be in substantial accordance with the Outline CEMP [EN010157/APP/7.2]. The construction will also be supported by an Outline SMP [EN010157/APP/7.8], which details and secures measures to manage soil compaction. • Has been prepared by a suitably qualified expert and is supported by appropriate data and information. The scope and methodology of the FRA was prepared in consultation with relevant authorities, including the LLFA, Beverly and North Holderness Internal Drainage Board and the Environment Agency, with methodology agreed by the Environment Agency.

		Further details are provided within ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] . In addition, section 8.14 of the Planning Statement [EN010157/APP/5.5] outlines how the requirements of the Sequential Test and Exceptions Test are satisfied.
	5.8.16 Further guidance can be found in the Planning Practice Guidance Flood Risk and Coastal Change section which accompanies the NPPF, TAN15 for Wales or successor documents.	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] consider the relevant sections of the Planning Practice Guidance, the NPPF, and the government's associated planning guidance on water.
	5.8.17 Development (including construction works) will need to account for any existing watercourses and flood and coastal erosion risk management structures or features, or any land likely to be needed for future structures or features so as to ensure: • Access, clearances and sufficient land are retained to enable their maintenance, repair, operation, and replacement, as necessary • Their standard of protection is not reduced • Their condition or structural integrity is not reduced	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] considers existing watercourses. The Proposed Development includes easements from the top of watercourse banks and top of formal defences which would be void of built infrastructure (except watercourse crossings or buried services). The easements are in accordance with the requirements of the relevant Risk Management Authority such as the Environment Agency (EA) or the Internal Drainage Boards (IDB).and secured within the Outline CEMP [EN010157/APP/7.2]. Section 7.5 of ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] details measures for construction, operation (including maintenance) and decommissioning management, which will be secured through the Outline CEMP [EN010157/APP/7.2], Outline OEMP [EN010157/APP/7.3], Outline DEMP [EN010157/APP/7.4] and Outline SMP [EN010157/APP/7.8].
	5.8.18 Applicants for projects which may be affected by, or may add to, flood risk should arrange pre-application discussions before the official pre-application stage of the NSIP process with the EA or NRW, and, where relevant, other bodies such as	As set out in ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1] , the topic of water quality has been scoped out of the EIA as a stand-alone chapter. The Applicant has undertaken extensive consultation with the Environment Agency and is detailed within ES Volume 4,

	Lead Local Flood Authorities, Internal Drainage Boards, sewerage undertakers, navigation authorities, highways authorities and reservoir owners and operators.	Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] and ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. This engagement has resulted in the Environment Agency agreeing that water can be scoped out of the assessment on the basis that a Flood Risk Assessment and Water Framework Assessment are submitted with the DCO Application. In preparing ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] the Applicant has considered advice and taken account of feedback received through consultation with key bodies, including the EA, the Lead Local Flood Authorities (LLFAs) and the IDBs. Listed below are the statutory consultees and stakeholders that have provided comments in relation to the water environment: • Environment Agency National Infrastructure Team; • Beverley and North Holderness IDB; and • LLFA (East Riding of Yorkshire Council). Details of the engagement undertaken with the above mentioned stakeholders is provided within Section 2.5 of ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. Table 2-1 within ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] provides a summary of the matters raised during this engagement, details of how the matters have been addressed and where each matter is addressed in the application documents.
	5.8.19 Such discussions should identify the likelihood and possible extent and nature of the flood risk, help scope the FRA, and identify the information that will be required by the Secretary of State to reach a decision on the application when it is submitted. The Secretary of State should advise applicants to undertake these steps where they appear necessary but have not yet been addressed.	
	5.8.20 If the EA, NRW or another flood risk management authority has reasonable concerns about the proposal on flood risk grounds, the applicant should discuss these concerns with the EA or NRW and take all reasonable steps to agree ways in which the proposal might be amended, or additional information provided, which would satisfy the authority's concerns.	
	5.8.21 The Sequential Test ensures that a sequential, risk-based approach is followed to steer	Section 8.14 of the Planning Statement [EN010157/APP/5.5] details how the Applicant has applied

	new development to areas with the lowest risk of flooding, taking all sources of flood risk and climate change into account. Where it is not possible to locate development in low-risk areas, the Sequential Test should go on to compare reasonably available sites with medium risk areas and then, only where there are no reasonably available sites in low and medium risk areas, within high-risk areas.	the Sequential and Exception Tests. Section 8.14 demonstrates that a sequential, risk-based approach has been applied to the site selection process and layout and design of the Proposed Development. The Site Selection Assessment at Appendix 2 of this Planning Statement details the site selection process. The Site Selection Assessment confirms that, having had regard to the factors influencing Site Selection as set out in NPS EN-3, the Applicant in the first instance sought to avoid areas of higher quality agricultural land, notably the large swathe of provisional Grade 2 to the west of Hull and Beverley. However, large areas of the search area are located in Flood Zones 2 and 3 albeit on land of provisional lower quality. The Applicant considered the constraints, and the policy implications set out in NPS EN-1 and NPS EN-3. On the basis that it was considered that there was a greater capability to mitigate potential impacts of developing in the Flood Zone, the Applicant focused the site selection around the area of higher flood zone sensitivity and sought to avoid the higher quality agricultural land as per the provisional ALC mapping. Considering the above, and taking into account other environmental, planning and design factors including proximity to communities and landscape and visual, the Site Selection Assessment at Appendix 2 of the Planning Statement, concludes that there were no more suitable, reasonably available sites within areas at lower risk of flooding. Following the selection of the Order Limits, the Applicant applied a sequential approach to the layout and design of the Proposed Development. Further details of the approach

		to the Sequential and Exception Tests are provided at Section 8.14 of the Planning Statement.
	5.8.22 The technology specific NPSs set out some exceptions to the application of the Sequential Test. However, when seeking development consent on a site allocated in a development plan through the application of the Sequential Test, informed by a strategic flood risk assessment, applicants need not apply the Sequential Test, provided the proposed development is consistent with the use for which the site was allocated and there is no new flood risk information that would have affected the outcome of the test. 5.8.23 Consideration of alternative sites should take account of the policy on alternatives set out in Section 4.3 above. All projects should apply the Sequential Test to locating development within the site.	Section 8.14 of this Planning Statement [EN010157/APP/5.5] details how the Applicant has applied the Sequential and Exception Tests which has been informed by the ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] and the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5]. Section 8.14 of the Planning Statement [EN010157/APP/5.5] demonstrates that a sequential, risk-based approach has been applied to the site selection process and layout and design of the Proposed Development.
<i>Mitigation</i>	5.8.24 To satisfactorily manage flood risk, arrangements are required to manage surface water and the impact of the natural water cycle on people and property.	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] considers the risk of flooding from surface water in Section 5.10. The FRA confirms that Risk of Flooding from Surface Water (RoFSW) mapping does not predict flooding to depths of greater than 300 mm where BESS or containerised infrastructure is proposed for the Proposed Development. The RoFSW mapping confirms that the only location where depths are likely to affect solar arrays at their nominal minimum height of 800 mm above ground level is in Parcels F1, F2 & F3. Solar arrays in these areas will be raised above the maximum breach flood level

		which is approximately 500 mm higher than the predicted surface water flood level. Standing water may be present for weeks or months during prolonged rainfall and saturated conditions. This is expected to remain shallow and as such the raising of infrastructure should provide sufficient mitigation. Demarking access track edges would facilitate safe access for maintenance through standing water. Consequently, the FRA concludes that the risk of surface water flooding to sensitive infrastructure is assessed as being Low. The FRA also presents a drainage strategy that manages the impact of rain falling on the Proposed Development following a SuDS approach. The strategy outlines how water would percolate to the ground local to the infrastructure it falls on, mimicking existing site conditions.
	5.8.25 In this NPS, the term SuDS refers to the whole range of sustainable approaches to surface water drainage management including, where appropriate: • source control measures including rainwater recycling and drainage • infiltration devices to allow water to soak into the ground, that can include individual soakaways and communal facilities • filter strips and swales, which are vegetated features that hold and drain water downhill mimicking natural drainage patterns • filter drains and porous pavements to allow rainwater and run-off to infiltrate into	Details of surface water management are provided within Section 7 of the ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. The drainage strategy, which is integral to the FRA, outlines how water would percolate to the ground local to the infrastructure it falls on, mimicking existing site conditions.

	permeable material below ground and provide storage if needed • basins, ponds and tanks to hold excess water after rain and allow controlled discharge that avoids flooding • flood routes to carry and direct excess water through developments to minimise the impact of severe rainfall flooding	
	5.8.26 Site layout and surface water drainage systems should cope with events that exceed the design capacity of the system, so that excess water can be safely stored on or conveyed from the site without adverse impacts.	Details of surface water management are provided within Section 7 of ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] concludes that with the proposed mitigation measures to be implemented as part of the Outline CEMP [EN010157/APP/7.2], the Outline SMP [EN010157/APP/7.8], and the Outline DEMP [EN010157/APP/7.4], there will be no significant adverse effects arising in relation to surface water. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] confirms that it was agreed with the LLFA and IDB that the conventional methods of discharge are not practicable. It was agreed to use gravel bases beneath the BESS, substation and isolated infrastructure to store and spread runoff. It was agreed that rain falling on the infrastructure area would not have a clearly defined flow path and therefore rain falling within the Order Limits would slowly percolate into the ground. The Proposed Development would therefore mimic the existing situation and negate impacts on third parties.
	5.8.27 The surface water drainage arrangements for any project should, accounting for the predicted impacts of climate change throughout the development's lifetime, be such that the volumes and peak flow rates of surface water leaving the site are no greater than the rates prior to the proposed project, unless specific off-site arrangements are made and result in the same net effect.	
	5.8.28 It may be necessary to provide surface water storage and infiltration to limit and reduce both the	

	peak rate of discharge from the site and the total volume discharged from the site. There may be circumstances where it is appropriate for infiltration facilities or attenuation storage to be provided outside the project site, if necessary through the use of a planning obligation.	managed across the Proposed Development to avoid an increase in flood risk elsewhere. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] concludes that gravel bases will be used beneath the BESS, substation and isolated infrastructure to store and spread rain falling on the infrastructure. In addition, access tracks would be formed from permeable materials. Given the flat nature of the Order Limits, rain falling on the infrastructure area would not have a clearly defined flow path and therefore rain falling would slowly percolate into the ground, mimicking the existing conditions and avoiding impacts on third parties. Management of the surface water drainage will be secured through the Outline CEMP [EN010157/APP/7.2] and the Outline OEMP [EN010157/APP/7.3].
	5.8.29 The sequential approach should be applied to the layout and design of the project. Vulnerable aspects of the development should be located on parts of the site at lower risk and residual risk of flooding. Applicants should seek opportunities to use open space for multiple purposes such as amenity, wildlife.	Section 8.14 of the Planning Statement [EN010157/APP/5.5] outlines how the Applicant applied a sequential approach to the layout and design of the Proposed Development. The design process sought to avoid higher risk areas of Flood Zone 3b and all sensitive infrastructure such as hybrid packs and on-site substations have been located outside of areas identified to be Flood Zone 3b. During the design stages, Land Area A was removed from the Order Limits. Hydraulic modelling of the Order Limits showed partial flooding of Area A associated with the Hull and Holderness Drain in the west and the Monk Dike, Meaux and Routh East Drain and Arnold and Riston Drain in the east. Drainage through the Holderness Drain was heavily restricted by high tide levels which results in flooding in the eastern part of Land Area A. Flooding was generally modelled at less than 500 mm but in some places it was up

		to 1 m deep. As such, the decision was made to remove this area from solar PV development and the Order Limits. Further details of the design stages are provided within ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]. The two on-site substations have been located on high ground outside the flood extents for the Credible Maximum Flood Scenario (to 2100) and the maximum breach extents. All sensitive infrastructure within the on-site substations will be at least 300 mm above the Credible Maximum Flood Level. The containerised infrastructure and BESS are almost entirely outside the design flood event. The layout has been developed so that BESS and containerised infrastructure are outside the breach extents wherever practicable. Where this is not the case, they will be set above the maximum breach flood level. The BESS and containerised infrastructure will, as standard, be raised 300 mm above the ground. The hydraulic modelling work demonstrates that 300 mm is sufficient freeboard above the design event level to account for uncertainty. 300 mm is also the maximum difference between the design event level and the Credible Maximum Scenario level. Consequently 300 mm of freeboard would also safeguard against extreme climate change to 2100. Solar arrays, BESS and containerised infrastructure will be set at least 300 mm freeboard above the modelled 1-in-100 year plus climate change flood level which will be sufficient to mitigate to account for uncertainty and floating debris. Additionally, they will be set above the maximum breach flood level.

		The design of the Proposed Development will be secured by the Design Parameters Document [EN010157/APP/5.8]. A requirement of the Draft DCO [EN010157/APP/3.1] will ensure that the detailed design must accord with the Design Parameters Document [EN010157/APP/5.8].
	5.8.30 Where a development may result in an increase in flood risk elsewhere through the loss of flood storage, on-site level-for-level compensatory storage, accounting for the predicted impacts of climate change over the lifetime of the development, should be provided.	The Proposed Development would not result in an increase in flood risk elsewhere and will not materially remove floodplain volume and not require compensatory storage to be provided. A requirement of the Draft DCO [EN010157/APP/3.1] will ensure that the detailed design must accord with the Design Parameters Document [EN010157/APP/5.8].
	5.8.31 Where it is not possible to provide compensatory storage on site, it may be acceptable to provide it off-site if it is hydraulically and hydrologically linked. Where development may cause the deflection or constriction of flood flow routes, these will need to be safely managed within the site.	
	5.8.32 Where development may contribute to a cumulative increase in flood risk elsewhere, the provision of multifunctional sustainable drainage systems, natural flood management and green infrastructure can also make a valuable contribution to mitigating this risk whilst providing wider benefits.	As concluded within ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4], it is not considered that the Proposed Development would contribute to a cumulative increase in flood risk elsewhere.
	5.8.33 The receipt of and response to warnings of floods is an essential element in the management of the residual risk of flooding. Flood Warning and	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] describes how the Proposed Development would be remotely operated and therefore

	evacuation plans should be in place for those areas at an identified risk of flooding.	access during design flood conditions would not be required. Nonetheless, the FRA recommends a Flood Emergency Management Plan should be compiled in co-ordination with the East Riding of Yorkshire Council's Civil Contingencies Team. The Outline CEMP [EN010157/APP/7.2], the Outline OEMP [EN010157/APP/7.3] and the Outline DEMP [EN010157/APP/7.4] commits to the preparation of an Emergency Response Plan, which is required to be prepared in consultation with the East Riding of Yorkshire Council emergency planning officer, emergency services and the Environmental Agency.
	5.8.34 The applicant should take advice from the local authority emergency planning team, emergency services and, where appropriate, from the local resilience forum when producing an evacuation plan for a manned energy project as part of the FRA. Any emergency planning documents, flood warning and evacuation procedures that are required should be identified in the FRA.	
	5.8.35 Flood resistant and resilient materials and design should be adopted to minimise damage and speed recovery in the event of a flood.	The Proposed Development has been designed to safeguard the water environment through being resilient to flooding now and in the future, as set out in ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] and the Design Parameters Document [EN010157/APP/5.8].
<i>Secretary of State decision making</i>	5.8.36 In determining an application for development consent, the Secretary of State should be satisfied that where relevant: • the application is supported by an appropriate FRA • the Sequential Test has been applied and satisfied as part of site selection • a sequential approach has been applied at the site level to minimise risk by directing the most vulnerable uses to areas of lowest flood risk	The Proposed Development is supported by a Flood Risk Assessment, provided at ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. The FRA concludes that the Proposed Development will be safe for its lifetime, that it will have an insignificant impact on storage and flow in the floodplain and will not increase flood risk to third parties. Details of the Sequential and Exception Test are provided within Section 8.14 of the Planning Statement [EN010157/APP/5.5]. The Planning Statement demonstrates that a sequential approach has been applied in selecting the land for the Proposed Development and to the subsequent layout and design of the infrastructure

	- the proposal is in line with any relevant national and local flood risk management strategy - SuDS (as required in the next paragraph on National Standards) have been used unless there is clear evidence that their use would be inappropriate - in flood risk areas the project is designed and constructed to remain safe and operational during its lifetime, without increasing flood risk elsewhere (subject to the exceptions set out in paragraph 5.8.42) - the project includes safe access and escape routes where required, as part of an agreed emergency plan, and that any residual risk can be safely managed over the lifetime of the development - land that is likely to be needed for present or future flood risk management infrastructure has been appropriately safeguarded from development to the extent that development would not prevent or hinder its construction, operation or maintenance	within the Order Limits. Section 8.14 of the Planning Statement [EN010157/APP/5.5] demonstrates that the Sequential Test has been met. The Planning Statement also confirms that the Exception Test has been passed in relation to the Proposed Development given the wider sustainability benefits that the Proposed Development will deliver and the fact that it will remain safe throughout its lifetime without increasing flood risk elsewhere. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] has been undertaken in accordance with NPPF and the methodology and criteria provided for the application of the Sequential Test and Exception Test within the Planning Practice Guidance. It is also consistent with the Local Planning Authority requirements with regard to flood risk. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] considers measures incorporated into the Proposed Development to allow for safe access and ensures that any residual risk can be managed over the lifetime of the Proposed Development. These are secured through the Outline OEMP [EN010157/APP/7.3]. The FRA details how surface water will be managed across the Proposed Development to avoid an increase in flood risk elsewhere. Surface water runoff generated by the Proposed Development will be attenuated and discharged to an appropriate location, using SuDS and following the drainage hierarchy where possible. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] concludes that gravel bases will be used beneath the BESS, on-site substations and isolated infrastructure to store and spread runoff. Given the flat nature of the Order Limits, rain falling on the infrastructure

		area would not have a clearly defined flow path and therefore rain falling would slowly percolate into the ground, mimicking the existing conditions and avoiding impacts on third parties. Management of the surface water drainage will be secured through the Outline CEMP [EN010157/APP/7.2] and the Outline OEMP [EN010157/APP/7.3]. It is acknowledged that shallow flooding could persist for weeks or even months and it is possible that some access tracks would be located in the areas of standing water. The predicted depths should not impact maintenance access presuming a 4x4 vehicle would be used. Nonetheless, consideration has been made during construction to use waymarkers or similar to visually denote the track edges and facilitate safe access should there be shallow standing water on the site. The Outline CEMP [EN010157/APP/7.2], the Outline OEMP [EN010157/APP/7.3] and the Outline DEMP [EN010157/APP/7.4] commits to the preparation of an Emergency Response Plan, which is required to be prepared in consultation with the East Riding of Yorkshire Council emergency planning officer, emergency services and the Environmental Agency.
	5.8.37 For energy projects which have drainage implications, approval for the project's drainage system, including during the construction period, will form part of the development consent issued by the Secretary of State. The Secretary of State will therefore need to be satisfied that the proposed drainage system complies with any National Standards published by Ministers under paragraph	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] confirms that the drainage strategy complies with the relevant National Standards as set out, primarily as it mimics a greenfield site and existing site conditions. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] details how surface water will be

	5(1) of Schedule 3 to the Flood and Water Management Act 2010.	managed across the Proposed Development to avoid an increase in flood risk elsewhere. Surface water runoff generated by the Proposed Development will be attenuated and discharged to an appropriate location, using SuDS and following the drainage hierarchy where possible. ES Volume 4, Appendix 5.6: Flood Risk Assessment
	5.8.38 In addition, the Development Consent Order, or any associated planning obligations, will need to make provision for appropriate operation and maintenance of any SuDS throughout the project's lifetime. Where this is secured through the adoption of any SuDS features, any necessary access rights to property will need to be granted.	[EN010157/APP/6.4] concludes that gravel bases will be used beneath the BESS, on-site substations and isolated infrastructure to store and spread runoff. Given the flat nature of the Order Limits, rain falling on the infrastructure area would not have a clearly defined flow path and therefore rain falling would slowly percolate into the ground, mimicking the existing conditions and avoiding impacts on third parties. Management of the surface water drainage will be secured through the Outline CEMP [EN010157/APP/7.2] and the Outline OEMP [EN010157/APP/7.3]. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] confirms the maintenance responsibility will lie with the operator. The proposed maintenance activities are outlined in Table 7-3 of the FRA and have been sourced from the CIRIA SuDS Manual. Maintenance of the proposed drainage infrastructure will be secured as part of the Outline CEMP [EN010157/APP/7.2], the Outline OEMP [EN010157/APP/7.3] and the Outline DEMP [EN010157/APP/7.4].
	5.8.39 Where relevant, the Secretary of State should be satisfied that the most appropriate body is being given the responsibility for maintaining any SuDS, taking into account the nature and security of the infrastructure on the proposed site. Responsible bodies could include, for example the landowner, the	The Applicant as operator of the Proposed Development would be responsible for maintaining drainage features, as identified in measures proposed within the Outline LEMP [EN010157/APP/7.5]. There are no formal SUDS drainage features proposed requiring maintenance by another appropriate body.

	relevant lead local flood authority or water and sewerage company (through the Ofwat approved Sewerage Sector Guidance), or another body, such as an Internal Drainage Board.	
	5.8.40 If the EA, NRW or another flood risk management authority continues to have concerns and objects to the grant of development consent on the grounds of flood risk, the Secretary of State can grant consent, but would need to be satisfied before deciding whether or not to do so that all reasonable steps have been taken by the applicant and the authority to try to resolve the concerns.	The Applicant considers that there is no flood risk related grounds that may trigger this clause and this has been confirmed through consultation with relevant flood risk management authorities as outlined within ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] .
	5.8.41 Energy projects should not normally be consented within Flood Zone 3b, or Zone C2 in Wales, or on land expected to fall within these zones within its predicted lifetime. This may also apply where land is subject to other sources of flooding (for example surface water). However, where essential energy infrastructure has to be located in such areas, for operational reasons, they should only be consented if the development will not result in a net loss of floodplain storage, and will not impede water flows.	The Order Limits include a small portion of Flood Zone 3b, which is located primarily along the eastern and western edges of Land Areas B and C and northwestern edges of Land Areas D and E. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] assesses flood risk to and from the Proposed Development from all sources of flooding. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] demonstrates how residual flood risk will be managed during the construction, operation and decommissioning of the Proposed Development. Section 8.14 of the Planning Statement [EN010157/APP/5.5] outlines how the requirements of the Sequential Test and Exceptions Test are satisfied.
	5.8.42 Exceptionally, where an increase in flood risk elsewhere cannot be avoided or wholly mitigated, the Secretary of State may grant consent if they are satisfied that the increase in present and future flood risk can be mitigated to an acceptable and safe level and taking account of the benefits of, including the	ES Volume 4, Appendix 5.6: Flood Risk: Assessment [EN010157/APP/6.4] confirms that the Proposed Development would not result in an increase in flood risk elsewhere.

	need for, nationally significant energy infrastructure as set out in Part 3 above. In any such case the Secretary of State should make clear how, in reaching their decision, they have weighed up the increased flood risk against the benefits of the project, taking account of the nature and degree of the risk, the future impacts on climate change, and advice provided by the EA or NRW and other relevant bodies.	The Proposed Development will provide wider sustainability benefits to the community as set out in section 3 and 9 of the Planning Statement [EN010157/APP/5.5]. These benefits would clearly outweigh the flood risk, particularly given that this risk would be mitigated through design and mitigation. As articulated in the Statement of Need at Appendix 3 of the Planning Statement [EN010157/APP/5.5], these are considered to be sustainability benefits to the wider community because significant renewable energy schemes at scale are required to be able to meet the legal binding commitment to Net Zero and make energy more affordable and reliable for all. The Proposed Development also delivers local community benefits including biodiversity net gain, environmental enhancements and improved connectivity across the Order Limits, as set out in section 3 of this Planning Statement [EN010157/APP/5.5].
Part 5.9 - Historic Environment <i>Applicant Assessment</i>	5.9.9 The applicant should undertake an assessment of any likely significant heritage impacts of the proposed development as part of the EIA, and describe these along with how the mitigation hierarchy has been applied in the ES (see Section 4.3). This should include consideration of heritage assets above, at, and below the surface of the ground. Consideration will also need to be given to the possible impacts, including cumulative, on the wider historic environment. The assessment should include reference to any historic landscape or seascape character assessment and associated studies as a means of assessing impacts relevant to the proposed project.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] provides an assessment of the Proposed Development on the historic environment, including above, at, and below ground assets. It concludes that there will be no significant adverse effects to any designated or non-designated heritage assets, including Listed Buildings or Scheduled Monuments, as a result of the Proposed Development. ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] concludes there would be no significant residual adverse effects to any designated or non-designated heritage assets as a result of the Proposed Development once embedded and additional mitigation

	5.9.10 As part of the ES the applicant should provide a description of the significance of the heritage assets affected by the proposed development, including any contribution made by their setting. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum, the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, Historic England or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.	measures are implemented. The significance of heritage assets within the study area (including the contribution made by setting) is set out in ES Volume 4, Appendix 9.1: Archaeological Desk-Based Assessment [EN010157/APP/6.4] and Appendix 9.4: Detailed Settings Impact Assessment [EN010157/APP/6.4]. ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] identifies, in Table 16-8, that no significant cumulative adverse effects on the historic environment during construction and decommissioning phases are anticipated. However, it is noted there is potential for inter-project cumulative effects to arise from interaction between the Proposed Development and the projects of: North Humber to High Marnham (EN020034 (NSIP)) and / or National Grid Creyke Beck Substation Extension. This is because both projects are currently in the early stages of design / conceptualization and thus cumulative effects are not able to be accurately quantified. Table 16-9 in ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] identifies the proposed Carr Farm Solar Farm as being situated close to receptor Scheduled Monument NHLE 1015305 Meaux Duck Decoy. However, existing screening means it is not anticipated that there would be a discernible change to the asset and its setting. No impacts on this receptor by Proposed Development are anticipated during the operation (including maintenance) phase. Therefore, no significant cumulative adverse effect is expected as a result of the Proposed Development and this development. No non-designated heritage assets within the vicinity of the development are anticipated to be at risk of significant adverse effects from the Proposed Development and therefore, even if this

		development affects non-designated heritage assets within its vicinity, no cumulative effects are anticipated. The Dogger Bank South Offshore Wind Farms project (EN010125 (NSIP)) grid connection route intersects with the Proposed Developments Order Limits. Table 16-9 in ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] concludes that no designated heritage assets within the vicinity of the development are anticipated to be at risk of adverse cumulative effects from the Proposed Development and therefore, even if this development affects designated heritage assets within its vicinity, no cumulative effects are anticipated to occur. Both the Proposed Development and the other existing and/or approved development will impact known non-designated heritage assets of low importance within Land Area B and may impact currently unknown heritage assets within Land Area B. Such effects will be reduced to non-significant levels by the measures detailed in the Archaeological Management Strategy [EN010157/APP/7.11]. Therefore, cumulative adverse effects are not anticipated to be significant. ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] identifies that there could be significant adverse effects on the historic environment that arise from Dogger Bank D (DBD) Offshore Wind Farm during the operation (including maintenance) phase, as only limited information on this project is currently available. However, it is considered unlikely that the construction of the Proposed Development in and around Land Area B and the construction of DBD Offshore Wind Farm and the Proposed Development would occur at the same time. Therefore, and as justified within ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2], no

		cumulative adverse effects on the historic environment are anticipated.
	5.9.11 Where a site on which development is proposed includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, accurate representative visualisations may be necessary to explain the impact.	An archaeological desk-based assessment has been prepared and is contained within ES Volume 4, Appendix 9.1: Archaeological Desk-Based Assessment [EN010157/APP/6.4]. An archaeological trial trenching evaluation has been undertaken for the Proposed Development and potential impacts to buried archaeological features confirmed as being present within the Order limits are included within ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. The trial trenching report is submitted within the DCO Application as ES Volume 4, Appendix 9.3: Archaeological Trial Trenching Report [EN010157/APP/6.4]. ES Volume 4, Appendix 9.1: Archaeological Desk-Based Assessment [EN010157/APP/6.4] also includes a stage 1 settings assessment, which utilises the ZTV data generated for the DCO Application. It discusses the contribution of setting to the significance of designated heritage assets within the study area and identifies those assets where the Proposed Development may cause changes to their setting that could lead to significant effects. ES Volume 4, Appendix 9.4: Detailed Settings Impact Assessment [EN010157/APP/6.4] presents a detailed assessment of possible significant effects to those assets whose settings are identified within the stage 1 settings assessment as being at risk of change. Those assets whose settings continue to be assessed as being at risk of change by the Proposed Development in ES Volume 4, Appendix 9.4: Detailed Settings Impact Assessment

		[EN010157/APP/6.4] are assessed in ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] .
	5.9.12 The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents. Studies will be required on those heritage assets affected by noise, vibration, light and indirect impacts, the extent and detail of these studies will be proportionate to the significance of the heritage asset affected.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] provides an assessment of the Proposed Development on the historic environment, including at and below ground assets. It concludes that there will be no significant adverse residual effects to designated or non-designated heritage assets, including Listed Buildings or Scheduled Monuments as a result of the Proposed Development once embedded and additional mitigation measures are implemented. The assessment is supported by studies in ES Volume 4 [EN010157/APP/6.4], including: • Appendix 9.1 Archaeological Desk-Based Assessment; • Appendix 9.2 Geophysical Survey Report; • Appendix 9.3 Archaeological Trial Trenching Report; and • Appendix 9.4 Detailed Settings Impact Assessment.
	5.9.13 The applicant is encouraged, where opportunities exist, to prepare proposals which can make a positive contribution to the historic environment, and to consider how their scheme takes account of the significance of heritage assets affected. This can include, where possible: • enhancing, through a range of measures such a sensitive design, the significance of heritage assets or setting affected	Opportunities for enhancement of heritage assets are outlined within ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. The Outline CEMP 5.6[EN010157/APP/7.2] sets out how information boards on the heritage of the local area will be installed in the vicinity of, and to allow public access to, Scheduled Monuments NHLE 1007843 (Site of Meaux Cistercian Abbey) and NHLE 1015305 (Meaux duck decoy, 420 m south west of Meaux Decoy Farm).

	- considering where required the development of archive capacity which could deliver significant public benefits - considering how visual or noise impacts can affect heritage assets, and whether there may be opportunities to enhance access to, or interpretation, understanding and appreciation of, the heritage assets affected by the scheme	
	5.9.14 Careful consideration in preparing the scheme will be required on whether the impacts on the historic environment will be direct or indirect, temporary, or permanent.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] assesses the likely impacts of the Proposed Development on cultural heritage, including direct and indirect, and temporary or permanent effects. There would be no significant adverse effects on designated or non-designated heritage assets.
	5.9.15 Applicants should look for opportunities for new development within Conservation Areas and World Heritage Sites, and within the setting of heritage assets, to enhance or better reveal their significance. Proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) should be treated favourably.	There are no World Heritage Sites or Conservation Areas affected by the Proposed Development, with effects to Conservation Areas scoped out of the assessment contained within ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] . This was agreed during engagement with the Conservation Team Leader for East Riding of Yorkshire Council & Hull City Council.
<i>Mitigation</i>	5.9.16 A documentary record of our past is not as valuable as retaining the heritage asset, and therefore the ability to record evidence of the asset should not be a factor in deciding whether such loss should be permitted, and whether or not consent should be given.	The Proposed Development has been designed sensitively taking into account known heritage assets, their status and settings. The Proposed Development and associated works have been sited to minimise adverse effects on the setting of heritage assets. This has resulted in the Applicant successfully removing significant adverse effects on designated heritage assets and reducing other adverse effects to the identified heritage assets or their settings. In

		doing so, the Applicant has prioritised the retention of heritage assets. As a first priority the Archaeological Management Strategy [EN010157/APP/7.11] seeks to keep assets in situ, followed by recording of the asset where needed.
	5.9.17 Where the loss of the whole or part of a heritage asset's significance is justified, the Secretary of State will require the applicant to record and advance understanding of the significance of the heritage asset before it is lost (wholly or in part). The extent of the requirement should be proportionate to the asset's importance and significance and the impact. The applicant should be required to publish this evidence and to deposit copies of the reports with the relevant Historic Environmental Record. They should also be required to deposit the archive generated in a local museum or other public repository willing to receive it.	The Archaeological Management Strategy [EN010157/APP/7.11] outlines a programme of archaeological investigation and/or mitigation prior to or during the construction activities which is anticipated to be required if the Proposed Development is granted. The document outlines processes, procedures, standards and guidance which should be followed and provides a high-level scope for further archaeological investigation and mitigation which is believed most likely to be required by the Development Management Archaeologist for East Riding of Yorkshire Council & Hull City Council on the basis of the results of the trial trenching carried out in support of this DCO Application (ES Volume 4, Appendix 9.3: Archaeological Trial Trenching Report [EN010157/APP/6.4]). A Written Scheme of Investigation is to be prepared by the appointed archaeological contractor which should be substantially in accordance with the Archaeological Management Strategy [EN010157/APP/7.11] and agreed with East Riding of Yorkshire Council prior to construction commencing. As a first priority the Archaeological Management Strategy [EN010157/APP/7.11] seeks to keep assets in situ, followed by recording of the asset where needed.
	5.9.18 Where appropriate, the Secretary of State will impose requirements on the Development Consent Order to ensure that the work is undertaken in a	A written scheme of archaeological investigation, which must substantially accord with the Archaeological

	timely manner, in accordance with a written scheme of investigation that complies with the policy in this NPS and which has been agreed in writing with the relevant local authority, and to ensure that the completion of the exercise is properly secured.	Management Strategy [EN010157/APP/7.11] , will be secured by the Draft DCO [EN010157/APP/3.1] .
	5.9.19 Where the loss of significance of any heritage asset has been justified by the applicant on the merits of the new development and the significance of the asset in question, the Secretary of State should consider: • imposing a requirement in the Development Consent Order • requiring the applicant to enter into an obligation	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] assesses the likely impacts of the Proposed Development on cultural heritage, including direct and indirect, and temporary or permanent effects. There would be no significant adverse effects on designated or non-designated heritage assets. A written scheme of archaeological investigation, which must substantially accord with the Archaeological Management Strategy [EN010157/APP/7.11], will be secured by the Draft DCO [EN010157/APP/3.1].
	5.9.20 That will prevent the loss occurring until the relevant part of the development has commenced, or it is reasonably certain that the relevant part of the development is to proceed.	
	5.9.21 Where there is a high probability (based on an adequate assessment) that a development site may include, as yet undiscovered heritage assets with archaeological interest, the Secretary of State will consider requirements to ensure appropriate procedures are in place for the identification and treatment of such assets discovered during construction.	Trial trenching has been carried out over the areas of likely greatest ground disturbance (on-site substations, hybrid packs, switchgears, BESS, construction compound areas and internal access tracks). There is therefore potential for currently unknown remains elsewhere within the Site. The strong correlation between the results of the trial trenching that has been carried out to date and the results of geophysical survey and archaeological desk-based assessment indicate that the archaeological potential of the Proposed Development is low. A programme of further archaeological investigation secured by a requirement within the Draft DCO

		[EN010157/APP/3.1] and set out in the written scheme of investigation which substantially accords with the Archaeological Management Strategy [EN010157/APP/7.11] would ensure that archaeological features not detected by the geophysical survey or trial trenching already undertaken are identified at detailed design stage and appropriate mitigation measures (such as non-intrusive foundations) are implemented to avoid significant adverse effects and to off-set likely pre-mitigation effects.
<i>Secretary of State decision making</i>	5.9.22 In determining applications, the Secretary of State should seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development, including by development affecting the setting of a heritage asset (including assets whose setting may be affected by the proposed development), taking account of: • relevant information provided with the application and, where applicable, relevant information submitted during the examination of the application • any designation records, including those on the National Heritage List for England, or included on Cof Cymru for Wales. • historic landscape character records • the relevant Historic Environment Record(s), and similar sources of information • representations made by interested parties during the examination process	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] sets out the criteria for assessing the importance of heritage assets. The importance of a heritage asset is the overall value assigned to it reflecting its statutory designation or, in the case of non-designated assets, the professional judgement of the assessor with reference to national and local guidance and the planning policy tests. Historic England guidance also refers to an asset’s “level of significance” which in this usage has the same meaning as importance. The significance of heritage assets within the study area are detailed in ES Volume 4, Appendix 9.1: Archaeological Desk-Based Assessment [EN010157/APP/6.4] and ES Volume 4, Detailed Settings Impact Assessment [EN010157/APP/6.4]. ES Volume 4, Appendix 9.1: Archaeological Desk-Based Assessment [EN010157/APP/6.4] has been informed by an up-to-date search of the Humber Historic Environment Record, the National List for England and relevant historic landscape characterisation data.

	expert advice, where appropriate, and when the need to understand the significance of the heritage asset demands it	
	5.9.23 The Secretary of State must also comply with the requirements on listed buildings, conservation areas and scheduled monuments, set out in Regulation 3 of the Infrastructure Planning (Decisions) Regulations 2010.	It has been demonstrated that a decision to grant a DCO for the Proposed Development would have regard to the matters prescribed by Regulation 3 and 7 of the Infrastructure Planning (Decisions) Regulations 2010 (as amended). The Proposed Development has regard to preserving heritage assets and their setting as set out in Section 8 of the Planning Statement [EN010157/APP/5.5] and ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2].
	5.9.25 The Secretary of State should consider the desirability of sustaining and, where appropriate, enhancing the significance of heritage assets, the contribution of their settings and the positive contribution that their conservation can make to sustainable communities, including to their quality of life, their economic vitality, and to the public's enjoyment of these assets.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] assesses the likely impacts of the Proposed Development on cultural heritage, including direct and indirect, and temporary or permanent effects. There would be no significant adverse effects on designated or non-designated heritage assets. ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] outlines the opportunities for enhancement in relation to cultural heritage including the following measure: The Outline CEMP [EN010157/APP/7.2] secures the installation of information boards on the heritage of the local area in the vicinity of and to allow public access to Scheduled Monuments NHLE 1007843 (Site of Meaux Cistercian Abbey) and NHLE 1015305 (Meaux duck decoy, 420 m south west of Meaux Decoy Farm).
	5.9.26 The Secretary of State should also consider the desirability of the new development making a positive contribution to the character and local distinctiveness of the historic environment. The consideration of design should include scale, height, massing, alignment, materials, use and landscaping (for example, screen planting).	

	5.9.27 When considering the impact of a proposed development on the significance of a designated heritage asset, the Secretary of State should give great weight to the asset's conservation. The more important the asset, the greater the weight should be. This is irrespective of whether any potential harm amounts to substantial harm, total loss, or less than substantial harm to its significance.	
	5.9.28 The Secretary of State should give considerable importance and weight to the desirability of preserving all heritage assets. Any harm or loss of significance of a designated heritage asset (from its alteration or destruction, or from development within its setting) should require clear and convincing justification.	The Proposed Development is not considered to result in any significant adverse effects on cultural heritage, as set out within ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. The design development has sensitively considered the key receptors throughout, and appropriate mitigation measures are embedded into the design. By implementing good design at the early stages of the design process, the Proposed Development has avoided and minimised conflict with designated and non-designated heritage assets. Through the implementation of mitigation measures, residual adverse effects are assessed as being not significant, which equates to less than substantial harm on all designated and non-designated heritage assets impacted by the Proposed Development.
	5.9.29 Substantial harm to or loss of significance of a grade II Listed Building or a grade II Registered Park or Garden should be exceptional.	In recognising that the Proposed Development will result in harm of a 'less than substantial' nature, the key policy test (as per paragraph 5.9.32 of EN-1) is that such harm is weighted against the public benefits. Given the clear and urgent need to deploy renewable energy at speed and scale, the Proposed Development demonstrably gives rise to substantial public benefits, which outweigh the less than substantial harm identified.
	5.9.30 Substantial harm to or loss of significance of assets of the highest significance, including Scheduled Monuments; Protected Wreck Sites; Registered Battlefields; grade I and II* Listed Buildings; grade I and II* Registered Parks and Gardens; and World Heritage Sites, should be wholly exceptional.	The Proposed Development design has been carefully considered to avoid, reduce, or mitigate potentially significant adverse effects on cultural heritage and archaeology assets as set out in ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. This has resulted in a Proposed Development that avoids direct physical impact on any designated heritage assets. Whilst there will be some residual impacts resulting from changes to the setting of some designated heritage assets, these have
	5.9.31 Where the proposed development will lead to substantial harm to (or total loss of significance of) a designated heritage asset the Secretary of State should refuse consent unless it can be demonstrated	

	that the substantial harm to, or loss of, significance is necessary to achieve substantial public benefits that outweigh that harm or loss, or all the following apply: • the nature of the heritage asset prevents all reasonable uses of the site • no viable use of the heritage asset itself can be found in the medium term through appropriate marketing that will enable its conservation • conservation by grant-funding or some form of not for profit, charitable or public ownership is demonstrably not possible • the harm or loss is outweighed by the benefit of bringing the site back into use	been assessed to result in 'less than substantial harm' as per the assessment in ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. Impacts upon the setting of heritage assets have been minimised by design modifications and selective species planting to reduce settings impacts. The significance of effect is considered to be no effect on the settings of Scheduled Monuments Site of Meaux Cistercian Abbey (NHLE 1007843), Meaux Duck Decoy, 420m South East of Meaux Decoy Farm (NHLE 1015305) and Medieval Moated Tile Kiln 250m North East of North Grange Farm (NHLE 1008039) and non-designated assets, and a minor adverse effect on the settings of Meaux Abbey Farm (Grade II Listed Building NHLE 1103426) and Wawne Grange (Grade II Listed Building NHLE 1346995). Both effects are
	5.9.32 Where the proposed development will lead to less than substantial harm to the significance of the designated heritage asset, this harm should be weighed against the public benefits of the proposal, including, where appropriate securing its optimum viable use.	considered to be not significant in ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. Residual adverse effects are not significant and the harm to significance is considered to be less than substantial. The Proposed Development would cause harm to designated heritage assets by introducing changes within their setting, which will affect how the asset is experienced and understanding of the archaeological assets below ground. However, the assessment within ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] confirms that the identified harm would be less than substantial harm.
	5.9.33 In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.	
	5.9.34 Not all elements of a Conservation Area or World Heritage Site will necessarily contribute to its significance. Loss of a building (or other element) which makes a positive contribution to the significance of the Conservation Area or World	There are no World Heritage Sites or Conservation Areas affected by the Proposed Development, with effects to Conservation Areas scoped out of the assessment contained within ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. This was agreed during

	Heritage Site should be treated either as substantial harm under paragraph 5.9.30 or less than substantial harm under paragraph 5.9.32, as appropriate, considering the relative significance of the element affected and its contribution to the significance of the Conservation Area or World Heritage Site as a whole.	engagement with the Conservation Team Leader for East Riding of Yorkshire Council & Hull City Council.
	5.9.35 Where there is evidence of deliberate neglect of, or damage to, a heritage asset, the Secretary of State should not take its deteriorated state into account in any decision.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] concludes there would be no significant adverse effects to designated or non-designated heritage assets as a result of the Proposed Development once embedded and additional mitigation measures are implemented.
	5.9.36 When considering applications for development affecting the setting of a designated heritage asset, the Secretary of State should give appropriate weight to the desirability of preserving the setting such assets and treat favourably applications that preserve those elements of the setting that make a positive contribution to, or better reveal the significance of, the asset. When considering applications that do not do this, the Secretary of State should give great weight to any negative effects, when weighing them against the wider benefits of the application. The greater the negative impact on the significance of the designated heritage asset, the greater the benefits that will be needed to justify approval.	
Part 5.10 - Landscape and Visual	5.10.5 Virtually all nationally significant energy infrastructure projects will have adverse effects on the landscape, but there may also be beneficial landscape character impacts arising from mitigation.	The landscape and visual effects of the Proposed Development are presented in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] . The Design Approach Document [EN010157/APP/5.7] provides a

Applicant Assessment	5.10.6 Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.	detailed account of the approach to design, taking into account the existing landscape context and any technical constraints relating to the construction and operation of the required infrastructure.
	5.10.7 National Parks, the Broads and AONBs have been confirmed by the government as having the highest status of protection in relation to landscape and natural beauty. Each of these designated areas has specific statutory purposes. Projects should be designed sensitively given the various siting, operational, and other relevant constraints. For development proposals located within designated landscapes the Secretary of State should be satisfied that measures which seek to further purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development.	ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] concludes that no part of the Site or its immediately surrounding context falls within a statutorily designated landscape. The nearest National Landscapes (previously known as Areas of Outstanding Natural Beauty) to the Site are the Lincolnshire Wolds and Howardian Hills National Landscapes, both of which are over 30 km from the Site.
	5.10.8 The duty to seek to further the purposes of nationally designated landscapes also applies when considering applications for projects outside the boundaries of these areas which may have impacts within them. In these locations, projects should be designed sensitively given the various siting, operational, and other relevant constraints. The Secretary of State should be satisfied that measures which seek to further the purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development.	

	5.10.11 Development within a Heritage Coast (that is not also a National Park, The Broads or an AONB) is unlikely to be appropriate, unless it is compatible with the natural beauty and special character of the area.	The Proposed Development is not located within, or near to, a Heritage Coast.
	5.10.12 Outside nationally designated areas, there are local landscapes that may be highly valued locally. Where a local development document in England or a local development plan in Wales has policies based on landscape or waterscape character assessment, these should be paid particular attention. However, locally valued landscapes should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.	Table 11-11 of ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] summarises the principal findings of the landscape sensitivity appraisal presented in ES Volume 4, Appendix 11.3: Landscape Sensitivity Appraisal [EN010157/APP/6.4], including assessment on local character areas. Landscape sensitivity, how the landscape might respond to different development scenarios, is considered to be low for each of the four LCAs that were scoped into the assessment.
	5.10.13 All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites.	The landscape and visual assessment, set out in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] identifies the relevant receptors to the Proposed Development and concludes that there are anticipated to be significant visual amenity effects on the following four residential property receptors:
	5.10.14 The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project.	• Carr House Farm • Woodhouse • Meaux Decoy Farm • Springdale Farm Likely significant adverse effects after the implementation of additional mitigation measures are anticipated during construction and at year 1 of operation of the Proposed Development for the above properties. At year 10 of operation, significant adverse effects are assessed as likely

		to remain at the residential properties of Carr House Farm, Woodhouse and Meaux Decoy Farm, but not Springdale Farm. It has been assessed that adverse effects on the residential property at Springdale Farm would reduce to being not significant at year 10 of operation. Adverse effects on visual amenity for the residential properties at Carr House Farm, Woodhouse, Meaux Decoy Farm and Springdale Farm during decommissioning are considered to be similar, or no greater than, those identified for the construction phase. Planting established during the operation (including maintenance) phase would have matured, resulting in potential increased screening. Therefore, any visual effects during decommissioning would be the same or less than those identified during construction.
<i>Applicant assessment</i>	5.10.16 The applicant should carry out a landscape and visual impact assessment and report it in the ES, including cumulative effects (see Section 4.3). Several guides have been produced to assist in addressing landscape issues.	A landscape and visual assessment is included within ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2]. The assessment takes into account relevant local policies and relevant guidance, as set out within section 11.2 of that chapter, including key guidance, Guidelines for Landscape and Visual Impact Assessment (GLVIA3), by the Landscape Institute and Institute of Environmental Management and Assessment. The Proposed Development is not located within, or near to, any seascapes, such that seascapes were not relevant to the landscape and visual assessment. The assessment considers impacts of the Proposed Development on character visual receptors, landscape
	5.10.17 The landscape and visual assessment should include reference to any landscape character assessment and associated studies as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England and local development plans in Wales.	

	5.10.18 For seascapes, applicants should consult the Seascape Character Assessment and the Marine Plan Seascape Character Assessments, and any successors to them.	fabric and designations during construction, operation and decommissioning. During operation (including maintenance) phase, the assessment concludes significant adverse effects are anticipated on the following landscapes:
	5.10.19 The applicant should consider landscape and visual matters in the early stages of siting and design, where site choices and design principles are being established. This will allow the applicant to demonstrate in the ES how negative effects have been minimised and opportunities for creating positive benefits or enhancement have been recognised and incorporated into the design, delivery and operation of the scheme.	Operation (including maintenance) (year 1): • Landscape Fabric • LCA 19D: Central Holderness Open Farmland There are not anticipated to be significant adverse landscape effects during the construction or decommissioning phases. The significant adverse effect on LCA 19D: Central Holderness Open Farmland and landscape fabric is because mitigatory planting would not have matured. Once matured, adverse landscape and visual effects are anticipated to be not significant, with significant major / moderate beneficial effects anticipated on landscape fabric.
	5.10.20 The assessment should include the effects on landscape components and character during construction and operation. For projects which may affect a National Park, The Broads or an AONBs the assessment should include effects on the natural beauty and special qualities of these areas’.	Visual effects are anticipated on the users of the following areas:
	5.10.21 The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on dark skies, local amenity, and nature conservation.	Construction: • PRoW Riston footpath no.2 (including Leven footpath no.5) • PRoW Riston footpath no.1 Operational (year 1): • PRoW Riston footpath no.2 (including Leven footpath no.5) • PRoW Riston footpath no.1 • Tickton bridleway no.5
	5.10.22 The assessment should also address the landscape and visual effects of noise and light pollution, and other emissions (see Section 5.2 and	

	Section 5.7), from construction and operational activities on residential amenity and on sensitive locations, receptors and views, how these will be minimised. 5.10.23 Applicants are expected to justify BAT for the use of a cooling system that involves visible steam plumes or has a high visible structure, such as a natural draught cooling tower explaining why the application of modern hybrid cooling technology or other technologies is not reasonably practicable. 5.10.24 Applicants should consider how landscapes can be enhanced using landscape management plans, as this will help to enhance environmental assets where they contribute to landscape and townscape quality. 5.10.25 In considering visual effects it may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on equally sensitive receptors. This may assist the Secretary of State in judging the weight they should give to the assessed visual impacts of the proposed development.	• Kidhill Lane • Meaux Lane/Meaux Road Operational (year 10): • PRoW Riston footpath no.2 (including Leven footpath no.5) • PRoW Riston footpath no.1 Decommissioning: • PRoW Riston footpath no.2 (including Leven footpath no.5) • PRoW Riston footpath no.1 Significant adverse effects are anticipated for users of both PRoW Riston footpath no.2 (including Leven footpath no.5) and PRoW Riston footpath no.1 throughout the 40-year duration of the Proposed Development. These adverse effects are unable to be practicably mitigated to the point they are not significant due to them both being directly adjacent to the Proposed Development, with views across parts of the Solar Farm. Significant adverse visual effects on users of Tickton bridleway no.5, Kidhill Lane and Meaux Lane/Meaux Road are anticipated to reduce to being not significant by year 10 of operation. This is due to the proposed mitigation measures such as screening the proposed development through additional planting of hedgerows. It is considered that the wider benefits of the Proposed Development, including the delivery of significant level of low carbon energy generation and biodiversity net gain and the provision of permissive footpaths and outweigh the aforementioned adverse significant landscape and visual effects. The Proposed Development is therefore considered

		acceptable in terms of overall landscape, visual and residential amenity impacts. Cumulative effects are considered within ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2]. Mitigation embedded into the Proposed Development design is outlined in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and the Outline LEMP [EN010157/APP/7.5]. The Site Selection Assessment at Appendix 2 to the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1], considered landscape and visual matters when setting the Order Limits and siting the proposed infrastructure for the Proposed Development. These matters were considered early in the design process which reduced adverse landscape and visual effects from the outset.
<i>Mitigation</i>	5.10.26 Reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design of a proposed energy infrastructure project may result in a significant operational constraint and reduction in function – for example, electricity generation output. There may, however, be exceptional circumstances, where mitigation could have a very significant benefit and warrant a small reduction in function. In these circumstances, the Secretary of State may decide that the benefits of the mitigation to reduce the landscape and/or visual effects outweigh the marginal loss of function.	Landscape and visual effects, and how these could best be avoided, has been a consideration throughout the life of the Proposed Development. As set out in the Site Selection Assessment, at Appendix 2 to the Planning Statement [EN010157/APP/5.5], potential visual and landscape effects were a key consideration in the initial selection of the Order Limits. ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] provides an account of the alternatives that have been studied by the Applicant, once the Site was chosen, in developing the siting and design of the Proposed Development. It sets out the main reasons for the Applicant's choices, including for the site layout and the scale of the Proposed Development, taking into account environmental, social and economic effects as well as

	5.10.27 Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure within its development site and wider setting. The careful consideration of colours and materials will support the delivery of a well-designed scheme, as will sympathetic landscaping and management of its immediate surroundings. 5.10.28 Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site. For example, filling in gaps in existing tree and hedge lines may mitigate the impact when viewed from a more distant vista.	technical and commercial feasibility. The Design Approach Document [EN010157/APP/5.7] additionally provides a detailed account of the approach to design, taking into account the existing landscape context and any technical constraints relating to the construction and operation of the required infrastructure.
<i>Secretary of State decision making</i>	5.10.29 The Secretary of State should take into consideration the level of detailed design which the applicant has provided and is secured in the Development Consent Order, and the extent to which design details are subject to future approvals. 5.10.30 The Secretary of State should be satisfied that local authorities will have sufficient design content secured to ensure future consenting will meet landscape, visual and good design objectives.	The Applicant wishes to retain flexibility regarding the design detail of certain components of the Proposed Development. The extent of flexibility required is described in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] and set out in the Design Approach Document [EN010157/APP/5.7] and Design Parameters Document [EN010157/APP/5.8]. The Proposed Development design has been developed in response to consultation responses and engagement with key stakeholders including the local planning authority. Good design outcomes will be secured in the detailed design of the Proposed Development, in accordance with the ES assessment, via Control Documents contained within the Draft DCO [EN010157/APP/3.1]. Adherence to the Control Documents will secure good design outcomes and require that the local planning authority approves the

		detailed design of the Proposed Development in accordance with this.
	5.10.32 When considering applications for development within National Parks, the Broads and AONBs the conservation and enhancement of the natural beauty should be given substantial weight by the Secretary of State in deciding on applications for development consent in these areas. The Secretary of State may grant development consent in these areas in exceptional circumstances. Such development should be demonstrated to be in the public interest and consideration of such applications should include an assessment of: • the need for the development, including in terms of national considerations, and the impact of consenting or not consenting it upon the local economy; • the cost of, and scope for, developing all or part of the development elsewhere outside the designated area or meeting the need for it in some other way, taking account of the policy on alternatives set out in Section 4.3; and • any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.	No part of the Proposed Development or its immediate surrounding context falls within a statutory designated landscape. The nearest National Landscape (formerly Area of Outstanding Natural Beauty) or National Park to the Site are the Lincolnshire Wolds and Howardian Hills National Landscapes, both of which are over 30 km from the Site. Both the Lincolnshire Wolds and Howardian Hills National Landscapes are scoped out of the assessment, as detailed within ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4] and confirmed within ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4].

	5.10.33 For development proposals located within designated landscapes the Secretary of State should be satisfied that measures which seek to further purposes of the designation are sufficient, appropriate and proportionate to the type and scale of the development. The Secretary of State should ensure that any projects consented in these designated areas should be carried out to high environmental standards, including through the application of appropriate requirements where necessary.	
	5.10.34 The duty to seek to further the purposes of nationally designated landscapes also applies when considering applications for projects outside the boundaries of these areas, which may have impacts within them. The aim should be to avoid harming the purposes of designation or to minimise adverse effects on designated landscapes, and such projects should be designed sensitively given the various siting, operational, and other relevant constraints. The fact that a proposed project will be visible from within a designated area should not in itself be a reason for the Secretary of State to refuse consent.	
	5.10.35 The scale of energy projects means that they will often be visible across a very wide area. The Secretary of State should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project.	ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] considers that due to the nature of the Proposed Development, solar PV infrastructure will be visible across the wider area. It is considered that the wider benefits of the Proposed Development, including the delivery of a significant level of low carbon energy generation and biodiversity net gain and the provision of permissive paths outweigh the identified adverse landscape

		and visual effects, with the Proposed Development assessed as being acceptable in terms of overall landscape, visual and residential amenity impacts.
	5.10.36 In reaching a judgement, the Secretary of State should consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse impact on the landscape will be capable of being reversed in a timescale that the Secretary of State considers reasonable.	Construction and decommissioning stage impacts will be limited in duration, and operational effects beginning at year 1 will reduce over time as mitigation planting establishes. During the construction, operation and decommissioning phases, effects on landscape character are assessed within ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] as being not significant, with the exception of landscape character effects during year 1 of operation on LCA 19D. There is likely to be a moderate adverse effect on existing landscape character, which is considered to result in significant adverse effects on the tract of LCA 19D: Central Holderness Open Farmland located on the arable landscape between the villages of Tickton, Leven, Long Riston, Skirlaugh, Wawne and Weel. The significant adverse effect on landscape character on the arable landscape between the villages of Tickton, Leven, Long Riston, Skirlaugh, Wawne and Weel on LCA 19D at year 1 of operation would arise principally from a localised change in landcover through the introduction of new solar PV development and ancillary infrastructure such as deer-proof fencing and CCTV into fields which are currently in agricultural land use. The principal mechanism for mitigating adverse effects from the change in landcover on LCA 19D, is through increasing the vegetative landcover, including through the planting of new hedgerows and gap filling existing hedgerows. As the vegetation matures, it will become more effective in reducing adverse landscape effects, such that by year 10 adverse effects on existing landscape character on LCA 19D are anticipated to be not

		significant. By year 10 of operation, due to mitigation planting having matured, there is anticipated to be a significant beneficial effect on landscape fabric. The reduction of effects over time and the reversibility of effects should be taken into consideration when reaching a judgement on the Application. All adverse operational effects will be reversed following decommissioning after 40 years of operation, as secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1], and all adverse landscape and visual effects identified during the construction and decommissioning phases are short term and temporary.
	5.10.37 The Secretary of State should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by appropriate mitigation.	The Proposed Development has been designed taking into account the environmental effects on the landscape, siting, operational and other relevant constraints, to minimise adverse effects on the landscape, including by appropriate mitigation. This is outlined in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and the Outline LEMP [EN010157/APP/7.5].
	5.10.38 The Secretary of State should consider whether requirements to the consent are needed requiring the incorporation of particular design details that are in keeping with the statutory and technical requirements for landscape and visual impacts.	The Design Parameters Document [EN010157/APP/5.8] and the Outline LEMP [EN010157/APP/7.5] will secure the design of the Proposed Development through the DCO, in line with statutory and technical requirements.

Part 5.11 Land Use, Including Open Space, Green Infrastructure, and Green Belt <i>Applicant Assessment</i>	5.11.8 The ES (see Section 4.3) should identify existing and proposed land uses near the project, any effects of replacing an existing development or use of the site with the proposed project or preventing a development or use on a neighbouring site from continuing. Applicants should also assess any effects of precluding a new development or use proposed in the development plan. The assessment should be proportionate to the scale of the preferred scheme and its likely impacts on such receptors. For developments on previously developed land, the applicant should ensure that they have considered the risk posed by land contamination and how it is proposed to address this.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] identifies the existing land uses within the Order Limits, confirming that majority of the land is currently under agricultural use. The surrounding land is also predominantly agricultural. The Proposed Development is not considered to impact the continued use of this land for agricultural purposes. The Planning Statement [EN010157/APP/5.5] identifies the Local Development Plan allocations and designations within and adjacent to the Order Limits. The Site has been selected and designed to avoid designated areas, as set out within the Site Selection Assessment , at Appendix 2 to the Planning Statement.
	5.11.9 Applicants will need to consult the local community on their proposals to build on existing open space, sports or recreational buildings and land. Taking account of the consultations, applicants should consider providing new or additional open space including green and blue infrastructure, sport or recreation facilities, to substitute for any losses as a result of their proposal. When considering proposals for green infrastructure, Applicant's should refer to the Green Infrastructure Framework.	The Proposed Development does not impact any open space, sports or recreational buildings or land. The Order Limits associated with the grid connection cable route includes part of Figham Common which is a LWS (Figham Pastures LWS). After construction of the grid connection cable route, the land will be able to be used in the same manner as prior to the Proposed Development. There will be no permanent disturbance to the surface soil, or removal of trees or bushes. There will be no loss of this land as a result of the Proposed Development and the same amount of open space will remain available for use as was available previously. The Consultation Report [EN010157/APP/5.1] and Consultation Report Appendices [EN010157/APP/5.2] set out details of the engagement that has been carried out with the Figham Pasturemen in relation to the above,
	5.11.10 Applicants should use any up-to-date local authority assessment or, if there is none, provide an independent assessment to show whether the existing open space, sports and recreational buildings and land is surplus to requirements.	

	5.11.11 During any pre-application discussions with the applicant the LPA should identify any concerns it has about the impacts of the application on land use, having regard to the development plan and relevant applications and including, where relevant, whether it agrees with any independent assessment that the land is surplus to requirements.	Relevant consultation with local authorities is summarised both within the Consultation Report [EN010157/APP/5.1], Consultation Report Appendices [EN010157/APP/5.2] and ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]. No concerns regarding land use were raised.
	5.11.12 Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5).	The potential use of Best and Most Versatile (BMV) agricultural land has been a key consideration in the development of the design, particularly in the initial site selection process, as discussed in ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] and in the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5]. As part of this process, large areas of Best and Most Valuable agricultural land were ruled out. Given the context of the quality of land locally and within the Order Limits it has not been practicable to remove all BMV. Within the Order Limits, a total of 249.9 ha of BMV land is proposed to temporarily accommodate solar PV arrays or associated infrastructure. This is land which will not be available as an agricultural resource, aside from use as grazing land for the duration of the Proposed Development. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] provides an assessment on the impacts on BMV. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] confirms that where not used for solar PV development, the use of non-BMV agricultural land has been prioritised for the areas of environmental mitigation and enhancement, where

		reasonably practicable, and is secured within the Outline LEMP [EN010157/APP/7.5]. Where reasonably practicable, existing hedgerows, woodland, ditches and field margins will be retained. Any breaks or crossings (associated new tracks, security fencing and/or cable routes) will be designed to use existing agricultural tracks between fields, where reasonably practicable, and the width of any breaches will be kept to a minimum, to reduce the impact on the soil quality and availability of agricultural land and the environment as far as reasonably practicable and is secured within the Outline LEMP [EN010157/APP/7.5]. As secured within the Outline DEMP [EN010157/APP/7.4] the majority of infrastructure associated with the Proposed Development would be removed at decommissioning stage where it is practicable to do so. Some infrastructure, such as underground cabling and on-site substations, would remain in-situ. If on-site substations are to be retained at the request of the DNO, this will be subject to further discussions and agreements/approvals as necessary.
	5.11.13 Applicants should also identify any effects and seek to minimise impacts on soil health and protect and improve soil quality taking into account any mitigation measures proposed.	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] identifies effects on soil health and outlines embedded mitigation measures to minimise impacts on soil health protect and improve soil quality. There is potential for some very high sensitivity BMV agricultural land (grades 1 and 2) to have significant residual effects. These adverse effects are resultant from the compaction and subsequent deterioration in the highly sensitive BMV agricultural land. An Outline SMP [EN010157/APP/7.8] has been submitted as part of the DCO Application, which sets out the measures to manage adverse impacts to the soil (and
	5.11.14 Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination.	

		agricultural land) during the construction, operation (including maintenance) and decommissioning phases, and will be secured pursuant to a requirement in the Draft DCO [EN010157/APP/3.1]. The Outline SMP [EN010157/APP/7.8] identifies those areas within the Site which may be more susceptible to damage, for example, the temporary access tracks, construction compounds and steep slopes. It will enable a SMP to be drafted and implemented, which will advise on soil quality management, for example when it is wet or after periods of heavy rainfall or high winds and it will advise on when soils are suitable again for being handled or trafficked. The Outline SMP [EN010157/APP/7.8] also details measures for soil management and follows the principles of best practice to maintain the physical properties of the soil, with the aim of restoring the land to its pre-construction condition following the temporary construction use and at the end of the lifetime of the Proposed Development.
	5.11.15 Developments should contribute to and enhance the natural and local environment by preventing new and existing developments from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability.	The effects of the Proposed Development on the natural and local environment considered in ES Volume 2: Chapters 6 to 15 [EN010157/APP/6.2]. Opportunities for environmental enhancement are further detailed in ES Volume 2: Chapters 6 to 15 [EN010157/APP/6.2] and will be secured by the Outline CEMP [EN010157/APP7.2], Outline OEMP [EN010157/APP/7.3], Outline DEMP [EN010157/APP/7.4] and Outline LEMP [EN010157/APP/7.5].
	5.11.16 Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans.	The ES Volume 4, Appendix 5.5 Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] demonstrates that there are a number of Proposed Development activities that could impact the

		local WFD receptors, however, that the mitigation proposed would minimise the chance for such impacts. Mitigation measures to manage water quality will be secured within the Outline CEMP [EN010157/APP/7.2] and the Outline DEMP [EN010157/APP/7.4] .
	5.11.17 Applicants should ensure that a site is suitable for its proposed use, taking account of ground conditions and any risks arising from land instability and contamination.	The DCO Application is supported by ES Volume 4, Appendix 10.1: Preliminary Risk Assessment [EN010157/APP/6.4], which was undertaken to identify any land contamination constraints to the Proposed Development and identify the need for any additional investigation or remediation works. The assessment concluded moderate to low risk in relation to: • Groundwater in principal aquifer/source protection zones being affected by contamination from potential contamination from agricultural land use, contamination in made ground, accidental release of fuel, oil or chemicals or contamination in historical landfill sites. Pathways could include leaching, percolation to the aquifer, lateral migration and run-off/drainage, migration pathways created via piling into bedrock. • Site users due to build up of ground gases generated by waste in historical landfill sites, potentially resulting in asphyxiation or explosion. • Site buildings or infrastructure due to build up of ground gases generated by historical landfill sites, potentially resulting in explosion. The outcome of this assessment informed further assessment work to be carried out for the Proposed Development to ensure that the Order Limits is suitable.

	5.11.18 For developments on previously developed land, applicants should ensure that they have considered the risk posed by land contamination, and where contamination is present, applicants should consider opportunities for remediation where possible. It is important to do this as early as possible as part of engagement with the relevant bodies before the official pre-application stage.	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] outlines that the Site has largely remained undeveloped throughout its entire history, except for: • Three historical landfill sites within the Order Limits, two of which accepted inert and industrial waste, with no records on the waste type accepted by the third site. • Made ground may be present in limited locations within mineral extraction sites, along tracks and close to farm buildings located within the Order Limits. ES Volume 4, Appendix 10.1: Preliminary Risk Assessment [EN010157/APP/6.4], has aided the design of the Proposed Development to avoid, or minimise, the risk of disturbing the above sites.
	5.11.19 Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place.	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] identifies that there are historical mineral extraction sites and Mineral Safeguarding Areas (MSAs) within the Order Limits and within 250 m of the Order Limits. A Minerals Safeguarding Assessment is provided as Appendix 4 to the Planning Statement [EN010157/APP/5.5]. The Proposed Development will be decommissioned after 40 years of operation, and impacts caused by the Proposed Development related to land use are considered reversible and temporary. Minerals within the Order Limits will largely not be permanently sterilised, and post-decommissioning, it is anticipated that the land could continue to have the potential to be worked for minerals.

Mitigation	5.11.23 Although in the case of most energy infrastructure there may be little that can be done to mitigate the direct effects of an energy project on the existing use of the proposed site (assuming that some of that use can still be retained post project construction) applicants should nevertheless seek to minimise these effects and the effects on existing or planned uses near the site by the application of good design principles, including the layout of the project and the protection of soils during construction.	The existing use of land within the Order Limits is mainly agricultural. Agricultural land quality was a key consideration in the Applicant's site selection process contained within the Site Selection Assessment at Appendix 2 of this Planning Statement. The Applicant has developed the design of the Proposed Development to prioritise the use of BMV agricultural land for arable production where practicable. This has been assessed through ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] establishes that where not used for Solar PV development, the use of non-BMV agricultural land has been prioritised for the areas of environmental mitigation and enhancement, where reasonably practicable. This is to reduce the impact upon and enhance the high-quality BMV agricultural land, where reasonably practicable, and ensure the retention and best use of available resources where availability allows and will be secured by the Outline LEMP [EN010157/APP/7.5]. The Proposed Development is to be a temporary activity with a requirement in Schedule 2 of the Draft DCO [EN010157/APP/3.1] securing a time limited consent for 40 years.
	5.11.24 Where green infrastructure is affected, the Secretary of State should consider imposing requirements to ensure the functionality and connectivity of the green infrastructure network is maintained in the vicinity of the development and that any necessary works are undertaken, where possible, to mitigate any adverse impact and, where appropriate, to improve that network and other areas of open space including appropriate access to	Impacts on green infrastructure alongside enhancements and mitigation are outline in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/7.5]. The maintenance of the mitigation and enhancement is considered in the Outline LEMP [EN010157/APP/7.5], including details on how frequently they are to be monitored and the actions that will be carried out to ensure successful growth, such as pruning, fertilizing, weeding, watering.

	National Trails and other public rights of way and new coastal access routes.	A number of existing PRoW traverse the Proposed Development and are presented in Table 3.2, ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] and the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]. The Outline Rights of Way and Access Management Plan [EN010157/APP/7.9] has been prepared in support of the DCO Application and sets out that all public rights of way would be kept open during construction as far as is practicable and safe. Where it would not be practicable and safe, there may be a requirement for some public rights of way to be temporarily managed for a short duration. Enhancements to existing PRoWs are considered in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] where additional mitigation planting is proposed to both reduce adverse landscape visual effects, but also enhance the visual amenity experienced by users of the PRoWs. ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] scopes out all PRoW within or adjacent the Order Limits which are not on public highway. All PRoW within the Order Limits are proposed to be managed through the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9] and Streets, Rights of Way and Access Plans [EN010157/APP/2.3]. On this basis, there are not anticipated to be significant adverse effects on PRoWs from a traffic and transport related perspective. The Proposed Development is also proposing several new permissive paths, approximately 12.6 km in length, within the Order Limits and as set out in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1].

	5.11.25 The Secretary of State should also consider whether any adverse effect on green infrastructure and other forms of open space is adequately mitigated or compensated by means of any planning obligations, for example exchange land and provide for appropriate management and maintenance agreements. Any exchange land should be at least as good in terms of size, usefulness, attractiveness and quality, and accessibility.	There are no anticipated adverse effects on green infrastructure as a result of the Proposed Development, with enhancements to green infrastructure proposed within ES Volume 2, Chapter 13: Population [EN010157/APP/6.2].
	5.11.26 Alternatively, where sections 131 and 132 of the Planning Act 2008 apply, replacement land provided under those sections will need to conform to the requirements of those sections.	The Applicant is seeking to acquire rights in Figham Common and. As such, section 132 applies. However, the Proposed Development is not proposing to provide replacement land as it is considered that the land, when burdened with the rights sought by the Applicant, will be no less advantageous than it was before to the persons in whom it is vested. This is considered further within the Statement of Reasons [EN010157/APP/4.1].
	5.11.27 Existing trees and woodlands should be retained wherever possible. In the EIP, the Government committed to increase the tree canopy and woodland cover to 16.5% of total land area of England by 2050. The applicant should assess the impacts on, and loss of, all trees and woodlands within the project boundary and develop mitigation measures to minimise adverse impacts and any risk of net deforestation as a result of the scheme. Mitigation may include, but is not limited to, the use of buffers to enhance resilience, improvements to connectivity, and improved woodland management. Where woodland loss is unavoidable, compensation schemes will be required, and the long-term	As stated in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] the Proposed Development will not result in the loss of ancient woodland or veteran trees. The impact of the Project on trees and woodland has been assessed in the ES Volume 4, Appendix 7.11: Arboricultural Impact Assessment [EN010157/APP/6.4], and measures are set out within the Outline CEMP [EN010157/APP/7.2] to protect veteran trees, ancient woodland and other vegetation to be retained.

	management and maintenance of newly planted trees should be secured	
	5.11.28 Where a proposed development has an impact upon a Mineral Safeguarding Area (MSA), the Secretary of State should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources.	The Planning Statement [EN010157/APP/5.5] identifies there are historical mineral extraction sites and Mineral Safeguarding Areas (MSAs) both within the Order Limits and within 250 m of the Order Limits. A Minerals Safeguarding Assessment is provided as Appendix 4 to the Planning Statement. This assessment sets out that there is the potential for only a very small percentage of minerals within the Order Limits to be permanently sterilised due to the possibility of the Project Substation West remaining in situ. The remainder of the Site, post-decommissioning, could then be worked for minerals.
	5.11.29 Where a project has a sterilising effect on land use (for example in some cases under transmission lines) there may be scope for this to be mitigated through, for example, using or incorporating the land for nature conservation or wildlife corridors or for parking and storage in employment areas.	
	5.11.30 Public Rights of way, National Trails, and other rights of access to land are important recreational facilities for example for walkers, cyclists and horse riders. The Secretary of State should expect applicants to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve or create new access. In considering revisions to an existing right of way, consideration should be given to the use, character, attractiveness, and convenience of the right of way.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] provides an assessment of the Proposed Development's impact on public rights of way within the Order Limits, or that will be impacted by the Proposed Development. The Outline Rights of Way and Access Management Plan [EN010157/APP/7.9] has been prepared in support of the DCO Application. It sets out the mitigation, management, and monitoring measures for PRoW affected by construction which may require temporary diversion/closure, or alternative routing where the former is not possible. ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] considers that additional mitigation planting that is proposed around public rights of way would reduce adverse landscape visual effects for users of

		PRoWs. The Applicant has proposed approximately 12.6 km of permissive paths in order to create an enhanced and better-connected network in the local area and this is secured within the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9] .
	5.11.31 The Secretary of State should consider whether the mitigation measures put forward by an applicant are acceptable and whether requirements or other provisions in respect of these measures should be included in any grant of development consent.	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] sets out the mitigation measures embedded in the Proposed Development, including that the Proposed Development seeks to protect the existing PRoW network and ensure the provision of multi-user routes. These PRoW relevant to the Proposed Development are outlined in detail in the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9] .
<i>Secretary of State Decision Making</i>	5.11.32 The Secretary of State should not grant consent for development on existing open space, sports and recreational buildings and land unless an assessment has been undertaken either by the local authority or independently, which has shown the open space or the buildings and land to be surplus to requirements or the Secretary of State determines that the benefits of the project (including need), outweigh the potential loss of such facilities, taking into account any positive proposals made by the applicant to provide new, improved or compensatory land or facilities.	The Proposed Development does not propose development on existing open space, sports and recreational buildings and land. Construction of the grid connection cable route will require temporary use of some land within Figham Common, however this will be short term, cause limited disruption to users due to the localised nature of the works and will not result in any above ground development that might affect public use of the land. The cable is proposed to be left in-situ during decommissioning, such that public use of Figham common will not be affected.
	5.11.33 The loss of playing fields should only be allowed where applicants can demonstrate that they will be replaced with facilities of equivalent or better quantity or quality in a suitable location.	The Proposed Development does not involve the loss of playing fields.

	5.11.34 The Secretary of State should ensure that applicants do not site their scheme on the best and most versatile agricultural land without justification. Where schemes are to be sited on best and most versatile agricultural land the Secretary of State should take into account the economic and other benefits of that land. Where development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.	Agricultural land quality was a key consideration in the Applicant's site selection process as set out in the Site Selection Assessment, at Appendix 2 to the Planning Statement [EN010157/APP/5.5]. Due to the nature and scale of the Proposed Development ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] has assessed that it is likely for BMV agricultural land (grades 1 and 2) to have significant residual effects. These adverse effects are resultant from the compaction and subsequent deterioration to the more sensitive soils, which are more susceptible to structural damage from the use of machinery and vehicular activity during the construction phase of the Proposed Development. For a development of this scale, it is considered impracticable to locate on land that is entirely outside of BMV agricultural land. The Site Selection Assessment contained within Appendix 2 to this Planning Statement has given appropriate consideration and weight to first attempt to reasonably avoid best and most versatile agricultural land. Where found to be unavoidable, the implementation of management plans, including the Outline SMP [EN010157/APP/7.8], Outline CEMP [EN010157/APP/7.2] and Outline DEMP [EN010157/APP/7.4] will effectively manage the significant adverse effects as far as reasonably practicable.
Part 5.12 - Noise and Vibration	5.12.1 Excessive noise can have wide-ranging impacts on the quality of human life and health such as annoyance, sleep disturbance, cardiovascular disease and mental ill-health. It can also have an impact on the environment and the use and	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] presents an assessment of likely significant noise and vibration effects arising from the

	enjoyment of areas of value such as quiet places and areas with high landscape quality.	construction, operation (including maintenance) and decommissioning of the Proposed Development.
	5.12.2 The Government's policy on noise is set out in the Noise Policy Statement for England. It promotes good health and good quality of life through effective noise management. Similar considerations apply to vibration, which can also cause damage to buildings. In this section, in line with current legislation, references to "noise" below apply equally to the assessment of impacts of vibration.	
	5.12.4 Noise resulting from a proposed development can also have adverse impacts on wildlife and biodiversity. Noise effects of the proposed development on ecological receptors should be assessed by the Secretary of State in accordance with the Biodiversity and Geological Conservation section of this NPS at Section 5.4. This should consider underwater noise and vibration especially for marine developments. Underwater noise can be a significant issue in the marine environment, particularly in regard to energy production.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] recognises that infrastructure projects, such as the Proposed Development, can lead to indirect effects on biodiversity through changes in noise, for example. The assessment concludes no significant effects identified through the construction, operation (including maintenance) and decommissioning of the Proposed Development.
	5.12.5 Factors that will determine the likely noise impact of a proposed development include: the inherent operational noise from the proposed development, and its characteristics	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] is supported by ES Volume 4, Appendix 12.4: Operational noise assessment details [EN010157/APP/6.4] which provides assessment of the predicted noise emissions generated by the operation of the

	- the proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas (including certain parks and open spaces) - the proximity of the proposed development to quiet places and other areas that are particularly valued for their soundscape or landscape quality - the proximity of the proposed development to sites where noise may have an adverse impact on protected species or other wildlife, including migratory species - the potential presence of unexploded ordnance on the seabed	Proposed Development at the surrounding noise sensitive receptors using computational noise modelling software. In relation to protected species and wildlife, ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] recognises that infrastructure projects, such as the Proposed Development, can lead to indirect effects on biodiversity through changes in noise, for example. The assessment concludes no significant effects identified through the construction, operation (including maintenance) and decommissioning of the Proposed Development.
<i>Applicant Assessment</i>	5.12.6 Where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment: - a description of the noise generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal characteristics, if the noise is impulsive, whether the noise contains particular high or low frequency content or any temporal characteristics of the noise - identification of noise sensitive receptors and noise sensitive areas that may be affected - the characteristics of the existing noise environment - a prediction of how the noise environment will change with the proposed development	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] provides an assessment which is in accordance with the requirements of the NPS and the scope agreed through the EIA scoping process. Noise generating aspects of the Proposed Development which were scoped into the noise assessment are contained within Table 12-2: Receptors/matters scoped into the assessment contained within ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]. A summary of the baseline conditions for the receptors scoped into the assessment is presented within Table 12-9: Baseline Noise Measurements Summary contained within ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]. The assessment includes a description of the expected noise generating activities, a consideration of the baseline

	○ in the shorter term, such as during the construction period ○ in the longer term, during the operating life of the infrastructure ○ at particular times of the day, evening and night (and weekends) as appropriate, and at different times of year • an assessment of the effect of predicted changes in the noise environment on any noise-sensitive receptors, including an assessment of any likely impact on health and quality of life / well-being where appropriate, particularly among those disadvantaged by other factors who are often disproportionately affected by noise-sensitive areas • if likely to cause disturbance, an assessment of the effect of underwater or subterranean noise • all reasonable steps taken to mitigate and minimise potential adverse effects on health and quality of life	and any noise sensitive receptors and an assessment of the likely significant noise and vibration effects arising from the construction, operation (including maintenance) and decommissioning phases of the Proposed Development. The assessment concludes that no construction, operation (including maintenance) and decommissioning effects of the Proposed Development upon the assessed receptors is anticipated to result in significant residual adverse effects (post-implementation of additional mitigation measure(s)).
	5.12.7 The nature and extent of the noise assessment should be proportionate to the likely noise impact.	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] is considered proportionate to the likely noise impacts associated with the Proposed Development’s construction, operation (including maintenance) and decommissioning.
	5.12.8 Applicants should consider the noise impact of ancillary activities associated with the	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] considers the noise impact of ancillary activities associated with the development, such as the

	development, such as increased road and rail traffic movements, or other forms of transportation.	impact of traffic flow fluctuations on the public highway during the construction and decommissioning phases. The assessment concludes, post-implementation of additional mitigation measures, no noise and/or vibrational impacts arising from the Proposed Development's construction, operation (including maintenance) and decommissioning are to result in residual significant adverse effects (post-implementation of additional mitigation measure(s)).
	5.12.9 Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance. Further information on assessment of particular noise sources may be contained in the technology specific NPSs. In particular, for renewables (EN-3) and electricity networks (EN-5) there is assessment guidance for specific features of those technologies. For the prediction, assessment and management of construction noise, reference should be made to any relevant British Standards and other guidance which also give examples of mitigation strategies.	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] assesses the operation (including maintenance) phase impacts relating to noise with regard for human receptors. The relevant British Standards and other guidance pieces have been captured within the assessment's legislative framework, planning policy and guidance section which serves to inform the assessment.
	5.12.10 Some noise impacts will be controlled through environmental permits and parallel tracking is encouraged where noise impacts determined by an environmental permit interface with planning issues (i.e. physical design and location of development). The applicant should consult the EA and/or the SNCB, and other relevant bodies, such as the MMO or NRW, as necessary, and in particular regarding assessment of noise on protected species or other wildlife. The results of any noise surveys and predictions may inform the ecological assessment. The seasonality of potentially affected	The Other Consents and Licenses [EN010157/APP/5.9] has been prepared to summarise the other consents, licences and agreements that are expected to be needed for the construction and operation (including maintenance) of the Proposed Development in addition to the powers sought within the Draft DCO [EN010157/APP/3.1] . It is not currently anticipated that additional consents and licenses would be required beyond those sought for the construction phase, for the decommissioning phase of the Proposed Development.

	species in nearby sites may also need to be considered.	
	5.12.11 In the marine environment, applicants should consider noise impacts on protected species, as well as other noise sensitive receptors, both at the individual project level and in-combination with other marine activities.	The Proposed Development does not affect the marine environment.
	5.12.12 Applicants should submit a detailed impact assessment and mitigation plan as part of any development plan, including the use of noise mitigation and noise abatement technologies during construction and operation.	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] provides a detailed noise and vibration impact assessment in relation to the Proposed Development's construction, operation (including maintenance) and decommissioning. To ensure that the significance of effects arising from the impacts of the Proposed Development upon receptors are made acceptable, a range of embedded and additional mitigation measures have been secured to ensure residual adverse effects are not significant within the Outline CEMP [EN010157/APP/7.2] , Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4] .
<i>Mitigation</i>	5.12.13 The Secretary of State should consider whether mitigation measures are needed both for operational and construction noise over and above any which may form part of the project application. In doing so the Secretary of State may wish to impose mitigation measures. Any such mitigation measures should take account of the NPPF or any successor to it and the Planning Practice Guidance on Noise.	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] provides an assessment of anticipated noise and vibration effects arising from the construction, operation (including maintenance) and decommissioning of the Proposed Development. Mitigation measures have been 'embedded' into the design of the Proposed Development to remove potential significant effects as far as practicable, for example by the considered placement of infrastructure. Where the assessment of effects post-implementation of embedded mitigation measures concludes that significant adverse effects are anticipated to arise, additional mitigation measures have
	5.12.14 Mitigation measures may include one or more of the following:	

	• engineering: reducing the noise generated at source and/or containing the noise generated • lay-out: where possible, optimising the distance between the source and noise-sensitive receptors and/or incorporating good design to minimise noise transmission through the use of screening by natural or purpose-built barriers, or other buildings • administrative: using planning conditions/obligations to restrict activities allowed on the site at certain times and/or specifying permissible noise limits/noise levels, differentiating as appropriate between different times of day, such as evenings and late at night, and taking into account seasonality of wildlife in nearby designated sites • insulation: mitigating the impact on areas likely to be affected by noise including through noise insulation when the impact is on a building.	been secured within the Outline CEMP [EN010157/APP/7.2], Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.2]. The assessment concludes that, post-securing additional mitigation measures, residual adverse effects are anticipated to be not significant. The embedded and additional mitigation measures secured as part of the DCO Application have taken account of the NPPF and the Planning Practice Guidance on Noise.
	5.12.15 The project should demonstrate good design through selection of the quietest or most acceptable cost-effective plant available; containment of noise within buildings wherever possible, taking into account any other adverse impacts that such containment might cause (e.g. on landscape and visual impacts; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission).	The Proposed Development has demonstrated good design through the inclusion of noise and vibration mitigation measures which sensitively consider the balance between mitigating for noise and vibration and giving rise to other adverse impacts. ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] details the mitigation measures embedded into the design. These measures span both the construction and operation (including maintenance) phases of the Proposed Development and include:

		• A minimum 250 m offset to substation equipment from residential dwellings or any environmental designated site; • A minimum 50 m offset to solar PV modules and other infrastructure from residential dwellings or any environmental designated site; • A minimum 250 m offset to construction compounds from residential dwellings or any environmental designated site; and • a minimum offset distance of 10 m from any existing woodland, trees (from the edge of the canopy) and hedgerows, where reasonably practicable. ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] sets out an assessment of how the Proposed Development's design, which includes embedded mitigation measures, will have an effect on landscape and visual impacts. The assessment sets out necessary additional mitigation measures. For example, an acoustic barrier 3 m in height and 3 m offset from each hybrid pack that falls within a 500 m radius of affected properties shown within ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2].
	5.12.16 A development must be undertaken in accordance with statutory requirements for noise. Due regard must be given to the relevant sections of the Noise Policy Statement for England, the NPPF, and the government's associated planning guidance on noise. In Wales the relevant policy will be PPW and the TANs, as well as the Welsh Government's Noise and Soundscape Action Plan	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] outlines the legislative framework, planning policy and guidance which informed assessment.

<i>Secretary of State decision making</i>	5.12.17 The Secretary of State should not grant development consent unless they are satisfied that the proposals will meet the following aims, through the effective management and control of noise: • avoid significant adverse impacts on health and quality of life from noise • mitigate and minimise other adverse impacts on health and quality of life from noise • where possible, contribute to improvements to health and quality of life through the effective management and control of noise.	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] assesses the likely impacts of the Proposed Development of noise and vibration, including temporary and permanent effects. The chapter concludes that there are no anticipated significant adverse effects associated with construction noise or construction traffic. Therefore, there are anticipated to be no significant adverse noise and vibration effects to human receptors.
	5.12.18 When preparing the Development Consent Order, the Secretary of State should consider including measurable requirements or specifying the mitigation measures to be put in place to ensure that noise levels do not exceed any limits specified in the development consent. These requirements or mitigation measures may apply to the construction, operation, and decommissioning of the energy infrastructure development.	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] concludes that, with both embedded and additional mitigation measures secured, the noise levels relating to construction phase activity on site and on the local road network would not exceed identified noise limits at any of the sensitive receptors considered as part of the assessment. Therefore, it is concluded that construction phase noise effects are not anticipated to result in significant residual adverse effects. Further, with embedded and additional mitigation measures secured, operation (including maintenance) and/or decommissioning phase adverse noise and vibration effects upon the assessed receptors are not anticipated to result in significant residual adverse effects. With the above in mind, the Applicant does not consider that there are any measurable requirements or ‘additionally specified mitigation measures’, other than what is already proposed, required to ensure the Proposed Development is made acceptable in relation to noise and vibration effects.

Part 5.13 - Socio-economic <i>Applicant Assessment</i>	5.13.2 Where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the ES (see Section 4.3).	An assessment of these impacts is undertaken in ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] .
	5.13.3 The applicant is strongly encouraged to engage with relevant local authorities during early stages of project development so that the applicant can gain a better understanding of local or regional issues and opportunities.	The Applicant has engaged with East Riding of Yorkshire Council throughout the pre-application stage. Details on the feedback received from statutory consultation and the response to each matter raised and how this has been addressed in detail are contained within the Consultation Report appendices [EN010157/APP/5.2].
	5.13.4 The applicant's assessment should consider all relevant socio-economic impacts, which may include: - the creation of jobs and training opportunities. Applicants may wish to provide information on the sustainability of the jobs created, including where they will help to develop the skills needed for the UK's transition to Net Zero - the contribution to the development of low-carbon industries at the local and regional level as well as nationally - the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities - any indirect beneficial impacts for the region hosting the infrastructure, in particular in	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] provides an assessment of all potential socio-economic impacts of the Proposed Development, in accordance with this paragraph. The Proposed Development will provide construction job opportunities over the anticipated 24 month construction programme. The (gross) peak number of approximately 350 workers refers to the number of workers that may be on site at any one time. The average is 250 workers over the anticipated 24 month construction period. The jobs created will be in the renewable energy sector and will contribute to the development of skills needed for the UK's transition. The Proposed Development would seek to promote local employment and supply chain activities where reasonably practicable, promoting more local and targeted opportunities for employment. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] details the ambition to work with partners and the local and regional construction supply chain to enhance the proportion of activities that can be

	relation to use of local support services and supply chains • effects (positive and negative) on tourism and other users of the area impacted • the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development • cumulative effects - if development consent were to be granted for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region	accessed by local people (both in employment, unemployed and economically inactive or outside of the current labour market) and firms with relevant experience and competencies. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] assesses the impact of the Proposed Development on occupancy rates as a result of an influx of workforce staff to the area. The assessment considers potential impacts to the provision of local accommodation services and how this may influence the wider tourist economy. The assessment concludes that during the construction phase, approximately 5% of construction staff will stay away from home and require temporary accommodation. The assessment is two fold and assesses potential impacts to accommodation providers as well as to tourists. The assessment concludes slight beneficial effects for accommodation providers due to the increased uptake in their facilities during the construction phase and slight adverse impacts on tourists due to a lower provision of temporary accommodation providers. No significant adverse residential effects are anticipated for either receptor. ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] has assessed cumulative population effects in regard to nearby development proposals to the Proposed Development. The assessment concludes there are not anticipated to be significant adverse population effects during the construction, operation (including maintenance) and decommissioning phases.
5.13.5 Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how		ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] provides a description of the existing

	the development's socio-economic impacts correlate with local planning policies.	socio-economic baseline conditions of the Study Area and considers local planning policies.
	5.13.6 Socio-economic impacts may be linked to other impacts, for example visual impacts considered in Section 5.10 but may also have an impact on tourism and local businesses. Applicants are encouraged, where possible, to demonstrate that local suppliers have been considered in any supply chain.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] identifies where socio-economic impacts are linked to other impacts. Consideration is given in the assessment to opportunities for local supply chains during construction. Where reasonably practicable, there will be a preference for local staffing, and it is likely that the appointed contractors will employ trainees and apprentices as part of the construction workforce.
	5.13.7 Applicants should consider developing accommodation strategies where appropriate, especially during construction and decommissioning phases, that would include the need to provide temporary accommodation for construction workers if required.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] assesses the Proposed Development's impact on occupancy rates as a result of increased visitor numbers to the area. An accommodation strategy is not proposed for the Proposed Development as there is considered to be sufficient local supply to facilitate all construction workers.
<i>Mitigation</i>	5.13.8 The Secretary of State should consider whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development. For example, high quality design can improve the visual and environmental experience for visitors and the local community alike.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] concludes that no significant adverse effects in relation to socio-economics are anticipated, following the implementation of embedded mitigation measures as a part of the Proposed Development. These embedded mitigation measures are detailed further and will be secured through the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9] and Design Parameters Document [EN010157/APP/5.8].
	5.13.9 The Secretary of State should have regard to the potential socio-economic impacts of new energy infrastructure identified by the applicant and from	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] provides an assessment of potential socio-economic impacts of the Proposed Development, in

<i>Secretary of State decision making</i>	any other sources that the Secretary of State considers to be both relevant and important to its decision.	accordance with this policy. This assessment considers the likely effects arising from the construction and operation (including maintenance) of the Proposed Development upon population. The likely level of effect during decommissioning is expected to be similar to, or less than, that experienced during construction. Therefore, the significance of effect during construction is expected to represent the level of effect during decommissioning.
	5.13.10 The Secretary of State may conclude that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence (particularly in view of the need for energy infrastructure as set out in this NPS).	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] concludes that no significant adverse effects in relation to socio-economics are anticipated, following the implementation of embedded and additional mitigation measures as a part of the Proposed Development.
	5.13.11 The Secretary of State should consider any relevant positive provisions the applicant has made or is proposing to make to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise as well as any options for phasing development in relation to the socio-economic impacts.	The Proposed Development provides the following, economic, social and community benefits: • The delivery of a substantial Critical National Priority (CNP) infrastructure that will deliver large amounts of cheap, secure and low-carbon electricity both during and beyond the critical 2020s timeframe. • The enhancement of existing PRow through planting out of existing hedgerows as well as planting new vegetation elsewhere as part of new hedgerows or woodland areas. • The (gross) peak number of approximately 350 workers may be on site at any one time, or an average of 250 during the construction period. The jobs created will primarily be in the renewable energy sector and will contribute to the development of skills needed for the UK's transition.
	5.13.12 The Secretary of State may wish to include a requirement that specifies the approval by the local authority of an employment and skills plan detailing arrangements to promote local employment and skills development opportunities, including apprenticeships, education, engagement with local schools and colleges and training programmes to be enacted.	

Part 5.14 - Traffic and Transport <i>Applicant Assessment</i>	5.14.5 If a project is likely to have significant transport implications, the applicant's ES (see Section 4.3) should include a transport appraisal. The DfT's Transport Analysis Guidance (TAG) and Welsh Governments WeITAG provides guidance on modelling and assessing the impacts of transport schemes.	ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] has been prepared in accordance with the appropriate guidance including the Department for Transport's guidance on Travel Plans, Transport Assessments and Statements in Decision Taking (2014). The Applicant has consulted with the relevant Highways Authorities regarding the assessments. All relevant Highways Authorities were content with the approach to the assessment, with some engagement continuing throughout the various transport design and assessment phases. Comments from these stakeholders are included in Table 14-1 of ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]. The ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] concludes that there are no significant transport effects of the Proposed Development and therefore a transport appraisal, in line with TAG, is not required.
	5.14.6 National Highways and Highways Authorities are statutory consultees on NSIP applications including energy infrastructure where it is expected to affect the strategic road network and / or have an impact on the local road network. Applicants should consult with National Highways and Highways Authorities as appropriate on the assessment and mitigation to inform the application to be submitted.	The general approach to ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] has been agreed through consultation with the relevant Highways Authorities.

	5.14.7 The applicant should prepare a travel plan including demand management and monitoring measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by active, public and shared transport to: • reduce the need for parking associated with the proposal; • contribute to decarbonisation of the transport network; • improve user travel options by offering genuine modal choice.	Appendix 1: Outline Travel Plan appended to the Outline CTMP [EN010157/APP/7.7] has been prepared to mitigate transport impacts and reduce the volume of construction staff and employee trips to the Proposed Development, requiring the Principal Contractor to: • Prepare and distribute staff travel information in advance of construction commencing promoting alternative modes of transport and distributing instructions relating to staff car sharing; • Provide suitable cycle parking spaces and associated facilities during mobilisation of main construction compounds, as demand necessitates; and • Undertake monthly reviews of the car and cycle parking demands to ensure that sufficient capacity is available within main construction compounds.
	5.14.8 The assessment should also consider any possible disruption to services and infrastructure (such as road, rail and airports).	
	5.14.9 If additional transport infrastructure is needed or proposed, it should always include good quality walking, wheeling and cycle routes, and associated facilities (changing/storage etc.) needed to enhance active transport provision.	
<i>Mitigation</i>	5.14.11 Where mitigation is needed, possible demand management measures must be considered. This could include identifying opportunities to: • reduce the need to travel by consolidating trips; • locate development in areas already accessible by active travel and public transport;	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] concludes that due to mitigation measures proposed for construction, the Proposed Development will not result in residual adverse effects upon highway safety or generate any highway capacity issues. Demand management measures, during the construction phase, are included within the Appendix A - Outline Travel

	• provide opportunities for shared mobility; • re-mode by shifting travel to a sustainable mode that is more beneficial to the network; • retime travel outside of the known peak times; • reroute to use parts of the network that are less busy.	Plan appended to ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] and include: • Minibus transport • Car or van sharing • Cycle parking facilities • Dedicated car parking areas • Soft management measures such as through encouraging the use of public transport and the distribution of travel information to staff. The full suite of proposed mitigation measures are set out within the Outline CTMP [EN010157/APP/7.7]. The Outline CTMP will be developed into a CTMP prior to the commencement of the Proposed Development and this is to be secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1].
	5.14.12 If feasible and operationally reasonable, such mitigation should be required, before considering requirements for the provision of new inland transport infrastructure to deal with remaining transport impacts. All stages of the project should support and encourage a modal shift of freight from road to more environmentally sustainable alternatives, such as rail, cargo bike, maritime and inland waterways, as well as making appropriate provision for and infrastructure needed to support the use of alternative fuels including charging for electric vehicles.	
	5.14.13 Regard should always be given to the needs of freight at all stages in the construction and operation of the development including the need to provide appropriate facilities for HGV drivers as appropriate.	
	5.14.14 The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that: • control numbers of HGV movements to and from the site in a specified period during its	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.4] confirms that due to measures proposed for construction, the Proposed Development will not result in residual adverse effects upon highway safety or generate any highway capacity issues. All construction traffic will utilise the existing local highway network, with HGVs limited to specific designated routes as discussed further within the Outline CTMP [EN010157/APP/7.7]. Measures to enforce adherence to these routes is set out in the same document. The Contractor will prepare and implement the CTMP which will describe the traffic management, safety and control

	construction and possibly on the routing of such movements; • make sufficient provision for HGV parking, and associated high quality drive facilities either on the site or at dedicated facilities elsewhere, to support driver welfare, avoid ‘overspill’ parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; • ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force.	measures proposed during construction of the Proposed Development. The CTMP will include details of the parking arrangements. The Outline CTMP will be developed into a CTMP prior to the commencement of the Proposed Development and this is to be secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1].
	5.14.15 The Secretary of State should have regard to the cost-effectiveness of demand management measures compared to new transport infrastructure, as well as the aim to secure more sustainable patterns of transport development when considering mitigation measures.	ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] considers the suitability of the access arrangements during the construction and operational phases of the development, outlining the expected traffic movements from the proposed development and measures that will be put in place to manage any potential transport impacts. New transport infrastructure is not required as part of the Proposed Development and water-based delivery of abnormal indivisible loads is not considered appropriate given the low number of AILs required and the local context.
	5.14.16 Applicants should consider the DfT policy guidance “Water Preferred Policy Guidelines for the movement of abnormal indivisible loads” when preparing their application.	
	5.14.17 If an applicant suggests that the costs of meeting any obligations or requirements would make the proposal economically unviable this should not in itself justify the relaxation by the Secretary of State of any obligations or requirements needed to secure the mitigation.	

		secured pursuant to a requirement in the Draft DCO [EN010157/APP/3.1] so no separate planning obligation is required.
<i>Secretary of State decision making</i>	5.14.18 A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the Secretary of State should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development and by enhancing active, public and shared transport provision and accessibility.	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.4] confirms that due to measures proposed for construction, the Proposed Development will not result in residual adverse effects upon either highway safety or generate any highway capacity issues. Measures to mitigate or avoid effects are set out in the Outline CEMP [EN010157/APP/7.7] and are secured pursuant to the Draft DCO [EN010157/APP/3.1] .
	5.14.19 Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the Secretary of State should consider requirements to mitigate adverse impacts on transport networks arising from the development, as set out below.	ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] states that should construction and decommissioning phases occur for nearby developments occur at the same time as the Proposed Development, then there is potential for adverse traffic and transport effects, however these are anticipated to be not significant and no additional mitigation measures are required in response.
	5.14.20 Development consent should not be withheld provided that the applicant is willing to enter into planning obligations for funding new infrastructure or requirements can be imposed to mitigate transport impacts. In this situation the Secretary of State should apply appropriately limited weight to residual effects on the surrounding transport infrastructure.	Similarly, during the operation (including maintenance) phase, adverse traffic and transport effects are anticipated to be not significant.
	5.14.21 The Secretary of State should only consider refusing development on highways grounds if there would be an unacceptable impact on highway safety, residual cumulative impacts on the road network would be severe, or it does not show how	

	consideration has been given to the provision of adequate active public or shared transport access and provision.	
Part 5.15 – Resource and Waste Management	5.15.2 Sustainable waste management is implemented through the waste hierarchy, which sets out the priorities that must be applied when managing waste. These are (in order): • prevention • preparing for reuse • recycling • other recovery, including energy recovery • disposal	The Outline Site Waste Management Plan (SWMP) [EN010157/APP/7.10] sets out how waste will be managed in accordance with the waste hierarchy efficiently and effectively, with opportunities to reduce, reuse and recycle waste materials considered and optimised wherever possible, and to promote best practice and environmental awareness. At the end of the operational phase, any above-ground infrastructure that is not remaining in-situ will be dismantled and removed per industry best practices. The decommissioned materials will follow the waste hierarchy such that they will be reused where possible before recycling and disposal are considered, as secured through the Outline DEMP [EN010157/APP/7.4].
	5.15.3 Disposal of waste should only be considered where other waste management options are not available or where it is the best overall environmental outcome.	
	5.15.4 All large infrastructure projects are likely to generate some hazardous and nonhazardous waste. The EA's Environmental Permit regime incorporates operational waste management requirements for certain activities. When an applicant applies to the EA for an Environmental Permit, the EA will require the application to demonstrate that processes are in place to meet all relevant Environmental Permit requirements.	Other Consents and Licenses [EN010157/APP/5.9] sets out information on additional consents and licenses that are or may be needed to construct and operate the Proposed Development.
Applicant Assessment	5.15.6 Applicants must demonstrate that development proposals are in line with Defra's policy position on the role of energy from waste in treating residual waste.	The Proposed Development has been designed and will be constructed and operated to minimise the creation of waste, maximise the use of recycled materials and assist the

	5.15.7 The proposed plant must not compete with greater waste prevention, re-use, or recycling, or result in over-capacity of EfW or similar processes for the treatment of residual waste at a national or local level. 5.15.8 The applicant should set out the arrangements that are proposed for managing any waste produced and prepare a report that sets out the sustainable management of waste and use of resources throughout any relevant demolition, excavation, and construction activities. 5.15.9 The arrangements described and a report setting out the sustainable management of waste and use of resources should include information on how re-use and recycling will be maximised in addition to the proposed waste recovery and disposal system for all waste generated by the development. They should also include an assessment of the impact of the waste arising from development on the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation. 5.15.10 The applicant is encouraged to refer to the Waste Prevention Programme for England: Maximising Resources Minimising Waste and 'Towards Zero Waste: Our Waste Strategy for Wales' and should seek to minimise the volume of waste produced and the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental outcome.	collection, separation, sorting, recycling and recovery of waste arising from the development during its use. The Outline SWMP [EN010157/APP/7.10] sets out the arrangements that are proposed for managing any waste produced by the Proposed Development, in accordance with the waste hierarchy, which are set out in the Outline CEMP [EN010157/APP/7.2], Outline DEMP [EN010157/APP/7.4] and Outline LEMP [EN010157/APP/7.5]. During decommissioning, the Proposed Development will be subject to measures and procedures defined within a DEMP as secured through the Draft DCO [EN010157/APP/3.1]. An Outline DEMP [EN010157/APP/7.4] is submitted with the DCO Application.

	5.15.11 If the applicant's assessment includes dredged material, the assessment should also include other uses of such material before disposal to sea, for example through re-use in the construction process. 5.15.12 The UK is committed to moving towards a more 'circular economy'. Where possible, applicants are encouraged to source materials from recycled or reused sources and use low carbon materials, sustainable sources and local suppliers. Construction best practices should be used to ensure that material is reused or recycled onsite where possible. 5.15.13 Applicants are also encouraged to use construction best practices in relation to storing materials in an adequate and protected place on site to prevent waste, for example, from damage or vandalism. The use of Building Information Management tools (or similar) to record the materials used in construction can help to reduce waste in future decommissioning of facilities, by identifying materials that can be recycled or reused.	
<i>Secretary of State decision making</i>	5.15.14 The Secretary of State should consider the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development.	The Proposed Development has been designed and will be constructed and operated to minimise the creation of waste, maximise the use of recycled materials and assist the collection, separation, sorting, recycling and recovery of waste arising from the development during its use.

	5.15.15 The Secretary of State should be satisfied that: • any such waste will be properly managed, both on-site and off-site. • the waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available. Such waste arisings should not have an adverse effect on the capacity of existing waste management facilities to deal with other waste arisings in the area. • adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent for recovery or disposal, except where that is the best overall environmental outcome.	The Outline SWMP [EN010157/APP/7.10] sets out the arrangements that are proposed for managing any waste produced by the Proposed Development, in accordance with the waste hierarchy, as set out in the Outline CEMP [EN010157/APP/7.2], Outline DEMP [EN010157/APP/7.4] and Outline LEMP [EN010157/APP/7.5]. Before the operation phase starts, the contractor will prepare a SWMP which will provide waste estimates and specify key responsibilities, reporting and auditing requirements and waste recovery targets. The SWMP will use, as a starting point, the measures detailed within the Outline SWMP [EN010157/APP/7.10] which will be updated to reflect the circumstances prevailing during the period in which operational and maintenance activities are to be carried out. Other Consents and Licenses [EN010157/APP/5.9] sets out information on additional consents and licenses that are or may be needed to construct and operated the Proposed Development.
	5.15.16 Where necessary, the Secretary of State should use requirements or obligations to ensure that appropriate measures for waste management are applied.	
	5.15.17 The Secretary of State may wish to include a condition on revision of waste management plans at reasonable intervals when giving consent.	
	5.15.18 Where the project will be subject to the Environmental Permitting regime, waste management arrangements during operations will be covered by the permit and the considerations set out in Section 4.12 will apply.	

	5.15.19 The Secretary of State should have regard to any potential impacts on the achievement of resource efficiency and waste reduction targets set under the Environment Act 2021 or wider goals set out in the government's Environmental Improvement Plan 2023.	
Part 5.16 - Water Quality and Resources <i>Applicant assessment</i>	5.16.3 Where the project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the proposed project on, water quality, water resources and physical characteristics of the water environment, and how this might change due to the impact of climate change on rainfall patterns and consequently water availability across the water environment, as part of the ES or equivalent (see Section 4.3 and 4.10).	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] presents an assessment of the likely significant effects on the water environment including surface water features such as rivers, streams, ditches, lakes taking into account impacts from climate change. The data used to inform this assessment is taken from the Humber River Basin Management Plan. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] presents an assessment against the potential impacts of the Proposed Development on groundwater assets.
	5.16.5 Where possible, applicants are encouraged to manage surface water during construction by treating surface water runoff from exposed topsoil prior to discharging and to limit the discharge of suspended solids e.g. from car parks or other areas of hard standing, during operation.	The implementation of embedded mitigation measures and best practice control measures to manage surface water during the construction of the Proposed Development will be secured via a CEMP which is to be in accordance with the Outline CEMP [EN010157/APP/7.2] . ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] provides a drainage strategy for the Proposed Development. which sets out hydrological impact of the proposal, SuDS hierarchy, infrastructure drainage strategy and operation and construction management. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] concludes that the cessation of intensive agriculture across the Order Limits will allow establishment of natural grassland and a commensurate
	5.16.6 Applicants are encouraged to consider protective measures to control the risk of pollution to groundwater beyond those outlined in River Basin Management Plans and Groundwater Protection Zones – this could include, for example, the use of protective barriers.	

		improvement in soil structure. This will reduce runoff rates and volumes, soil erosion and pollution. ES Volume 4, Appendix 10.1: Preliminary Risk Assessment [EN010157/APP/6.4] states that there is no greater than moderate to low risk in relation to groundwater in principal aquifer/source protection zones being affected by contamination from potential contamination from agricultural land use, contamination in made ground, accidental release of fuel, oil or chemicals or contamination in historical landfill sites.
	5.16.7 The ES should in particular describe: - the existing quality of waters affected by the proposed project and the impacts of the proposed project on water quality, noting any relevant existing discharges, proposed new discharges and proposed changes to discharges - existing water resources affected by the proposed project and the impacts of the proposed project on water resources, noting any relevant existing abstraction rates, proposed new abstraction rates and proposed changes to - abstraction rates (including any impact on or use of mains supplies and reference to Abstraction Licensing Strategies) and also demonstrate how proposals minimise the use of water resources and water consumption in the first instance - existing physical characteristics of the water environment (including quantity and	As set out in ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1], the topic of water quality has been scoped out of the EIA as a stand-alone chapter. The Applicant has undertaken extensive consultation with the Environment Agency, which is detailed within ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] and ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. This engagement has resulted in the Environment Agency agreeing that water can be scoped out of the assessment on the basis that a Flood Risk Assessment and Water Framework Assessment are submitted with the DCO Application. The Environment Agency confirmed that in relation to the Proposed Development, any concerns they may have are in relation to potential impacts on groundwater. An assessment of effects on groundwater is presented in ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]. ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1] confirms that measures to control potential impacts to water quality during construction, operation (including maintenance) and decommissioning

	dynamics of flow) affected by the proposed project and any impact of physical modifications to these characteristics - any impacts of the proposed project on water bodies or protected areas (including shellfish protected areas) under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 and source protection zones (SPZs) around potable groundwater abstractions - how climate change could impact any of the above in the future - any cumulative effects	are detailed in and secured by the Outline CEMP [EN010157/APP/7.2], Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4], respectively. Potential impacts on water quality, water resources, and the Water Framework Directive (WFD) are considered in the ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. Furthermore, a specific Water Framework Directive Screening and Scoping report is presented in ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]. This focusses on assessing the likely impacts arising from the Proposed Development on Water Framework Directive receptors like morphology, fish and water quality. The depth of flooding and reasonable assumptions for the impacts of climate change on flood depths have been assessed as part of ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] using the data available on flooding. ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] considers the cumulative effects of the Proposed Development on water. The chapter concludes that no significant adverse cumulative effects on flood risk during the construction, operation (including maintenance) and decommissioning phases are anticipated.
<i>Mitigation</i>	5.16.8 The Secretary of State should consider whether mitigation measures are needed over and above any which may form part of the project application. A construction management plan may help codify mitigation at that stage.	As detailed above, ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1] confirms that the topic of water quality has been scoped out of the EIA as a stand-alone chapter. The Applicant has undertaken extensive consultation with the Environment Agency, which is detailed

	5.16.9 The risk of impacts on the water environment can be reduced through careful design to facilitate adherence to good pollution control practice. For example, designated areas for storage and unloading, with appropriate drainage facilities, should be clearly marked. 5.16.10 The impact on local water resources can be minimised through planning and design for the efficient use of water, including water recycling. If a development needs new water infrastructure, significant supplies or impacts other water supplies, the applicant should consult with the local water company and the EA or NRW.	within ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] and ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. This engagement has resulted in the Environment Agency agreeing that water can be scoped out of the assessment on the basis that a Flood Risk Assessment and Water Framework Assessment are submitted with the DCO Application. The Environment Agency confirmed that in relation to the Proposed Development, any concerns they may have are in relation to potential impacts on groundwater. An assessment of effects on groundwater is presented in ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]. Mitigation measures during the construction, operation (including maintenance) and decommissioning of the Proposed Development will be according to best practice and implemented through the Outline CEMP [EN010157/APP/7.2], Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4] Vegetation Management, secured through Outline LEMP [EN010157/APP/7.5] will also aid in the mitigating adverse effects on the water environment.
<i>Secretary of State decision making</i>	5.16.11 Activities that discharge to the water environment are subject to pollution control. The considerations set out in Section 4.12 on the interface between planning and pollution control therefore apply. These considerations will also apply in an analogous way to the abstraction licensing regime regulating activities that take water from the water environment, and to the control regimes	ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1] confirms the topic of water quality has been scoped out of the EIA as a stand-alone chapter. The Applicant has undertaken extensive consultation with the Environment Agency, which is detailed within ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] and ES Volume 4, Appendix 5.6: Flood Risk Assessment

	relating to works to, and structures in, on, or under controlled waters. 5.16.12 The Secretary of State will need to give impacts on the water environment more weight where a project would have an adverse effect on the achievement of the environmental objectives established under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. 5.16.13 The Secretary of State must also consider duties under other legislation including duties under the Environment Act 2021 in relation to environmental targets and have regard to the policies set out in the Government’s Environmental Improvement Plan 2023.	[EN010157/APP/6.4]. This engagement has resulted in the Environment Agency agreeing that water can be scoped out of the assessment on the basis that a Flood Risk Assessment and Water Framework Assessment are submitted with the DCO Application. The Environment Agency confirmed that in relation to the Proposed Development, any concerns they may have are in relation to potential impacts on groundwater. An assessment of effects on groundwater is presented in ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]. ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1] confirms that measures to control potential impacts to water quality during construction, operation (including maintenance) and decommissioning are detailed in and secured by the Outline CEMP [EN010157/APP/7.2], Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4], respectively. Furthermore, a Horizontal Directional Drilling Breakout Plan is included in the Outline CEMP [EN010157/APP/7.2]. It is concluded that, in resulting in a negligible overall effect, the Proposed Development is in accordance with policy relating to water quality. Vegetation Management, secured through Outline LEMP [EN010157/APP/7.5] will aid in mitigating potential adverse effects on the water environment. Water Framework Directive (WFD) classified watercourse waterbodies within the study area are detailed within Table 3-1 of ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]. Following the implementation of mitigation measures, the anticipated water quality impacts

		on WFD waterbodies is assessed as having a residual adverse effect that is not significant. With regard to the potential risk of contaminant runoff from battery fires, this is anticipated to, in the unlikely event of a battery fire occurring, result in adverse effects on surface waters that are not significant.
	5.16.14 The Secretary of State should be satisfied that a proposal has regard to current River Basin Management Plans and meets the requirements of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (including regulation 19). The specific objectives for particular river basins are set out in River Basin Management Plans. The Secretary of State must refuse development consent where a project is likely to cause deterioration of a water body or its failure to achieve good status or good potential, unless the requirements set out in Regulation 19 are met. A project may be approved in the absence of a qualifying Overriding Public Interest test only if there is sufficient certainty that it will not cause deterioration or compromise the achievement of good status or good potential.	The DCO Application is supported by ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] which provides an assessment of the likely impacts of the Proposed Development and assessment against the requirements of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] demonstrates that there are a number of Proposed Development activities that could impact the local WFD receptors. However, the mitigation proposed and secured within the Outline CEMP [EN010157/APP/7.2], Outline DEMP [EN010157/APP/7.4] and Outline BSMP [EN010157/APP/7.6] would minimise the chance for such impacts. ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] confirms the majority of the operational development would result in minor benefit to the WFD receptors local to the Proposed Development. Although the Proposed Development benefits are assessed to be unlikely to change the WFD status of the watercourses, they would assist the water bodies in meeting their Objectives.

		ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] concludes that in accordance with the relevant guidance, there are no identified impacts of the Proposed Development that would warrant a more detailed WFD assessment.
	5.16.15 The Secretary of State should also consider the interactions of the proposed project with other plans such as Water Resources Management Plans and Shoreline Management Plans.	The Proposed Development does not interact with any Water Resources Management Plans or Shoreline Management Plans.
	5.16.16 The Secretary of State should consider proposals to mitigate adverse effects on the water environment and any enhancement measures put forward by the applicant and whether appropriate requirements should be attached to any development consent and/or planning obligations are necessary	ES Volume 1, Chapter 5: Approach to EIA [EN010157/APP/6.1] confirms the topic of water quality has been scoped out of the EIA as a stand-alone chapter. The Applicant has undertaken extensive consultation with the Environment Agency, which is detailed within ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] and ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. This engagement has resulted in the Environment Agency agreeing that water can be scoped out of the assessment on the basis that a Flood Risk Assessment and Water Framework Assessment are submitted with the DCO Application. The DCO Application is supported by ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4], ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] and An assessment of effects on groundwater is presented in ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2], which

		provide an assessment of the likely effects and detail proposed mitigation measures. Proposed mitigation measures in relation to water for construction, operation (including maintenance) and decommissioning are detailed in and secured by the Outline CEMP [EN010157/APP/7.2], Outline OEMP [EN010157/APP/7.3], Outline DEMP [EN010157/APP/7.4] and Outline SMP [EN010157/APP/7.8].

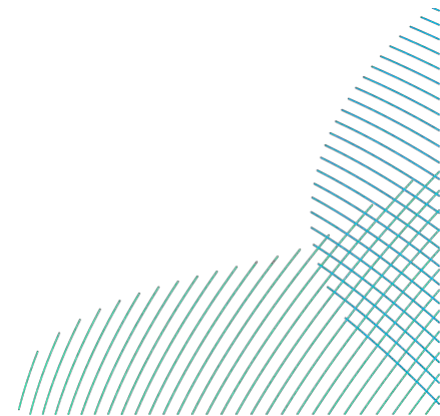


Table 2: National Policy Statement for Renewable Energy Infrastructure

National Policy Statement for Renewable Energy Infrastructure (EN-3)		
Assessment and Technical Specific Information – Assessment of the specific impacts as set out in Part 2 of EN-3 (2023) (designated in January 2024) is considered below.		
Policy Section	Policy Text	Assessment
2.4 Climate change adaptation	2.4.11 Solar photovoltaic (PV) sites may also be proposed in low lying exposed sites. For these proposals, applicants should consider, in particular, how plant will be resilient to: - increased risk of flooding; and - impact of higher temperatures	The Proposed Development includes land identified within Flood Zones 2 and 3, albeit benefitting from the presence of flood defences. Flood risk, as well as the impacts of climate change (such as higher temperatures) are assessed within ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2] and ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. Flood risk during the construction, operation (including maintenance) and decommissioning phases would be managed through the Outline Construction Environmental Management Plan (CEMP) [EN010157/APP/7.2], Outline Operational Environmental Management Plan (OEMP) [EN010157/APP/7.3], Outline Decommissioning Environmental Management Plan (DEMP) [EN010157/APP/7.4] and Outline Soil Management Plan (SMP) [EN010157/APP/7.8] which are secured by the Draft DCO [EN010157/APP/3.1]. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] assesses flood risk and drainage in the context of EIA. The assessment concludes that, with

		both embedded and additional mitigation measures secured as part of the Proposed Development, there would be no significant residual adverse effects upon receptors in relation to flood risk during the Proposed Development's operation (including maintenance). Section 7 of the Flood Risk Assessment demonstrates that sustainable drainage techniques have been designed into the Proposed Development. The Outline OEMP [EN010157/APP/7.3] confirms that water management activities, such as the clearing of drainage ditches would be undertaken during the operational (including maintenance) phase of the Proposed Development.
2.5 – Consideration of good design for energy infrastructure	2.5.1 Section 4.7 of EN-1 sets out the criteria for good design that should be applied to all energy infrastructure.	As detailed in this Planning Statement [EN010157/APP/5.5], the Proposed Development delivers good design, in accordance with the design policies set out in the NPS' which acknowledge that the context of any design decisions must reflect the need to efficiently deliver large scale renewable energy infrastructure. Therefore, as recognised in the NPS', the extent to which a scheme can contribute to the enhancement of the quality of the area is limited. ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] establishes the site context. An extensive review of the wider site context relating to the Proposed Development (including topics such as landscape, flood risk, ecology, and the historic environment) was undertaken to provide an evidence base for the site selection. This was reviewed over a number of stages as the Proposed Development sought to avoid settlements, sensitive habitats and historically significant
	2.5.2 Proposals for renewable energy infrastructure should demonstrate good design, particularly in respect of landscape and visual amenity, opportunities for co-existence/co-location with other marine and terrestrial uses, and in the design of the project to mitigate impacts such as noise and effects on ecology and heritage.	

		sites, for example. The process has also taken into account a range of other technical and environmental constraints. The Applicant will deliver its vision for the Proposed Development guided by a series of project design objectives that were developed with particular regard to landscape and visual amenity and opportunities for co-existence/co-location with other terrestrial uses where possible, as set out in the Design Approach Document [EN010157/APP/5.7]. Embedded and additional mitigation measures employed in the design of the project regarding noise, ecology and heritage are outlined within ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2], ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] respectively.
2.6 Flexibility in the project details	2.6.1 Where details are still to be finalised, applicants should explain in the application which elements of the proposal have yet to be finalised, and the reason why this is the case.	The Applicant wishes to retain flexibility regarding the design detail of certain components of the Proposed Development. The extent of flexibility sought is detailed in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] and is set out further in the Design Approach Document [EN010157/APP/5.7] and the Design Parameters Document [EN010157/APP/5.8] which confirm that flexibility in design has been considered through the application of a 'Rochdale Envelope' approach, in which the maximum parameters of the Proposed Development have been defined and assessed as a likely worst-case scenario. This approach is
	2.6.2 Where flexibility is sought in the consent as a result, applicants should, to the best of their knowledge, assess the likely worstcase environmental, social and economic effects of the proposed development to ensure that the impacts of the project as it may be constructed have been properly assessed.	

	2.6.3 Full guidance on how applicants and the Secretary of State should manage flexibility is set out in Section 4.3 of EN-1.	considered in accordance with the guidance set out in Section 4.3 of NPS EN-1.
Section 2.10 Solar Photovoltaic Generation		
Applicant Assessment – <i>Irradiance and site topography</i>	2.10.19 Irradiance will be a key consideration for the applicant in identifying a potential site as the amount of electricity generated on site is directly affected by irradiance levels. Irradiance of a site will in turn be affected by surrounding topography, with an uncovered or exposed site of good elevation and favourable south-facing aspect more likely to increase year-round irradiance levels. This in turn affects the carbon emission savings and the commercial viability of the site.	As detailed in this Planning Statement [EN010157/APP/5.5] , East Riding of Yorkshire is generally flat with a gently undulating topography. This makes East Riding of Yorkshire suitable and beneficial for solar and increases the likelihood of being able to identify a suitable site that is capable of producing a large amount of electricity. This has therefore influenced the location of the Order Limits within proximity to the National Grid Creyke Beck substation. The general topography of the area immediately surrounding the Order Limits is flat, which enables favorable year-round irradiance levels. Irradiance in East Riding of Yorkshire is also considered sufficiently high to support solar developments.
	2.10.20 In order to maximise irradiance, applicants may choose a site and design its layout with variable and diverse panel types and aspects, and panel arrays may also follow the movement of the sun in order further to maximise the solar resource.	Due to the fast-evolving pace of solar PV technology, the Proposed Development allows flexibility to be able to choose a specific technology closer to the construction of the Proposed Development within the parameters defined in the Design Parameters Document [EN010157/APP/5.8] . This flexibility will allow for the optimum production of renewable energy within the Proposed Development.
	2.10.21 Applicants should consider important issues relating to network connection at Section 4.11 of EN-1 and in	As detailed in this Planning Statement [EN010157/APP/5.5] , proximity to an available grid

Applicant Assessment – <i>Network Connection</i>	EN-5. In particular, and where appropriate, applicants should proceed in a manner consistent with the regulatory regime for offshore transmission networks established by Ofgem, details of which are set out in EN-5.	connection with capacity is fundamental to the delivery of a solar farm.
	2.10.22 Many solar farms are connected into the local distribution network. The capacity of the local grid network to accept the likely output from a proposed solar farm is critical to the technical and commercial feasibility of a development proposal.	The Proposed Development has secured a grid connection agreement to allow export and import of electricity to and from the National Grid. The National Grid Creyke Beck substation is existing grid infrastructure and would facilitate this export and import of electricity from the Proposed Development to the National Grid.
	2.10.23 Larger developments may seek connection to the transmission network if there is available network capacity and/or supportive infrastructure.	The Grid Connection Statement [EN010157/APP/7.1] provides further discussion on the process of securing the agreed network connection.
	2.10.24 In either case the connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal.	The cumulative impact of the Proposed Development and developments within the surrounding area is included in ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2]. The Chapter sets out the short list of other existing development and/or approved development accounted for in the Chapter's cumulative assessment.
	2.10.25 To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs, applicants may choose a site based on nearby available grid export capacity.	ES Volume 4, Appendix 15.2: Detailed Cumulative Landscape and Visual Impact Assessment [EN010157/APP/6.4] presents a detailed cumulative Landscape and Visual impact assessment of the other existing, proposed and/or approved development that are of a similar nature to the Proposed Development, comprising the below: Kenley House solar farm (22/01208/STPLF); Field House solar farm (22/00824/STPLF); Turf Carr solar farm (22/02775/STPLF); Carr Farm solar farm (22/03648/STPLF); Creyke Beck solar farm (21/02335/STPLF).

	2.10.26 Where this is the case, applicants should consider the cumulative impacts of situating a solar farm in proximity to other energy generating stations and infrastructure.	The cumulative impacts of situating the Proposed Development in proximity to the above listed developments has been considered in ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] .
Applicant Assessment – <i>Proximity of site to dwellings</i>	2.10.27 Utility-scale solar farms are large sites that may have a significant zone of visual influence. The two main impact issues that determine distances to sensitive receptors are therefore likely to be visual amenity and glint and glare. These are considered in Landscape, Visual and Residential Amenity (paragraphs 2.10.93-2.10.101) and Glint and Glare (paragraphs 2.10.102 – 2.10.106) impact sections below.	The potential impact of large-scale solar farms to sensitive receptors via visual amenity, or through glint and glare, is recognised. A detailed assessment of the compliance of the Proposed Development with the NPS EN-3 paragraphs referenced in paragraph 2.10.27 is provided within this table against NPS EN-3 paragraphs 2.10.93 – 2.10.101 and 2.10.103 – 2.10.106 for landscape and visual effects and glint and glare effects respectively.
Applicant Assessment – <i>Agriculture Land Classification and land type</i>	2.10.28 Solar is a highly flexible technology and as such can be deployed on a wide variety of land types. 2.10.29 While land type should not be a predominating factor in determining the suitability of the site location applicants should, where possible, utilise suitable previously developed land, brownfield land, contaminated land and industrial land. Where the proposed use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land avoiding the use of “Best and Most Versatile”	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] and the Outline SMP [EN010157/APP/7.8] set out how agricultural land has been considered in the design of Proposed Development, the Proposed Development’s embedded mitigation measures, and principles on how the soils will be managed and protected during the construction, operation (including maintenance) and decommissioning phases of the Proposed Development. The Outline SMP [EN010157/APP/7.8] will assist the Proposed Development to use and manage soils sustainably and minimise adverse impacts on soil health and potential land contamination.

	agricultural land where possible. ‘Best and Most Versatile agricultural land is defined as land in grades 1, 2 and 3a of the Agricultural Land Classification. 2.10.30 Whilst the development of ground mounted solar arrays is not prohibited on Best and Most Versatile agricultural land, or sites designated for their natural beauty, or recognised for ecological or archaeological importance, the impacts of such are expected to be considered and are discussed under paragraphs 2.10.73 – 92 and 2.10.107 – 2.10.126. 2.10.31 It is recognised that at this scale, it is likely that applicants’ developments will use some agricultural land. Applicants should explain their choice of site, noting the preference for development to be on suitable brownfield, industrial and low and medium grade agricultural land. 2.10.32 Where sited on agricultural land, consideration may be given as to whether the proposal allows for continued agricultural use and/or can be co-located with other functions (for example, onshore wind generation, storage, hydrogen electrolyzers) to maximise the efficiency of land use.	The Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] sets out how the site selection process has sought to minimise the impact on best and most versatile (BMV) agricultural land (land classified as Grade 3a and above). Agricultural land is considered necessary to enable the Proposed Development and, where possible, poorer quality agricultural land has been preferred for development over higher quality land, in particular, BMV agricultural land. This approach is demonstrated within the aforementioned site selection process. The Proposed Development includes the co-location of both battery storage and solar PV technologies, which works to maximise the efficiency of land use.

	2.10.33 The Agricultural Land Classification (ALC) is the only approved system for grading agricultural quality in England and Wales and, if necessary, field surveys should be used to establish the ALC grades in accordance with the current, or any successor to it, grading criteria and identify the soil types to inform soil management at the construction, operation, and decommissioning phases in line with the Defra Construction Code. 2.10.34 Applicants are encouraged to develop and implement a Soil Resources and Management Plan which could help to use and manage soils sustainably and minimise adverse impacts on soil health and potential land contamination. This should be in line with the ambition set out in the Environmental Improvement Plan to bring at least 40% of England's agricultural soils into sustainable management by 2028 and increase this up to 60% by 2030.	
Applicant Assessment Accessibility –	2.10.35 Applicants will need to consider the suitability of the access routes to the proposed site for both the construction and operation of the solar farm with the former likely to raise more issues. 2.10.36 Given that potential solar farm sites are largely in rural areas, access for	The vehicular access arrangements for the Proposed Development to be used during both the construction and operation (including maintenance) phases are described in Sections 5 and 6 of ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]. This assessment confirms the use of several access points serving the Proposed Development.

	the delivery of solar arrays and associated infrastructure during construction can be a significant consideration for solar farm siting.	The Proposed Development's design incorporates mitigation to reduce adverse effects and minimise impacts. These are set out in ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] and ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4]. In addition, the DCO Application is also supported by an Outline Construction Traffic Management Plan (CTMP) [EN010157/APP/7.7] and Appendix 1: Outline Travel Plan to the Outline CTMP [EN010157/APP/7.7] which has been prepared to mitigate transport impacts and reduce the volume of construction staff and employee trips to the Proposed Development Access designs are included in the Streets, Rights of Way and Access Plans [EN010157/APP/2.3] which demonstrate the ability of the Proposed Development to create a safe and well-designed accesses with suitable geometry to allow safe vehicle maneuvering in and out of the Proposed Development, and with appropriate highway visibility splays.
	2.10.37 Developers will usually need to construct on-site access routes for operation and maintenance activities, such as footpaths, earthworks, or landscaping.	
	2.10.38 In addition, sometimes access routes will need to be constructed to connect solar farms to the public road network.	
	2.10.39 Applications should include the full extent of the access routes necessary for operation and maintenance and an assessment of their effects.	
Applicant Assessment – Public Rights of Way	2.10.40 Proposed developments may affect the provision of public rights of way networks.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] provides an assessment of the Proposed Development's impact on public rights of way (PRoW) within the Order Limits. All public rights of way would be kept open during construction as far as is practicable and safe. Where it would not be practicable and safe, there may be a requirement for some public rights of way to be temporarily managed or closed for a short duration.
	2.10.41 Public rights of way may need to be temporarily closed or diverted to enable construction, however, applicants should keep, as far as is practicable and safe, all public rights of way that cross the proposed development site open during construction and protect users where a	

	public right of way borders or crosses the site. 2.10.42 Applicants are encouraged to design the layout and appearance of the site to ensure continued recreational use of public rights of way where possible during construction, and in particular during operation of the site. 2.10.43 Applicants are encouraged where possible to minimise the visual impacts of the development for those using existing public rights of way, considering the impacts this may have on any other visual amenities in the surrounding landscape. 2.10.44 Applicants should consider and maximise opportunities to facilitate enhancements to the public rights of way and the inclusion, through site layout and design of access, of new opportunities for the public to access and cross proposed solar development sites (whether via the adoption of new public rights of way or the creation of permissive paths), taking into account, where appropriate, the views of landowners.	An Outline Rights of Way and Access Management Plan (RoWAMP) [EN010157/APP/7.9] has been submitted in support of this DCO Application. The Outline RoWAMP [EN010157/APP/7.9] sets out the mitigation, management, and monitoring measures for PRowWs affected by the Proposed Development. Mitigation embedded into the Proposed Development design is outlined in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and the Outline Landscape and Ecological Management Plan (LEMP) [EN010157/APP/7.5]. These measures will aid in the screening of the Proposed Development from users of PRowWs, and include, but are not limited to: Biodiversity Enhancement and Mitigation Areas which will improve biodiversity, landscape character, green infrastructure and assist wildlife around the study area; New (additional) hedgerow planting to soften views and provide screening and softening of views from nearby footpaths, highways and properties; Infilling of existing boundary hedgerows to soften and provide screening and provide a link between existing hedgerows; Planting of new, and extension of existing, woodland copse to assist in the long term screening of the Project Substation East, provide green infrastructure enhancements, soften views and provide screening from nearby footpaths and properties; and Low level shrub planting and tree planting to soften views from permissive paths and PRowWs.

		The Proposed Development includes opportunities for enhancements, including several new permissive paths within the Order Limits, approximately 12.6 km in length. ES Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3] illustrates the new permissive paths.
	2.10.45 Applicants should set out detail on how public rights of way would be managed to ensure they are safe to use in an outline Public Rights of Way Management Plan.	The Outline RoWAMP [EN010157/APP/7.9] has been prepared in support of the Application and sets out details on how PRowS will be managed to ensure they are safe to use during all stages of the Proposed Development.
Applicant Assessment – Security and Lighting	2.10.46 Security of the site is a key consideration for developers. Applicants may wish to consider not only the availability of natural defences such as steep gradients, hedging and rivers but also perimeter security measures such as fencing, electronic security, CCTV and lighting, with the measures proposed on a site-specific basis.	ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] outlines the security measures incorporated in the design of the Proposed Development. Efforts have been made to reduce the impact of security fencing and lighting, as is set out in detail in the Outline LEMP [EN010157/APP/7.5] , Outline CEMP [EN010157/APP/7.2] , Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4] .
	2.10.47 Applicants should assess the visual impact of these security measures, as well as the impacts on local residents, including for example issues relating to intrusion from CCTV and light pollution in the vicinity of the site.	
	2.10.48 Applicants should consider the need to minimise the impact on the	

	landscape and the visual impact of security measures.	
Technical Considerations – Site layout design, and appearance	2.10.59 Applicants should consider the criteria for good design set out in EN-1 Section 4.7 at an early stage when developing projects.	As detailed in the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5], the location and design of the Proposed Development is the result of a comprehensive site selection process that was environmentally, technically and planning led to avoid and minimize the potential impacts of the Proposed Development as early as possible. The starting point for the site selection was the availability of the grid connection at National Grid Creyke Beck Substation. A 12 km radius from National Grid Creyke Beck Substation was then established as a viable search area (the search area) for a potential solar scheme. Following this, the Proposed Development has undergone an iterative design process, as outlined within ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] which has resulted in the delivery of a functional and efficient Proposed Development design which will deliver a large amount of renewable and low carbon electricity using solar PV arrays. This delivery is achieved whilst ensuring the design remains sensitive to the local context and surrounding area within which the Proposed Development is located. The Proposed Development has sought to avoid and minimise impacts on the environment as far as practicable. Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5], demonstrates that land was identified for the Proposed Development within an area of good solar irradiance which also benefits from a relatively low and flat topographical landscape. Such landscape traits
	2.10.60 As set out above applicants will consider several factors when considering the design and layout of sites, including proximity to available grid capacity to accommodate the scale of generation, orientation, topography, previous land-use, and ability to mitigate environmental impacts and flood risk.	
	2.10.61 For a solar farm to generate electricity efficiently the panel array spacing should seek to maximise the potential power output of the site. The type, spacing and aspect of panel arrays will depend on the physical characteristics of the site such as site elevation.	

		maximize the energy generation potential of the Proposed Development whilst also reflecting good design.
	2.10.62 In terms of design and layout, applicants may favour a south-facing arrangement of panels to maximise output although other orientations may be chosen. For example, an east-west layout, whilst likely to result in reduced output compared to south-facing panels on a panel-by-panel basis, may allow for a greater density of panels to compensate and therefore for generation to be spread more evenly throughout the day.	As detailed in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1], the solar PV modules would be installed either as fixed arrays or as tracking arrays (which adjust the position of the solar PV modules to track the sun throughout the day). The final layout of the Proposed Development will seek to maximise the potential power output of the Site whilst seeking to avoid and reduce effects on the environment. Fixed panels would be arranged as rows of solar PV modules aligned in east-west rows with panels facing south. Fixed Solar PV modules would be angled at a tilt of +/- 10 to 30 degrees from horizontal to optimise daylight absorption. Tracking Solar PV modules would be arranged as rows of solar PV modules aligned in north-south rows, tracking east to west to optimise daylight absorption. Tracking Solar PV modules would have a range of tilt of +/- 60 degrees.
	2.10.63 It is likely that underground and overhead cabling will be required to connect the electrical assets of the site, such as from the substation to the panel arrays or storage facilities.	As described in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1], all cabling for the Proposed Development would comprise of underground cabling. Cable ploughing will be utilised where ground conditions and other site factors allow however, for the purposes of the EIA, it has been assumed that open cut trenching will take place as a worst-case scenario. The underground cabling would be located in existing gaps in hedgerows wherever practicable. In identified archaeologically sensitive areas, cables will be installed to avoid or minimise disturbance below ground level. In
	2.10.64 In the case of underground cabling, applicants are expected to provide a method statement describing cable trench design, installation	

	methodology, as well as details of the operation and maintenance regime.	instances where open cut or cable plough cannot be used, for example when crossing a public road or large drainage ditch, alternative methods, such as horizontal directional drilling (HDD), would be used. The areas requiring HDD are identified on ES Volume 3, Figure 3.3: Indicative HDD Crossing Points [EN010157/APP/6.3] . Operational maintenance measures are secured within the Outline OEMP [EN010157/APP/7.3] .
Technical Considerations <i>Project Lifetime</i>	– 2.10.65 Applicants should consider the design life of solar panel efficiency over time when determining the period for which consent is required. An upper limit of 40 years is typical, although applicants may seek consent without a time-period or for differing time-periods of operation.	The operational life of the Proposed Development is 40 years as secured pursuant to the Draft DCO [EN010157/APP/3.1] as a requirement.
	2.10.66 Time limited consent, where granted, is described as temporary because there is a finite period for which it exists, after which the project would cease to have consent and therefore must seek to extend the period of consent or be decommissioned and removed.	
	2.10.67 Solar panel efficiency deteriorates over time and applicants may elect to replace panels during the lifetime of the site.	ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] sets out the maintenance activities that would occur during the operation (including maintenance) phase of the Proposed Development. This includes the repair or replacement of solar modules or other components, if damaged or when efficiency is impacted to such a degree that replacement is necessary.

Technical Considerations – <i>Decommissioning</i>	2.10.68 Solar panels can be decommissioned relatively easily and cheaply. The nature and extent of decommissioning of a site can vary. Generally, it is expected that the panel arrays and mounting structures will be decommissioned, and underground cabling dug out to ensure that prior use of the site can continue. 2.10.69 Applicants should set out what would be decommissioned and removed from the site at the end of the operational life of the generating station, considering instances where it may be less harmful for the ecology of the site to keep or retain certain types of infrastructure, for example underground cabling, and where there may be socio-economic benefits in retaining site infrastructure after the operational life, such as retaining pathways through the site or a site substation.	As set out within ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1], the process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules and on-site supporting equipment, to be recycled or disposed of in accordance with industry best practices at that time. It is anticipated at this stage that underground cabling would be left in-situ to avoid unnecessary ground disturbance. Any proposals to leave certain infrastructure, for example access tracks, would be discussed and agreed with landowners as part of the decommissioning process. If on-site substations are to be retained at the request of the DNO, this will be subject to further discussions and agreements/approvals as necessary. At the time that decommissioning would take place, the regulatory framework, good industry practices and the future baseline could have altered. A Decommissioning Environmental Management Plan would be secured pursuant to the DCO as a requirement, to be prepared in advance of the commencement of decommissioning works, and will be in substantial accordance with the Outline DEMP [EN010157/APP/7.4]. The Decommissioning Environmental Management Plan would be subject to the approval of the local planning authority at the time of decommissioning.
Technical Considerations – <i>Flexibility in the project details</i>	2.10.70 In many cases, not all aspects of the proposal may have been settled in precise detail at the point of application. Such aspects may include: the type, number and dimensions of the panels;	The Applicant wishes to retain flexibility regarding the detailed design of certain components of the Proposed Development. The extent of the flexibility sought is described in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1], and the Design Parameters Document [EN010157/APP/5.8].

	layout and spacing; the type of inverter or transformer; and whether storage will be installed (with the option to install further panels as a substitute).	These confirm that any flexibility in design has been considered through the application of a 'Rochdale Envelope' approach, in which the maximum parameters of the proposed Development have been defined and assessed as a likely worst-case scenario. The parameters of the Proposed Development are set out within the Design Parameters Document [EN010157/APP/5.8] .
	2.10.71 Applicants should set out a range of options based on different panel numbers, types and layout, with and without storage.	
Impacts – Biodiversity, ecological, geological conservation and water management	2.10.76 The applicant's ecological assessments should identify any ecological risk from developing on the proposed site.	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] provides an assessment of the Proposed Development's impact on important ecological features and is supported by survey work contained within the appendices to ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] . ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] identifies the potential ecological effects and risks that may arise from the Proposed Development. It has assessed potential effects on protected species, habitats, and other species identified as being of principal importance for the conservation of biodiversity. The assessment has been carried out by suitably qualified and experienced ecologists, who have advised throughout the design process to ensure that impacts are avoided, minimised, and mitigated (in line with the mitigation hierarchy) whilst also ensuring biodiversity enhancements are maximised. ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] sets out the potential effects and residual effects, respectively, on the assessed receptors
	2.10.77 Issues that need assessment may include habitats, ground nesting birds, wintering and migratory birds, bats, dormice, reptiles, great crested newts, water voles and badgers.	
	2.10.78 The applicant should use an advising ecologist during the design process to ensure that adverse impacts are avoided, minimised or mitigated in line with the mitigation hierarchy, and biodiversity enhancements are maximised.	
	2.10.79 The assessment may be informed by a 'desk study' of existing ecological records, an evaluation of the	

	likely impacts of the solar farm upon ecological features, and should specify mitigation to avoid or minimise these impacts, and any further surveys required.	during the construction, operation (including maintenance) and decommissioning phases of the Proposed Development. The assessment concludes that there are anticipated to be no significant residual adverse effects identified for any locally, nationally or internationally designated sites across the construction, operation (including maintenance) or decommissioning phases of the Proposed Development. The Proposed Development design will include landscaping, habitat management and ecological mitigation/enhancement, which will be refined as the design progresses. Indicative areas for planting and for ecological mitigation and enhancement are shown on ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]. Management of habitat creation and enhancement strategies will last throughout the whole operational life of the Proposed Development, as detailed in the Outline LEMP [EN010157/APP/7.5].
	2.10.80 Applicants should consider earthworks associated with construction compounds, access roads and cable trenching.	ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] describes the works required for the construction of the Proposed Development, including the extent of earthworks required, which includes details regarding construction compounds, access roads and cable trenching.
	2.10.81 Where soil stripping occurs, topsoil and subsoil should be stripped, stored, and replaced separately to minimise soil damage and to provide optimal conditions for site restoration. Further details on minimising impacts on soil and soil handling are above at paragraphs 2.10.33 and 2.10.34.	The Outline SMP [EN010157/APP/7.8] sets out the principles of how the soils will be managed and protected during the construction, operation (including maintenance) and decommissioning phases of the Proposed Development.

	2.10.82 Applicants should consider how security and lighting installations may impact on the local ecology. Where pole mounted CCTV facilities are proposed the location of these facilities should be carefully considered to minimise impact. If lighting is necessary, it should be minimised and directed away from areas of likely habitat.	The Proposed Development's security and lighting installations have been designed to respond sensitively to ecological and landscape features. Embedded and additional mitigation measures in relation to likely habitat and security are presented within ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and include: • During the construction phase, motion detection or manually operated lighting would be used to avoid constant lighting and the inward/downward direction of light would avoid light spill on to adjacent hedgerows, woodlands, field margins and ditches. Security lighting would use infra-red light to avoid impacts on bats. • During the operation (including maintenance) phase, no part of the Proposed Development would be continuously lit; manually operated and motion detection lighting would be used for operational and security purposes; and • During the operation (including maintenance) phase, the CCTV system will use infra-red lighting around the solar PV development to reduce the use of visible lighting. Security, lighting and CCTV requirements for the Proposed Development are described further in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1], <table border="0"> <tr> <td></td><td>Outline</td><td>LEMP</td></tr> <tr> <td>[EN010157/APP/7.5],</td><td>Outline</td><td>CEMP</td></tr> <tr> <td>[EN010157/APP/7.2],</td><td>Outline</td><td>OEMP</td></tr> <tr> <td>[EN010157/APP/7.3]</td><td>and the Outline</td><td>DEMP</td></tr> </table> [EN010157/APP/7.4].		Outline	LEMP	[EN010157/APP/7.5],	Outline	CEMP	[EN010157/APP/7.2],	Outline	OEMP	[EN010157/APP/7.3]	and the Outline	DEMP
	Outline	LEMP												
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[EN010157/APP/7.2],	Outline	OEMP												
[EN010157/APP/7.3]	and the Outline	DEMP												

	2.10.83 Applicants should consider how site boundaries are managed. If any hedges/scrub are to be removed, further surveys may be necessary to account for impacts. Buffer strips between perimeter fencing and hedges may be proposed, and the construction and design of any fencing should account for enabling mammal, reptile and other fauna access into the site if required to do so in the ecological report.	The Environmental Statement [EN010157/APP/6.1-6.4] takes account of all boundaries and hedgerows. Buffers to woodland and hedgerow are included and proposals for fencing incorporates features to enable the movement of mammals, reptiles and other fauna. These features are set out in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and the Outline LEMP [EN010157/APP/7.5].
	2.10.84 Where a Flood Risk Assessment has been carried out this must be submitted alongside the applicant's ES. This will need to consider the impact of drainage. As solar PV panels will drain to the existing ground, the impact will not, in general, be significant.	The Proposed Development includes land identified within Flood Zones 2 and 3 and is supported by ES Volume 4: Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. The FRA considers the impacts of the Proposed Development on drainage and concludes that in general, a minor benefit to runoff and soil erosion would be realised by the Proposed Development.
	2.10.85 Where access tracks need to be provided, permeable tracks should be used, and localised Sustainable Drainage Systems (SuDS), such as swales and infiltration trenches, should be used to control any run-off where recommended.	ES Volume 4, Appendix 5.6 Flood Risk Assessment [EN010157/APP/6.4] presents a drainage strategy that proposes to allow rain falling on the Proposed Development, including permeable access roads and the minimal hardstanding, to percolate to the ground locally, mimicking the existing site.
	2.10.86 Given the temporary nature of solar PV farms, sites should be configured or selected to avoid the need	Further mitigation relating to water is provided within the CEMP, and DEMP, which will be secured by the DCO and required to be in substantial accordance with the Outline CEMP [EN010157/APP/7.2] and the Outline DEMP [EN010157/APP/7.4], respectively. The construction will

	to impact on existing drainage systems and watercourses.	also be supported by an Outline SMP [EN010157/APP/7.8] , which details and secures measures to manage soil compaction.
	2.10.87 Culverting existing watercourses/drainage ditches should be avoided.	ES Volume 4, Appendix 5.6 Flood Risk Assessment [EN010157/APP/6.4] confirms that although existing crossings would be used or enhanced, new watercourse crossings may be required over minor watercourses and in-field ditches. New crossings will be limited and only used where other constraints exist. Section 7.5 of ES Volume 4, Appendix 5.6 Flood Risk Assessment [EN010157/APP/6.4] includes further detail on construction management in relation to culverts. Further mitigation relating to water is provided within the CEMP, and DEMP, which will be secured by the DCO and required to be in substantial accordance with the Outline CEMP [EN010157/APP/7.2] .
	2.10.88 Where culverting for access is unavoidable, applicants should demonstrate that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period.	
	2.10.89 Solar farms have the potential to increase the biodiversity value of a site, especially if the land was previously intensively managed. In some instances, this can result in significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains which is encouraged	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] concludes, in terms of the Proposed Development's potential to increase the biodiversity value of the Order Limits, there is anticipated to be a significant beneficial residual effect at the local level for ground nesting birds during the operation (including maintenance) phase of the Proposed Development. Further, ES Volume 4, Appendix 7.10 Biodiversity Net Gain Assessment [EN010157/APP/6.4] confirms that the Proposed Development is expected to achieve a net gain for area habitat units, hedgerow units and watercourse units, substantially exceeding the statutory requirement to deliver a minimum of 10%. The post-development habitats will be created, enhanced, managed and maintained in
	2.10.90 For projects in England, applicants should consider enhancement, management, and monitoring of biodiversity in line with the ambition set out in the Environmental Improvement Plan and any relevant measures and	

	targets, including statutory targets set under the Environment Act or elsewhere.	accordance with the LEMP (which will be produced pursuant to the DCO as a requirement and will be substantially in accordance with the Outline LEMP [EN010157/APP/7.5]), enabling habitats to achieve their target condition. The Proposed Development has therefore taken advantage of opportunities to conserve and enhance biodiversity and is considered in line with the ambition set out in the Environmental Improvement Plan, including relevant statutory targets elsewhere.
	2.10.92 Applicants should consider whether they need to provide geotechnical and hydrological information (such as identifying the presence of peat at each site) including the risk of landslide connected to any development work.	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] has been submitted as part of the DCO Application which includes hydrological information. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] includes geotechnical information. This includes an assessment of landslide risk as a result of the Proposed Development, this is presented within ES Volume 4, Appendix 10.1: Preliminary Risk Assessment [EN010157/APP/6.4]. Soil investigations have confirmed the presence of black peaty loam subsoils in Land Area F, specifically in Fields F1 to F7. Peat soils have not been identified within any other Land Areas. Peat soils, where development occurs, will be appropriately managed in line with the requirements of the SMP (which will be substantially in accordance with the Outline SMP [EN010157/APP/7.8]). The Outline SMP [EN010157/APP/7.8] sets out how the soil resource will be managed to ensure that there is no significant adverse effect on the soil resource as a result of the Proposed Development.

Impacts – Landscape and Visual	2.10.93 Generic landscape and visual impacts are covered in Section 5.10 of EN-1.	Table 1 of this Appendix responds to the generic landscape and visual impacts covered in section 5.10 of NPS EN-1. Criteria for good design set out in section 4.7 of EN-1 was followed where appropriate during the Proposed Development design stages.
	2.10.94 The approach to assessing cumulative landscape and visual impact of large-scale solar farms is likely to be the same as assessing other onshore energy infrastructure. Solar farms are likely to be in low lying areas of good exposure and as such may have a wider zone of visual influence than other types of onshore energy infrastructure.	Cumulative effects are considered within ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] .
	2.10.95 However, whilst it may be the case that the development covers a significant surface area, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography, the area of a zone of visual influence could be appropriately minimised.	A landscape and visual assessment has been undertaken and is captured as part of the Environmental Statement as ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] . The assessment has been undertaken in accordance with the following planning policy: NPS EN-1, NPS EN-3, NPS EN-5, NPPF and the East Riding Local Plan 2012 – 2029.
	2.10.96 Landscape and visual impacts should be considered carefully pre-application. Potential impacts on the statutory purposes of nationally designated landscapes should form a part of the pre-application process.	The Site Selection Assessment which forms Appendix 2 of the Planning Statement [EN010157/APP/5.5] demonstrates that a key principle in the site selection process was to seek to avoid areas of particular environmental and landscape sensitivity in order to minimise potential adverse effects. The Applicant confirms that landscape and visual matters, together with other

	2.10.97 Applicants should carry out a landscape and visual assessment and report it in the ES. Visualisations may be required to demonstrate the effects of a proposed solar farm on the setting of heritage assets and any nearby residential areas or viewpoints. 2.10.98 Applicants should follow the criteria for good design set out in Section 4.7 of EN-1 when developing projects and will be expected to direct considerable effort towards minimising the landscape and visual impact of solar PV arrays especially within nationally designated landscapes. 2.10.99 Whilst there is an acknowledged need to ensure solar PV installations are adequately secured, required security measures such as fencing should consider the need to minimise the impact on the landscape and visual impact (see paragraphs 2.10.46 – 2.10.48 above).	environmental and technical matters, were considered early in the design process (pre-application) and have served to inform the location of the Order Limits, and design of the Proposed Development. ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] assesses the visual impact of the Proposed Development. The study area for the Landscape and Visual Impact Assessment (LVIA) has been informed through a combination of Zone of Theoretical Visibility (ZTV) analysis and site work. A series of ZTVs for different elements of the Proposed Development are presented in ES Volume 3, Figure 11.2: Solar PV Modules ZTV [EN010157/APP/6.3] and ES Volume 3, Figure 11.3: Substation ZTV and Viewpoints [EN010157/APP/6.3]. Visualisations are presented within ES Volume 4, Appendix 11.6: Viewpoints and Visualisations [EN010157/APP/6.4]. In keeping with the criteria for good design set out in Section 4.7 of EN-1, potential landscape and visual effects and embedded mitigation measures have been considered from the outset of the Proposed Development. The landscape and visual matters addressed during the early stages of design are set out in ES Volume 2, Chapter 11:

	2.10.100 The applicant should consider as part of the design, layout, construction, and future maintenance plans how to protect and retain, wherever possible, the growth of vegetation on site boundaries, as well as the growth of existing hedges, established vegetation, including mature trees within boundaries. Applicants should also consider opportunities for individual trees within the boundaries to grow on to maturity.	Landscape and Visual [EN010157/APP/6.2], and this includes consideration of security measures and their potential landscape and visual impacts. Of particular relevance to the LVIA are the new planting and mitigation proposals that are embedded into the Proposed Development to effectively screen the Proposed Development, and reduce the Zone of Influence. The planting and mitigation proposals are presented in ES Volume 2, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]. Mitigation embedded into the Proposed Development design is outlined in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and the Outline LEMP [EN010157/APP/7.5]. These measures include, but are not limited to: • Biodiversity Enhancement and Mitigation Areas which will improve biodiversity, landscape character, green infrastructure and assist wildlife around the study area; • 19.58 km of new hedgerow planting (alongside 5.44 km of reinstated hedgerows, compensating for a loss of 5.88 km of hedgerows) to soften views and provide screening and softening of views from nearby footpaths, highways and properties; • Infilling of existing boundary hedgerows to soften and provide screening and provide a link between existing hedgerows; • Planting of new, and extension of existing, woodland copse to assist in the long term screening of the Project Substation East, provide green infrastructure enhancements, soften views and provide effective screening from nearby footpaths and properties; and

		• Low level shrub planting and tree planting to soften views from permissive paths and PROWs. The Outline LEMP [EN010157/APP/7.5] also includes measures to protect the protect and retain, wherever possible, the growth of vegetation on site boundaries, as well as the growth of existing hedges, established vegetation, including mature trees within boundaries. In response to NPS EN-3 paragraph 2.10.97, ES Volume 4, Appendix 9.4: Detailed Settings Impact Assessment [EN010157/APP/6.4] has been produced to support the assessment of the Proposed Development on the historic environment, as contained within ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. The detailed settings impact assessment presents the results of a detailed settings assessment of 51 heritage assets and provides assessment of the potential for and nature of changes to their settings and therefore significance caused by the Proposed Development. The Chapter concludes, as informed by the detailed settings impact assessment, that there are anticipated to be no significant adverse cultural heritage effects to designated or non-designated heritage assets as a result of the Proposed Development once embedded and additional mitigation measures are implemented.
	2.10.101 The impact of the proposed development on established trees and hedges should be informed by a tree survey and arboricultural/hedge assessment as appropriate.	ES Volume 4, Appendix 7.11: Arboricultural Impact Assessment [EN010157/APP/6.4] includes a tree survey which has been used to inform the arboricultural assessment. This has appropriately assessed the Proposed Developments potential effects on established trees and hedges.

Impacts – Glint and Glare	2.10.103 Applicants should map receptors qualitatively to identify potential glint and glare issues and determine if a glint and glare assessment is necessary as part of the application.	As confirmed in ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4], the Planning Inspectorate is content with the approach of the Applicant to have produced a detailed stand-alone glint and glare assessment. This assessment is captured as ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4]. ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] utilises responsible assumptions to ensure the solar reflection outputs present a ‘realistic worst-case scenario’, that is the most significant impact that could reasonably be expected in real life. This includes assessment of ‘tracking’ panel systems and other design features that may contribute to a ‘realistic worst-case scenario’ in terms of solar reflection. ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] considers whether a reflection from the Proposed Development towards identified receptors is geometrically possible and then compares the results against the relevant guidance/studies to determine whether the reflection is significant. The assessment concludes no significant adverse effects are anticipated on surrounding roads, dwellings and airfields providing the mitigation measures, as secured within the Outline LEMP [EN010157/APP/7.5], are implemented.
	2.10.104 When a quantitative glint and glare assessment is necessary, applicants are expected to consider the geometric possibility of glint and glare affecting nearby receptors, and provide an assessment of potential impact and impairment based on the angle and duration of incidence and the intensity of the reflection.	
	2.10.105 The extent of reflectivity analysis required to assess potential impacts will depend on the specific project site and design. This may need to account for ‘tracking’ panels if they are proposed as these may cause differential diurnal and/or seasonal impacts.	
	2.10.106 When a glint and glare assessment is undertaken, the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed, although the glint and glare of the frames and supports is likely to be significantly less than the panels.	

Impacts – Cultural Heritage	2.10.107 The impacts of solar PV developments on the historic environment will require expert assessment in most cases and may have effect both above and below ground.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] provides an expert assessment of the Proposed Development on the historic environment, including above, at, and below ground assets.
	2.10.108 Above ground impacts may include the effects on the setting of Listed Buildings and other designated heritage assets as well as on Historic Landscape Character.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] covers the generic historic environment impacts included within Section 5.9 of EN-1The Chapter concludes that there are anticipated to be no significant adverse effects upon designated or non-designated heritage assets, including Listed Buildings or Scheduled Monuments as a result of the Proposed Development's construction, operation (including maintenance) and decommissioning. The design of the Proposed Development has been carefully considered to avoid, reduce, or mitigate potentially significant adverse effects on cultural heritage and archaeological assets.
	2.10.109 Below ground impacts, although generally limited, may include direct impacts on archaeological deposits through ground disturbance associated with trenching, cabling, foundations, fencing, temporary haul routes etc.	
	2.10.110 Equally, solar PV developments may have a positive effect, for example archaeological assets may be protected by a solar PV farm as the site is removed from regular ploughing and shoes or low-level piling is stipulated.	The DCO Application is supported by an Archaeological Management Strategy [EN010157/APP/7.11] , which outlines the proposed approach to addressing potential development impacts on archaeological remains during the post-consent phases of the Proposed Development, its aims and objectives, and the methodologies and standards to be used in undertaking any required archaeological works.
	2.10.111 Generic historic environment impacts are covered in Section 5.9 of EN-1.	The Applicant refers to Table 1 of this Appendix for responses to the generic historic environment impacts, as covered in Section 5.9 of NPS EN-1.

	2.10.112 Applicant assessments should be informed by information from Historic Environment Records (HERs) or the local authority. 2.10.113 Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, the applicant should submit an appropriate desk-based assessment and, where necessary, a field evaluation. These should be carried out using expertise where necessary and in consultation with the local planning authority, and should identify archaeological study areas and propose appropriate schemes of investigation, and design measures, to ensure the protection of relevant heritage assets. 2.10.114 In some instances, field studies may include investigative work (and may include trial trenching beyond the boundary of the proposed site) to assess the impacts of any ground disturbance, such as proposed cabling, substation foundations or mounting supports for solar panels on archaeological assets. 2.10.115 The extent of investigative work should be proportionate to the sensitivity	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] has been informed by a variety of data sources including Historic Environment Records. The data sources used are detailed in ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. A geophysical survey has been carried out within the Land Areas of the Proposed Development, the results of which are detailed in ES Volume 4, Appendix 9.2: Geophysical Survey Report [EN010157/APP/6.4]. The Proposed Development was assessed as having a generally low archaeological potential, with localised areas of possible archaeological remains in Fields B4/B8 and F9, F10 and F13. Archaeological trial trench evaluation, as captured within ES Volume 4, Appendix 9.3: Archaeological Trial Trenching Report [EN010157/APP/6.4], has also been undertaken for the Proposed Development. Trial trenching was carried out over the areas of likely greatest ground disturbance (on-site substations, hybrid packs, switchgears, BESS, construction compound areas and internal roads), investigating both geophysical survey anomalies and those areas of the geophysical survey which were 'blank'. There is therefore potential for currently unknown remains elsewhere within the Order Limits. However, the strong correlation between the results of the trial trenching and the results of geophysical survey and archaeological desk-based assessments (which are appended to and support ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]) supports the conclusion that the archaeological potential of the Proposed Development is low.

	of, and extent of, proposed ground disturbance in the associated study area.	A programme of further archaeological investigation and/or mitigation would be secured by Requirement under the Draft DCO [EN010157/APP/3.1]. This programme of investigation and mitigation (the final scope of which will be detailed in a written scheme of investigation which is substantially in accordance with the Archaeological Management Strategy [EN010157/APP/7.11]) would ensure that areas of archaeological features not detected by the geophysical survey or the trial trenching carried out so far are identified at the detailed design stage and appropriate mitigation measures. The Applicant considers that, with the above in mind, an appropriate extent of investigative work, including both desk and field-based evaluations and assessments, has taken place to date and is proposed in the future.
	2.10.116 Applicants should take account of the results of historic environment assessments in their design proposal.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] outlines the mitigation measures embedded within the Proposed Development's design in relation to cultural heritage. It details that the Proposed Developments design has been carefully designed to avoid, reduce or mitigate potentially significant effects on the cultural heritage and archaeological assets. Heritage mitigation measures which have been embedded into the design of the Proposed Development include avoidance, where possible, of heritage assets or archaeological remains. Visualisations are presented within ES Volume 4, Appendix 11.6: Viewpoints and Visualisations [EN010157/APP/6.4]. The embedded mitigation measures and the programme of archaeological investigation and mitigation is detailed within and secured by the Archeological Management
	2.10.117 Applicants should consider what steps can be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting.	
	2.10.118 As the significance of a heritage asset derives not only from its physical presence but also from its setting, careful consideration should be given to the impact of large-scale solar farms which depending on their scale, design, and	

	prominence, may cause substantial harm to the significance of the asset.	Strategy [EN010157/APP/7.11] which will allow for the preservation, in situ, of known and unknown heritage assets within the Order Limits for their identification and recording. The preservation in situ, investigation and recording of the assets will ensure their archaeological interest is retained even if their physical remains are disturbed during the construction phase of the Proposed Development. Their historic interest would also not be changed during this phase of the Proposed Development. Therefore, these aspects of the assets' significance will not be harmed.
	2.10.119 Applicants may need to include visualisations to demonstrate the effects of a proposed solar farm on the setting of heritage assets.	
Impacts – Construction including traffic and transport noise and vibration	2.10.122 Generic traffic and transport impacts are covered Section 5.14 of EN-1.	The Proposed Development's design incorporates both embedded and additional mitigation measures to minimise impacts and reduce adverse traffic and transport effects to a not significant level. These are set out in ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2]. These mitigation measures are secured within the Outline CTMP [EN010157/APP/7.7], the Outline RoWAMP [EN010157/APP/7.9], the Outline CEMP [EN010157/APP/7.2] and the Outline DEMP [EN010157/APP/7.4]. The Outline CTMP [EN010157/APP/7.7] sets out that route options have been appraised in detail to establish the preferred route to the primary construction compounds/Land Areas for construction traffic, including Heavy Goods Vehicles (HGVs). The management plan sets out that, with the exception of locally sourced materials, most HGVs are expected to travel from the Strategic Road Network (SRN) onto the Local Road Network (LRN) to reach the Site. The routing appraisal has prioritised the A
	2.10.123 Applicants should assess the various potential routes to the site for delivery of materials and components where the source of the materials is known at the time of the application, and select the route that is the most appropriate.	
	2.10.124 Where the exact location of the source of construction materials, such as crushed stone or concrete is not be known at the time of the application, applicants should assess the worst-case impact of additional vehicles on the likely potential routes.	
	2.10.125 Applicants should ensure all sections of roads and bridges on the	

	proposed delivery route can accommodate the weight and volume of the loads and width of vehicles. Although unlikely, where modifications to roads and/or bridges are required, these should be identified, and potential effects addressed in the ES.	road network to maximise use of suitably designed roads to carry HGVs. ES Volume 1, Chapter 3: Proposed Development Description [EN010149/APP/6.1] establishes that highway improvements will be required to support construction HGVs travelling on the LRN to/from the proposed site access. ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] describes where it may be necessary to construct site accesses and passing places to enable HGVs to access the site and safely negotiate the LRN. ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] states that should the construction and decommissioning phases for nearby developments occur at the same time as the Proposed Development's construction and decommissioning, then there is the potential for adverse traffic and transport effects. However, these effects are not anticipated to be significant and no additional mitigation measures are required in response. Similarly, during the operation (including maintenance) phase of the Proposed Development, adverse traffic and transport effects are not anticipated to be significant.
Mitigations – <i>Agriculture Land classification and land type</i>	2.10.127 The Defra Construction code of practice for the sustainable use of soils on construction sites provides guidance on ensuring that damage to soil during construction is mitigated and minimised. Mitigation measures focus on minimising damage to soil that remains in place, and minimising damage to soil being excavated and stockpiled. The measures	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] and the Outline SMP [EN010157/APP/7.8] set out how agricultural land was considered in the design of Proposed Development, the Proposed Development's embedded mitigation measures, and principles on how the soils will be managed and protected during the construction, operation (including maintenance) and decommissioning phases of the Proposed Development.

	aim to preserve soil health and soil structure to minimise soil carbon loss and maintain water infiltration and soil biodiversity. Mitigation measures for agricultural soils include use of green cover, multispecies cover crops - especially during the winter minimising compaction and adding soil organic matter.	
Mitigations – <i>Biodiversity and ecological conservation</i>	2.10.128 In England, proposed enhancements should take account of the above factors and as set out in Sections 4.6 and 5.4 of EN-1 aim to achieve environmental and biodiversity net gain in line with the ambition set out in the Environmental Improvement Plan and any relevant measures and targets, including statutory targets set under the Environment Act or elsewhere.	ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] confirms that the Proposed Development is expected to achieve a net gain for area habitat units, hedgerow units and watercourse units, substantially exceeding the statutory requirement to deliver a minimum of 10%. The post-development habitats will be created, enhanced, managed and maintained in accordance with the LEMP (which will be produced pursuant to the DCO as a requirement and will be substantially in accordance with the Outline LEMP [EN010157/APP/7.5]), so that the habitats achieve their target condition.
	2.10.129 This might include maintaining or extending existing habitats and potentially creating new important habitats, for example by installing cultivated strips/plots for rare arable plants, rough grassland margins, bumble bee plant mixes, and wild bird seed mixes.	The Proposed Development includes measures to extend existing habitats and create new habitats. These are set out in the Outline LEMP [EN010157/APP/7.5] .

	2.10.130 Applicants are advised to develop an ecological monitoring programme to monitor impacts upon the flora of the site and upon any particular ecological receptors (such as bats and wintering birds). Results of the monitoring will then inform any changes needed to the land management of the site, including, if appropriate, any livestock grazing regime.	Appropriate ecological monitoring will be undertaken during the construction and operation (including maintenance) phase of the Proposed Development as set out in the Outline LEMP [EN010157/APP/7.5] , Outline CEMP [EN010157/APP/7.2] , Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4] .
Mitigations – <i>Landscape, Visual and Residential Amenity</i>	2.10.131 Applicants should consider the potential to mitigate landscape and visual impacts through, for example, screening with native hedges, trees and woodlands.	Landscape and visual mitigation measures, which include screening measures, are outlined within ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and the Outline LEMP [EN010157/APP/7.5] .
	2.10.132 Applicants should aim to minimise the use and height of security fencing. Where possible applicants should utilise existing features, such as hedges or landscaping, to assist in site security, or screen security fencing.	The Design Parameters Document [EN010157/APP/5.8] and ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] include the design specifications of security fencing. The design of security fencing is only to the extent necessary to reasonably secure the Proposed Development. Hedges and landscaping are proposed to screen the Proposed Development, including the proposed security fencing.
	2.10.133 Applicants should minimise the use of security lighting. Any lighting should utilise a passive infra-red (PIR) technology and should be designed and installed in a manner which minimises impact.	The Design Parameters Document [EN010157/APP/5.8] and ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] outline the security measures, including lighting, incorporated in the Proposed Development's design. The Proposed Development's security lighting has been designed to respond sensitively

		to ecology and landscape features, and this includes the use of infra-red technology where appropriate.
Mitigations – Glint and Glare	2.10.134 Applicants should consider using, and in some cases the Secretary of State may require, solar panels to comprise of (or be covered with) anti-glare/anti-reflective coating with a specified angle of maximum reflection attenuation for the lifetime of the permission.	ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] confirms that, as a form of embedded mitigation, the solar PV modules would be dark in colour due to their anti-reflective coatings. The solar PV modules would be manufactured with low-iron, ultra-clear glass with specialised coatings and textures to enable maximum absorption. The combination of these factors increases electrical energy production of the panels and reduces reflected rays at the same time.
	2.10.135 Applicants may consider using screening between potentially affected receptors and the reflecting panels to mitigate the effects.	ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] concludes that a moderate impact is predicted on one dwelling under baseline conditions due to the duration of effects and a lack of sufficient mitigating factors. Proposed vegetation screening along panel boundaries to the west of the dwelling (which is indicatively shown within ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]) will reduce the duration of effects to less than three months per year and less than 60 minutes on any given day. Once the screening matures to 2.5 metres above ground level the impact will be reduced to low impact, and further mitigation is not recommended. Management of the proposed vegetation during the operation (including maintenance) phase will be secured by the Outline LEMP [EN010157/APP/7.5] .
	2.10.136 Applicants may consider adjusting the azimuth alignment of, or changing the elevation tilt angle of, a solar panel within the economically viable range, to alter the angle of incidence. In practice this is unlikely to remove the potential impact altogether but in marginal cases may contribute to a mitigation strategy.	ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] confirms that fixed solar PV modules would be fixed at an angle between +/- 10 to

		30 degrees. Tracking solar PV modules would track east to west between +/- 60 degrees.
Mitigations – <i>Cultural Heritage</i>	2.10.137 The ability of the applicants to microsite specific elements of the proposed development during the construction phase should be an important consideration by the Secretary of State when assessing the risk of damage to archaeology.	The Proposed Development's design has been carefully considered to avoid, reduce, or mitigate potentially significant effects on cultural heritage and archaeological assets. This includes removal solar PV development from whole or partial fields to minimise potential impacts on identified below-ground archaeology, as set out within ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]. ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] states that where further work identifies the need for archaeological protection, an alternative mounting structure would be proposed, in the form of ballast slabs which sit on the surface rather than penetrating the ground.
	2.10.138 Where requested by the applicant, the Secretary of State should consider granting consents which allow for the micrositeing within a specified tolerance of elements of the permitted infrastructure, so that precise locations can be amended during the construction phase if unforeseen circumstances, such as the discovery of previously unknown archaeology, arise.	
Mitigation – <i>Construction including traffic and transport noise and vibration</i>	2.10.139 In some cases, the local highway authority may request that the Secretary of State impose controls on the number of vehicle movements to and from the solar farm site in a specified period during its construction and, possibly, on the routeing of such movements particularly by heavy vehicles.	Measures required to control any construction traffic impacts have been identified and are secured through the Outline CTMP [EN010157/APP/7.7] .

	2.10.140 Where the Secretary of State agrees that this is necessary, requirements could be imposed on development consent.	
	2.10.141 Where cumulative effects on the local road network or residential amenity are predicted from multiple solar farm developments, it may be appropriate for applicants for various projects to work together to ensure that the number of abnormal loads and deliveries are minimised, and the timings of deliveries are managed and coordinated to ensure that disruption to residents and other highway users is reasonably minimised.	ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] states that should the construction and decommissioning phases for nearby developments occur at the same time as the Proposed Development's construction and decommissioning, then there is the potential for adverse traffic and transport effects. However, these effects are not anticipated to be significant and no additional mitigation measures are required in response. Similarly, during the operation (including maintenance) phase of the Proposed Development, adverse traffic and transport effects are not anticipated to be significant.
	2.10.142 It may also be appropriate for the highway authority to set limits for, and coordinate these deliveries through, active management of the delivery schedules through the abnormal load approval process.	
	2.10.143 Once consent for a scheme has been granted, applicants should liaise with the relevant local highway authority (or other coordinating body) regarding the start of construction and the broad timing of deliveries. Applicants may need to agree a planning obligation to secure	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] details that the principal contractor will be responsible for liaising with the local highways authorities and other parties, including the relevant local planning authority.

	appropriate measures, including restoration of roads and verges. 2.10.144 Further, it may be appropriate for any non-permanent highway improvements carried out for the development (such as temporary road widening) to be made available for use by other subsequent solar farm developments.	Further, the principal contractor undertaking the construction works will be responsible for implementing and managing the CTMP (being substantially in accordance with the Outline CTMP [EN010157/APP/7.7]. The Applicant does not consider that there are any matters which are required to be secured through planning obligations.
Secretary of State decision making - Factors influencing site selection and design – Agriculture land classification and land type	2.10.145 The Secretary of State should take into account the economic and other benefits of the best and most versatile agricultural land. The Secretary of State should ensure that the applicant has put forward appropriate mitigation measures to minimise impacts on soils or soil resources.	The Outline SMP [EN010157/APP/7.8] sets out a framework for the management of soil resources, including measures to mitigate and minimise adverse impacts on soils or soil resources, during construction of the Proposed Development. It is secured via a requirement of the Draft DCO [EN010157/APP/3.1].
Secretary of State decision making – Technical Considerations – Project lifetime and decommissioning	2.10.146 The Secretary of State should ensure that the applicant has put forward outline plans for decommissioning the generating station when no longer in use and restoring the land to a suitable use (taking into account paragraphs 2.10.68 and 2.10.69). 2.10.147 Where the consent for a solar farm is to be time-limited, the DCO should impose a requirement setting that time-limit from the date the solar farm starts to generate electricity.	The operational life of the Proposed Development is 40 years. After which, the Proposed Development will require decommissioning. This is secured pursuant to the DCO as a requirement. The Outline DEMP [EN010157/APP/7.4] provides an outline for the decommissioning of the Proposed Development. The process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules and on-site supporting equipment, to be recycled or disposed of in accordance with industry best practices at that time. It is anticipated at this stage that underground cabling would be left in-situ to avoid

	2.10.148 Such a requirement should also secure the decommissioning of the generating station after the expiration of its permitted operation to ensure that inoperative plant is removed after its operational life.	unnecessary ground disturbance. Any proposals to leave certain infrastructure, for example access tracks, would be discussed and agreed with landowners as part of the decommissioning process. If on-site substations are to be retained at the request of the DNO, this will be subject to further discussions and agreements/approvals as necessary. At the time that decommissioning would take place, the regulatory framework, good industry practices and the future baseline could have altered. A DEMP would be secured pursuant to the DCO as a requirement, to be prepared in advance of the commencement of decommissioning works, and will be in substantial accordance with the Outline DEMP [EN010157/APP/7.4]. The DEMP would be subject to the approval of the local planning authority at the time of decommissioning. The effects of decommissioning are anticipated to be similar to, or of a lesser magnitude than, construction effects, as considered throughout ES Volume 2, Chapters 6 to 15 [EN010157/APP/6.2].
	2.10.149 An upper limit of 40 years is typical, although applicants may seek consent without a time period or for differing time-periods for operation.	
	2.10.150 The time limited nature of the solar farm, where a time limit is sought as a condition of consent, is likely to be an important consideration for the Secretary of State.	
	2.10.151 The Secretary of State should consider the period of time the applicant is seeking to operate the generating station, as well as the extent to which the site will return to its original state, when assessing impacts such as landscape and visual effects and potential effects on the settings of heritage assets and nationally designated landscapes.	
Secretary of State decision making - Impacts – Biodiversity, ecological, geological	2.10.154 Water management is a critical component of site design for ground mount solar plants. Where previous management of the site has involved intensive agricultural practice, solar sites	ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] presents a drainage strategy that includes permeable access roads and the minimal hardstanding areas, to enable rain falling on the Proposed

<i>conservation and water management</i>	can deliver significant ecosystem services value in the form of drainage, flood attenuation, natural wetland habitat, and water quality management.	Development to percolate to the ground locally, similar to what occurs on the existing site. Further mitigation relating to water will be provided within the CEMP, and DEMP, which will be secured by the DCO and required to be in substantial accordance with the Outline CEMP [EN010157/APP/7.2] and Outline DEMP [EN010157/APP/7.4]. The construction phase will also be supported by an Outline SMP [EN010157/APP/7.8], which details and secures measures to manage soil compaction.
	2.10.155 The Secretary of State must consider the worst-case effects in its consideration of the application and consent.	As identified in ES Volume 1, Chapter 5: Approach to the EIA [EN010157/APP/6.1] , the assessment for each topic reported in the ES has been based on identified worst-case effects scenarios.
	2.10.156 Where developments are proposed on peat, to ensure the development will result in minimal disruption to the ecology, or release of CO ₂ , and that the carbon balance savings of the scheme are maximised, the Secretary of State should be satisfied that the solar farm layout and construction methods have been designed to minimise soil disturbance during construction and maintenance of roads, tracks, and other infrastructure and in England should take into account the policies set out in the England Peat Action Plan 2021. Where developments are located in Wales, the Secretary of State may take into account the policies set out in the National Peatlands Action Programme, 2020-2025	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] confirms the presence of black peaty loam subsoils in Land Area F, specifically in Fields F1 to F7. Peat soils have not been identified within any other Land Areas. The Outline SMP [EN010157/APP/7.8] sets out how the soil resource will be managed to ensure that there is no significant adverse effect on the soil resource as a result of the Proposed Development.

	(cyfoethnaturiol.cymru) and Future Wales the National Plan 2040 - Policy 18	
Secretary of State decision making - Impacts – Landscape, visual and residential amenity	2.10.157 The Secretary of State will consider the landscape and visual impact of any proposed solar PV farm, taking account of any sensitive visual receptors, and the effect of the development on landscape character, together with the possible cumulative effect with any existing or proposed development. Nationally designated landscapes (National Parks, The Broads and Areas of Outstanding Beauty) are afforded extra protection due their statutory purpose. Development in these areas needs to satisfy policy as set out in EN-1 Section 5.10.	ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] concludes that no part of the Order Limits or its immediately surrounding context falls within a statutorily designated landscape. The nearest National Landscapes (previously known as Areas of Outstanding Natural Beauty) to the Order Limits are the Lincolnshire Wolds and Howardian Hills National Landscapes, both of which are over 30 km from the Order Limits. Details on the adverse landscape and visual effects are included as part of ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2], including the proposed additional mitigation measures. ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] concludes there are significant residual adverse landscape and visual effects in relation to LCA 19D: Central Holderness Open Farmland and visual effects from users of some PRowS. These effects predominantly occur during construction, up to year 10 of operation, and decommissioning and therefore are not present for the majority of the overall lifetime of the Proposed Development. ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] includes an assessment of cumulative effects, including cumulative visual effects. Intra-project significant adverse effects by year 10 of operation are anticipated on views from PRow Riston footpath no.1, PRow Riston footpath no.2 and Leven footpath no.5. Significant adverse effects by year 10 of operation are also anticipated on views from Figham

		Common (in conjunction with Wilberforce Way long distance path and Figham Pastures LWS). Intra-project significant positive effects are anticipated on landscape fabric by year 10 of operation on landscape fabric as a result of the additional hedgerow planting.
Secretary of State decision making - Impacts – Glint and Glare	2.10.158 Solar PV panels are designed to absorb, not reflect, irradiation. However, the Secretary of State should assess the potential impact of glint and glare on nearby homes, motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths).	ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] concludes that a moderate impact is predicted on one dwelling under baseline conditions due to the duration of effects and a lack of sufficient mitigating factors. Proposed vegetation screening along panel boundaries to the west of the dwelling (which is indicatively shown within ES Volume 3, Figure 3.4: Indicative Environmental Masterplan [EN010157/APP/6.3]) will reduce the duration of effects to less than three months per year and less than 60 minutes on any given day, once it matures to 2.5 m above ground level. The impact will be reduced to low impact, and further mitigation is not recommended. Management of the proposed vegetation during the operation (including maintenance) phase will be secured by the Outline LEMP [EN010157/APP/7.5]. ES Volume 4, Appendix 5.4: Glint and Glare Assessment [EN010157/APP/6.4] considers potential glint and glare effects on aviation receptors. The assessment concludes that no significant impacts on aviation receptors are anticipated, and no mitigation is required.
	2.10.159 Whilst there is some evidence that glint and glare from solar farms can be experienced by pilots and air traffic controllers in certain conditions, there is no evidence that glint and glare from solar farms results in significant impairment on aircraft safety. Therefore, unless a significant impairment can be demonstrated, the Secretary of State is unlikely to give any more than limited weight to claims of aviation interference because of glint and glare from solar farms.	
Secretary of State decision making -	2.10.160 Solar farms are generally consented on the basis that they will be time-limited in operation. The Secretary of	The operational life of the Proposed Development is 40 years.

Impacts – Cultural Heritage	State should therefore consider the length of time for which consent is sought when considering the impacts of any indirect effect on the historic environment, such as effects on the setting of designated heritage assets.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] concludes no significant adverse cultural heritage effects are anticipated on designated or non-designated heritage assets as a result of the Proposed Development once embedded and additional mitigation measures are implemented.
Secretary of State decision making - Impacts – Construction including traffic and transport noise and vibration	2.10.161 Once solar farms are in operation, traffic movements to and from the site are generally very light, in some instances as little as a few visits each month by a light commercial vehicle or car. Should there be a need to replace machine components, this may generate heavier commercial vehicle movements, but these are likely to be infrequent. 2.10.162 The Secretary of State is unlikely to give any more than limited weight to traffic and transport noise and vibration impacts from the operational phase of a project.	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] concludes that once the Proposed Development is operational (including maintenance), the effect on the LRN is anticipated to be minimal, therefore, no significant adverse traffic and transport effects are anticipated. In relation to traffic and transport noise and vibration effects arising from the operation (including maintenance) phase of the Proposed Development, ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4] sought to scope out operational road traffic noise effects as the increase in road traffic is likely to be negligible during the operational phase. ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4] confirms that the Planning Inspectorate agreed that the number of vehicle trips generated by the operation and maintenance of the Proposed Development are unlikely to result in significant effects and that it was therefore acceptable to scope this matter out.

Table 3: National Policy Statement for Electricity Networks Infrastructure

National Policy Statement for Electricity Networks Infrastructure (EN-5)		
Assessment and Technical Specific Information – Assessment of the specific impacts as set out in Part 2 of EN-5 (2023) (designated in January 2024) is considered below.		
Policy Section	EN-5 Policy Text	Assessment
2.2 Factors influencing site selection and design	2.2.1 The Secretary of State should bear in mind that the initiating and terminating points – or development zone – of new electricity networks infrastructure is not substantially within the control of the applicant.	As set out in ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] , the starting point for the Applicant was to understand where capacity existed in existing substations of the transmission network that would be sufficient to enable the connection of a utility scale solar development. In parallel to the search for grid capacity, the Applicant also sought to align the search with general conditions that allow for the development of utility scale solar development, notably, suitable irradiance and topography. The availability of significant capacity at the National Grid Creyke Beck Substation was the primary driver in identifying a site in this part of East Riding of Yorkshire.
	2.2.2 Siting is determined by: - the location of new generating stations or other infrastructure requiring connection to the network, and/or - system capacity and resilience requirements determined by the Electricity System Operator.	
	2.2.3 These twin constraints, coupled with the government's legislative commitment to net zero by 2050, strategic commitment to new interconnectors with neighbouring North Seas countries ⁷ and an ambition of up to 50GW of offshore wind generation by 2030, means that very significant amounts of new electricity networks	The Proposed Development has secured a grid connection agreement to allow export and import of electricity to and from the National Grid. The National Grid Creyke Beck Substation would facilitate this export and import of electricity from the Proposed Development to the National Grid.

	infrastructure is required, including in areas with comparatively little build-out to date. 2.2.4 However, a strategic and holistic approach to onshore and offshore network planning, as set out in paragraphs 2.7 – 2.8, will identify the most efficient way of meeting decarbonisation targets and should reduce the overall amount of network infrastructure required.	The Grid Connection Statement [EN010157/APP/7.1] provides further discussion on the process of securing the agreed network connection.
	2.2.5 Additionally, applicants retain control in managing the identification of routing and site selection between the identified initiating and terminating points or within the development zone 2.2.6 Moreover, the locational constraints identified above do not, of course, exempt applicants from their duty to consider and balance the site-selection considerations set out below, much less the policies on good design and impact mitigation detailed in sections 2.4-2.9.	As detailed in Appendix 1 of the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5], the location and design of the Proposed Development and grid connection cable route corridor is the result of a comprehensive site selection process that was environmentally, technically and planning led to avoid and minimise, in that order, the potential impacts of the Proposed Development as early as possible. The starting point for the site selection was the availability of the grid connection at National Grid Creyke Beck Substation. A 12 km radius from National Grid Creyke Beck Substation was then established as a viable search area for a potential solar scheme. Once suitable Land Areas were identified, the Applicant sought to find the most efficient route from the Land Areas to the point of connection whilst seeking to avoid engineering, environmental and community constraints.
	2.2.7 The connection between the initiating and terminating points of a proposed new electricity line will often not be via the most direct route. Siting constraints, such as	Appendix 1 of the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5] details the grid connection cable route selection process undertaken by the Applicant.

	engineering, environmental or community considerations will be important in determining a feasible route.	Careful planning and assessment have determined the most efficient and environmentally responsible grid connection cable route corridor. The grid connection cable route corridor selection has also been informed by feedback received during consultation, as well as detailed studies and surveys. The Applicant sought to find the most efficient route from the Land Areas to the point of connection whilst seeking to avoid engineering, environmental and community constraints.
	2.2.8 There will usually be a degree of flexibility in the location of the development's associated substations, and applicants should consider carefully their location, as well as their design.	As set out in ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] the Proposed Development has undergone an iterative design process which has resulted in the delivery of a functional and efficient Proposed Development design which will deliver a large amount of renewable and low carbon electricity using solar PV arrays. This delivery is achieved whilst ensuring the design remains sensitive to the local context and surrounding area within which the Proposed Development is located. The Proposed Development has sought to avoid and minimise impacts on the environment as far as practicable.
	2.2.9 In particular, the applicant should consider such characteristics as the local topography, the possibilities for screening of the infrastructure and/or other options to mitigate any impacts. (See Section 2.10 below and Section 5.10 in EN-1.)	
	2.2.10 As well as having duties under Section 9 of the Electricity Act 1989, (in relation to developing and maintaining an economical and efficient network), applicants must take into account Schedule 9 to the Electricity Act 1989, which places a duty on all transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to "have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or	The electricity networks infrastructure included in the Proposed Development has been designed under the same principles as the energy generation infrastructure, with the application of the mitigation hierarchy to avoid and reduce potential harmful effects. The Design Approach Document [EN010157/APP/5.7] sets out the design principles for the Proposed Development and the overall approach to design which has sought to have regard to the existing environmental context. It is therefore also considered that the Proposed Development has taken into

	physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and ...do what [they] reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.”	account Schedule 9 to the Electricity Act 1989 as referenced in NPS EN-5 paragraph 2.2.10.
	2.2.11 Depending on the location of the proposed development, statutory duties under Section 85 of the Countryside and Rights of Way Act 2000, Section 11A of the National Parks and Access to the Countryside Act 1949 (as amended by Section 62 of the Environment Act 1995), and Section 17A of the Norfolk and Suffolk Broads Act 1988 may be relevant. Applicants should note amendments to each of these provisions contained in Section 245 of the Levelling Up and Regeneration Act 2023.	There are no nationally designated landscapes within the Order Limits. The nearest National Landscape or National Park is located more than 30km from the Proposed Development. In accordance with paragraph 2.2.13 of NPS EN-5, the Applicant will produce and publish a statement setting out how they propose to perform their duties.
	2.2.12 Transmission and distribution licence holders are also required under Schedule 9 to the Electricity Act 1989 to produce and publish a statement setting out how they propose to perform this duty generally.	
2.3 Climate change adaptation and resilience	2.3.1 Section 4.10 of EN-1 sets out the generic considerations that applicants and the Secretary of State should take into account in order to ensure that electricity networks infrastructure is resilient to the effects of climate change.	Refer to Table 1 of this Appendix which sets out in detail the compliance of the Proposed Development with section 4.10 of NPS EN-1. ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2] provides an assessment of the Proposed Development in

	2.3.2 As climate change is likely to increase risks to the resilience of some of this infrastructure, from flooding for example, or in situations where it is located near the coast or an estuary or is underground, applicants should in particular set out to what extent the proposed development is expected to be vulnerable, and, as appropriate, how it has been designed to be resilient to: flooding, particularly for substations that are vital to the network; and especially in light of changes to groundwater levels resulting from climate change; the effects of wind and storms on overhead lines; higher average temperatures leading to increased transmission losses; earth movement or subsidence caused by flooding or drought (for underground cables); and coastal erosion – for the landfall of offshore transmission cables and their associated substations in the inshore and coastal locations respectively.	relation to its effects on climate and its resilience to the effects of climate change. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] provides a site-specific Flood Risk Assessment and sets out a drainage strategy for the Proposed Development which takes into account potential changes in rainfall from climate change.
	2.3.3 Section 4.10 of EN-1 advises that the resilience of the project to the effects of climate change must be assessed in the Environmental Statement (ES) accompanying an application. For example, future increased risk of flooding would be covered in any flood risk assessment (see Sections 5.8 in EN-1).	Climate resilience was scoped out of the assessment within ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2], as detailed within ES Volume 4, Appendix 5.1: Scoping Report [EN010157/APP/6.4]. Feedback in ES Volume 4, Appendix 5.2: Scoping Opinion [EN010157/APP/6.4], as well as the response in ES Volume 4, Appendix 5.3: Scoping Opinion Response Matrix [EN010157/APP/6.4], led to an

	Consideration should also be given to coastal change (see sections 5.6 in EN1)	assessment on the impact of climate change on select ancillary components of the Proposed Development within the Preliminary Environmental Information Report which found no significant effects. Between the production of the Preliminary Environmental Information Report and the submission of the DCO Application, there have been no changes to the climate projections for the UK, the receptors which were assessed, or the guidance or methodology that was used that would have impacted the assessment which was carried out for the Preliminary Environmental Information Report. As a result, the conclusions of the Preliminary Environmental Information Report (no significant effects) is maintained. The climate change resilience assessment which was carried out is reproduced in ES Volume 4, Appendix 8.2: Climate Change Resilience Assessment [EN010157/APP/6.4]. As such, this matter is scoped out of the assessment contained within ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]. ES Volume 4, Appendix 15.2: Flood Risk Assessment [EN010157/APP/6.4] accounts for the impacts of climate change by applying uplifts to account for sea level rise and increases in fluvial flows and rainfall. The uplifts are in accordance with latest Environment Agency guidance for the Management Catchment within which the Proposed Development is located.
2.4 – Consideration of good design for energy infrastructure	2.4.1 The Planning Act 2008 requires the Secretary of State to have regard, in designating an NPS, and in determining applications for development consent to the desirability of good design.	Please refer to Table 1 of this Appendix which sets out, in detail, the compliance of the Proposed Development with sections 4.5 and 4.7 of NPS EN-1.

	2.4.2 Applicants should consider the criteria for good design set out in EN1 Section 4.7 at an early stage when developing projects.	
	2.4.3 However, the Secretary of State should bear in mind that electricity networks infrastructure must in the first instance be safe and secure, and that the functional design constraints of safety and security may limit an applicant's ability to influence the aesthetic appearance of that infrastructure.	Project design principles were developed by the Applicant at an early stage of the process and have guided the design response to develop a Proposed Development that balances the need to minimize environmental impacts, while maximising renewable energy generation, as set out in the Design Approach Document [EN010157/APP/5.7] .
	2.4.4 While the above principles should govern the design of an electricity networks infrastructure application to the fullest possible extent – including in its avoidance and/or mitigation of potential adverse impacts (particularly those detailed in Sections 2.9 below) – the functional performance of the infrastructure in respect of security of supply and public and occupational safety must not thereby be threatened.	ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] outlines how the Applicant sought, through consultation and an iterative design process, to minimise all environmental impacts as far as is practicable, while also balancing other considerations such as the essential safety and security of the Proposed Development. The design and location has been based on early engagement with key stakeholders, the local community, and a range of environmental and technical appraisals.
2.8 Strategic Network Planning	2.8.4 The Secretary of State should also take into account that Transmission Owners (TOs) and Distribution Network Operators (DNOs) are required under Section 9 of the Electricity Act 1989 to bring forward efficient and economical proposals in terms of network design.	The Applicant has secured a connection to the National Grid that allows the export of 320 MW of electricity to the National Electricity Transmission System via a connection to the National Grid Creyke Beck Substation. This connection will be provided via a 132 kV underground cable from the two on-site substations within the Proposed Development. Further details are included in the Grid Connection Statement [EN010157/APP/7.1] .
	2.8.5 TOs and DNOs are also required to facilitate competition in the generation and supply of electricity, and electricity distributors	

	have a statutory duty to provide a connection where requested.	
2.9 – Applicant Assessment	2.9.46 All overhead power lines produce EMFs. These tend to be highest directly under a line and decrease to the sides at increasing distance. Although putting cables underground eliminates the electric field, they still produce magnetic fields, which are highest directly above the cable. EMFs can have both direct and indirect effects on human health, aquatic and terrestrial organisms.	As set out in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] , cabling will be laid underground, apart from cabling from the solar PV modules to the combiner boxes which would be installed above ground and fixed to the mounting structure of the modules, with a small section placed underground where it leaves the modules and connects to the hybrid packs.
	2.9.47 The direct effects occur in terms of impacts on the central nervous system resulting in its normal functioning being affected. Indirect effects occur through electric charges building up on the surface of the body producing a microshock on contact with a grounded object, or vice versa, which, depending on the field strength and other exposure factors, can range from barely perceptible to being an annoyance or even painful.	The Habitats Regulations Assessment - Information to inform Appropriate Assessment [EN010157/APP/5.3] has considered electromagnetic field (EMF) effects. The assessment determined there is potential for EMFs to result in disturbance of river lamprey during the operation (including maintenance) phase of the Proposed Development. The assessment considered those effects at Humber Estuary Ramsar site and Humber Estuary Special Areas of Conservation (SAC). Overall, the assessment concluded that there is anticipated to be no adverse effects on the integrity of the Humber Estuary SAC/ Ramsar site in relation to disturbance of river lamprey from electromagnetic fields.

Table 4: National Planning Policy Framework

Topic & Paragraph	Policy Text	Assessment
Section 2: Achieving sustainable development. Paragraph 8	Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives): a) an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure; b) a social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and c) an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use	The Proposed Development achieves the three objectives of sustainable development. All of which have been a key consideration from the outset of the Proposed Development. The Applicant will deliver its vision for the Proposed Development guided by a series of project design principles, as set out in the Design Approach Document [EN010157/APP/5.7]. <u>Economic</u> As set out in the Planning Statement [EN010157/APP/5.5] and the Statement of Need at Appendix 3, the Proposed Development would contribute substantially to the need to supply low carbon energy, in order for the government to meet its objectives and commitments. By generating low carbon electricity at a low marginal cost, large-scale solar power reduces the energy generated by more expensive and more carbon intensive forms of generation. The Proposed Development will therefore help to decarbonise the electricity system and lowers the market price of electricity. While the Order Limits have not been allocated as employment land, the Proposed Development will bring a range of employment opportunities to the local area and therefore support this paragraph of the NPPF. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] considers the potential socio-

	of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.	economic impacts of the Proposed Development on the local economy during the construction, operation and decommissioning phases. The assessment finds that the majority of socio-economic impacts experienced during the construction and decommissioning phases relate to the creation of employment opportunities and increased spend on local services. Once operational, impacts on local labour market arising from operational and maintenance jobs would be more limited. The Applicant has developed the design of the Proposed Development to avoid, reduce or mitigate the requirement to use BMV land where possible. As set out in the Site Selection Assessment at Appendix 2 to the Planning Statement [EN010157/APP/5.5], the Applicant, from an early stage, sought to avoid land of higher agricultural quality. <u>Social</u> Good design has been a key consideration from the outset of the Proposed Development. As detailed in the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1], the location and design of the Proposed Development is the result of a comprehensive site selection process that was environmental, design and planning led to avoid and minimise impacts as early as possible. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] considers the potential socio-economic impacts of the Proposed Development. During the Operation (including maintenance) phase, the proposed permissive paths network is anticipated to benefit local residents and tourists from outside the areas

		as it improves the level of accessibility in the area. Therefore, there is anticipated to be a beneficial (not significant) effect on users of PRowS. There is also anticipated to be a beneficial (not significant) effect on accommodation providers due to the increased number of service users. ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] and ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] assess the disturbance (air quality and noise) from the Proposed Development. These chapters conclude that the residual effects of the Proposed Development are not significant in EIA terms. <u>Environmental</u> ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] outlines how the Applicant has sought to protect and enhance the natural environment as far as practical. The Applicant's assessment and application of the mitigation hierarchy for the Proposed Development has mitigated residual adverse effects to a level and this chapter conclude that the residual effects of the Proposed Development are not significant in EIA terms. The Proposed Development includes habitat creation and enhancement measures, as well as landscape and visual mitigation measures which will be secured within the Outline Landscape and Ecological Management Plan (LEMP) [EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development is committed to achieving significant biodiversity net gain on-site. The Proposed

		Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] provides an assessment of the Proposed Development on the historic environment, including above and below ground assets. It concludes that there will be no significant impacts to the historic environment as a result of the Proposed Development. ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2] sets out the mitigation measures embedded into the Proposed Development to mitigate the impacts on climate change.
Section 6: Building a strong, competitive economy. Paragraph 85	Planning policies and decisions should help create the conditions in which businesses can invest, expand and adapt. Significant weight should be placed on the need to support economic growth and productivity, taking into account both local business needs and wider opportunities for development. The approach taken should allow each area to build on its strengths, counter any weaknesses and address the challenges of the future. This is particularly important where Britain can be a global leader in driving innovation, and in areas with high levels of productivity, which should be able to capitalise on their performance and potential.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] assesses the impacts on employment resulting from the Proposed Development. The assessment found that the Proposed Development will have a beneficial effect on employment that is not significant during the construction phase. There is also anticipated to be a temporary beneficial residual effect on occupancy rates from an influx of workforce staff to the area during the construction phase, however this is not considered a significant effect. The Proposed Development will provide construction job opportunities over the anticipated 24 month construction programme. The Applicant estimates that a maximum of 350 construction jobs will be created during peak periods whilst the average number of construction staff likely to be present on site across the construction phase is approximately 250. The Applicant aims to, where reasonably practicable, use local construction and manufacturing businesses during the construction phase, which would help to support the creation of new direct job opportunities for local people.
Supporting a prosperous rural economy Paragraph 88	Planning policies and decisions should enable: a) the sustainable growth and expansion of all types of business in rural areas, both through conversion of existing buildings and well-designed, new buildings;	

	b) the development and diversification of agricultural and other land-based rural businesses; c) sustainable rural tourism and leisure developments which respect the character of the countryside; and d) the retention and development of accessible local services and community facilities, such as local shops, meeting places, sports venues, open space, cultural buildings, public houses and places of worship.	Should it not be possible to source construction staff locally, there may be a need to recruit staff from other regions. During the Operation (including maintenance) phase, the enhanced permissive paths network is anticipated to benefit local residents and tourists from outside the area. This is because users are more likely to utilise the PRoW network, due to the enhanced permissive path network, thereby improving the level of accessibility. Therefore, there is anticipated to be a beneficial (not significant) effect on users of PRoWs. There is also anticipated to be a beneficial (not significant) effect on accommodation providers due to the increased number of service users.
Open space and recreation. Paragraph 103	Access to a network of high quality open spaces and opportunities for sport and physical activity is important for the health and well-being of communities, and can deliver wider benefits for nature and support efforts to address climate change. Planning policies should be based on robust and up-to-date assessments of the need for open space, sport and recreation facilities (including quantitative or qualitative deficits or surpluses) and opportunities for new provision. Information gained from the assessments should be used to determine what open space, sport and recreational provision is needed, which plans should then seek to accommodate.	ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] concludes that recreation impacts of the Proposed Development are not significant at any phase and can be effectively mitigated through implementation of management plans secured in the DCO Application. It also concludes that adverse effects generated by the Proposed Development on recreation during the construction phase will be minor in impact magnitude, with a slight adverse residual effect post implementation of mitigation measures, which is considered not significant. A small area of Figham Common lies within the Order Limits, which will be used for the purposes of laying grid connection cable only. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] concludes that no significant adverse effects on users of Figham Common is anticipated. The Proposed Development will include several new permissive paths, approximately 12.6 km in length. This

		offers the potential for new recreational opportunities. The new permissive paths are as follows: • New permissive path creating a loop around Field B2, connecting to the existing Riston Footpath No. 2 at the north western and south western points of the field with a length of approximately 476 m; • New permissive path connecting Carr Lane to the existing Riston Footpath No. 2, along the north of Field B8 with a length of approximately 306 m; • New permissive path circuit, approximately 9.6 km in length, around a number of fields in Land Area D and E and providing a link to the existing Tickton Footpath No. 6. This circuit includes a loop around Field D18 and Field E6, both of which have been set aside for ecological enhancement. The circuit of permissive paths within Land Areas D and E, which totals approximately 9.4km, will be made available for horse riding; • New permissive path running along the eastern boundary of Field F6, through the area set aside for ecological enhancement in F9, F10 and F14, connecting with the existing Wawne Footpath No. 1 to the south of Field F16. The path has a length of approximately 2.1 km; and. New permissive path running along the eastern boundary of Field C8, approximately 290 m in length.
Paragraph 105	Planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails.	The Applicant proposes a comprehensive mitigation strategy to mitigate the impacts of the Proposed Development on the PRoW network, as detailed in the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]. As set out in the response to paragraph 103 of the NPPF, several new permissive

		paths are also being proposed as part of the Proposed Development.
Section 9: Promoting sustainable transport. Paragraph 109	Transport issues should be considered from the earliest stages of plan-making and development proposals, so that: a) the potential impacts of development on transport networks can be addressed; b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated; c) opportunities to promote walking, cycling and public transport use are identified and pursued; d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] provides an assessment on traffic and transport. The assessment concludes that no construction, operation or decommissioning impacts are anticipated to result in a significant adverse residual effect. The Applicant has submitted an Outline Construction Traffic Management Plan (CTMP) [EN010157/APP/7.7] which is provided in support of the DCO Application. The Outline CTMP includes outline travel plan measures, which seek to encourage the uptake of sustainable travel modes and reduce single occupancy car trips and would be developed further in consultation with the relevant highway authorities prior to the commencement of the Proposed Development. The production of a CTMP is secured within the Draft DCO [EN010157/APP/3.1]. The ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] has been produced in accordance with the relevant and current transport guidance. The Transport Assessment demonstrates that the Proposed Development will not have a significant adverse effect on the operation and safety of the surrounding highway network and sets out a range of mitigation measures to ensure this.
Paragraph 114	Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:	ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2] states that should the construction and decommissioning phases for nearby developments occur at the same time as the Proposed Development's construction and decommissioning, then there is the potential for adverse traffic and transport effects.

	a) making transport considerations an important part of early engagement with local communities; b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places; c) understanding and addressing the potential impacts of development on transport networks; d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated; e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.	However, these effects are not anticipated to be significant and no additional mitigation measures are required in response. Similarly, during the operation (including maintenance) phase of the Proposed Development, adverse traffic and transport effects are not anticipated to be significant.
Considering development proposals. Paragraph 116	Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.	
Paragraph 118	All developments that will generate significant amounts of movement should be required to	

	provide a travel plan, and the application should be supported by a vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored.	
Section 11: Making effective use of land Paragraph 125 (a) only	Planning policies and decisions should: a) encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains – such as developments that would enable new habitat creation or improve public access to the countryside; (...)	The Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5] and set out within the ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] .
Section 12: Achieving well-designed places. Paragraph 131	The creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities. Being clear about design expectations, and how these will be tested, is essential for achieving this. So too is effective engagement between applicants, communities, local planning authorities and other interests throughout the process.	Good design has been a key consideration from the outset. As detailed in the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] , the location and design of the Proposed Development is the result of a comprehensive site selection process that was environmental, design and planning led to avoid and minimise impacts as early as possible.
Paragraph 137	Design quality should be considered throughout the evolution and assessment of individual proposals. Early discussion between applicants, the local planning authority and local community about the design and style of emerging schemes is important for clarifying expectations and reconciling local and commercial interests.	ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] explains the design evolution of the Proposed Development and how it has undergone an iterative design process in response to consultee feedback and to sensitive receptors. The Applicant will deliver its vision for the Proposed Development guided by a series of project design principles, as set out in the Design Approach Document [EN010157/APP/5.7] .

	Applicants should, where applicable, provide sufficient information to demonstrate how their proposals will meet the design expectations set out in local and national policy, and should work closely with those affected by their proposals to evolve designs that take account of the views of the community. Applications that can demonstrate early, proactive and effective engagement with the community should be looked on more favourably than those that cannot.	
Paragraph 139	Development that is not well designed should be refused, especially where it fails to reflect local design policies and government guidance on design, taking into account any local design guidance and supplementary planning documents such as design guides and codes. Conversely, significant weight should be given to: a) development which reflects local design policies and government guidance on design, taking into account any local design guidance and supplementary planning documents such as design guides and codes; and/or b) outstanding or innovative designs which promote high levels of sustainability, or help raise the standard of design more generally in an area, so long as they fit in with the overall form and layout of their surroundings.	
Section 14: Meeting the challenge of	The planning system should support the transition to net zero by 2050 and take full account of all climate impacts including	The Proposed Development will make a substantial contribution to the achievement of UK decarbonisation

climate change, flooding and coastal change. Paragraph 161	overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.	targets through aiding in the reduction of greenhouse gas (GHG) emissions generated by the UK energy sector. ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2] presents a greenhouse gas (GHG) assessment over the lifetime of the Proposed Development. The GHG impact during construction, operation and decommissioning is assessed as having a significant beneficial effect as it will play a part in achieving the rate of transition required by nationally set policy commitments and supporting the trajectory towards net zero.
Planning for climate change. Paragraph 164	New development should be planned for in ways that: a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through incorporating green infrastructure and sustainable drainage systems; and b) help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings in plans should reflect the Government's policy for national technical standards.	ES Volume 4, Appendix 8.2: Climate Change Resilience Assessment [EN010157/APP/6.4] presents a climate change resilience assessment for the Proposed Development. An Outline Construction Environmental Management Plan (CEMP) [EN010157/APP/7.2] and Outline LEMP [EN010157/APP/7.5] have been prepared to accompany the DCO Application. These identify a range of mitigation measures that have been embedded into the Proposed Development to limit the GHG impact. The Proposed Development has also been designed to ensure that it does not exacerbate flood risk, and includes measures to reduce flood risk overall. This is set out in ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4].
Paragraph 168	When determining planning applications for all forms of renewable and low carbon energy developments and their associated infrastructure, local planning authorities should: a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the	The Planning Statement [EN010157/APP/5.5] including the Statement of Need, at Appendix 3, sets out how the Proposed Development would contribute substantially to the need to supply low carbon energy, in order for the government to meet its objectives and commitments as mentioned above. By generating low carbon electricity at a low marginal cost, large-scale solar power reduces the energy generated by more expensive and more carbon

	benefits associated with renewable and low carbon energy generation and the proposal's contribution to a net zero future; b) recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions; c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site.	intensive forms of generation. The Proposed Development will therefore help to decarbonise the electricity system and lowers the market price of electricity.
Planning and flood risk. Paragraph 170	Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.	Environment Agency mapping indicates that the Proposed Development is predominantly located in Flood Zones 2 and 3 but benefits from the presence of flood defences. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] confirms that flood risk during the construction, operation (including maintenance) and decommissioning phases would be managed through the Outline CEMP [EN010157/APP/7.2], Outline Operational Environmental Management Plan (OEMP) [EN010157/APP/7.3], Outline Decommissioning Environmental Management Plan (DEMP) [EN010157/APP/7.4] and Outline Soil Management Plan (SMP) [EN010157/APP/7.8] which are secured pursuant to requirements in the Draft DCO [EN010157/APP/3.1].
Paragraph 172	All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property. They should do this, and manage any residual risk, by: a) applying the sequential test and then, if necessary, the exception test as set out below; b) safeguarding land from development that is required, or likely to be required, for current or future flood management; c) using opportunities provided by new development and improvements in green and other infrastructure to reduce the	A Sequential and Exception Test have been applied to the location, design and layout of the Proposed Development and are detailed within Section 8.14 of this Planning Statement [EN010157/APP/5.5]. This concludes that the Site is sequentially preferable to any surrounding land in a lesser flood risk, and sets out how the Proposed

	causes and impacts of flooding, (making as much use as possible of natural flood management techniques as part of an integrated approach to flood risk management); and d) where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to relocate development, including housing, to more sustainable locations.	Development meets the Exception Test requirements in the national policy. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] assesses flood risk and drainage in the context of EIA. The assessment concludes that, with both embedded and additional mitigation measures secured as part of the Proposed Development, there would be no significant residual adverse effects upon receptors in relation to flood risk during the Proposed Development's operation (including maintenance).
Paragraph 174	Within this context the aim of the sequential test is to steer new development to areas with the lowest risk of flooding from any source. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower risk of flooding. The strategic flood risk assessment will provide the basis for applying this test.	The approach to the outline drainage strategy, set out in ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4], demonstrates that sustainable drainage techniques have been designed into the Proposed Development. These techniques would be maintained in accordance with the Outline OEMP [EN010157/APP/7.3] and secured pursuant to the Draft DCO [EN010157/APP/3.1].
Paragraph 175	The sequential test should be used in areas known to be at risk now or in the future from any form of flooding, except in situations where a site-specific flood risk assessment demonstrates that no built development within the site boundary, including access or escape routes, land raising or other potentially vulnerable elements, would be located on an area that would be at risk of flooding from any source, now and in the future (having regard to potential changes in flood risk).	The Proposed Development would be remotely operated and therefore access would only be required for routine or emergency maintenance. The ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] concludes that access during design or breach flood conditions is very unlikely. It also outlined mitigation to maximise the safety of access during prolonged wet weather in the event that shallow flooding were present on the site.
Paragraph 177	Having applied the sequential test, if it is not possible for development to be located in areas	

	with a lower risk of flooding (taking into account wider sustainable development objectives), the exception test may have to be applied. The need for the exception test will depend on the potential vulnerability of the site and of the development proposed, in line with the Flood Risk Vulnerability Classification set out in Annex 3.	
Paragraph 178	The application of the exception test should be informed by a strategic or site specific flood risk assessment, depending on whether it is being applied during plan production or at the application stage. To pass the exception test it should be demonstrated that: a) the development would provide wider sustainability benefits to the community that outweigh the flood risk; and b) the development will be safe for its lifetime taking account of the vulnerability of its users, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.	
Paragraph 179	Both elements of the exception test should be satisfied for development to be allocated or permitted.	
Paragraph 181	When determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at	

	risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that: a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location; b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment; c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate; d) any residual risk can be safely managed; and e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.	
Paragraph 182	Applications which could affect drainage on or around the site should incorporate sustainable drainage systems to control flow rates and reduce volumes of runoff, and which are proportionate to the nature and scale of the proposal. These should provide multifunctional benefits wherever possible, through facilitating improvements in water quality and biodiversity, as well as benefits for amenity. Sustainable drainage systems provided as part of proposals for major development should: a) take account of advice from the Lead Local Flood Authority;	The proposed surface water drainage strategy, which is included within the ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4], demonstrates that sustainable drainage techniques have been designed into the Proposed Development and will be maintained as detailed in the Outline OEMP [EN010157/APP/7.3] and secured through the Draft DCO [EN010157/APP/3.1]. Rain falling on the Site would slowly percolate into the ground, mimicking the existing situation at the Site. The approach to the outline drainage strategy has been approved by the LLFA and the IDB.

	b) have appropriate proposed minimum operational standards; and c) have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development.	
Section 15: Conserving and enhancing the natural environment. Paragraph 187	Planning policies and decisions should contribute to and enhance the natural and local environment by: a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs; e) preventing new and existing development from contributing to, being	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] identifies ecological risks from developing the Proposed Development. It has assessed impacts on protected species, habitats, and other species identified as being of principal importance for the conservation of biodiversity. Chapter 7 provides an assessment of anticipated biodiversity effects on identified receptors during the construction, operation (including maintenance) and decommissioning phases of the Proposed Development. It concludes that there is anticipated to be no significant adverse effects identified on any locally, nationally or internationally designated sites, or protected species during construction, operation (including maintenance) or decommissioning phases of the Proposed Development. The Proposed Development includes habitat creation and enhancement measures, as well as landscape and visual mitigation measures which will be secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development is committed to achieving significant biodiversity net gain on-site. The Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] and the Outline SMP [EN010157/APP/7.8] set out how agricultural land was considered in the design of Proposed Development, the

	put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.	Proposed Development's embedded mitigation measures, and principles on how the soils will be managed and protected during the construction, operation and decommissioning of the Proposed Development. ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] details the mitigation measures embedded into the design. These measures span both the construction and operation (including maintenance) phases of the Proposed Development. The assessment concludes that, by adopting the embedded mitigation measures and additional mitigation measures (as outlined within the Chapter), no construction, operation (including maintenance) or decommissioning impact is anticipated to result in a residual significant adverse effect. ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] assesses anticipated effects of the Proposed Development on local air quality. The assessment provides an overview of the existing baseline conditions for the study area, followed by an assessment of likely significant effects arising from the construction, operation (including maintenance), and decommissioning stages of the Proposed Development on air quality. The assessment concludes that there are no anticipated significant residual adverse effects on air quality as a result of the Proposed Development.
Paragraph 189	Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and National Landscapes which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be	ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] concludes that no part of the Proposed Development or its immediately surrounding context falls within a statutorily designated landscape. The nearest National Landscapes (previously known as Areas of Outstanding Natural Beauty) to the Site are the

	given great weight in National Parks and the Broads. The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.	Lincolnshire Wolds and Howardian Hills National Landscapes, both of which are over 30 km from the Site.
Habitats and biodiversity. Paragraph 193	When determining planning applications, local planning authorities should apply the following principles: a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] identifies ecological risks from developing the Proposed Development. It has assessed impacts on protected species, habitats, and other species identified as being of principal importance for the conservation of biodiversity. The assessment has been carried out by suitably qualified and experienced ecologists, who have advised during the design process to ensure that impacts are avoided, minimised and mitigated in line with the mitigation hierarchy, and biodiversity enhancements are maximised. There are five international statutory designations covering three sites within 10 km of the Order Limits, two statutory nationally designated sites within 2 km of the Order Limits. ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] concludes that there are no potential significant adverse effects identified on any internationally, nationally, or locally designated sites during construction, operation or decommissioning of the Proposed Development. Chapter 7 confirms that there are no ancient woodlands contained within the Order Limits. There are however ~~three~~ <u>two</u> veteran trees ~~within~~ <u>or adjacent to</u> the Order Limits. The Outline CEMP [EN010157/APP/7.2] details and secures measures to minimise effects on these three trees. Therefore, veteran and/or ancient trees will not be affected by the Proposed Development.

	d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.	The Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development is committed to achieving significant biodiversity net gain on-site. The Proposed Development also includes the creation of several new permissive paths. These would enhance public access to the Order Limits and create benefits for the users of the existing public rights of way, as set out in the ES Volume 2, Chapter 13: Population [EN010157/APP/6.2].
Ground conditions and pollution. Paragraph 196	Planning policies and decisions should ensure that: a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation); b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] is supported by the findings of a Preliminary Risk Assessment (ES Volume 4, Appendix 10.1: Preliminary Risk Assessment [EN010157/APP/6.4]). Where land contamination has been identified, this chapter has assessed the significant effects where they are likely to occur. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] sets out that land contamination has been scoped into the EIA assessment. The baseline conditions have been established by a Preliminary Risk Assessment, provided in ES Volume 4, Appendix 10.1: Preliminary Risk Assessment [EN010157/APP/6.4]. The Preliminary Risk Assessment concluded moderate to low risk in relation to: - groundwater in principal aquifer/source protection zones being affected by contamination from potential contamination from agricultural land use, contamination in made ground, accidental release of fuel, oil or chemicals or contamination in

		historical landfill sites. Pathways could include leaching, percolation to the aquifer, lateral migration and run-off/drainage, migration pathways created via piling into bedrock. - Site users due to build-up of ground gases generated by waste in historical landfill sites, potentially resulting in asphyxiation or explosion. - Site buildings or infrastructure due to build-up of ground gases generated by historical landfill sites, potentially resulting in explosion. The outcome of this assessment informed further assessment work to be carried out for the Proposed Development to ensure that the Site is suitable. Agricultural Land Classification grade will not be changed by the Proposed Development and any impact to the quality of soil would be temporary and reversible (with works all being completed in accordance with the Outline SMP [EN010157/APP/7.8] and Outline CEMP [EN010157/APP/7.2]. The Draft DCO [EN010157/APP/3.1] is also time limited to a 40-year duration. Following the end of this period, decommissioning will take place and the land will be returned to its previous agricultural land use. Therefore, there is not anticipated to be a residual loss in BMV agricultural land as a result of the Proposed Development. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] has assessed that it is likely for the BMV agricultural land (grades 1 and 2) to have significant residual effects with a minor impact magnitude. These adverse effects are a result from the compaction and subsequent deterioration in the highly sensitive BMV agricultural land.

		For a development of this scale, it is considered impracticable to locate on land that is entirely outside of very high sensitivity BMV agricultural land. The Site Selection Assessment contained within Appendix 2 to the Planning Statement [EN010157/APP/5.5] has given appropriate consideration and weight to first attempt to reasonably avoid BMV agricultural land. Where found to be unavoidable mitigation measures set out in the Outline SMP [EN010157/APP/7.8] and Outline CEMP [EN010157/APP/7.2] will effectively manage the significant adverse effects as far as reasonably practicable.
Paragraph 198	Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.	ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] assesses the likely noise and vibration effects arising from the Proposed Development. It details the mitigation measures embedded into the design and concludes that several moderate and major adverse effects (where major adverse effects relate to the construction phase only) are anticipated post-implementation of embedded mitigation measures. Therefore, several additional mitigation measures are proposed to minimise the significance of noise and vibration effects to receptors. These measures are detailed within ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2]. With the inclusion of embedded and additional mitigation measures in place, the Proposed Development is not anticipated to result in a significant residual adverse noise and vibration effect. ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1] outlines the security measures incorporated in the design of the Proposed Development design including the need for lighting. Infrared sensor triggered security lighting would be

		required around key electrical infrastructure however, no areas of the Proposed Development would be continuously lit. Efforts have been made to reduce the impact of security fencing and lighting, as set out in detail in the Outline LEMP [EN010157/APP/7.5] , Outline CEMP [EN010157/APP/7.2] , Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4] .
Paragraph 199	Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.	The Proposed Development is located within the administrative area of East Riding of Yorkshire Council. There are currently no Air Quality Management Areas (AQMAs) declared within this administrative area. Further, the administrative area of East Riding of Yorkshire Council does not contain any Clean Air Zones. ES Volume 4, Appendix 6.1: Air Quality Assessment [EN010157/APP/6.4] provides a detailed air quality assessment in support of ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] which assesses the likely significant effects of the Proposed Development on local air quality. The assessment, alongside the cumulative air quality effects assessment contained within ES Volume 2, Chapter 15: Cumulative Effects [EN010157/APP/6.2], concludes that significant residual or cumulative adverse effects on air quality as a result of the Proposed Development are not anticipated. An Outline CTMP [EN010157/APP/7.7] has been produced to support and secure mitigation measures in relation to the construction of the Proposed Development. This summarises the specific transport impacts predicted to arise from the construction works and provides a framework for the management of construction traffic. Specific to air quality matters, the Outline CTMP [EN010157/APP/7.7] establishes the framework measures required to limit the impacts on the natural and

		built environment, such as air quality, where practicable. Further the Outline Travel Plan included as Appendix 1 to the Outline CTMP [EN010157/APP/7.7] has been produced to support and will provide a framework for the delivery of sustainable transport objectives.
Section 16: Conserving and enhancing the historic environment, Proposals affecting heritage assets. Paragraph 207	In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.	ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] provides an assessment of the Proposed Development on the historic environment, including above, at, and below ground assets. The Chapter is supported by: - ES Volume 4, Appendix 9.1: Archaeological Desk-Based Assessment [EN010157/APP/6.4], which aims to identify and describe all known heritage assets potentially affected by the Proposed Development, their significance and importance and the potential for currently unknown heritage assets to be present; - ES Volume 4, Appendix 9.2: Geophysical Survey Report [EN010157/APP/6.4] and ES Volume 4, Appendix 9.3: Archaeological Trial Trenching Report [EN010157/APP/6.4], which present the results of evaluation fieldwork undertaken within the Proposed Development in support of this DCO Application, and - ES Volume 4, Appendix 9.4: Detailed Settings Impact Assessment [EN010157/APP/6.4] which presents the results of a detailed settings assessment which identifies heritage assets whose significance may be diminished as a result of changes to their settings caused by the Proposed Development.
Considering potential impacts. Paragraph 213	Any harm to, or loss of, the significance of a designated heritage asset (from its alteration or destruction, or from development within its setting), should require clear and convincing justification. Substantial harm to or loss of: a) grade II listed buildings, or grade II registered parks or gardens, should be exceptional;	

	b) assets of the highest significance, notably scheduled monuments, protected wreck sites, registered battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional.	The conclusions of the four appendices have informed ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2]. ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] concludes no significant residual adverse effects are anticipated on designated or non-designated heritage assets, including Listed Buildings or Scheduled Monuments, as a result of the Proposed Development, post adoption of embedded and additional mitigation measures. This embedded mitigation, as set out in ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] includes, but is not limited to: - Including a buffer from solar PV development of 100 m to the south of Meaux Abbey Scheduled Monument; and - Where in situ below-ground archaeological remains are known to be present within the footprints of the solar PV modules, an alternative mounting structure would be used, in the form of ballast slabs which sit on the ground's surface rather than penetrating the ground. The additional mitigation measures include, but are not limited to: - The Archaeological Management Strategy [EN010157/APP/7.11] outlines a programme of archaeological investigation and/or mitigation to be carried out prior to or during the construction activities including processes, procedures, standards and guidance which should be followed. Known and currently unknown archaeological remains within the Order Limits will be managed through a staged programme of
Paragraph 216	The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that directly or indirectly affect non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset.	

		post-consent archaeological evaluation and mitigation work whose aim will be to either preserve in situ or, where this is not possible, preserve by record. Preservation in situ will be the preferred option in all cases. Such works are anticipated to be required if the Proposed Development is granted; - The Outline CEMP [EN010157/APP/7.2] seeks to avoid or greatly reduce possible adverse effects from changes in air quality and traffic to the settings of heritage assets during the construction phase; - The Outline LEMP [EN010157/APP/7.5] seeks to avoid or greatly reduce possible adverse effects from changes in land use to the settings of heritage assets during the operation (including maintenance) phase.; and - The Outline OEMP [EN010157/APP/7.3] seeks to avoid or greatly reduce possible adverse effects from changes in air quality and traffic to the settings of heritage assets during the operation (including maintenance) phase. The Planning Statement [EN010157/APP/5.5] includes a Substantial Harm Assessment at paragraphs 8.4.15 to 8.4.24 and concludes that, with the implementation of embedded and additional mitigation measures as set out above, the Proposed Development will have effects on known heritage assets that are no greater than minor, which is considered to be 'less than substantial harm'.

Table 5: Local Planning Policy

East Riding Local Plan (ERLP) 2012 – 2029 Adopted Plan – April 2016			
Policy	Policy Text	Emerging Plan Policy Text	Assessment
Policy S1 Presumption in favour of sustainable development	<u>Development proposals</u> - When considering development proposals the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework. It will work proactively with applicants to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the East Riding of Yorkshire. - The Local Plan should be read as a whole. Planning applications that accord with the policies in the Local Plan will be approved without delay, unless material	a. When considering development proposals the Council will take a positive approach that reflects the three overarching objectives of sustainable development as set out in paragraph 8 of the National Planning Policy Framework, economic, social and environmental, whilst taking in to account local circumstances. It will work proactively with applicants to find solutions which mean that proposals can be approved wherever possible, and to secure development that supports the Council's Vision and Objectives for the Local Plan and the other documents which make up the development plan. b. The Local Plan should be read as a whole and in conjunction with the other documents which make up the development plan. Planning applications that accord with the policies in the development plan will be approved	As set out within Paragraph 8 of Table 4 of this Appendix, the Proposed Development achieves the three objectives of sustainable development. The Planning Statement [EN010157/APP/5.5] sets out the need for large-scale ground mounted solar is established in national planning policy, specifically NPS EN-1 and NPS EN-3. Section 9 of the Planning Statement [EN010157/APP/5.5] concludes that the limited residual effects of the Proposed Development do not outweigh its urgent need, and do not represent an unacceptable risk that would negate the presumption in favour of consent for this Critical National Priority infrastructure. The Proposed Development would

East Riding Local Plan (ERLP) 2012 – 2029			
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Policy	Policy Text	Emerging Plan Policy Text	Assessment
	considerations indicate otherwise - taking into account whether: - Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or - Specific policies in that Framework indicate that development should be restricted.	without delay, unless material considerations indicate otherwise. c. Proposals should ensure that, where appropriate, development will support the future sustainable growth of settlements. Future access and connectivity to neighbouring land should be taken in to consideration.	deliver greater benefit than adverse effects and would contribute to an urgent national need for low carbon infrastructure.
Policy S2: Addressing climate change	The Local Plan and development decisions will support a reduction in greenhouse gas emissions and adaptation to the expected impacts of climate change. Table 1 sets out how this will be achieved: Direct most new development to areas where there are services, facilities, homes and jobs, which reduces the need to travel and	Development proposals will be supported where they reduce the generation of additional greenhouse gas emissions and incorporate adaptation to the expected impacts of climate change. This will be accomplished by: a. Directing most new development to areas where there are services, facilities, homes and jobs, reducing the need to travel and where it can be served more easily and viably by sustainable modes of transport.	As a renewable energy generation scheme, the Proposed Development will make a substantial contribution to the achievement of UK decarbonisation targets through aiding in the reduction of greenhouse gas (GHG) emissions generated by the UK energy sector. ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2]

East Riding Local Plan (ERLP) 2012 – 2029 Adopted Plan – April 2016			
Policy	Policy Text	Emerging Plan Policy Text	Assessment
	where it can be served by sustainable modes of transport. - Promote the most efficient use of land, mineral, energy and water resources. - Support the re-use of the area's building stock and previously developed land. - Build at higher densities where appropriate and supporting opportunities for mixed use development. - Promote sustainable modes of transport and well-connected places. - Promote the creation of economic clusters for the renewable and low carbon energy sector. - Encourage high standards of sustainable design and construction which involve the prudent and efficient use of natural resources and built-in resilience to the impacts of climate change. - Promote renewable and decentralised energy generation in appropriate locations.	b. Efficiently using land, mineral, energy and water resources. c. The re-use of the area's building stock and previously developed land. d. Building at higher densities where appropriate and supporting opportunities for mixed use development. e. Promoting sustainable modes of transport and well-connected places. f. Promoting the creation of economic clusters for the renewable and low carbon energy sector. g. Incorporating high standards of sustainable design and construction which involve design approaches minimising energy demands, the prudent and efficient use of natural resources, and built-in resilience to the impacts of climate change (e.g. overheating, flood risk). h. Incorporating renewable, low carbon and decentralised energy generation and heat networks in appropriate locations and schemes where possible. i. Supporting proposals that protect, enhance and link habitat networks to allow biodiversity to adapt to climate change.	presents a greenhouse gas (GHG) assessment over the lifetime of the Proposed Development. The GHG impact during construction, operation and decommissioning is assessed as having a significant beneficial effect as it will play a part in achieving the rate of transition required by nationally set policy commitments and supporting the trajectory towards net zero. An Outline Construction Environmental Management Plan (CEMP) [EN010157/APP/7.2] and Outline Landscape and Ecological Management Plan (LEMP) [EN010157/APP/7.5] have been prepared to accompany the DCO Application. These identify a range of mitigation measures that have been embedded into the Proposed Development to limit the GHG impact.

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Policy	Policy Text	Emerging Plan Policy Text	Assessment
	- Promote proposals that protect, enhance and link habitat networks to allow biodiversity to adapt to climate change. - Conserve, enhance and link green infrastructure networks to provide flood management, shading for urban areas and natural air conditioning. - Promote development away from areas of high flood risk, as far as possible. - Support sustainable flood management proposals. - Support the implementation of the most recent Shoreline Management Plan. - Manage development in coastal areas and facilitate the re-location/roll back of development from areas between Barmston and Spurn Point.	j. Conserving, enhancing and linking green infrastructure networks to provide flood management, shading in areas of built development and natural air conditioning. k.	The Proposed Development has also been designed to ensure that it does not exacerbate flood risk, and includes measures to reduce flood risk overall. This is set out in ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] confirms that the Proposed Development is expected to achieve a net gain for area habitat units, hedgerow units and watercourse units, which substantially exceeds the statutory requirement to deliver a minimum of 10%. The post-development habitats will be created, enhanced, managed and maintained in accordance with the LEMP (which will be produced pursuant to the DCO as a requirement and will be substantially in accordance with the Outline LEMP [EN010157/APP/7.5]).

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			The DCO Application is supported by an Outline Construction Traffic Management Plan (CTMP) [EN010157/APP/7.7] which includes an Outline Travel Plan at Appendix 1 and details measures which seek to reduce single occupancy car trips and encourage sustainable modes of travel.
Policy S3: Focusing development	a. New development will be supported where it is focused within the following locations: 1. The defined Settlement Network which consists of land within the development limits of: i. The Major Haltemprice Settlements – those settlements in the East Riding immediately to the west of the City of Hull – Anlaby, Cottingham, Hessle, Kirk Ella and Willerby;	a. New development will be supported where it is focused within the following locations: 1. The defined Settlement Network which consists of land within the development limits of: i. The Major Haltemprice Settlements – those settlements in the East Riding immediately to the west of the City of Hull – Anlaby, Cottingham, Hessle, Kirk Ella and Willerby; ii. Principal Towns – Beverley, Bridlington, Driffield, and Goole; iii. Towns – Elloughton cum Brough, Hedon, Hornsea,	The Order Limits do not conflict with any allocations within the Local Plan (adopted and emerging) and would not restrict the achievement of the objectives of Policy S3. Details of the site selection process are provided within the Site Selection Assessment at Appendix 2 to the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]. The location of the Proposed Development in the Countryside is

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	ii. Principal Towns – Beverley, Bridlington, Driffild and Goole; iii. Towns – Elloughton-cum-Brough, Hedon, Hornsea, Howden, Market Weighton, Pocklington and Withernsea; iv. Rural Service Centres – Aldbrough, Beeford, Bubwith, Gilberdyke/Newport, Holme on Spalding Moor, Hutton Cranswick, Keyingham, Kilham, Leven, Middleton on the Wolds, Patrington, Snaith, Stamford Bridge and Wetwang; and v. Primary Villages – Bilton, Brandesburton, Cherry Burton, Dunswell, Easington, Eastrington, Flamborough, Leconfield, Melbourne, Nafferton, North Cave, North Ferriby, Preston, Rawcliffe, Roos, Skirlaugh, South Cave,	iv. Howden, Market Weighton, Pocklington and Withernsea; - Rural Service Centres – Aldbrough, Beeford, Bubwith, Gilberdyke/Newport, Holme on Spalding Moor, Hutton Cranswick, Keyingham, Kilham, Leven, Middleton on the Wolds, Patrington, Snaith, Stamford Bridge and Wetwang; and v. Primary Villages – Bilton, Brandesburton, Cherry Burton, Dunswell, Easington, Eastrington, Flamborough, Leconfield, Melbourne, Nafferton, North Cave, North Ferriby, Preston, Rawcliffe, Roos, Skirlaugh, South Cave, Tickton, Walkington, Wawne, Wilberfoss and Woodmansey. 2. Key Employment Sites along the East-West Multi-Modal Transport Corridor – Hedon Haven, Humber Bridgehead (Hessle), Melton and Junction 36 (M62) at Goole. b. Development will be supported where it is an appropriate scale to its location	justified due to: the Proposed Development's delivery of the substantial renewable energy generation that the Proposed Development will provide, the need to be in sufficient proximity of the connection point to the National Electricity Transmission System (NETS) and the contribution of the Proposed Development in meeting the established and urgent need for renewable energy generation infrastructure.

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	Swanland, Thorngumbald, Tickton, Walkington, Wawne, Wilberfoss and Woodmansey. 2. Key Employment Sites along the East-West Multi-Modal Transport Corridor – Hedon Haven, Humber Bridgehead (Hessle), Melton and Capitol Park (Goole). b. The Major Haltemprice Settlements, Principal Towns and Towns will be the main focus of growth in the East Riding with the Key Employment Sites providing a main focus for employment development. The Rural Service Centres and Primary Villages will provide for more limited development in rural areas complemented by existing employment sites. New development will be encouraged where it involves the re-use of suitable previously developed land. c. The Major Haltemprice Settlements will be a focus for	and does not detract from the character and appearance of the settlement. The Major Haltemprice Settlements, Principal Towns and Towns will be the main focus of growth in the East Riding with the Key Employment Sites providing a main focus for employment development. The Rural Service Centres and Primary Villages will provide for more limited development in rural areas complemented by existing employment sites. New development will be encouraged where it involves the re-use of suitable previously developed land. <u>The Major Haltemprice Settlements</u> i. The Major Haltemprice Settlements will be a focus for development, commensurate with their location close to the City of Hull, whilst recognising the need to support the regeneration interventions and development proposals within the city. <u>Principal Towns</u> ii. Principal Towns will be centres of economic development and housing	

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	development, commensurate with their location close to the City of Hull, whilst recognising the need to support the regeneration interventions and development proposals within the city. d. Principal Towns will be centres of economic development and housing growth and cater for the service needs of significant parts of the East Riding. They will be a key focus for services and facilities, including shopping, leisure, transport, education, health, entertainment, tourism, recreation and cultural activities. e. Towns will provide the local focus for housing, economic development, shopping, leisure, transport, education, health, entertainment, tourism, recreation and cultural activities for the town and its rural hinterland. These towns will support and complement the Principal Towns, the Major Haltemprice Settlements and the City of Hull. Rural Service Centres and Primary Villages	growth and cater for the service needs of significant parts of the East Riding. They will be a key focus for services and facilities, including shopping, leisure, transport, education, health, entertainment, tourism, recreation and cultural activities <u>Towns</u> iii. Towns will provide the local focus for housing, economic development, shopping, leisure, transport, education, health, entertainment, tourism, recreation and cultural activities for the town and its rural hinterland. These towns will support and complement the Principal Towns, the Major Haltemprice Settlements and the City of Hull. Rural Service Centres and <u>Primary Villages</u> iv. To sustain the overall vitality of rural areas, development to meet local community needs and sustainable economic growth will be supported in Rural Service Centres and Primary Villages, complementing the roles of Towns in meeting some of the basic	

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	f. In order to sustain the overall vitality of rural areas, development to meet local community needs and sustainable economic growth will be supported in Rural Service Centres and Primary Villages, complementing the roles of Towns in meeting some of the basic needs outside of the Major Haltemprice Settlements and Principal Towns. g. To ensure the delivery of the overall spatial approach, the following forms of development will be supported in Rural Service Centres and Primary Villages: 1. Residential development, including affordable housing, commensurate with the scale, role and character of the village. 2. New and/or enhanced local services and facilities. 3. Economic development appropriate to the scale of the village. Key Employment Sites	needs outside of the Major Haltemprice Settlements and Principal Towns. v. To ensure the delivery of the overall spatial approach, the following forms of development will be supported in Rural Service Centres and Primary Villages: 1. Residential development, including affordable housing, commensurate with the scale, role and character of the village. 2. New and/or enhanced local services and facilities. 3. Economic development appropriate to the scale of the village. <u>Key Employment Sites</u> vi. Key Employment Sites will act as a main focus for employment development making use of their strategic location on the East-West Multi-Modal Transport Corridor. They will support the growth of the key employment sectors and clusters by providing significant opportunities for inward investment and expanding local businesses. <u>Development Limits</u>	

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	h. Key Employment Sites will act as a main focus for employment development making use of their strategic location on the East-West Multi-Modal Transport Corridor. They will support the growth of the key employment sectors and clusters by providing significant opportunities for inward investment and expanding local businesses. Development Limits I. Development limits for the settlements and Key Employment Sites listed above are set out on the Policies Map.	Development limits for the settlements and Key Employment Sites listed above are set out on the Policies Map Update or as proposed by a Neighbourhood Plan.	
Policy S4: Supporting development in Villages and the Countryside	a. Outside of the settlements listed in Policy S3, development will be supported to help maintain the vibrancy of Villages (listed in Appendix B) and the Countryside where it: 1. Is of an appropriate scale to its location taking into account the need to support sustainable patterns of development;	a. Outside of the settlements listed in Policy S3, development will be supported to help maintain the vibrancy of Villages (listed in Appendix B) and the Countryside where it: 1. Is of an appropriate scale to its location taking into account the need to support sustainable patterns of development; 2. Encourages the re-use of previously developed land where appropriate; and	Details of the site selection process are provided within the Site Selection Assessment at Appendix 2 to the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]. The location of the Proposed Development in the Countryside is justified due to: the Proposed Development's delivery of the

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	2. Encourages the re-use of previously developed land where appropriate; and 3. Does not involve a significant loss of best and most versatile agricultural land. Development in Villages and the Countryside should also accord with the specific provisions of parts B or C of this policy. Villages b. Within the development limits of Villages, as set out on the Policies Map, the following forms of development will be supported where it does not detract from the character and appearance of the village: 1. New housing, usually comprising a single dwelling; 2. Affordable housing for local people; 3. New and/or enhanced local services and facilities; and 4. Economic development.	3. Does not involve a significant loss of best and most versatile agricultural land. 4. Development in Villages and the Countryside should also accord with the specific provisions of Part C or D of this policy. Proposals not listed under Part D should demonstrate why they require a rural location. Villages b. Within the development limits of Villages, as set out on the Draft Policies Map Update, the following forms of development will be supported where it does not detract from the character and appearance of the village: 1. New housing, including affordable housing for local people; 2. New and/or enhanced local services and facilities; and 3. Economic development. Countryside c. Outside of a development limit land will be regarded as the Countryside and the following forms of development are	substantial renewable energy generation that the Proposed Development will provide, the need to be in sufficient proximity of the connection point to the National Electricity Transmission System (NETS) and the contribution of the Proposed Development in meeting the established and urgent need for renewable energy generation infrastructure. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] confirms that the operation (including maintenance) phase of the Proposed Development would lead to a temporary and reversible change of land use of approximately 712.1 hectares of land, of which approximately 35.1% is classified as Best and Most Versatile (BMV) agricultural land. This land take would be temporary (up to a 40-year duration), with the land being

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	Countryside c. Outside of a development limit land will be regarded as the Countryside and the following forms of development supported, where proposals respect the intrinsic character of their surroundings: 1. Conversion of buildings for economic development (including work-live units), tourism or community uses. d. Conversions for new housing will be supported where the preservation of the building would enhance the immediate setting and where it: 1. would represent the optimal viable use of a heritage asset or would be appropriate enabling development to secure the future of a heritage asset; or 2. would re-use a redundant or disused building without significant alteration or significant extension.	supported, where proposals respect the intrinsic character of their surroundings: 1. Conversion of buildings for economic development (including work-live units), tourism or community uses. Conversions for new housing will be supported where the preservation of the building would enhance the immediate setting and where it: i. would represent the optimal viable use of a heritage asset or would be appropriate enabling development to secure the future of a heritage asset; or ii. would re-use a redundant or disused building without significant alteration or significant extension. 2. Replacement dwellings; 3. New dwellings of exceptional quality or of truly outstanding innovative design; 4. Affordable housing for local people; d. Agricultural, forestry or other rural-based occupational dwellings subject to demonstrating an essential need. Such	returned to an agricultural state during the decommissioning phase of the Proposed Development. Agricultural land quality was a key consideration in the Applicant's site selection process contained within the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5]. The Agricultural Land Classification grade will not be changed by the Proposed Development and any impact to the quality of soil would be temporary and reversible (with works all being completed in accordance with the Outline Soil Management Plan (SMP) [EN010157/APP/7.8] and Outline CEMP [EN010157/APP/7.2]. The Draft DCO [EN010157/APP/3.1] is also time limited to a 40-year duration, with decommissioning to be complete at the end of this period, where the land, with the

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	e. Replacement dwellings; f. New dwellings of exceptional quality or of truly outstanding innovative design; g. Affordable housing for local people; h. Agricultural, forestry or other rural-based occupational dwellings subject to demonstrating an essential need. Such dwellings will be subject to an agricultural occupancy condition; i. Employment uses in accordance with Policy EC1; j. Agricultural, horticultural and forestry uses; k. New and enhanced infrastructure; l. Energy development and associated infrastructure; m. Development to support existing military defence operations; and n. Sports, equine, recreation, community facilities and tourism development.	- dwellings will be subject to an agricultural occupancy condition; e. Employment uses in accordance with Policy EC1; f. Agricultural, horticultural and forestry uses; g. New and enhanced infrastructure; h. Energy development and associated infrastructure; i. Development to support existing military defence operations; and j. Sports, equine, recreation, community facilities and tourism development.	exception of 1.3 hectares on non-BMV agricultural land, will be returned to its previous agricultural land use. Therefore, there is not anticipated to be a residual loss in BMV agricultural land as a result of the Proposed Development.
Policy S8: Connecting	a. New development should ensure that people and places are well connected.	a. New development should ensure that people and places are well connected. b. The overall role and function of the Strategic Transport Network, as shown	ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.2] provides an

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people and places	b. The overall role and function of the Strategic Transport Network, as shown in Figure 7, will be protected and/or enhanced, having regard to the investment priorities, policies, and proposals of the Local Transport Plan and other related strategies. c. Transport schemes that improve the overall capacity and coverage of the transport network will be supported. Where appropriate land will be safeguarded for these schemes in the Allocations Document, Bridlington Town Centre Area Action Plan, or a Neighbourhood Development Plan. d. The role and function of the East-West Multi-Modal Transport Corridor, which serves the transport needs of Key Employment Sites, will be protected and/or enhanced, where appropriate, to enable the efficient and integrated movement of freight by, and between, different transport modes.	in Figure 5, will be protected and/or enhanced, having regard to the investment priorities, policies, and proposals of the Local Transport Plan and other related strategies. c. Transport schemes that improve the overall capacity and coverage of the transport network will be supported. Where appropriate land will be safeguarded for these schemes in the Allocations Document Update or a Neighbourhood Plan. d. The role and function of the East-West Multi-Modal Transport Corridor, which serves the transport needs of Key Employment Sites, will be protected and/or enhanced, where appropriate, to enable the efficient and integrated movement of freight by, and between, different transport modes, as well as for the movement of people from their homes to jobs. e. Roadside facilities and parking essential to support the safety and welfare of motorists and lorry drivers will be supported, where they are of an appropriate scale, meet an identified need, and can be accessed safely.	assessment on traffic and transport. The assessment concludes that no construction, operation or decommissioning impacts are anticipated to result in a significant adverse residual effect. The Applicant has submitted an Outline CTMP [EN010157/APP/7.7] which is provided in support of the DCO Application. The Outline CTMP includes outline travel plan measures which seek to reduce single occupancy car trips and encourage sustainable modes of travel. The Outline CTMP [EN010157/APP/7.7] would be developed further in consultation with the relevant highway authorities prior to the commencement of the Proposed Development. The East-West Multi-Modal Transport Corridor, or the A63 and M62 as referenced in the ES Volume 2, Chapter 14:

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	e. Roadside facilities essential to support the safety and welfare of motorists will be supported, where they are of an appropriate scale and meet an identified need. f. Existing and future port operations at Goole within the Operational Port Area, as shown on the Policies Map, will be safeguarded from development which would conflict with this use. g. Existing wharf and rail facilities on the Aire and Calder Canal, River Ouse, Humber Estuary, and elsewhere will be safeguarded to maintain a choice of sustainable transport modes. h. Existing and disused public transport, cycling and footpath networks and facilities, including Public Rights of Way, will be enhanced and/or protected, particularly within and linking to the Major Haltemprice Settlements, Principal Towns, and Towns. i. Proposals which facilitate integration between different	f. Existing and future port operations at Goole within the Operational Port Area, as shown on the Policies Map Update, will be safeguarded from development which would conflict with this use. Where port operations could have a significant adverse effect on new development in its vicinity, applicants should be required to provide suitable mitigation before the development has been completed. g. Existing wharf and rail facilities on the Aire and Calder Canal, River Ouse, Humber Estuary, and elsewhere will be safeguarded to maintain a choice of sustainable transport modes. h. Provision of new walking, cycling and public transport facilities will be supported. Existing and disused public transport, cycling and footpath networks and facilities, including public rights of way, will be enhanced and/or protected, particularly within and linking to the Major Haltemprice Settlements, Principal Towns, and Towns as well as existing and proposed blue/green infrastructure corridors.	Transport and Access [EN010157/APP/6.2], have been scoped out of the assessment as it was expected that the distribution of traffic would result in a low proportional change in traffic volumes as a result of the Proposed Development, including during peak hours. The production of a CTMP is secured within the Draft DCO [EN010157/APP/3.1]. The ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] has been produced in accordance with current transport guidance. The Transport Assessment demonstrates that the Proposed Development will not have a significant adverse effect on the operation and safety of the surrounding highway network and sets out a range of mitigation measures to ensure this.

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	modes of travel, especially walking, cycling and public transport, will be encouraged. j. Initiatives that improve accessibility in rural areas will be supported, through working with the Local Transport Plan and other strategies and programmes, including the community transport sector.	i. Proposals that facilitate integration and connection between different modes of travel, especially walking, cycling and public transport, will be encouraged. j. Initiatives that improve accessibility in rural areas will be supported, through working with the Local Transport Plan and other strategies and programmes, including the community transport sector.	The Applicant proposes a comprehensive mitigation strategy to mitigate the impacts of the Proposed Development on the PRoW network, as detailed in the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]. In addition, the Proposed Development will include several new permissive paths, approximately 12.6 km in length. This offers the potential for new recreational opportunities.
Policy S9: Strengthening blue/green infrastructure		a. Development proposals will: 1. Incorporate a comprehensive design that is underpinned by its consideration of existing and new blue/green infrastructure features, including those features required by policies ENV1, 2, 3, 4, 5, 6 and C3; and 2. Capitalise on opportunities to: i. Maintain, enhance and where possible create links between blue/green infrastructure features such as those listed in Table 6. Links should be	Good design has been a key consideration from the outset. As detailed in the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1], the location and design of the Proposed Development is the result of a comprehensive site selection process that was environmental, design and

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		created both on-site and, where possible, with nearby blue/green infrastructure features; ii. Utilise potential multifunctional benefits of blue/green infrastructure features; and iii. Enhance blue/green infrastructure opportunities identified in Neighbourhood Plans. 3. Development proposals within, or in close proximity to, a blue/green infrastructure corridor should enhance the functionality and connectivity of the corridor. 4. Development proposals should seek to avoid increasing recreational pressures on designated biodiversity assets. Where a potential increase is unavoidable proposals will provide mitigation in the form of blue/ green infrastructure provision.	planning led to avoid and minimise impacts as early as possible. The Design Approach Document [EN010157/APP/5.7] outlines how good design will influence every decision; with conservation and enhancement of the local environment at the core of the design approach. The project design principles seek to preserve features of the landscape that contribute to the character and identity of the local area, giving particular consideration to the natural, historic and recreational environment. ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] outlines measures embedded within the Proposed Development design will ensure that adverse effects on designated sites are reduced as far as reasonably practicable during the construction, operation (including

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			maintenance) and decommissioning phases. Given the nature of the use, the Proposed Development is not anticipated to increase recreational pressures on designated biodiversity assets. In addition, the Proposed Development also includes the creation of several new permissive paths. These would enhance public access to the Order Limits and create benefits for the users of the existing public rights of way, as set out in the ES Volume 2, Chapter 13: Population [EN010157/APP/6.2]. The Proposed Development includes extensive new tree and hedgerow planting and improvement of existing hedgerows by ‘gapping-up’, where required, with a diverse mix of native species. These will provide both a valuable habitat, forming important wildlife corridors and re-enforcing existing ones, as set out

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			in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and secured by the Outline LEMP [EN010157/APP/7.5]. The Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development is committed to achieving significant biodiversity net gain on-site.
Policy EC1: Supporting the growth and diversification of the East Riding economy	a. To strengthen and encourage growth of the East Riding economy, employment development will be supported where the proposal is of a scale suitable to the location. Proposals will be encouraged where they: 1. Contribute to the modernisation, development	a. To strengthen and encourage growth of the East Riding economy, employment development will be supported where the proposal is of a scale suitable to the location. Proposals will be encouraged where they: 1. Contribute to the modernisation, decarbonisation, development and diversification of the local economy, including remote working and co-working;	As a renewable energy generation scheme, the Proposed Development will strengthen one of East Riding's key employment sectors. The Proposed Development will make a substantial contribution to meeting the established and urgent need for renewable energy generation

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	and diversification of the local economy; 2. Develop and strengthen the East Riding's key employment sectors and clusters including: renewable energy; manufacturing and engineering (including chemicals); agriculture/ food and drink; tourism; ports and logistics; transport equipment; digital and creative industries; finance and business services; construction; public administration, defence, health and education; and retail; 3. Contribute towards reducing social exclusion and provide employment opportunities in deprived areas; 4. Contribute to the improvement in the physical appearance of an existing employment site or premises; or	2. Develop and strengthen the East Riding's key employment sectors and clusters including: renewable and low carbon energy; manufacturing and engineering (including chemicals); agriculture/food and drink; biorenewables; tourism; ports and logistics; transport equipment; digital and creative industries; finance and business services; construction; public administration, defence, health and education; and retail; 3. Contribute towards reducing social exclusion and provide employment opportunities in deprived areas; 4. Contribute to the improvement in the physical appearance of an existing or vacant employment site or premises; or 5. Support the vitality and viability of a Town or District Centre. b. Key Employment Sites will be safeguarded from alternative uses. c. There will be a presumption in favour of retaining all other employment land and premises. Proposals involving the loss	infrastructure to achieve the UK's decarbonisation targets. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] assesses the impacts on employment resulting from the Proposed Development. The assessment found that the Proposed Development will have a beneficial effect on employment that is not significant during the construction phase. There is also anticipated to be a temporary beneficial residual effect on occupancy rates from an influx of workforce staff to the area during the construction phase, however this is not considered a significant effect. The Proposed Development will provide construction job opportunities over the anticipated four-year construction programme. The Applicant estimates that a maximum of 350 construction jobs will be created during peak periods whilst the average number

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	5. Support the vitality and viability of a Town or District Centre. b. Key Employment Sites will be safeguarded from alternative uses. c. There will be a presumption in favour of retaining all other employment land and premises. Proposals involving the loss of land or premises from employment use will be supported where: 1. There is no longer a need, or it is not viable, for that or any other employment use on the site, which has been demonstrated by an up-to-date employment land review or through a comprehensive marketing exercise; 2. The use of the site for employment purposes is not in conformity with adjoining land uses and could give rise to complaint; or 3. The development would make a significant contribution towards the wider regeneration of the	of land or premises from employment use will be supported where: 1. There is no longer a need, or it is not viable, for that or any other employment use on the site, which has been demonstrated by an up-to-date employment land review or through a comprehensive marketing exercise; 2. The use of the site for employment purposes is not in conformity with adjoining land uses and could give rise to complaint; or 3. The development would make a significant contribution towards the wider regeneration of the locality and would support other planning priorities set out in the Plan. d. Outside of development limits employment development will be supported where it is of an appropriate scale to its location, is accessible and respects the character of the surrounding landscape. Proposals should: 1. Be within or adjacent to an existing industrial estate or business park;	of construction staff likely to be present on site across the construction phase is approximately 250. The Applicant aims to, where possible, use local construction and manufacturing businesses during the construction phase, which would help to support the creation of new direct job opportunities for local people. Should it not be possible to source construction staff locally, there may be a need to recruit staff from other regions. During the Operation (including maintenance) phase, the enhanced permissive paths network is anticipated to benefit local residents and tourists from outside the area. This is because users are more likely to utilise the PRow network, due to the enhanced permissive path network, thereby improving the level of accessibility. Therefore, there is anticipated to be a

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	locality and would support other planning priorities set out in the Plan. d. Outside of development limits employment development will be supported where it is of an appropriate scale to its location and respects the character of the surrounding landscape. Proposals should: 1. Be within or adjacent to an existing industrial estate or business park; 2. Involve the expansion of an existing business; 3. Involve the conversion of an existing building; or 4. Have a functional need to be in the particular location which cannot be met on either a nearby allocation, or on a site which satisfies any of the above criteria. e. Substantial proposals for employment development that cannot be accommodated on allocated sites will be supported where the:	2. Involve the expansion of an existing business; 3. Involve the conversion of an existing building; 4. Involve the redevelopment of redundant agricultural buildings that are no longer viable for agricultural uses, where conversion is not practicable; or 5. Have a functional need to be in the particular location which cannot be met on either a nearby allocation, or on a site which satisfies any of the above criteria. e. Substantial proposals for employment development that cannot be accommodated on allocated sites will be supported where: 1. The site is identified as part of the Freeport tax zone and a comprehensive plan for its development is in place; or 2. The development is for a specified end user where proven substantial employment benefits would arise and the identified site provides the most appropriate location for the proposal, with priority given to	beneficial (not significant) effect on users of PROWs. There is also anticipated to be a beneficial (not significant) effect on accommodation providers due to the increased number of service users. As detailed in the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1], the location and design of the Proposed Development is the result of a comprehensive site selection process that was environmental, design and planning led. The starting point for the site selection was the availability of the grid connection at National Grid Creyke Beck Substation, from there, the Applicant sought to find suitable land, with areas closest to the substation preferred in principle on

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	1. Development is for a specified end user and proven substantial employment benefits would arise; and 2. Identified site provides the most appropriate location for the proposal, with priority given to locations that are adjacent to existing employment sites and in locations well-related to the Major Haltemprice Settlements, Principal Towns or the East-West Multi-Modal Transport Corridor. f. Farm diversification schemes will be encouraged providing they are of an appropriate scale to their location, respect the character of the surrounding landscape, re-use existing buildings where possible and any new buildings are well related to the built form and scale of the farm. g. Employment allocations will be set out in the Allocations Document or	locations that are adjacent to existing employment sites and in locations well-related to the Major Haltemprice Settlements, Principal Towns or the East-West Multi-Modal Transport Corridor. f. Farm diversification schemes will be encouraged providing they are of an appropriate scale to their location, respect the character of the surrounding landscape, re-use existing buildings where possible and any new buildings are well related to the built form and scale of the farm. g. Employment allocations are set out in the Allocations Document Update or a Neighbourhood Plan.	the basis that a shorter cable route has benefits in terms of ease and timeliness of the delivery of key infrastructure, minimising disruption to residents and businesses along the route and cost. In addition to this, the location of the Proposed Development would safeguard Key Employment Sites from an alternative use.

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	a Neighbourhood Development Plan.		
Policy EC4: Enhancing sustainable transport	A. In order to increase overall accessibility, minimise congestion and improve safety, new development will be supported where it is accessible, or can be made accessible, by sustainable modes of transport and addresses its likely transport impact. Development proposals should: 1. Produce and agree a transport assessment and travel plan, where a significant transport impact is likely; 2. Support and encourage sustainable travel options which may include public transport, electric and ultra low emission vehicles, car sharing, cycling and walking; particularly in the Major Haltemprice Settlements, Principal Towns, and Towns; and	A. To increase overall accessibility, minimise congestion, improve safety, reduce greenhouse gas emissions, encourage healthy lifestyles and reduce social exclusion, new development will be supported where it is accessible, or can be made accessible, by sustainable modes of transport and addresses its likely transport impact. Development proposals should: 1. Produce and agree a transport assessment and travel plan, where a significant transport impact is likely; 2. Encourage the use of sustainable travel options which may include public transport, electric and ultra-low emission vehicles, car sharing, cycling and walking; particularly in the Major Haltemprice Settlements, Principal Towns, and Towns; and	ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] has been prepared and submitted following consultation with the relevant Highways Authorities. Appendix 1: Outline Travel Plan to the Outline CTMP [EN010157/APP/7.7] has been prepared to mitigate transport impacts and reduce the volume of construction staff and employee trips, including single occupancy trips to the Proposed Development. The Proposed Development will implement a Travel Plan, which is secured by Requirement of the Draft DCO [EN010157/APP/3.1] and will be developed in line with the Outline Travel Plan. Appendix 1: Outline Travel Plan to the Outline CTMP [EN010157/APP/7.7] includes a

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	3. Bring forward other necessary transport infrastructure to accommodate expected movement to and from the development. B. Developments generating significant freight movement located along the East-West Multi-Modal Transport Corridor should capitalise on the opportunities for transferring and transporting freight by means other than road. C. The number of parking spaces for all new development should reflect: 1. The level of public transport accessibility; 2. The expected car usage on the site; and 3. The most efficient use of space available and promotion of good design.	3. Bring forward other necessary transport infrastructure to accommodate expected movement to and from the development. B. Developments generating significant freight movement located along the East-West Multi-Modal Transport Corridor should capitalise on the opportunities for transferring and transporting freight by means other than road. C. The number of parking spaces for all new development should reflect: 1. Accessibility of development, particularly by public transport; 2. The expected car usage on the site, including an adequate provision of spaces for the charging of plug-in electric and other ultra-low emission vehicles; and 3. The most efficient use of space available and promotion of good design.	range of hard, soft and management measures to make access to and from the site as sustainable as possible. Measures included within the Outline Travel Plan include: • Mandated car or van sharing; • Identified off-site parking areas; • Provision of shuttle busses to transport staff to/from car parking locations and within the Order Limits; • Provision of cycle stands; and • Dedicated car parks for construction staff located at or adjacent to the main construction compounds. Parking spaces on-site will be limited. As such, car and van sharing will be mandated and liaison with staff will be undertaken to arrange for workers to car/van share with at least 3 workers per vehicle.

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			As set out within ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1], the Applicant is considering the inclusion of an EV charging point alongside the main construction compounds. In addition, the Proposed Development includes several passing places, carriageway widening on bends and a temporary speed reduction along Meaux Lane / Meaux Road as well as provision of new access junctions into the Order Limits. During the construction of these improvements, appropriate traffic management measures will be required to control traffic movements through the area of works to facilitate off peak single lane closures, which will be secured within the DCO and within Traffic Measures Plans [EN010157/APP/2.9] and Streets, Rights of Way and Access

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			Plans [EN010157/APP/2.3]. The proposed highway works are set out in Access & Highway Mitigation Plans [EN010157/APP/6.2] – ES Volume 4, Chapter 14, Appendix 7. ES Volume 2, Chapter 14: Transport and Access [EN010157/APP/6.4] confirms that due to measures proposed for construction, the Proposed Development will not result in residual adverse effects upon either highway safety or generate any highway capacity issues.
Policy EC5: Supporting the energy sector	A. Proposals for the development of the energy sector, excluding wind energy but including the other types of development listed in Table 7, will be supported where any significant adverse impacts are addressed satisfactorily and the residual harm is outweighed by the wider	A. Proposals for the development of the energy sector, excluding mineral extraction, but including all other types of development listed in Table 10, will be supported where any significant adverse impacts are addressed satisfactorily, and the residual harm is outweighed by the wider benefits of the proposal. Developments and their associated infrastructure should be acceptable in terms of:	The Planning Statement [EN010157/APP/5.5] including the Statement of Need, at Appendix 3, sets out how the Proposed Development would contribute substantially to the need to supply low carbon energy, in order for the government to meet its objectives and commitments.

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	benefits of the proposal. Developments and their associated infrastructure should be acceptable in terms of: 1. The cumulative impact of the proposal with other existing and proposed energy sector developments; 2. The character and sensitivity of landscapes to accommodate energy development, with particular consideration to the identified Important Landscape Areas, as shown on Figure 11; 3. The effects of development on: i. local amenity, including noise, air and water quality, traffic, vibration, dust and visual impact; ii. biodiversity, geodiversity and	1. The cumulative impact of the proposal with other existing and proposed energy sector developments; 2. The character and sensitivity of landscapes to accommodate energy development, with particular consideration to the identified Important Landscape Areas, as shown on Figure 12. 3. The effects of development on: i. local amenity, including noise, air and water quality, traffic, vibration, dust, light (including reflection, glint, glare and shadow flicker), and visual impact; ii. biodiversity, geodiversity and nature, particularly in relation to designations, displacement, disturbance and	A detailed assessment against the cumulative impact, landscape character and effects of the Proposed Development are provided within ES Volume 2, Chapters 5 to 15 [EN010157/APP/6.2]. ES Volume 2, Chapters 6 to 15 [EN010157/APP/6.2] provides a robust assessment of the potential impacts of the Proposed Development and finds that there are limited significant adverse residual effects remaining after mitigation. These are: • Compaction and deterioration of soil and agricultural land, loss of BMV agricultural land; • Landscape and Visual in relation to LCA 19D: Central Holderness Open Farmland and visual effects from users of some PRowS; and • An intra-project significant adverse cumulative effects on views from three footpaths and

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	nature, particularly in relation to designations, displacement, disturbance and collision and the impact of emissions/contamination; iii. the historic environment, including individual and groups of heritage assets above and below ground; iv. telecommunications and other networks; including the need for additional cabling to connect to the National Grid, electromagnetic production and interference, and aeronautical impacts such as on radar systems;	collision and the impact of emissions/contamination; iii. the historic environment, including individual and groups of heritage assets above and below ground; iv. telecommunications and other networks; including the need for additional cabling to connect to the National Grid, electromagnetic production and interference, and aeronautical impacts such as on radar systems; v. transport, including the opportunity to use waterways and rail for transportation of materials and fuel, and the capacity of	Figham Common by year 10 of operations. The Applicant considers that the limited residual effects of the Proposed Development do not outweigh its urgent need, and do not represent an unacceptable risk that would negate the presumption in favour of consent for this CNP infrastructure. The Proposed Development is to be a temporary activity with a requirement in Schedule 2 of the Draft DCO [EN010157/APP/3.1] securing a time limited consent for 40 years. After which time, the Proposed Development would be decommissioned. Decommissioning is expected to take between 18 and 24 months and may be undertaken in phases. The Outline Decommissioning Environmental Management Plan (DEMP) [EN010157/APP/7.4] submitted as part of the DCO Application

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	v. transport, including the opportunity to use waterways and rail for transportation of materials and fuel, and the capacity of the road network to accommodate development; vi. increasing the risk of flooding; and vii. the land, including land stability, contamination and soil resources. B. Where appropriate, proposals should include provision for decommissioning at the end of their operational life. Where decommissioning is necessary, the site should be restored, with minimal adverse impact on amenity, landscape and biodiversity, and opportunities taken for enhancement of these features.	- the road network to accommodate development; vi. increasing the risk of flooding; and vii. the land, including land stability, contamination and soil resources. B. Proposals for onshore wind development will be supported where they repower existing wind turbines or are in an area identified as suitable for wind energy development by a Neighbourhood Plan. Neighbourhood Plans should consider Part A of this policy and Figure 9 and Figure 10 when considering what areas are suitable for onshore wind development. Projects will only be consented where it can be proven that adverse effects on the integrity of Habitats sites can meet the requirements of policy ENV4. C. Where appropriate, proposals should include provision for decommissioning at the end of their operational life. Where decommissioning is necessary,	provides an outline of the general arrangements for the decommissioning phase of the Proposed Development. DEMP(s) will be produced for the Proposed Development in accordance with the requirements in the Draft DCO [EN010157/APP/3.1] prior to commencing decommissioning. The DEMP(s) must be substantially in accordance with the Outline DEMP [EN010157/APP/7.4].

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		the site should be restored, with minimal adverse impact on amenity, landscape and biodiversity, and opportunities taken for enhancement of these features.	
Policy EC6: Protecting mineral resources	A. Mineral Safeguarding Areas for sand and gravel, crushed rock, limestone, industrial chalk, clay, and silica sand are identified on the Policies Map. B. Within or adjacent to Mineral Safeguarding Areas, non-mineral development, which would adversely affect the viability of exploiting the underlying or adjacent deposit in the future, will only be supported where it can be demonstrated that the: 1. Underlying or adjacent mineral is of limited economic value; 2. Need for the development outweighs the need to safeguard the mineral deposit;	A. Mineral Safeguarding Areas for sand and gravel, crushed rock, limestone, industrial chalk, clay, and silica sand are identified on the Policies Map Update. B. Within or adjacent to Mineral Safeguarding Areas, non-mineral development, which would adversely affect the viability of exploiting the underlying or adjacent deposit in the future, will only be supported where it can be demonstrated that the: 1. Underlying or adjacent mineral is of limited economic value; 2. Need for the development outweighs the need to safeguard the mineral deposit; 3. Non-mineral development can take place without preventing the mineral	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] identifies that there are historical mineral extraction sites and Mineral Safeguarding Areas (MSAs) within the Order Limits and within 250 m of the Order Limits. A Minerals Safeguarding Assessment is provided at Appendix 4 to the Planning Statement [EN010157/APP/5.5]. The Proposed Development will be decommissioned after 40 years of operation, and impacts caused by the Proposed Development related to land use are considered reversible and temporary. Minerals within the Order Limits will largely not be permanently sterilised, and post-decommissioning, it is

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	3. Non-mineral development can take place without preventing the mineral resource from being extracted in the future; 4. Non-mineral development is temporary in nature; or 5. Underlying or adjacent mineral deposit can be extracted prior to the non-mineral development proceeding, or prior extraction of the deposit is not possible.	- resource from being extracted in the future; 4. Non-mineral development is temporary in nature; or 5. Underlying or adjacent mineral deposit can be extracted prior to the non-mineral development proceeding, or prior extraction of the deposit is not possible.	anticipated that the land could continue to have the potential to be worked for minerals. The DCO Application demonstrates an overwhelming need for this Proposed Development and that the development could not reasonably be sited elsewhere.
Policy ENV1: Integrating high quality design	A. All development proposals will: 1. Contribute to safeguarding and respecting the diverse character and appearance of the area through their design, layout, construction and use; and	A. All development proposals will: 1. Contribute to safeguarding and respecting the diverse character and appearance of the area through their design, layout, construction and use; 2. Seek to minimise the demand for energy and make prudent and efficient use of natural resources,	Good design has been a key consideration from the outset. As detailed in the Site Selection Assessment at Appendix 2 of the Planning Statement [EN010157/APP/5.5] and ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1], the location and design of the

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	2. Seek to reduce carbon emissions and make prudent and efficient use of natural resources, particularly land, energy and water. B. Development will be supported where it achieves a high quality of design that optimises the potential of the site and contributes to a sense of place. This will be accomplished by: 1. Having regard to the specific characteristics of the site's wider context and the character of the surrounding area; 2. Incorporating an appropriate mix of uses on the site; 3. Having an appropriate scale, density, massing, height and material; 4. Having regard to the amenity of existing or proposed properties; 5. Having an adaptable layout for sites and/or buildings that takes into account the needs of future users;	particularly land, energy and water; and 3. Seek to maximise the use of decentralised and renewable or low carbon technologies. B. Development will be supported where it achieves a high quality of design, which optimises the potential of the site and contributes to a sense of place and beauty. This will be accomplished by: 1. Having regard to the specific characteristics of the site's wider context and the character of the surrounding area; 2. Incorporating an appropriate mix of uses on the site; 3. Having an appropriate scale, density, massing, height and material; 4. Having regard to the amenity of existing or proposed properties; 5. Ensuring the proposal does not have an unacceptable impact on existing uses in the surrounding area; 6. Ensuring the proposal does not result in unreasonable restrictions being placed on existing uses;	Proposed Development is the result of a comprehensive site selection process that was environmental, design and planning led to avoid and minimise impacts as early as possible. ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1] explains the design evolution of the Proposed Development and how it has undergone an iterative design process in response to consultee feedback and to sensitive receptors. The Applicant will deliver its vision for the Proposed Development guided by a series of project design principles, as set out in the Design Approach Document [EN010157/APP/5.7]. These have been developed around the four themes of Climate, People, Plan and Environment. The Proposed Development includes habitat creation and

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	6. Having regard to healthy lifestyles; 7. Incorporating energy efficient design and arrangements to manage waste; 8. Incorporating hard and/or soft landscaping, alongside boundary treatment of an appropriate scale and size, to enhance the setting of buildings, public space and views; 9. Promoting equality of safe access, movement and use; 10. Having regard to features that minimise crime and the perception of crime; 11. Considering the use of public art, where the sense of place and public access or view would justify it; 12. Ensuring infrastructure, including green infrastructure and flood mitigation, are well integrated into the development; 13. Incorporating, where possible, nature conservation and	7. Having an adaptable layout for sites and/or buildings, which takes into account the needs of future users; 8. Having regard to healthy lifestyles; 9. Incorporating energy efficient design and arrangements to manage waste; 10. Incorporating hard and/or soft landscaping, alongside boundary treatment of an appropriate scale and size, to enhance the setting of buildings, public space and views; 11. Promoting equality of safe movement for all within the site, including access, egress and minimising highway safety risks; 12. Having regard to features that minimise crime and the perception of crime; 13. Considering the use of public art, where the sense of place and public access or view would justify it; 14. Ensuring infrastructure, including green infrastructure, drainage, SuDS and flood mitigation, are well integrated into the development; 15. Ensuring that new streets are tree-lined, unless this would be inappropriate, and that opportunities	enhancement measures, as well as landscape and visual mitigation measures which will be secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development is committed to achieving biodiversity net gain on-site. The Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5]. The DCO Application is supported by an Outline CEMP [EN010157/APP/7.2] which includes commitments to the responsible sourcing of materials and infrastructure to ensure the Proposed Development makes efficient use of natural resources. ES Volume 2, Chapter 14: Transport and Access

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	biodiversity enhancement into the development; 14. Paying attention to the use of local materials, architectural styles and features that have a strong association with the area's landscape, geology and built form, with particular attention to heritage assets; and 15. Safeguarding the views and setting of outstanding built and natural features and skylines within and adjoining the East Riding, including those features identified in Policies A1-A6. C. Innovative design incorporating new materials and technologies will be supported where the local context and sub areas, with their diverse landscapes, geologies, historical background and built form, have been fully considered as part of the design process. D. Where possible, the design of development that maximises the use of decentralised and renewable or very low carbon	are taken to incorporate trees elsewhere in developments. Proposals should ensure appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible; 16. Incorporating, nature conservation and biodiversity net gain into the proposal; 17. Incorporating, where appropriate, a reduction in the vulnerability and increase in resilience to climate change; 18. Considering the use of the latest technologies and materials to improve building quality; 19. Considering the appropriate use of local materials, architectural styles and features that have a strong association with the area's landscape, geology and built form, with particular attention to heritage assets; and 20. Safeguarding the views and setting of outstanding built and natural features and skylines within and adjoining the East Riding, including those features identified in Policies A1-A6.	[EN010157/APP/6.2] provides an assessment on traffic and transport. The assessment concludes that no construction, operation or decommissioning impacts are anticipated to result in a significant adverse residual effect. The Applicant has submitted an Outline CTMP [EN010157/APP/7.7] which is provided in support of the DCO Application. The Outline CTMP includes outline travel plan measures, which seek to encourage the uptake of sustainable travel modes and reduce single occupancy car trips and would be developed further in consultation with the relevant highway authorities prior to the commencement of the Proposed Development. The production of a CTMP is secured within the Draft DCO [EN010157/APP/3.1].

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	technologies will be supported. This includes expecting that: 1. Chosen technology(ies) will be operationally suitable for the development, visually acceptable and not unduly harm amenity; and 2. Larger developments will consider how to contribute/share technologies to meet part of their energy needs, and/or increase the sustainability of existing or new development nearby, and be capable of being adapted over time to further upgrade energy efficiency and allow alternative occupancy and/or use.	C. Innovative design incorporating new materials and technologies will be supported where the local context and sub areas, with their diverse landscapes, geologies, historical background and built form, have been fully considered as part of the design process.	The design of the Proposed Development includes a number of security measures to prevent crime, including security lighting and CCTV. The lighting will be designed and managed to avoid light spill as secured within the Outline OEMP [EN010157/APP/7.3]. ES Volume 2, Chapter 8: Climate [EN010157/APP/6.2] sets out the mitigation measures embedded into the Proposed Development to mitigate the impacts on climate change. ES Volume 4, Appendix 8.2: Climate Change Resilience Assessment [EN010157/APP/6.4] presents a climate change resilience assessment for the Proposed Development. ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and ES Volume 2, Chapter 15: Cumulative Effects

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			[EN010157/APP/6.2] provide a robust assessment of the potential landscape and visual impacts of the Proposed Development and finds that there are limited significant adverse residual effects remaining after mitigation. These are: • Landscape and visual effects in relation to LCA 19D: Central Holderness Open Farmland and visual effects from users of some PRowS; and • An intra-project significant adverse cumulative effects on views from three footpaths and Figham Common by year 10 of operations.
Policy ENV2: Promoting a high quality landscape	A. Development proposals should be sensitively integrated into the existing landscape, demonstrate an understanding of the intrinsic qualities of the landscape setting and, where possible, seek to make the most of the opportunities to	A. Development proposals should be sensitively integrated into the existing landscape, demonstrate an understanding of the intrinsic qualities of the landscape setting and, where possible, seek to make the most of the opportunities to protect and enhance landscape	A series of project design principles were developed at an early stage and have guided the design response to the local context to develop a good design that balances the need to maximise renewable energy generation from the Proposed

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	protect and enhance landscape characteristics and features. To achieve this, development should: 1. Protect the character and individual identity of settlements by maintaining their physical separation, including through the maintenance of the Key Open Areas identified in Policies A1-A6, where there is a risk of settlement coalescence. 2. Protect and enhance important open spaces within settlements which contribute to their character. 3. Ensure important hedgerows and trees are retained unless their removal can be justified in the wider public interest. Where important hedgerows	characteristics and features. To achieve this, development should: 1. Protect the character and individual identity of settlements by maintaining their physical separation, including through the maintenance of the Key Open Areas identified in Policies A1-A6, where there is a risk of settlement coalescence. 2. Protect and enhance important open spaces within settlements, which contribute to their character. 3. Ensure all important hedgerows and trees are retained unless their removal can be justified in the wider public interest. Where important hedgerows and any trees are lost replacements will usually be required on-site. 4. Maintain or enhance the character and management	Development, as set out in the Design Approach Document [EN010157/APP/5.7]. As set out in Section 4.5 of in the Design Approach Document [EN010157/APP/5.7], throughout the design process, changes have been made and implemented into the design of the Proposed Development to avoid or reduce adverse environmental effects and to make the Proposed Development fit better into the wider landscape. To secure the delivery of good design, should development consent be granted, a list of design parameters which underpin the Proposed Development is contained within the Design Parameters Document [EN010157/APP/5.8] and which would be required to be retained in the future detailed design as secured pursuant to a requirement of the Draft Development Consent Order [EN010157/APP/3.1].

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	and trees are lost replacements will usually be required. 4. Maintain or enhance the character and management of woodland where appropriate. 5. Retain, not detract from, and enhance wetland and water feature characteristics. 6. Protect and enhance views across valued landscape features, including flood meadows, chalk grassland, lowland heath, mudflats and salt marsh, sand dunes and chalk cliffs. 7. Protect and enhance the undeveloped coast. B. Proposals should protect and enhance existing landscape character as described in the East Riding Landscape Character Assessment, in	of woodland where appropriate. 5. Retain, not detract from, and enhance wetland and water feature characteristics. 6. Protect and enhance views across valued landscape features, including flood meadows, chalk grassland, lowland heath, mudflats and salt marsh, sand dunes and chalk cliffs. 7. Protect and enhance the undeveloped coast. B. Proposals should protect, enhance and be compatible with the existing landscape character as described in the East Riding Landscape Character Assessment, in particular within the following Important Landscape Areas as shown on the Policies Map Update: 1. The Yorkshire Wolds, with special attention to ensuring developments are of an appropriately high quality and will not adversely affect the historic and special	ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] concludes that no part of the Order Limits or its immediately surrounding context falls within a statutorily designated landscape. The nearest National Landscapes (previously known as Areas of Outstanding Natural Beauty) to the Order Limits are the Lincolnshire Wolds and Howardian Hills National Landscapes, both of which are over 30 km from the Order Limits. ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] includes a detailed viewpoint analysis. After the implementation of both embedded and additional mitigation measures, there are anticipated to be residual adverse landscape and visual effects, which is expected for projects of this nature as acknowledged by NPS EN-1 paragraphs 5.10.13 to

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	particular, within the following Important Landscape Areas as shown on the Policies Map: 1. The Yorkshire Wolds, with special attention to ensuring developments are of an appropriately high quality and will not adversely affect the historic and special character, appearance or natural conservation value. 2. The Heritage Coast designations at Flamborough and Spurn Head. 3. The Lower Derwent Valley, which includes the River Derwent Corridor and Pocklington Canal. 4. The Thorne, Crowle and Goole Moors.	character, appearance or conservation value. 2. The Heritage Coast designations at Flamborough and Spurn Head. 3. The River Derwent Corridor and Lower Derwent Valley, which includes the Pocklington Canal. 4. The Thorne, Crowle and Goole Moors. C. Proposals should have regard to the existing historic character as described in the Historic Landscape Characterisation of the East Riding of Yorkshire and Kingston Upon Hull.	5.10.14. Section 11.13 of ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] contains a full summary of the anticipated landscape and visual effects. The residual significant adverse visual and landscape effects are limited to: • LCA 19D: Central Holderness Open Farmland and visual effects from users of some PRoWs. These impacts predominantly occur during construction, up to year 10 of operation, and decommissioning and therefore are not present for the majority of the overall lifetime of the Proposed Development; and • Cumulative in relation to an intra-project significant adverse cumulative effects on views from three footpaths and

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			Figham Common by year 10 of operation. Mitigation embedded into the Proposed Development design is outlined in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] and the Outline LEMP [EN010157/APP/7.5] and includes extensive new tree and hedgerow planting and improvement of existing hedgerows by ‘gapping-up’, where required, with a diverse mix of native species. The Order Limits associated with the cable corridor include part of Figham Common which is an LWS. Once the Proposed Development is operational that land will be able to be used in the same manner as prior to the Proposed Development. There will be no permanent disturbance to the surface soil, or removal of trees or bushes. ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] confirms that

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			there is no significant adverse residual effect for Figham Common LWS. In relation to the historic environment, ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] provides an assessment of the Proposed Development on the historic environment. As set out in the Design Approach Document [EN010157/APP/5.7], the Proposed Development has been designed sensitively taking into account known heritage assets, their status and settings. The Proposed Development and associated works have been sited to minimise any impact on the setting of heritage assets. Therefore the Proposed Development would not result in any significant effects on designated heritage assets and would minimise to a negligible level any other harms to the

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			identified heritage assets or their settings.
Policy ENV3: Valuing our heritage	A. Where possible, heritage assets should be used to reinforce local distinctiveness, create a sense of place, and assist in the delivery of the economic well-being of the area. This can be achieved by putting assets, particularly those at risk, to an appropriate, viable and sustainable use. B. The significance, views, setting, character, appearance and context of heritage assets, both designated and non-designated, should be conserved, especially the key features that contribute to the East Riding's distinctive historic character including: E. Those elements that contribute to the special interest of Conservation Areas, including the landscape setting, open spaces, key views and vistas, and important unlisted		As set out above, the Proposed Development has been designed sensitively taking into account known heritage assets, their status and settings. The Proposed Development and associated works have been sited to minimise any impact on the setting of heritage assets. ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] concludes no significant residual adverse effects are anticipated on designated or non-designated heritage assets as a result of the Proposed Development once embedded and additional mitigation measures are implemented. The significance of heritage assets within the study area (including the contribution made by setting) is set out in ES Volume 4, Appendix 9.1:

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	buildings identified as contributing to the significance of each Conservation Area in its appraisal; F. Listed Buildings and their settings; G. Historic Parks and Gardens and key views in and out of these landscapes; H. The dominance of the church towers and spires as one of the defining features of the landscape, such as those of Holderness and the Wolds. I. Heritage assets associated with the East Yorkshire coast and the foreshore of the Humber Estuary; J. The historic, archaeological and landscape interest of the Registered Battlefield at Stamford Bridge; K. The historic cores of medieval settlements, and, where they survive, former medieval open field systems with ridge and furrow cultivation patterns;		Archaeological Desk-Based Assessment [EN010157/APP/6.4] and Appendix 9.4: Detailed Settings Impact Assessment [EN010157/APP/6.4]. A Geophysical survey and targeted trial trenching of the Order Limits has been undertaken for the Proposed Development. The results of the geophysical survey are reported detail in ES Volume 4, Appendix 9.2: Geophysical Survey Report [EN010157/APP/6.4] and ES Volume 4, Appendix 9.3: Archaeological Trial Trenching Report [EN010157/APP/6.4]. Additional mitigation measures are documented within and secured by Outline CTMP [EN010157/APP/7.7], Outline CEMP [EN010157/APP/7.7] and Outline Operational Environmental Management Plan (OEMP) [EN010157/APP/7.3]. These

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	L. The nationally important archaeology of the Yorkshire Wolds; and M. Those parts of the nationally important wetlands where waterlogged archaeological deposits survive. C. Development that is likely to cause harm to the significance of a heritage asset will only be granted permission where the public benefits of the proposal outweigh the potential harm. Proposals which would preserve or better reveal the significance of the asset should be treated favourably. D. Where development affecting archaeological sites is acceptable in principle, the Council will seek to ensure mitigation of damage through preservation of the remains in situ as a preferred solution. When in situ preservation is not justified, the developer will be required to make adequate provision for excavation and		measures will avoid and/or mitigate the construction and operation (including maintenance) phase impacts on designated heritage assets. The Archaeology Management Strategy [EN010157/APP/7.11] outlines the proposed approach to addressing potential development impacts on archaeological remains during the post-consent phases of the Proposed Development, its aims and objectives, and the methodologies and standards to be used in undertaking any required archaeological works. Known and currently unknown archaeological remains within the Order Limits will be managed through a staged programme of post-consent archaeological evaluation and mitigation work whose aim will be to either preserve in situ or, where this is not possible, preserve by record. Preservation in situ will be the preferred option in all cases.

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	recording before or during development.		There are no nationally significant wetlands within the Order Limits.
Policy ENV4: Conserving and enhancing biodiversity and geodiversity	A. Proposals that are likely to have a significant effect on an International Site will be considered in the context of the statutory protection which is afforded to the site. B. Proposals that are likely to have an adverse effect on a National Site (alone or in combination) will not normally be permitted, except where the benefits of development in that location clearly outweigh both the impact on the site and any broader impacts on the wider network of National Sites. C. Development resulting in loss or significant harm to a Local Site, or habitats or species supported by Local Sites, whether directly or indirectly, will only be supported if it can be demonstrated there is a	A. Proposals that are likely to have a significant adverse effect on statutory designated sites listed in Table 13 (alone or in combination) will be considered in the context of the statutory protection afforded to the site. B. Development should follow the mitigation hierarchy to first avoid, then mitigate, and where necessary compensate for loss or harm to biodiversity. Where loss or harm to a national or local designated site, as set out in Table 13, cannot be avoided, or adequately mitigated, as a last resort compensation for the loss/harm must be agreed. Development will be refused if loss or significant harm cannot be avoided, adequately mitigated or compensated for. <u>International (Habitats) sites</u> C. Applicants will be required to submit appropriate levels of evidence to	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] explains that the Proposed Development has been designed to avoid sites statutorily designated for their biodiversity importance and to avoid or minimise impacts on sites that are non-statutorily designated for their biodiversity importance. Where significant adverse effects have been identified the Applicant has demonstrated its application of the mitigation hierarchy and careful consideration of design. Additional and embedded measures within the Proposed Development design will ensure that adverse effects on designated sites are reduced as far as reasonably practicable during the construction, operation (including maintenance) and decommissioning phases.

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	need for the development in that location and the benefit of the development outweighs the loss or harm. D. Where loss or harm to a National or Local designated site, as set out in Table 9, cannot be prevented or adequately mitigated, as a last resort, compensation for the loss/harm must be agreed. Development will be refused if loss or significant harm cannot be prevented, adequately mitigated against or compensated for. E. Proposals should further the aims of the East Riding of Yorkshire Biodiversity Action Plan (ERYBAP), designated Nature Improvement Areas (NIAs) and other landscape scale biodiversity initiatives. To optimise opportunities to enhance biodiversity, proposals should seek to achieve a net gain in biodiversity where possible	enable the Council to undertake a Habitats Regulations Assessment (HRA) of the proposal. Evidence will be required to assess the proposal's potential impact (alone or in combination) in view of the international (habitats) site's conservation objectives. This evidence should include the following potential impacts that proposals need to consider: <u>Recreational Pressure</u> 1. The potential impact of recreational pressure on international (habitats) sites should be considered in proximity to sensitive sites. Proposals for residential and/or tourism accommodation in the following key sensitive locations should; i. in the Humber recreational pressure zone of influence, consider contributing towards strategic programmes aimed at	The Outline CEMP [EN010157/APP/7.2] sets out the control measures that will be implemented during construction to protect habitats from direct impacts, such as using fencing and signage where appropriate to establish and maintain appropriate buffer zones. Embedded and additional mitigation measures are outlined in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and are secured within the Outline CEMP [EN010157/APP/7.2], Outline OEMP [EN010157/APP/7.3] and Outline DEMP [EN010157/APP/7.4]. These include habitat avoidance, mitigation, creation and replacement measures; mitigation relating to protected and notable species; and standard mitigation measures that comply with industry good practice and environmental legislation.

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	and will be supported where they: 1. Conserve, restore, enhance or recreate biodiversity and geological interests including the Priority Habitats and Species (identified in the ERYBAP) and Local Sites (identified in the Local Sites in the East Riding of Yorkshire). 2. Safeguard, enhance, create and connect habitat networks in order to: i. protect, strengthen and reduce fragmentation of habitats; ii. create a coherent ecological network that is resilient to current and future pressures;	- managing the impact of residents and tourists on international (habitats) sites (see Figure 13); ii. avoid development within the Spurn recreational pressure zone of influence shown on the policies map. Proposals for 'roll back' in this zone will have to provide appropriate mitigation to rule out adverse effects on the integrity of international (habitats) sites; iii. consider the impact of recreational pressure when located within 5km of the Lower Derwent Valley international (habitats) sites; and iv. consider the impact of recreational	The production of a CEMP, OEMP and DEMP will be secured via a requirement within the Draft DCO [EN010157/APP/3.1]. The Outline CEMP [EN010157/APP/7.2] includes best practice measures to ensure that activities will be confined to the minimum areas required for the works during construction, in accordance with this part of the policy. A Habitats Regulations Assessment – Information to inform Appropriate Assessment [EN010157/APP/5.3] has been prepared in accordance with the requirements of The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations) to set out whether the Proposed Development is likely to have any significant effect on European designated sites. This report is submitted in support of the DCO Application for the Proposed Development.

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	iii. conserve and increase populations of species; and iv. promote and enhance green infrastructure.	pressure on Flamborough Head international (habitats) sites. <u>Functionally Linked Land</u> 2. Development proposals located within 10km of the Humber Estuary or Lower Derwent Valley international (habitats) sites will have to consider whether development results in the loss of 'functionally linked land' for mobile species associated with the international (habitats) site where the application site; i. is greater than 5 hectares; or ii. forms part of a wider plot, field or open area that is greater than 5 hectares. 3. Development proposals located within 3km of Thorne and Hatfield Moors international (habitats) sites, which impact habitats nightjars may use for feeding, will only be	The HRA establishes a 10 km zone of influence from the Order Limits and identifies five European sites within this area, including: • Hornsea Mere SPA; • Humber Estuary SPA; • Humber Estuary Ramsar site; • Humber Estuary SAC; and • Greater Wash SPA. The HRA concludes there will be no significant adverse effects to European Sites either from the construction, operation or decommissioning of the Proposed Development or in combination with other plans and projects. Given the clear and urgent need to deploy renewable energy at speed and scale, the Proposed Development demonstrably gives rise to substantial public benefits, which outweigh the less than substantial harm identified.

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		supported where they deliver a net gain in nightjar foraging habitat. 4. Where land is identified as functionally linked land, mitigation land that can perform the same function in a suitable location may be required to mitigate adverse effects. <u>Air Quality</u> 5. Proposals emitting air pollutants must rule out adverse effects on the integrity of international (habitats) sites. <u>Water Quality</u> 6. Proposals discharging water pollutants, such as Nitrates and Phosphates, must rule out adverse effects on the integrity of international (habitats) sites. 7. Proposals that discharge foul or surface water into Hornsea Mere's international (habitats) site hydrological catchment will have to	

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		demonstrate that foul and surface water can be appropriately addressed so that developments are nutrient neutral. Contaminants should be restricted from entering the Mere's hydrological system. D. Mitigation will be required for a development site where adverse effects cannot be ruled out. Where mitigation is not possible to rule out adverse effects on the integrity of an international (habitats) site, the development will not be permitted unless it can be conclusively demonstrated that: 1. There are no feasible alternative solutions that would be less damaging or avoid damage to the site; 2. There are imperative reasons of overriding public interest for the development; and 3. The necessary compensatory measures can be secured.	

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		E. Sites that have been identified for mitigation or compensatory land are shown on the Policies Map and will be protected for the purposes for which they have been identified. <u>National</u> F. Proposals that are likely to have an adverse effect on a national site (alone or in combination) will not normally be permitted, except where the benefits of development in that location clearly outweigh both the impact on the site and any broader impacts on the wider network of national sites. This should consider adverse impacts such as recreational pressure, functionally linked land, air quality, and water quality <u>Local</u> Development resulting in loss or significant harm to a local site, or habitats or species supported by local sites, whether directly or indirectly, will only be supported if it can be demonstrated that there is a need for the development in that location and the benefit	

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		of the development outweighs the loss or harm.	
Policy ENV5: Strengthening green infrastructure	A. Development proposals should: 1. Incorporate existing and/or new green infrastructure features within their design; and 2. Capitalise on opportunities to enhance and/or create links between green infrastructure features such as those listed in Table 10. Links should be created both on-site and, where possible, with nearby green infrastructure features. B. Development proposals within, or in close proximity to, a green infrastructure corridor should enhance the functionality and connectivity of the corridor.	A. Proposals will be supported where they: 1. Conserve, restore, enhance or recreate biodiversity and geological interests including the Priority Habitats and Species, Irreplicable Habitats and Local Sites (identified in Table 13); and 2. Safeguard, enhance, create and connect habitat networks in order to: i. protect, strengthen and reduce fragmentation of habitats; ii. create a coherent ecological network that is resilient to current and future pressures; iii. conserve and increase populations of species; and	ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] identifies that the Proposed Development has been designed to avoid sites statutorily designated for their biodiversity importance and to avoid or minimise impacts on sites that are non-statutorily designated for their biodiversity importance, as well as to avoid key nature conservation and ecological features present within or adjacent to the Order Limits. Measures embedded within the Proposed Development design will ensure that adverse effects on designated sites are reduced as far as reasonably practicable during construction, operation (including maintenance) or decommissioning. Impacts on green infrastructure alongside enhancements and mitigation are outline in ES

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		iv. promote and enhance green infrastructure. <u>Local Nature Recovery</u> B. Proposals should further the aims of the Local Nature Recovery Strategy and national Nature Recovery Network and other relevant strategic landscape-scale biodiversity initiatives. <u>Biodiversity Net Gain</u> C. Proposals must achieve a measurable biodiversity net gain at least in line with the most up to date national requirements, in addition to the measures required in ENV4. <u>Water Framework Directive</u> D. Proposals that include altering river channels, lakes, estuaries, coastal waters, or their banks, propose structures that break continuity or alter flow, or EIA developments that are determined to have a likely significant effect on the water environment, must undertake a Water Framework Directive Assessment to show that the proposal will:	Volume 2, Chapter 7: Biodiversity [EN010157/APP/7.5]. The maintenance of the mitigation and enhancement is considered in the Outline LEMP [EN010157/APP/7.5], including details on how frequently they are to be monitored and the actions that will be carried out to ensure successful growth eg pruning, fertilizing, weeding, watering. There is no Local Nature Recovery strategy currently for the area. Notwithstanding this, mitigation and enhancement measures have been incorporated into the Proposed Development, as set out in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and secured pursuant to a requirement in the Draft DCO [EN010157/APP/3.1]. The ongoing maintenance of proposed planting and habitat creation is detailed in the Outline LEMP [EN010157/APP/7.5] and

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		1. Not cause deterioration of the Water Framework Directive status of any water body; and Will not prevent any water body from reaching targets set in the River Basin Management Plan.	secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1]. In relation to BNG, the Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development is committed to achieving significant biodiversity net gain on-site. Water Framework Directive (WFD) classified watercourse waterbodies within the study area are contained within Table 15.1 of ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]. ES Volume 4, Appendix 5.5: Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4]

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			demonstrates that there are a number of Proposed Development activities that could impact the local WFD receptors. However, that the mitigation proposed would minimise the chance for such impacts. Although the Proposed Development benefits are assessed to be unlikely to change the WFD status of the watercourses, they would assist the water bodies in meeting their Objectives. Following the implementation of mitigation measures, the anticipated water quality impacts on WFD waterbodies is assessed as having a residual adverse effect that is not significant.
Policy ENV6: Managing environmental hazards	A. Environmental hazards, such as flood risk, coastal change, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable consequences to its users, the	A. Environmental hazards, such as flood risk, coastal change, nutrient deposition, aerial pollution, groundwater pollution and other forms of pollution, will be managed to ensure that development does not result in unacceptable	The Proposed Development includes land identified within Flood Zones 2 and 3 and is supported by ES Volume 4: Appendix 5.6: Flood Risk Assessment (FRA) [EN010157/APP/6.4]. The FRA includes considerations of the

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	wider community, and the environment. Flood risk B. The risk of flooding to development will be managed by applying a Sequential Test to ensure that development is steered towards areas of lowest risk, as far as possible. The Sequential Test will, in the first instance, be undertaken on the basis of the East Riding of Yorkshire Strategic Flood Risk Assessment (SFRA) and the Environment Agency's Flood Map, within appropriate search areas. Where development cannot be steered away from Flood Zone 3, the sub-delineation of Zone 3a, detailed within the relevant SFRA, will be used to apply the Sequential Test, with preference given to reasonably available sites that are in the lower risk/hazard zones. Where necessary, development must also satisfy the Exception Test.	consequences to its users, the wider community, and the environment. <u>Flood risk</u> B. The risk of flooding to development, from all sources both now and in the future, will be managed by applying a sequential test to ensure that development is steered towards areas of lowest risk, as far as possible. The sequential test will, in the first instance, be undertaken on the basis of the East Riding Strategic Flood Risk Assessments (SFRA) and the Environment Agency's Flood Maps, within appropriate search areas. The order of preference for the sequential test is set out in the relevant SFRA, with preference given to reasonably available sites that are in the lower risk/hazard zones. Where necessary, development must also satisfy the exception test. C. If, following application of the sequential test, it has not been possible to successfully steer development to a site at low risk of flooding from all sources now and in	impact of climate change and concludes that the Proposed Development will be safe from all forms of flooding for the lifetime of the development and would negate flood risk elsewhere, whilst potentially resulting in minor benefit to third parties in terms of runoff and soil erosion. The Proposed Development has been designed considering flood risk and includes mitigation measures as set out in the Design Approach Document [EN010157/APP/5.7]. Section 8.14 of this Planning Statement [EN010157/APP/5.5] details how the Applicant has applied the Sequential and Exception Tests. Section 8.14 demonstrates that a sequential, risk-based approach has been applied to the site selection process and layout and design of the Proposed Development. ES Volume 4, Appendix 5.6 Flood Risk Assessment

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	C. If, following application of the Sequential Test, it has not been possible to successfully steer development to Flood Zone 1 or a sequentially preferable site, a Sequential Approach will be taken to site layout and design, aiming to steer the most vulnerable uses towards the lowest risk parts of the site and upper floors. D. Flood risk will be proactively managed by: 1. Ensuring that new developments: i. limit surface water run-off to existing run-off rates on greenfield sites, and on previously developed land reduce existing run-off rates by a minimum of 30%, or to greenfield run-off rate; ii. do not increase flood risk within or beyond the site; iii. incorporate Sustainable Drainage Systems (SuDS) into major development proposals and proposals at risk of flooding, unless	the future, a sequential approach will be taken to site layout and design, aiming to steer the most vulnerable uses towards the lowest risk parts of the site and upper floors. D. Flood risk from all sources will be proactively managed by: 1. Ensuring that new developments: i. limit surface water run-off to existing run-off rates on greenfield sites, on previously developed land reduce existing run-off rates by a minimum of 30 per cent , or to greenfield run-off rate, and in the Living With Water Area (see Figure 14), support proposals that make a reduction in runoff beyond greenfield rates; ii. do not increase flood risk within or beyond the site; iii. incorporate Sustainable Drainage Systems (SuDS) into major development proposals and proposals at risk of flooding, unless demonstrated to be	[EN010157/APP/6.4] considers the risk of flooding from surface water in Section 5.10. The FRA concludes that the risk of surface water flooding to sensitive infrastructure is assessed as being Low. Section 7.3 of ES Volume 4, Appendix 5.6 Flood Risk Assessment [EN010157/APP/6.4] also presents an Infrastructure Drainage Strategy that manages the impact of rain falling on the Proposed Development following a SuDS approach. The strategy outlines how water would percolate to the ground local to the infrastructure it falls on, mimicking existing site conditions. Access tracks would be formed from permeable materials to allow rain to percolate to the ground as per the existing site as set out within the Design Parameters Document [EN010157/APP/5.8].

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	demonstrated to be inappropriate; iv. do not culvert or otherwise build over watercourses, unless supported by the Risk Management Authority; v. have a safe access/egress route from/to Flood Zone 1 or establish that it will be safe to seek refuge at a place of safety within a development; vi. incorporate high levels of flood resistant and resilient design if located in a flood risk area; vii. are adequately set-back from all watercourses including culverted stretches; and viii. adhere to other relevant SFRA recommendations. 2. Supporting proposals for sustainable flood risk management, including the creation of new and/or improved flood defences,	inappropriate; iv. ensuring SuDS provide multi-functional benefits, where appropriate; v. do not culvert or otherwise build over watercourses, unless supported by the Risk Management Authority and an appropriate the Water Framework Directive Assessment, as required by Policy ENV5. Where practical existing culverts should be removed; vi. have a safe access/egress route from/to areas at low risk of flooding now and in the future or establish that it will be safe to seek refuge at a place of safety within a development; vii. incorporate flood resistant and resilient mitigation that meets the design risk and residual risk now and in the future; viii. are adequately set-back from all watercourses, including culverted stretches, in line	ES Volume 4, Appendix 5.6 Flood Risk Assessment [EN010157/APP/6.4] includes details on safe access and egress at Section 5.3. In addition, an Emergency Response Plan (including Flood Risk) will be prepared as part of the CEMP, OEMP and DEMP and is secured by the Outline CEMP [EN010157/APP/7.2], the Outline OEMP [EN010157/APP/7.3] and the Outline DEMP [EN010157/APP/7.4]. ES Volume 4, Appendix 5.5 Water Framework Directive Screening and Scoping Report [EN010157/APP/6.4] demonstrates that there are a number of Proposed Development activities that could impact the local WFD receptors. However, that the mitigation proposed would minimise the chance for such impacts. Table 3-3 of ES Volume 4, Appendix 5.5 Water

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	water storage areas and other schemes, provided they would not cause unacceptable adverse environmental, social, or economic impacts. Groundwater pollution - The risk of groundwater pollution will be managed by: - Avoiding development that will increase the risk of pollution in Source Protection Zones (SPZ) and where this is not possible, ensuring that appropriate mitigation measures are employed; - Supporting developments which will decrease the risk of pollution in SPZs by cleaning up contaminated land and incorporating pollution-prevention measures; - Preventing inappropriate uses/activities in SPZ1 and SPZ2, unless adequate safeguards against possible contamination can be agreed;	with the advice of the relevant Risk Management Authority; and ix. adhere to other relevant SFRA recommendations. - Supporting proposals for sustainable flood risk management, including the creation of new and/or improved flood defences, water storage areas and other schemes, provided they would not cause unacceptable adverse environmental, social, or economic impacts. - Supporting the removal of existing culverting and returning these sections to open watercourse. - Designating areas of Flood Zone 3b (Functional Floodplain) and safeguarding land for current and future flood risk management, on the Policies Map Update. <u>Coastal change</u>	Framework Directive Screening and Scoping Report [EN010157/APP/6.4] outlines potential impacts and mitigation, including: - Utilise existing crossings. - New crossings to be span bridges. - Improved crossings to have larger dimensions than existing (e.g. replace pipe culvert with box culvert). These measures will be secured within the Outline CEMP [EN010157/APP/7.2] and the Outline DEMP [EN010157/APP/7.4]. In relation to noise and vibration as a form of pollution, ES Volume 2, Chapter 12: Noise and Vibration [EN010157/APP/6.2] presents an assessment of noise and vibration effects arising from the construction, operation

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	4. Preventing non-mains drainage that would involve sewage, trade effluent or other contaminated discharges, as far as possible; and 5. Ensuring re-development of previously developed sites does not contaminate under-lying aquifers.	E. Development likely to be affected by coastal change will be proactively managed by designating a Coastal Change Management Area (CCMA) on the Policies Map Update. F. Within the CCMA proposals will be supported where it: 1. Can be demonstrated that an appropriate temporary development, such as those included in Table 14, will contribute to the local economy and/or help to improve the East Riding's tourism offer; or 2. Would involve re-location or roll back of existing development to an alternative location, provided the existing development is in permanent use and is a permanent structure, or is an existing caravan or holiday home park. The alternative location should be a suitable coastal location, including meeting the requirements of	(including maintenance) and decommissioning phases of the Proposed Development. The assessment concludes that no construction, operation (including maintenance) and decommissioning impact of the Proposed Development upon the assessed receptors is anticipated to give rise to residual significant adverse effects (post-implementation of additional mitigation measure(s)). ES Volume 2, Chapter 6: Air Quality [EN010157/APP/6.2] conducts a qualitative assessment of anticipated significant effects of construction and decommissioning phase dust and particulate matter at sensitive receptors following the Defra Local Air Quality Management Technical Guidance and PM_{2.5} Target Guidance. The assessment concludes that there are no anticipated significant residual adverse effects on air

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		Policy ENV4; and 3. Is ensured that: i. the development is safe from the risks associated with coastal change for its intended lifespan; ii. the development does not have an unacceptable impact on nature conservation, heritage and/or landscape designations; iii. sites to be vacated as a result of relocation/roll back or expiry of a temporary permission, will be cleared and restored to a natural state, with net sustainability benefits and, where appropriate, public access to the coast; and	quality as a result of the Proposed Development. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] assesses the impact on ground conditions. Impacts from compaction and deterioration of soil and agricultural land, loss of Best and Most Versatile agricultural land are considered to be moderate adverse or large adverse and is classified as significant for very high sensitivity soil (Grades 1 and 2 – which account for 14.8% of the Order Limits). The Outline SMP [EN010157/APP/7.8] and Outline CEMP [EN010157/APP/7.2] outlines measures to be used to manage potential impacts to soil and agricultural land. Best practice and bespoke mitigation measures will be carried out during construction, operation (including maintenance) and decommissioning to reduce nuisance impacts from dust

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		iv. the development has an acceptable relationship with coastal settlements in relation to character, setting, residential amenity and local services. G. Development proposals for sustainable coastal change management, such as improvements to coastal defences or managed realignment, will be supported where: 1. They would not have any unacceptable adverse environmental, social or economic impacts; 2. Are in line with the most up to date Shoreline Management Plan; and 3. In line with the latest coastal monitoring information. <u>Groundwater pollution</u> H. The risk of groundwater pollution will be managed by: 1. Avoiding development that has potential to increase the	generation, soil removal and waste generation to avoid worsening existing ground conditions. ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] assesses the impact on groundwater. Measures to manage and mitigate against effects relating to groundwater, together with emergency procedures to allow appropriate management of accidental spillages and leaks and contaminated land risks, are detailed in and secured by the Outline CEMP [EN010157/APP/7.2].

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		risk of groundwater pollution in source protection zones and where an alternative site outside an SPZ is not available, ensuring that appropriate mitigation measures are employed; 2. Preventing inappropriate uses/activities in SPZ1 and SPZ2, unless adequate safeguards against possible contamination can be agreed; 3. Supporting developments which will decrease the risk of pollution in SPZs by cleaning up contaminated land and incorporating pollution-prevention measures; 4. Preventing non-mains drainage that would involve sewage, trade effluent or other contaminated discharges, as far as possible; and	

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		Ensuring re-development of previously developed sites does not contaminate under-lying aquifers.	
Policy A1: Beverley & Central sub area	Plans, strategies and development decisions in the Beverley & Central sub area should: ... B: Economy 1. Support appropriate expansion and diversification of the sub area's key economic sectors including ports and logistics; tourism; renewable energy; manufacturing and engineering (including chemicals); finance and business services; and transport equipment. C: Environment 1. Support integrated approaches to habitat and species management, safeguarding and enhancing designated sites, including the internationally important Humber Estuary, green infrastructure corridors and the Humberhead	Plans, strategies and development decisions in the Beverley and Central sub area should: ... B. Economy 1. Support appropriate expansion and diversification of the sub area's key economic sectors including ports and logistics; tourism; energy; manufacturing and engineering (including chemicals); creative and digital. 2. Support the role and development of the Key Employment Sites at: i. Hedon Haven; for the expansion of the Port of Hull; ii. Humber Bridgehead; for high quality office and research, making use of the site's location assets; and	<u>Economy</u> ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] provides an assessment of potential socio-economic effects of the Proposed Development. The Proposed Development represents expansion and diversification of the energy sector in East Riding, we therefore consider that the Proposed Development is compliant with the economic aspirations of the policy. In addition, the Proposed Development will provide construction job opportunities over the anticipated 24-month construction programme. The Applicant estimates that a maximum of 350 construction jobs will be created during peak periods whilst the average number

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	Levels NIA, and avoid development that would have a detrimental impact, working in conjunction with neighbouring authorities where appropriate. 2. Prevent coalescence by protecting the character and individual identity of settlements by maintaining Key Open Areas between: i. Hull and the Major Haltemprice Settlements; ii. Cottingham and Anlaby/Willerby/Kirk Ella; iii. Anlaby/Willerby/Kirk Ella and Hessle; iv. Hedon and Preston; and v. Hull/Salt End and Hedon. 3. Maintain the physical separation of; i. West Ella and Kirk Ella; ii. Hull/Salt End and Paull; iii. Hull and Bilton; iv. Hedon and Paull; v. Hedon and Thorngumbald; and	iii. Melton; predominantly for manufacturing, storage, and distribution activities which make use of the site's high quality multi-modal transport links. 3. Make maximum use of the sub area's infrastructure assets and existing employment sites, and support the completion of the Willerby Hill Business Park, the role of Salt End, particularly for the chemicals industry and related sectors, the potential of land east of Staithes Road (Hedon) for energy related development, and the role of Priory Park for a variety of economic development uses. 4. Support the role that Catfoss Industrial Estate has in contributing to the rural economy; 5. Support the growth of Beverley's economy through: i. the growth and diversification of the leisure and visitor	of construction staff likely to be present on site across the construction phase is approximately 250. The Applicant aims to, where reasonably practicable, use local construction and manufacturing businesses during the construction phase, which would help to support the creation of new direct job opportunities for local people. Should it not be possible to source construction staff locally, there may be a need to recruit staff from other regions. Through utilising the local workforce directly as a result of the Proposed Development, it is expected that the workforce will subsequently reinvest money into the local economy and services, helping to sustain jobs across a range of sectors. Environment A series of project design principles were developed at an

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Policy	Policy Text	Emerging Plan Policy Text	Assessment
	vi. Elloughton-cum-Brough, Welton, Melton, North Ferriby and Swanland. 4. Protect those elements which contribute to the character and setting of the heritage assets of the sub area and improve the public realm, particularly in Beverley and Hedon to retain and enhance their attractiveness and facilitate their tourism role. 5. Have regard to the character and quality of landmarks, such as Beverley Minster, St. Mary's Church (Beverley), the Blackmill (Beverley), Burton Constable Hall, St. Augustine's Church (Hedon), the Humber Bridge, All Saints Church (Preston), St. Mary's Church (South Dalton), Skidby Mill, Paull Holme Tower and St. Andrew's Church (Paull), and respect, and, where possible, enhance views of these features.	sector, including high quality serviced accommodation; ii. physical improvements of the industrial estates to the east of Swinemoor Lane as a location for business; and iii. supporting the development of the Tokenspire Business Park. 6. Strengthen Elloughton cum Brough's role as a Town by encouraging employment opportunities and promoting new and enhanced services and facilities commensurate with the town's role and function. 7. Support the sub area's urban and rural tourism assets, such as the Humber Bridge Country Park, and the provision of high quality serviced tourist accommodation, and opportunities to create linkages between Beverley and the Wolds.	early stage and have guided the design response to the local context, including the environment and heritage character to develop a good design that balances the need to maximise renewable energy generation from the Proposed Development, as set out in the Design Approach Document [EN010157/APP/5.7]. As set out in Section 4.5 of in the Design Approach Document [EN010157/APP/5.7], throughout the design process, changes have been made and implemented into the design of the Proposed Development to avoid or reduce adverse environmental effects and to make the Proposed Development fit better into the wider landscape. To secure the delivery of good design, should development consent be granted, a list of design parameters which underpin the Proposed Development is contained within the Design Parameters

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Policy	Policy Text	Emerging Plan Policy Text	Assessment
		8. Support the decarbonisation of the economy through appropriate energy infrastructure (e.g. grid connection points, pipelines) that integrates with renewable and low energy generating uses. C. Environment 1. Support integrated approaches to habitat and species management, safeguarding and enhancing designated sites and associated functionally linked land, including the internationally important Humber Estuary, green infrastructure corridors and avoid development that would have a detrimental impact, working in conjunction with neighbouring authorities where appropriate. 2. Prevent coalescence by protecting the character and individual identity of settlements by maintaining Key Open Areas between: i. Hull and the Major Haltemprice Settlements; ii. Cottingham and Anlaby/Willerby/Kirk Ella; iii. Anlaby/Willerby/Kirk Ella and Hessle; iv. Hedon and Preston; and v. Hull/Salt End and Hedon.	Document [EN010157/APP/5.8] and which would be required to be retained in the future detailed design as secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1]. Mitigation and enhancement measures have been incorporated into the Proposed Development, as set out in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2] and secured pursuant to a requirement in the Draft DCO [EN010157/APP/3.1]. The ongoing maintenance of proposed planting and habitat creation is detailed in the Outline LEMP [EN010157/APP/7.5] and secured pursuant to a requirement of the Draft DCO [EN010157/APP/3.1]. In relation to BNG, the Proposed Development will meet a minimum 10% BNG, as secured within the Outline LEMP [EN010157/APP/7.5]. ES Volume 4, Appendix 7.10: Biodiversity

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		3. Maintain the physical separation of; i. West Ella and Kirk Ella; ii. Hull/Salt End and Paull; iii. Hull and Bilton; iv. Hedon and Paull; v. Hedon and Thorngumbald; and vi. Elloughton cum Brough, Welton, Melton, North Ferriby and Swanland. 4. Protect those elements which contribute to the character and setting of the heritage assets of the sub area and improve the public realm, particularly in Beverley and Hedon to retain and enhance their attractiveness and facilitate their tourism role. 5. Have regard to the character and quality of landmarks, such as Beverley Minster, St. Mary's Church (Beverley), the Blackmill (Beverley), Burton Constable Hall, St. Augustine's Church (Hedon), the Humber Bridge, All Saints Church (Preston), St. Mary's Church (South Dalton), Skidby Mill, Paull Holme Tower and St. Andrew's Church (Paull), and respect, and, where possible, enhance views of these features. 6. Proactively manage the risk of flooding posed from the Humber Estuary and	Net Gain Assessment [EN010157/APP/6.4] demonstrates that the Proposed Development is committed to achieving significant biodiversity net gain on-site. The Proposed Development is supported by Habitats Regulations Assessment – Information to inform Appropriate Assessment [EN010157/APP/5.3] which concludes there will be no significant adverse effects to on the Humber Estuary either from the construction, operation or decommissioning of the Proposed Development or in combination with other plans and projects. Impacts on green infrastructure alongside enhancements and mitigation are outline in ES Volume 2, Chapter 7: Biodiversity [EN010157/APP/6.2]. The maintenance of the mitigation and enhancement is considered in the

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		the River Hull and Burstwick Drain catchments, including the risk of surface water flooding, having regard, where appropriate, to the relevant Strategic Flood Risk Assessment and flood risk management plans and strategies. 7. Support proposals that make a reduction in run-off rates beyond greenfield rates within the Living with Water area. 8. Ensure that the integrity of the Cottingham, Dunswell, Etton, Keldgate, North Newbald and Springhead Groundwater Source Protection Zones are protected. 9. Retain the distinctive character and landscape setting of the Wolds villages. 10. Protect the diverse character, skyline and views across the rolling tops of the Yorkshire Wolds. 11. Manage improvements to the River Hull, Leven Canal, Hedon Haven and Beverley Beck where it would create economic, environmental and recreational opportunities, and does not adversely affect conservation	Outline LEMP [EN010157/APP/7.5], including details on how frequently they are to be monitored and the actions that will be carried out to ensure successful growth eg pruning, fertilizing, weeding, watering. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] concludes that recreation impacts of the Proposed Development are not significant at any phase and can be effectively mitigated through implementation of management plans secured in the DCO Application. It also concludes that adverse effects generated by the Proposed Development on recreation during the construction phase will be minor in impact magnitude, with a slight adverse residual effect post implementation of mitigation measures, which is considered not significant. A small area of Figham Common lies within the Order Limits, which

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Policy	Policy Text	Emerging Plan Policy Text	Assessment
		initiatives or the quality of the natural environment. D. Community and Infrastructure 1. Enhance connectivity within the sub area and with the rest of the East Riding and the City of Hull by supporting transport infrastructure improvements, particularly: i. south of Beverley park and ride; ii. A1079/A164 Jock's Lodge interchange improvements and A164 dualling to the south of Beverley; iii. A164 Willerby roundabout; iv. A164 Swanland roundabout v. A63/A15 Humber Bridgehead Interchange, including Humber Bridge roundabout; vi. A1079 Dunswell roundabout; vii. Melton inter-modal freight links, including the existing rail sidings and jetty; viii. direct road link from Hedon Haven to the Port of Hull, Hull Docks Freight line extension and improvements to junctions on the A1033 Strategic Road Network; ix. north of Hull park and ride; x. east of Hull park and ride; xi. improvements to walking, cycling and public transport facilities, including those set out within the Local	will be used for the purposes of laying grid connection cable only. ES Volume 2, Chapter 13: Population [EN010157/APP/6.2] concludes that no significant adverse effects on users of Figham Common is anticipated. A number of existing PRoW traverse the Proposed Development and are presented in Table 3.2, ES Volume 4, Appendix 14.1: Transport Assessment [EN010157/APP/6.4] and the Outline Rights of Way and Access Management Plan [EN010157/APP/7.9]. The Outline Rights of Way and Access Management Plan [EN010157/APP/7.9] has been prepared in support of the DCO Application and sets out that all public rights of way would be kept open during construction as far as is practicable and safe. Where it would not be practicable and safe, there may be a requirement for

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Policy	Policy Text	Emerging Plan Policy Text	Assessment
		Transport Plan Local Cycling and Walking Infrastructure Plans, and major cross country routes such as Wolds Way, the Minster Way, and Transpennine Trail, the public rights of way network, and the National Cycle Network; xii. A1033 Salt End Roundabout Improvements; xiii. A1033/B1362 Hedon By-pass Roundabout Improvements; xiv. B1362 Red House Farm Mini Roundabout Improvements; xv. Traffic Management Measures to address issues with 3 junctions within Hedon and Preston; and xvi. A highway connection from Minster Way to Woodmansey Mile and a footbridge across the railway line to link sites BEV-J and BEV-K. 2. Support development within the Major Haltemprice Settlements that is well integrated with the public transport corridors serving Hull. 3. Support the provision of additional infrastructure, including: i. primary health care capacity, including GPs and dentists across the sub area	some public rights of way to be temporarily managed for a short duration. Enhancements to existing PRoWs are considered in ES Volume 2, Chapter 11: Landscape and Visual [EN010157/APP/6.2] where additional mitigation planting is proposed to both reduce adverse landscape visual effects, but also enhance the visual amenity experienced by users of the PRoWs. The Proposed Development is also proposing several new permissive paths, approximately 12.6 km in length, within the Order Limits and as set out in ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]. ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4] assesses flood risk and drainage in the context of EIA. The assessment concludes that, with both

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		ii. drainage and flood alleviation schemes, particularly for the Major Haltemprice Settlements, Beverley, Hedon, Leven and South Cave; iii. additional primary school pupil capacity for existing schools in the Beverley, Cottingham, Hessle and Wolfreton school areas, alongside the provision of a new primary school in Beverley; iv. additional secondary school pupil capacity within the South Hunsley school areas; v. additional post-16 education capacity within the Hessle, South Hunsley and	embedded and additional mitigation measures secured as part of the Proposed Development, there would be no significant residual adverse effects upon receptors in relation to flood risk during the Proposed Development's operation (including maintenance). The proposed Surface Water Drainage Strategy set out in ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4], demonstrates that sustainable drainage techniques have been designed into the Proposed Development. These techniques would be maintained in accordance with the Outline OEMP [EN010157/APP/7.3] and secured pursuant to the Draft DCO [EN010157/APP/3.1]. In relation to the historic environment, ES Volume 2, Chapter 9: Cultural Heritage [EN010157/APP/6.2] provides an

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		Wolfreton school areas; and vi. additional capacity for special educational needs (SEN) and early years education.	assessment of the Proposed Development on the historic environment. As set out in the Design Approach Document [EN010157/APP/5.7], the Proposed Development has been designed sensitively taking into account known heritage assets, their status and settings. The Proposed Development and associated works have been sited to minimise any impact on the setting of heritage assets. Therefore the Proposed Development would not result in any significant effects on designated heritage assets and would minimise to a negligible level any other harms to the identified heritage assets or their settings.

East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 Adopted November 2019		
Policy	Policy Text	Assessment
Policy EC6: Protecting mineral resources	A. Mineral Safeguarding Areas for sand and gravel, crushed rock, limestone, industrial chalk, clay and silica sand are identified on the Policies Map. B. Within or adjacent to Mineral Safeguarding Areas, non-mineral development, which would adversely affect the viability of exploiting the underlying or adjacent deposit in the future, will only be supported where it can be demonstrated that the: 1. Underlying or adjacent mineral is of limited economic value; 2. Need for the development outweighs the need to safeguard the mineral deposit; 3. Non-mineral development can take place without preventing the mineral resource from being extracted in the future; 4. Non-mineral development is temporary in nature; or 5. The underlying or adjacent mineral deposit can be extracted prior to the non-mineral development proceeding, or prior extraction of the deposit is not possible.	ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2] identifies that there are historical mineral extraction sites and Mineral Safeguarding Areas (MSAs) within the Order Limits and within 250 m of the Order Limits. A Minerals Assessment is provided as Appendix 4 to the Planning Statement [EN010157/APP/5.5]. The Proposed Development will be decommissioned after 40 years of operation, and impacts caused by the Proposed Development related to land use are considered reversible and temporary. Minerals within the Order Limits will largely not be permanently sterilised, and post-decommissioning, it is anticipated that the land could continue to have the potential to be worked for minerals.



Peartree Hill Solar Farm

Appendix 2: Site Selection Assessment

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Acronyms

Acronym	Description
ALC	Agricultural Land Classification
AQMA	Air Quality Management Area
BESS	Battery Energy Storage System
BMV	Best and Most Versatile
DC	Direct current
DCO	Development Consent Order
Draft DCO	Draft Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
ERYC	East Riding of Yorkshire Council
ExA	Examining Authority
FRA	Flood Risk Assessment
HDD	Horizontal Directional Drilling
HGV	Heavy goods vehicle
kV	Kilovolts
MW	Megawatts
NETS	National Electricity Transmission System
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NIC	National Infrastructure Commission
PA 2008	Planning Act 2008
PDL	Previously Developed Land
PRoW	Public Rights of Way
PV	Photo voltaic
SoS	Secretary of State for the Department for Energy Security and Net Zero
SSSI	Sites of Special Scientific Interest

Glossary

Term	Definition
Agricultural land classification	A framework for determining the physical quality of agricultural land at national, regional and local levels. This is based on the long-term physical limitations of land for agricultural use. There are a number of factors that affect the grade, and the main ones are climate, site and soil characteristics, and the interactions between them.
Air Quality Management Area	Areas that are likely to exceed the national air quality objective for a specific pollutant. They are determined by Local Planning Authorities.
Ancient woodland	An area that has been wooded continuously since at least 1600 AD. Ancient woodland is divided into ancient semi-natural woodland and plantations on ancient woodland sites.
Applicant	The organisation submitting the Development Consent Order Application (in the case of Peartree Hill Solar Farm, RWE Renewables UK Solar and Storage Ltd).
Balance of solar plant	Supporting infrastructure excluding Battery Energy Storage System. Balance of solar plant includes inverters and switchgear.
Battery Energy Storage System	This comprises batteries and associated enclosures, monitoring systems, air conditioning, electrical cables and fire safety infrastructure. This equipment allows for the storage, importation and exportation of energy to the National Grid. Battery Energy Storage System units will form one element of hybrid packs, along with inverters, transformers and DC-DC converters.
Best and most versatile agricultural land	Defined as Grades 1, 2 and 3a in the Agricultural Land Classification by the National Planning Policy Framework and Planning Practice Guidance. This is the land which is determined to be most flexible, productive, and efficient in response to inputs and which can best deliver future crops for food and non-food uses such as biomass, fibres, and pharmaceuticals. Grades 3b, 4, and 5 are used to classify land that is of moderate quality to very poor quality.
Biodiversity	The biological diversity of the earth's living resources. The total range of variability among systems and organisms at the following levels of organisation: bioregional, landscape, ecosystem, habitats, communities, species, populations, individuals, genes, and the structural and

	functional relationships within and between these different levels.
Central inverter	Inverters that are distributed at regular intervals amongst the solar PV modules. They will form one element of hybrid packs, along with Battery Energy Storage System units, transformers and DC-DC converters.
Climate change	Large scale, long term shift in the Earth's weather patterns or average temperature.
Construction compound	A secure area from which construction activities are managed and resourced, including but not limited to temporary offices, workshops, parking and storage. For the Proposed Development, these are divided into main compounds and satellite compounds.
National Grid Creyke Beck Substation	The existing National Grid substation located near Cottingham that will facilitate the export and import of electricity from the Proposed Development to the National Grid.
DC-DC converter	Device that stabilises the voltage from the solar PV modules to the batteries. They will form one element of hybrid packs, along with inverters, Battery Energy Storage System units, transformers.
Decommissioning	The process of shutting down, and where relevant, removing the infrastructure comprised in the Proposed Development when it is no longer required once it has reached end of life.
Development Consent Order	A Statutory Instrument made by the Secretary of State pursuant to the Planning Act 2008.
Development Consent Order Application	The application for a Development Consent Order that is submitted by the Applicant to the Secretary of State for the Department for Energy Security and Net Zero.
Draft Development Consent Order	A Development Consent Order is a Statutory Instrument made by the Secretary of State pursuant to the Planning Act 2008. A draft version of the Development Consent Order is submitted in support of the Development Consent Order Application.
Environmental Impact Assessment Regulations	For the purpose of the Development Consent Order Application, the Environmental Impact Assessment Regulations are the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Environmental Impact Assessment	A systematic means of assessing the significance of effects from the Proposed Development, undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Environmental Statement	A statement prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 that includes the information that is reasonably required to assess the likely effects of a development and which the Applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile.
European site	A designated area of land subject to protection through European legislation, including Special Areas of Conservation, Special Protection Areas and Ramsar sites.
Examining Authority	Planning Inspector(s) responsible for conducting the examination and recommending a decision on a Development Consent Order Application to the Secretary of State.
Field (e.g. Field B1)	Each Land Area is made up of a number of fields which have been assigned a unique reference code, for example Field B1 (in Land Area B).
Flood map for planning	Defines Flood Zones based on annual probability of flooding from fluvial and tidal sources to inform development planning and flood risk assessment, with a Nationally consistent delineation of 'high', 'medium' and 'low' flood risk.
Flood Risk Assessment	A document that reviews a development in its proposal form to assess it against the risk of flooding, whether that be from groundwater, river (fluvial), surface water (pluvial), estuary/coastal (tidal), or from sewer sources.
Flood zones	Zones based on the annual probability of flooding from fluvial and tidal sources, as defined in the Flood Map for Planning. Areas are categorised into one of the following: Flood Zone 1, Flood Zone 2, Flood Zone 3a or Flood Zone 3b.
Flood Zone 1	Land assessed as having less than a 1 in 1,000 (0.1%) annual probability of flooding from rivers or the sea in any year.
Flood Zone 2	Land assessed as having between a 1 in 100 (1%) and 1 in 1000 (0.1%) annual probability of flooding from rivers, or between a 1 in 200 (0.5%) and 1 in 1,000 (0.1%) annual probability of flooding from the sea in any year.
Flood Zone 3a	Land assessed as having a 1 in 100 (1%) or greater annual probability of flooding from rivers or a 1 in 200 (0.5%) or greater annual probability of flooding from the sea in any year.
Flood Zone 3b	Land where water has to flow or be stored in times of flood.

Glare	A continuous source of bright light typically received by static receptors or from large reflective surfaces.
Glint	A momentary flash of bright light typically received by moving receptors or from moving reflectors.
Greenhouse gas	Gases that absorb and emit reflected solar radiation which result in the warming of the Earth's atmosphere. It is absorbed and emitted at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere, and clouds. The six main greenhouse gases whose emissions are human caused are: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbon, and sulphur hexafluoride. In combination, these greenhouse gas emissions are commonly expressed in terms of 'carbon dioxide equivalents' (CO ₂ e) according to their relative global warming potential. For this reason, the shorthand 'carbon' may be used to refer to greenhouse gases.
Grid connection	The export and import of electricity from the Proposed Development to or from the National Grid Creyke Beck Substation.
Grid connection cable route	The proposed corridor in which 132kV cabling will be laid to connect the solar PV development (from Land Area E) to National Grid Creyke Beck Substation.
Habitat	The environment in which populations or individual species live or grow.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017 (as amended) which covers the terrestrial environment.
Habitats Regulations Assessment	The stages of assessment carried out by the competent authority in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended) to determine if a project may affect the protected features of a European site and European offshore marine site, before deciding whether to undertake, permit or authorise it.
Heavy Goods Vehicle	Vehicles with 3 axles (articulated) or 4 or more axles (rigid and articulated).
Heritage	The historic environment and especially valued assets and qualities such as historic buildings and cultural traditions.
Heritage asset	A building, monument, site, place, area, or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its

	heritage interest. Heritage assets include designated heritage assets and non-designated heritage assets.
Historic Environment Record	The record of archaeological and built heritage features in a county or district, usually held and maintained by the relevant County Council.
Horizontal Directional Drilling	Low impact trenchless method of installing underground cables.
Hybrid Pack	An arrangement of four Battery Energy Storage System units, one inverter (including transformer) and four DC-DC converters.
Interconnecting cable routes	The cable routes that run between the Land Areas. These are labelled Cable B-B, Cable C-D, Cable E-E and Cable E-F (reflecting the Land Areas that they run between).
Inverter	Inverters convert the direct current (DC) electricity collected by the solar PV modules into alternating current (AC), which allows the electricity generated to be exported to the National Grid. Battery Energy Storage System also use inverters to convert between DC and AC. The batteries function in DC and electricity must be converted to/from AC to pass into or from the grid.
Land Areas (B to F)	The Proposed Development comprises several areas of land connected by underground cables (the interconnecting cable routes). The Land Areas are identified as follows (note, there is no Land Area A): • Land Area B: Land north-west of Long Riston; • Land Area C: Land west of Arnold; • Land Area D: Land south of the A1035; • Land Area E: Land east of Weel; and • Land Area F: Land north of Wawne.
Landscape	An area, as perceived by people, the character of which is a result of the action and interaction of natural and/or human factors.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another.
Listed building	A building which is considered to be of special architectural or historic interest and listed in accordance with the Planning (Listed Buildings and Conservation Areas) Act 1990.
Local Development Plan	The set of documents and plans that sets out the Local Planning Authority's policies and proposals for the development and use of land in their area.

Local Wildlife Site	A site of local importance that has been identified and selected for its wildlife value.
Local Planning Authority	The function of a local authority that is empowered by law to exercise statutory town planning functions for a particular area of the UK.
Main compound	Designated area within a construction site that serves as the central hub for managing and supporting construction activities, containing staff welfare facilities and storage areas materials, plant and equipment. Four main compounds are expected to be located across the Site and would each have a footprint of up to 6,000m ² .
Mounting structure	Metal structure onto which the solar PV modules are mounted.
National Planning Policy Framework	The document that sets out the UK Government's planning policies for England and how these are expected to be applied. The National Planning Policy Framework was last revised in December 2024.
National Policy Statement	Policy designated under the Planning Act 2008 concerning the planning and consenting of Nationally Significant Infrastructure Projects in the UK. Where applicable, they form the primary policy framework for the consenting of Nationally Significant Infrastructure Projects.
Nationally Significant Infrastructure Project	Projects which fall under one of the categories in Part 3 of the Planning Act 2008.
Nationally-designated ecological site	Areas of land subject to protection through UK legislation, including Sites of Special Scientific Interest and National Nature Reserves.
Non-statutory consultation	Consultation with stakeholders on the Proposed Development which occurred in addition to the statutory consultation.
On-site substation	The Proposed Development includes two on-site substations, which would receive the electricity from the solar PV modules and hybrid packs and step up the voltage from 33 kV to 132 kV ready to be exported to the National Grid Creyke Beck Substation via 132 kV underground cable. The substations would house electrical equipment such as transformers, switchgear and metering equipment. The two on-site substations are labelled Project Substation West and Project Substation East.
Order Limits	The boundary of the Site, i.e. the maximum extent of land potentially required temporarily and/or

	permanently for the construction, operation and decommissioning of the Proposed Development.
Permissive path	A route for users on foot or with a horse, depending on what has been agreed to, that a private landowner has voluntarily opened up to the public, to enable them to cross his or her land. It does not constitute a public right of way.
Planning Inspectorate	The Government agency responsible for administering applications for development consent under the Planning Act 2008 on behalf of the relevant Secretary of State.
Planning Practice Guidance	The Planning Practice Guidance provides context and guidance to the National Planning Policy Framework.
Refined Search Area	The refined area of search within the north eastern portion of the initial 12 km Search Area.
Search Area	A 12 km radius from National Grid Creyke Beck Substation established as a viable search area for a potential solar scheme.
Secretary of State	In the case of the Proposed Development, this refers to the Secretary of State for Energy Security and Net Zero.
Solar photovoltaic (PV) modules	Panels comprised of photovoltaic cells beneath a layer of toughened glass that convert sunlight into electrical current.
Special Area of Conservation	Areas of protected habitats and species as defined in the Habitats Directive.
Special Protection Area	Sites classified in accordance with Article 4 of the EC Birds Directive (2009/147/EC). They are classified for rare and vulnerable birds (as listed on Annex 1 of the Directive), and for regularly occurring migratory species.
Statutory consultation	The Planning Act 2008 requires the Applicant to undertake public consultation in advance of submitting a Development Consent Order Application to the Secretary of State.
Statement of Community Consultation	The Planning Act 2008 requires the Applicant to undertake public consultation in advance of submitting a Development Consent Order Application to the Secretary of State. A Statement of Community Consultation must be prepared, setting out how the Applicant proposes to consult people living in the vicinity of the Proposed Development.
String inverter	Types of inverter that are mounted underneath the solar PV modules.

Switchgear	Combination of electrical disconnect switches, fuses or circuit breakers to control, protect and isolate electrical equipment.
Transformer	A static piece of apparatus with two or more windings which, by electromagnetic induction, transforms a system of alternating voltage and current into another system of voltage and current usually of different values and at the same frequency for the purpose of transmitting electrical power.
Visual amenity	Overall enjoyment of a particular area, surroundings, or views in terms of people's activities - living, recreating, travelling through, visiting, or working.

1 Introduction

1.1 Foreword

- 1.1.1 This Site Selection Assessment has been prepared on behalf of RWE Renewables UK Solar and Storage Ltd (the 'Applicant') as part of an application for a Development Consent Order (DCO) (the 'DCO Application') made to the Secretary of State for the Department for Energy Security and Net Zero ('SoS'), pursuant to the Planning Act 2008 (PA 2008) **[Ref. 1]**.
- 1.1.2 The DCO Application is for a Nationally Significant Infrastructure Project ('NSIP') for the installation of a solar photovoltaic (PV) array electricity generating facility, Battery Energy Storage System (BESS) and associated infrastructure (the 'Proposed Development') which would allow for the generation and export of electricity. The **Location and Land Area Plan [EN010157/APP/2.1]** shows the Order Limits (the 'Order Limits') for the Proposed Development, which covers ~~894~~ **893** hectares of land located within East Riding of Yorkshire Council (ERYC).
- 1.1.3 The Proposed Development includes infrastructure capable of generating more than 50 megawatts (MW) of renewable energy which is to connect to the National Electricity Transmission System (NETS) at the National Grid Creyke Beck Substation.

1.2 Purpose of this Report

- 1.2.1 This report provides an overview of the Order Limits selection process undertaken by the Applicant to identify the location of the Proposed Development.
- 1.2.2 **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** explains the legal and policy background relevant to the consideration of alternatives and the design development of the Order Limits. The Chapter then covers the evolution of the design of the Proposed Development from the identification of the Order Limits through to the final Proposed Development design.
- 1.2.3 The **Planning Statement [EN010157/APP/5.5]** explains the planning tests and policy background relevant to the consideration of alternatives. The need for the Proposed Development is explained within the Statement of Need (Appendix 3 of the Planning Statement) and is summarised below in the context of the need for consideration of alternative sites.

- 1.2.4 Appendix 1 of this document provides an overview of the cable route corridor selection process undertaken by the Applicant to identify and refine the cable route corridor.

1.3 Proposed Development

- 1.3.1 The Proposed Development comprises the following main elements:
- Solar PV modules and associated mounting structures (groupings of solar PV modules are referred to as 'arrays');
 - On-site supporting equipment including inverters, transformers, direct current (DC)-DC converters and switchgear;
 - A BESS including batteries and associated enclosures, monitoring systems, air conditioning, electrical cables and fire safety infrastructure;
 - Two on-site 132 kV substations, including transformers, switchgear, circuit breakers, control equipment buildings, control functions, material storage, parking, as well as wider monitoring and maintenance equipment;
 - Low voltage and 33 kV interconnecting cabling within and between the Land Areas to connect the solar PV modules together and to transmit electricity from the solar PV modules and BESS to one of the two on-site 132 kV substations;
 - 132 kV underground cables (two 132 kV export cables) connecting the on-site substations to the National Grid Creyke Beck Substation;
 - Works at the National Grid Creyke Beck Substation to facilitate the connection of the 132 kV underground cabling into the substation;
 - Associated infrastructure including access tracks, parking, security measures, gates and fencing, lighting, drainage infrastructure, storage containers, earthworks, surface water management, maintenance and welfare facilities, security cabins and any other works identified as necessary to enable the development;
 - Highways works to facilitate access for construction vehicles, comprising passing places where necessary to ensure that heavy goods vehicles (HGVs) can be safely accommodated amongst existing traffic, new or improved site accesses and visibility splays;
 - A series of new permissive paths connecting to the existing public right of way network;
 - Environmental mitigation and enhancement measures, including landscaping, habitat management, biodiversity enhancement and amenity improvements; and,

- Temporary development during the construction phase of the Proposed Development including construction compounds, parking and laydown areas.

2 Assessment Methodology

- 2.1.1 There is no standard methodology for the site selection of solar farms. The site selection methodology has therefore been informed by the relevant planning policy.
- 2.1.2 The assessment has been informed by the following relevant national and local policies:
- Overarching National Policy Statement for Energy 2023 (NPS EN-1) (designated in January 2024) **[Ref. 2]**;
 - National Policy Statement for Renewable Energy Infrastructure 2023 (NPS EN-3) (designated in January 2024) **[Ref. 3]**;
 - National Policy Statement for Electricity Networks Infrastructure 2023 (NPS EN-5) (designated in January 2024) **[Ref. 4]**;
 - National Planning Policy Framework (NPPF) published in December 2024 **[Ref. 5]**; and,
 - East Riding of Yorkshire Local Planning Policies **[Ref. 6]**.
- 2.1.3 NPS EN-1, NPS EN-3 and NPS EN-5 all have effect in relation to the Secretary of State's decision making in relation to the Proposed Development and are therefore the primary policy basis for the SoS's determination of the Application, and therefore of principal relevance to the site selection process. The policies within the NPPF and East Riding of Yorkshire Local Plan are considered important and relevant to the SoS's decision, although it is noted that as stated in NPS EN-1, in the event of a conflict, the policies in the NPS take precedence. Further information on the role and status of relevant planning policy is provided within the **Planning Statement [EN010157/APP/5.5]**.
- 2.1.4 There are also tests as outlined in the relevant NPS' with regard to the consideration of alternative sites, for instance where there would be an adverse effect on the integrity of a European protected site or where land and / or rights are proposed to be acquired compulsorily. These are outlined and addressed in section 3.1 below.
- 2.1.5 The assessment methodology used has been split into three stages which follow a logical and sequential approach.
- Stage 1 – Identification of Search Area;
 - Stage 2 – Exclusion of Planning, Environmental and Spatial Constraints; and
 - Stage 3 – Identifying Potential Solar Development Areas.

2.2 Relevant Considerations from Recent Solar NSIP Decisions

- 2.2.1 As will be explained in Section 4 of this document, the starting point for the Search Area was the identification of a suitably sized grid connection at the National Grid Creyke Beck Substation. Recent Solar NSIP decisions have confirmed that the Examining Authority (ExA) and SoS support this approach to site selection. This is highlighted in the following extracts from the Examining Authority's Recommendation Reports and SoS Decision Letter for four recently consented projects:

Mallard Pass Solar Farm

Paragraph 3.2.128 of the Mallard Pass Solar Farm Examining Authority's Recommendation Report dated 16 February 2024 **[Ref. 7]** states:

"The ExA is satisfied that the availability of the grid connection at Ryhall is a significant factor in the site selection process and that there are no other realistic alternatives that would meet the same objectives of the Proposed Development".

This is reiterated at paragraph 4.6.5 of the Mallard Pass Solar Farm Secretary of State's Decision Letter dated 12 July 2024 **[Ref. 8]**.

Sunnica Energy Farm

Paragraph 4.155 of the Sunnica Energy Farm Secretary of State's Decision Letter dated 12 July 2024 **[Ref. 9]**, which includes references from the Sunnica Energy Farm Examining Authority's Recommendation Report dated 28 June 2023 **[Ref 10]** states:

"With regards to the Applicant's methodology, the Secretary of State notes that the Applicant undertook a thorough four-stage site selection process [ER 4.6.26 et seq.] and the chosen site was considered due to the high levels of solar irradiation compared to other parts of the UK, the availability of predominately large open flat land, as well as a suitable connection point to the National Grid, the land not being located in or near to Areas of Outstanding Natural Beauty, and its ability to avoid direct physical impact on designated heritage assets [ER 4.6.29]... The Secretary of State is therefore satisfied that the site selection process undertaken by the Applicant was appropriate, as set out in dNPS EN-3, which notes that grid connection capacity and access will be a major factor in site selection [ER 3.2.15]."

Gate Burton Energy Park

Paragraph 4.30 of the Gate Burton Energy Park Secretary of State's Decision Letter dated 12 July 2024 **[Ref. 11]**, which includes references from the Gate Burton Energy Park Examining Authority's Recommendation Report dated 4 April 2024 **[Ref. 12]** states:

"The ExA concluded on alternatives at ER 3.2.75 - 3.2.87. The ExA was satisfied that choosing a starting point accessible to the grid connection point at Cottam substation is in line with 2024 NPS EN-3 and not an unreasonable approach [ER 3.2.77]."

West Burton Solar Project

Paragraph 3.2.116 of the West Burton Solar Farm Examining Authority's Recommendation Report dated 8 August 2024 **[Ref. 13]** states:

"The ExA considered that the Applicant had adequately explained the site selection methodology and it was reasonable to use the PoC as a starting point and to seek to maximise the grid connection opportunity that had been secured here."

This is reiterated at paragraph 4.41 of the West Burton Solar Farm Secretary of State's Decision Letter dated 24 January 2025 **[Ref. 14]**.

3 Planning Policy

3.1 National Planning Policy

Overarching National Policy Statement for Energy (NPS EN-1) [Ref. 2]

3.1.1 Section 4.3 of NPS EN-1 establishes the circumstances under which NPS EN-1 requires the consideration of alternatives. Paragraph 4.3.9 of NPS EN-1 states that, 'this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option from a policy perspective'.

3.1.2 Paragraph 4.3.22 of NPS EN-1 advises that, in considering alternatives, the SoS should be guided by the following principles:

"The consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; and

Only alternatives that can meet the objectives of the proposed development need to be considered."

- 3.1.3 Paragraph 4.2.23 of NPS EN-1 advises that the SoS "should be guided in considering alternative proposals by whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security, climate change, and other environmental benefits) in the same timescale as the proposed development".
- 3.1.4 Paragraph 4.3.24 of NPS EN-1 states that the SoS "should not refuse an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site and should have regard as appropriate to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals". In a similar sense to paragraph 4.3.9, this paragraph recognises that a proposed development does not have to demonstrate that it is the best option, moreover, that the scheme is acceptable within the context of the relevant policy provisions. This also recognises that alternative sites may come forward under other applications but also, critically, that proposals should be determined on their individual merits in accordance with relevant policy which is the basis for decision making in planning in England.
- 3.1.5 Paragraph 4.2.25 of NPS EN-1 states that alternatives "not among the main alternatives studied by the applicant (as reflected in the ES) should only be considered to the extent that the Secretary of State thinks they are both important and relevant to the decision".
- 3.1.6 Paragraphs 4.3.15 to 4.3.17 of NPS EN-1 go on to set out the circumstances where there is a requirement to consider alternatives, as follows:
- Applicants are obliged to include in their ES, information about the reasonable alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility.
 - In some circumstances, the NPSs may impose a policy requirement to consider alternatives.
 - Where there is a policy or legal requirement to consider alternatives, the applicant should describe the alternatives considered in compliance with these requirements.
- 3.1.7 The Planning Inspectorate's Advice Note 7 **[Ref. 15]** sets out that they consider that a good ES is one that, amongst several other factors, "explains the reasonable alternatives considered and the reasons for the chosen option taking into account the effects of the Proposed Development on the environment".

3.1.8 There are also certain tests with regard to the consideration of alternative sites, as contained within Sections 4.3, 5.2, 5.4, 5.8 and 5.10 of NPS EN-1. The circumstances relating to when the consideration of alternatives is required and the Applicant's response to these circumstances is set out below:

- Where a proposal would involve the compulsory acquisition of land or interests in land (NPS EN-1 paragraph 4.3.9). The DCO Application is seeking compulsory acquisition powers. Please see the **Statement of Reasons [EN010157/APP/4.1]** and **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**.
- Where a development would be located near a sensitive receptor site for air quality (NPS EN-1 paragraph 5.2.7). The Proposed Development is not within an Air Quality Management Area (AQMA) nor are there any AQMAs declared within the East Riding of Yorkshire Council administrative area.
- Where a development would lead to significant harm to biodiversity and geological conservation interests (NPS EN-1 section 5.4). Biodiversity and geodiversity conservation considerations of reasonable alternatives have informed the design of the Proposed Development from the outset and integrated as part of the design process, as described in the **Design Approach Document [EN010157/APP/5.7]**. This has facilitated an approach to mitigating impacts that first seeks to avoid impacts, then minimise them, and then take on-site measures to rehabilitate or restore biodiversity, before finally offsetting unavoidable impacts.
- Where a development would result in an adverse effect on the integrity of a European site that cannot be avoided (NPS EN-1 section 5.4). **The Habitats Regulations Assessment - Information to inform Appropriate Assessment [EN010157/APP/5.3]** has been submitted alongside the DCO Application which confirms the Proposed Development would not result in an adverse impact on the integrity of a European Site, therefore there is no requirement to consider alternatives.
- Where a development would be located within, or partially within, Flood Zone 2 or Flood Zone 3 (NPS EN-1 section 5.8). In this case the Sequential Test should be undertaken. If following application of the Sequential Test, it is not possible for the Proposed Development to be located in areas of lower flood risk the Exception Test can be applied, which provides a method of allowing necessary development to go ahead in situations where suitable sites at lower risk of flooding are not available. With regard to applying the Sequential Test, paragraph 5.8.23 of NPS EN-1 sets out that consideration of alternative sites should take account of the policy on alternatives described in section 4.3 of NPS EN-1. The majority of the Order Limits is within Flood Zone 2 and 3. **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]**, and

section 8 of this Planning Statement advises how the Sequential Test has been met.

- Where a development would be located within a National Park, the Broads or an Areas of Outstanding Natural Beauty (now National Landscape) (NPS EN-1 section 5.10). The Proposed Development is not located in or near such designations, therefore no further consideration of alternatives in this regard is required.

National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) [Ref. 3]

- 3.1.9 Section 2.10 of NPS EN-3 relates specifically to Solar Photovoltaic generation, including factors influencing site selection, and notes that “the government has committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions by 2050.”

- 3.1.10 Paragraph 2.10.18 states:

“The key considerations involved in the siting of a solar farm are likely to be influenced by factors set out in the following paragraphs, in addition to considerations specific to individual projects”.

- 3.1.11 Paragraphs 2.10.19 to 2.10.48 lists the following factors influencing site selection:

- Irradiance and site topography;
- Network connection;
- Proximity of a site to dwellings;
- Agriculture land classification and land type;
- Accessibility;
- Public rights of ways; and
- Security and lighting.

- 3.1.12 Policy 2.10.29 of NPS EN-3 states with regard to agricultural land as a factor influencing site selection that:

“While land type should not be a predominating factor in determining the suitability of the site location applicants should, where possible, utilise suitable previously developed land, brownfield land, contaminated land and industrial land. Where the proposed use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land avoiding the use of “Best and Most Versatile” agricultural land where possible. ‘Best and

Most Versatile agricultural land is defined as land in grades 1, 2 and 3a of the Agricultural Land Classification.”

- 3.1.13 The above principles are effective provisions in terms of scoping the assessment; although, as previously stated, it is important to note that there is no statutory or specific planning policy requirement to consider alternative sites in relation to the development of best and most versatile (BMV) (or other) agricultural land in EN-1 or other planning policy documents.

3.2 National Planning Policy Framework

- 3.2.1 The National Planning Policy Framework (NPPF) **[Ref. 5]** was published in March 2012 and most recently updated in December 2024. The NPPF sets out the Government’s planning policies for England and how these are to be applied including in respect of the development of agricultural land and renewable energy. The NPPF does not contain specific policies for NSIPs and therefore does not have direct effect in relation to the Proposed Development however it may be a relevant matter in the SoS’s decision making.
- 3.2.2 Paragraph 187 of the NPPF states that local planning authorities should balance the economic and other benefits of BMV agricultural land. Furthermore, where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek developers to use areas of poorer quality land in preference as opposed to that of a higher quality. Whilst this provides some context, the approach to site selection has been led by the policy on agricultural land in NPS EN-3.
- 3.2.3 Paragraph 161 of the NPPF states that ‘the planning system should support the transition to net zero by 2050 and take full account of all climate impacts including overheating, water scarcity, storm and flood risks and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure’.
- 3.2.4 Paragraph 168 of the NPPF continues on to state that, local planning authorities should not require applicants to demonstrate the overall need for renewable or low carbon energy, and give significant weight to the benefits associated with renewable and low carbon energy generation and the proposal’s contribution to a net zero future.

3.3 National Planning Practice Guidance

- 3.3.1 The policies contained within the NPPF **[Ref. 5]** are expanded upon and supported by the National Planning Practice Guidance (NPPG) **[Ref. 16]**, which was originally published in March 2014 and has been updated periodically since. The most recent update to the NPPG was made in February 2024.
- 3.3.2 With regards to the location of solar farms, Paragraph 013 Reference ID: 5-013-20150327 cites the following factors that local planning authorities should consider. These factors include, but are not limited to:
- Encouraging the effective use of land by focussing large scale solar farms on previously developed and non-agricultural land, provided that it is not of high environmental value; and
 - Where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays.
- 3.3.3 As is the case for the NPPF **[Ref. 5]** (refer paragraph 3.2.1 above), the NPPG **[Ref. 16]** does not contain specific guidance in relation to NSIPs and therefore does not have direct effect in relation to the Proposed Development however it may be a relevant matter in the SoS's decision making.

3.4 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations')

- 3.4.1 Regulation 14(2)(d) of the EIA Regulations **[Ref. 17]** requires that “a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment” is presented in the ES. In compliance with the EIA Regulations, a description of the alternatives considered by the Applicant has been fully described through the **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**.

3.5 Local Planning Policy

- 3.5.1 The East Riding Local Plan 2012-2029 **[Ref. 6]** does not include any policies which relate specifically to site selection.

- 3.5.2 The East Riding Local Plan 2012-2029 **[Ref. 6]** provides support for energy generation projects and seeks to 'Promote renewable and decentralised energy generation in appropriate locations' (Policy ENV1 & EC5).
- 3.5.3 Policy EC5: Supporting the energy sector sets out considerations relevant to locally determined renewable energy projects and states:
- A. Proposals for the development of the energy sector, excluding wind energy but including the other types of development listed in Table 7, will be supported where any significant adverse impacts are addressed satisfactorily and the residual harm is outweighed by the wider benefits of the proposal. Developments and their associated infrastructure should be acceptable in terms of:
1. The cumulative impact of the proposal with other existing and proposed energy sector developments;
 2. The character and sensitivity of landscapes to accommodate energy development, with particular consideration to the identified Important Landscape Areas, as shown on Figure 11;
 3. The effects of development on:
 - i. local amenity, including noise, air and water quality, traffic, vibration, dust and visual impact;
 - ii. biodiversity, geodiversity and nature, particularly in relation to designations, displacement, disturbance and collision and the impact of emissions/contamination;
 - iii. the historic environment, including individual and groups of heritage assets above and below ground;
 - iv. telecommunications and other networks; including the need for additional cabling to connect to the National Grid, electromagnetic production and interference, and aeronautical impacts such as on radar systems;
 - v. transport, including the opportunity to use waterways and rail for transportation of materials and fuel, and the capacity of the road network to accommodate development;
 - vi. increasing the risk of flooding; and

- vii. the land, including land stability, contamination and soil resources

4 Site Selection Assessment

- 4.1.1 The assessment methodology used has been split into three stages which follow a logical and sequential approach.
- Stage 1 – Identification of Search Area;
 - Stage 2 – Exclusion of Planning Environmental and Spatial Constraints;
 - Stage 3 – Identifying Potential Solar Development Areas; and
- 4.1.2 It is important to acknowledge that this report is not an alternative site assessment, but an overview of the site selection principles and process which has helped guide decision making as the Proposed Development evolved.

4.2 Site Selection Principles

- 4.2.1 It is generally considered that large scale solar developments require three fundamental attributes:
- Existence of sufficient land to deliver a large scale solar project and meet the scale of a project's aims;
 - Availability and capacity of a suitable point of connection to the NETS; and
 - Solar irradiation levels to support a solar development's potential to produce an efficient and economic energy yield.
- 4.2.2 The number of locations in the UK which satisfy all three core site selection requirements (land availability and suitability, feasible irradiation levels and grid connection availability) is limited. It should therefore not be expected that large-scale solar is located only where irradiation is highest in the UK; nor only where suitable land is available; nor only in close proximity to existing grid substations with available capacity. Developments will be proposed in locations with the blend of characteristics which is assessed as suitable for each scheme, and each scheme may have unique features which are particular to its proposed location.

4.3 Stage 1 – Identification of Search Area

- 4.3.1 The starting point for the Order Limits was the identification of 320 MW capacity at National Grid Creyke Beck Substation.
- 4.3.2 A 12 km radius from National Grid Creyke Beck Substation was then established as a viable search area (the 'Search Area') for a potential solar scheme and is shown in **Figure 1** below. The distance of the Search Area was restricted by the cable length distance, with a 12 km radius being the commercially viable cable

distance for a project of this capacity, taking into account the distance from the grid connection, underground cable costs and capital costs. However, areas closest to the substation were preferred in principle on the basis that a shorter cable route has benefits in terms of ease and timeliness of the delivery of key infrastructure, minimising disruption to residents and businesses along the route and cost.

4.3.3 Stage 1 of the site selection process focused on the factors influencing site selection and design outlined in section 2.10 of NPS EN-3.

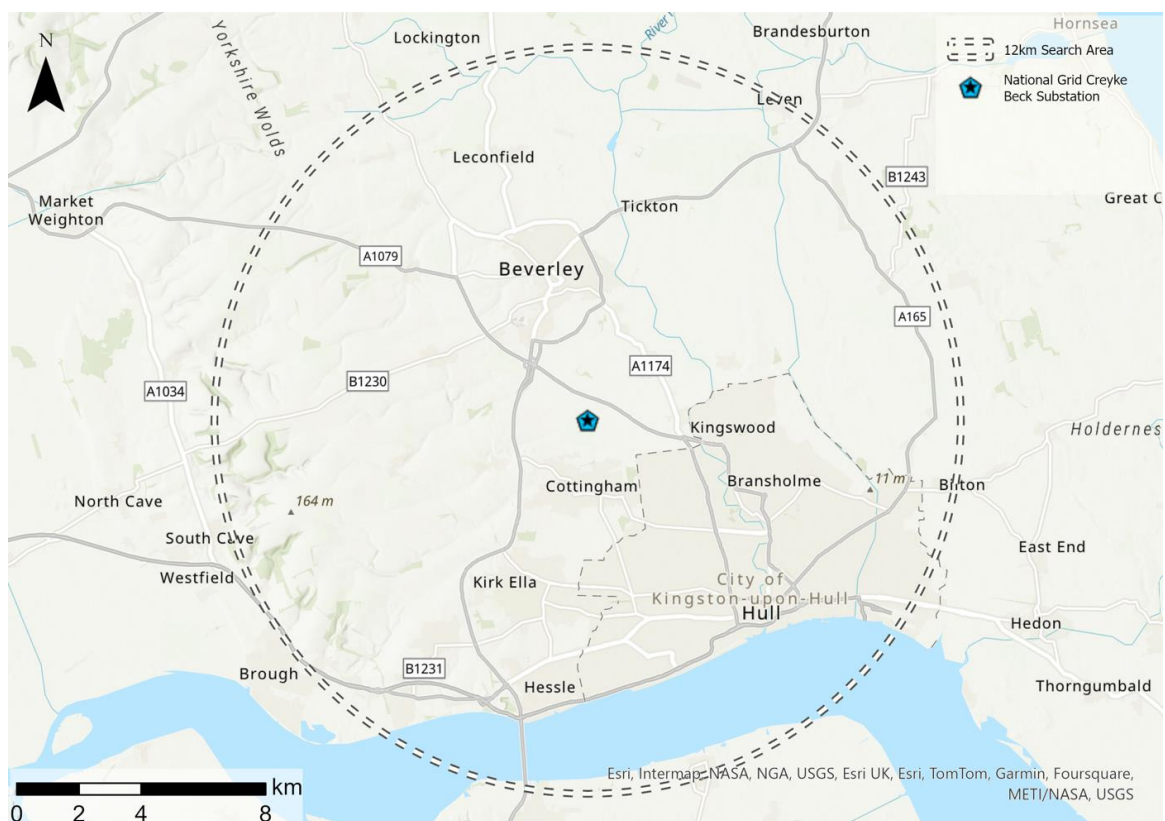


Figure 1 | Search Area

Irradiance and topography

4.3.4 NPS EN-3 notes that irradiance is a key consideration for site selection as the amount of electricity generated on site is directly affected by the irradiance levels. NPS EN-3 states that site irradiance and topography are key inputs to the site selection process, under paragraph 2.10.19, which states, “Irradiance of a site will, in turn, be affected by surrounding topography, with an uncovered or exposed site of good elevation and favourable south-facing aspect more likely to increase year-round irradiance levels. This in turn affects the carbon emission savings and the commercial viability of the site.”

- 4.3.5 Irradiance in East Riding of Yorkshire is sufficiently high to support solar development. This is illustrated in **Figure 2** below.
- 4.3.6 The topography of the area surrounding the National Grid Creyke Beck Substation is generally flat and therefore particularly suitable for solar.
- 4.3.7 The favourable nature of the irradiance and topography, in combination with other elements outlined below, makes the area an appropriate location for solar development.

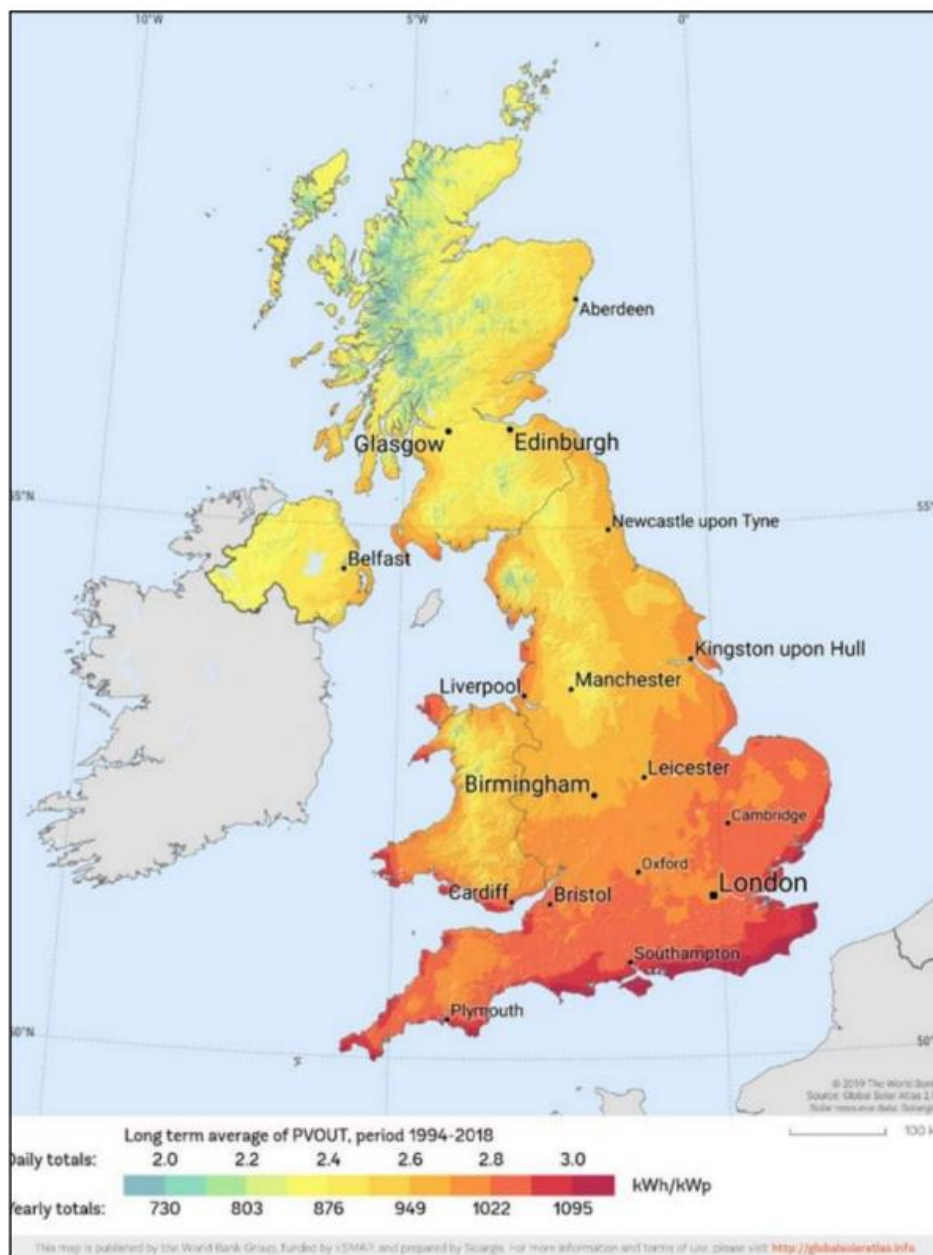


Figure 2 | Irradiance Levels within the UK

Grid Connection and Capacity

- 4.3.8 Given the limited availability of connections into the NETS (which are necessary for the deployment of utility-scale solar), it is important that any available connection is used as efficiently as possible.
- 4.3.9 The Applicant received a grid connection offer from Northern Power Grid on 8 June 2021, offering connection to the existing 132 kV National Grid Creyke Beck Substation. That offer was accepted by the Applicant on 15 July 2021. Further details on the grid connection are provided within the **Grid Connection Statement [EN010157/APP/7.1]**.
- 4.3.10 Paragraph 2.10.25 of NPS EN-3 recognises, “applicants may choose a site based on nearby available grid export capacity” to “maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs”.

Proximity of the site to dwellings

- 4.3.11 NPS EN-3 paragraph 2.10.27 states that “utility-scale solar farms are large sites that may have a significant zone of visual influence. The two main impact issues that determine distances to sensitive receptors are therefore likely to be visual amenity and glint and glare.”
- 4.3.12 The area surrounding the National Grid Creyke Beck Substation is characterised by concentrated development surrounding the major settlements of Hull and Beverley, with small, dispersed settlements in the surrounding areas.
- 4.3.13 The Applicant focused on areas away from the major settlements to ensure there would be sufficient separation between the Order Limits and surrounding towns to minimise adverse visual amenity impacts.

Agricultural land classification and land type

- 4.3.14 NPS EN-3 seeks to minimise impacts on the BMV agricultural land (defined as grades 1, 2 and 3a). Policy directs development on land graded 3b, 4 or 5 and to utilise previously developed land, brownfield land, contaminated land or industrial land where possible. Importantly, however, it goes on to state that “land type should not be a predominating factor in determining the suitability of the site location”. NPS EN-3 acknowledges that solar development is not prohibited on BMV land, land recognised for its natural beauty or ecological or archaeological importance and that it is recognised that, at scale, developments may use some agricultural land. However, applicants should explain site selection noting a preference for development on brownfield and non-agricultural land.

- 4.3.15 According to the provisional Agricultural Land Classification (ALC) mapping (refer **Figure 3** below), this area of Yorkshire has a mixture of largely Grade 2 and Grade 3 land. The Applicant took into account agricultural land quality when considering land within the Search Area, based on publicly available information.
- 4.3.16 The land in the western half of the Search Area (west of Beverley and the River Hull) was identified as Provisional Grade 2 agricultural land. The search therefore focussed on the land in the north east which was identified predominantly as undifferentiated Grade 3 agricultural land. Based on this a detailed ALC survey was then carried out to understand the specific quality of the land in the area being considered, to seek to reduce impacts on BMV agricultural land.
- 4.3.17 On that basis, the Proposed Development has taken an approach that is consistent with the NPS EN-3 through prioritising development on non-BMV land where possible.

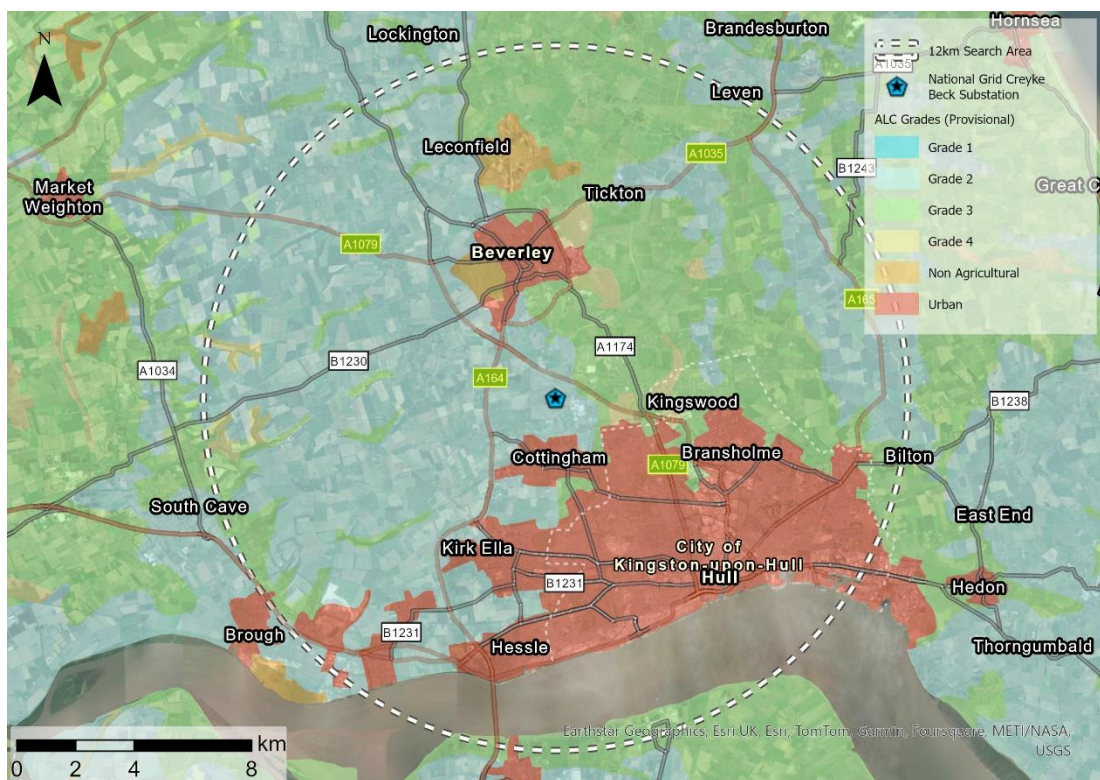


Figure 3 | Provisional ALC Grades within the Search Area

Accessibility

- 4.3.18 In accordance with paragraphs 2.10.35 to 2.10.39 of NPS EN-3, consideration has been given in the site selection process to the suitability of the access routes to the Proposed Development for both construction and operation. Paragraph 2.10.36 emphasises the importance of accessibility, “Given that potential solar farm sites are largely in rural areas, access for the delivery of solar arrays and associated infrastructure during construction can be a significant consideration for solar farm siting”.
- 4.3.19 The area is well serviced by the rural road network and benefits from access to the A1035, which runs from Beverley to Bridlington, the A165 which runs from Hull to just south of Leven, and the A1079 which runs from Hull to York.

4.4 Stage 2 – Exclusion of Planning, Environmental and Spatial Constraints

- 4.4.1 Following Stage 1, the Search Area was refined to the north eastern portion of the initial 12 km Search Area to minimise the use of provisional Grade 1 and 2 BMV land and focus away from major settlements (the ‘refined Search Area’).

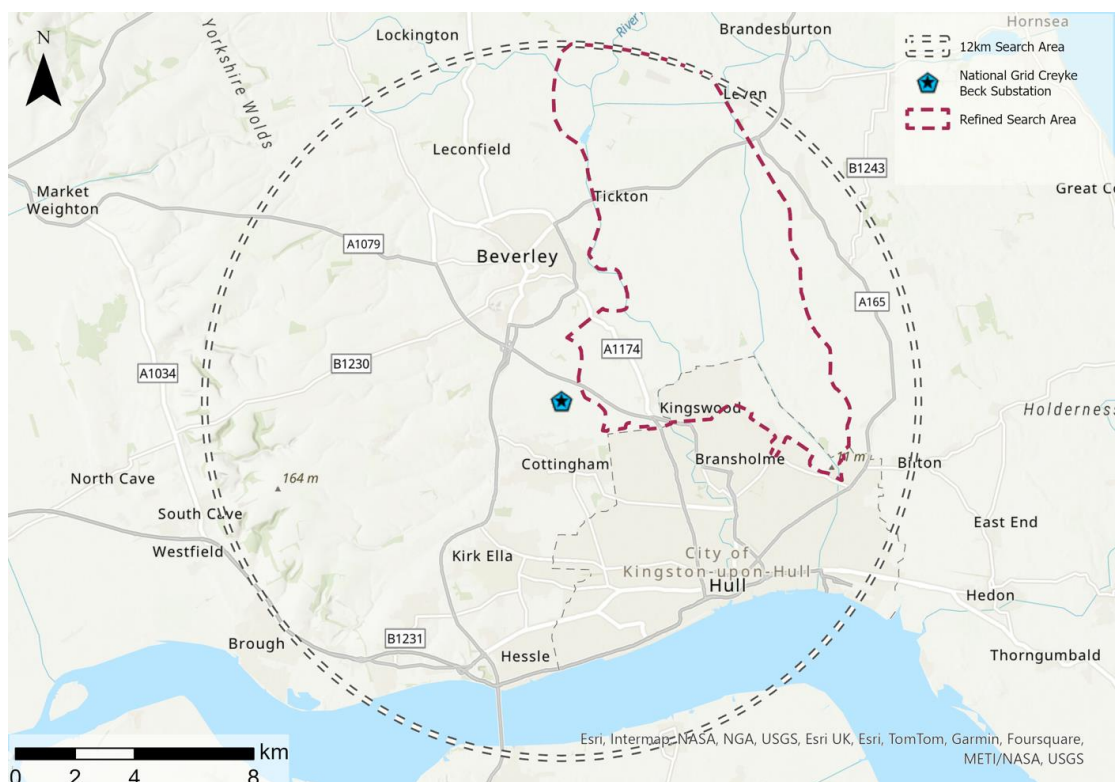


Figure 4 | Refined Search Area

- 4.4.2 A key principle in the site selection process was to seek to avoid areas of particular environmental and landscape sensitivity in order to minimise potential impacts. This is both from a natural and built environment perspective, including matters such as ecology and biodiversity, landscape, water resources and cultural heritage.
- 4.4.3 The Applicant had regard to several environmental and spatial considerations when determining the location of the Order Limits in accordance with Part 2.3 and 2.10 of NPS EN-1 which are detailed below and illustrated in **Figure 4**.
- **Designated international and national ecological and geological sites** - nationally recognised designations such as Sites of Special Scientific Interest (SSSIs), National Nature Reserves, National Parks, the Broads, Registered Parks and Gardens, and World Heritage Sites were considered as part of the site selection process in accordance with NPS EN-3 paragraph 2.3.6 (see Table 4.1). As outlined in paragraph 3.1.8 above, NPS EN-1 also outlines specific tests where development would lead to significant harm to biodiversity and geological conservation interests (NPS EN-1 section 5.4). Biodiversity and geodiversity conservation considerations were therefore also given significant weight in the site selection process.
 - **Nationally designated landscapes** – in accordance with NPS EN-3 paragraph 2.3.6 nationally designated landscapes, previously referred to as 'Areas of Outstanding National Beauty' were considered as part of the site selection process. As these are nationally designated, significant weight was attributed to this consideration.
 - **Scheduled Monuments and conservation areas** - in accordance with paragraph 2.3.8 of NPS EN-3 and section 5.9 of NPS EN-1, the impact on the historic environment was considered as part of the site selection process. The weight attributed to this consideration was influenced by the level of significance of the particular designated heritage assets.
 - **Proximity to human receptors** – in accordance with paragraph 2.10.27 of NPS EN-3, consideration was given to the proximity of human receptors due to the potential impacts to visual amenity and glint and glare. A moderate weight was attributed to this consideration.
 - **BMV** – in accordance with paragraph 2.10.29 of NPS EN-3 consideration was given to the ALC, with the site selection process seeking to avoid areas of BMV agricultural land. A moderate weight was attributed to the consideration of BMV agricultural land.
 - **Flooding** –The site selection process considered areas of lower flood risk in accordance with paragraph 2.10.75 of NPS EN-3 and section 5.8 of NPS EN-1. Whilst avoiding areas of higher flood risk was a key consideration in terms

of compliance with the sequential test, flood risk was attributed relatively low weight in the site selection process compared to other environmental criteria, on the basis that solar can be technically accommodated in flood zones, without increasing flood risk elsewhere. The site selection process did however avoid locating infrastructure in Flood Zone 3b (the functional floodplain) where possible, with the design seeking to ensure there will be no net loss of floodplain storage or negative impacts to water flows where development was required to be located within Flood Zone 3b in accordance with paragraph 5.8.41 of NPS EN-1. All project substations and BESS have been located outside of Flood Zone 3b.

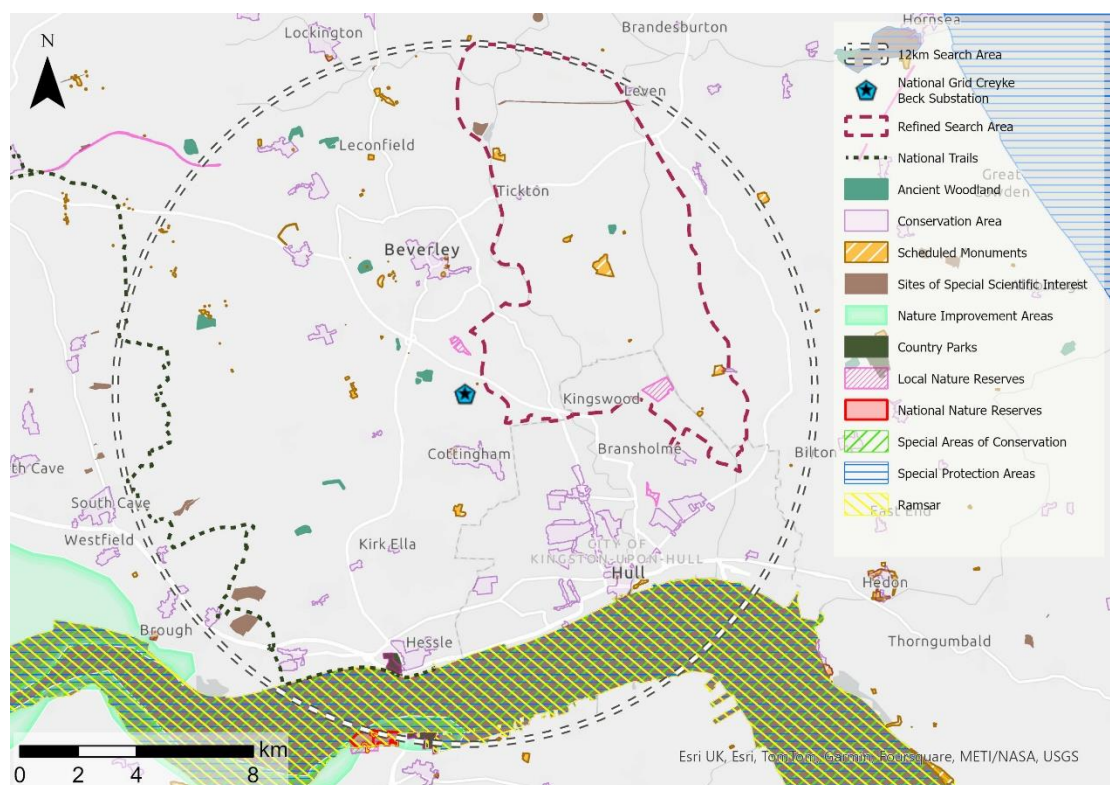


Figure 5 | Environmental Designations within the Search Area

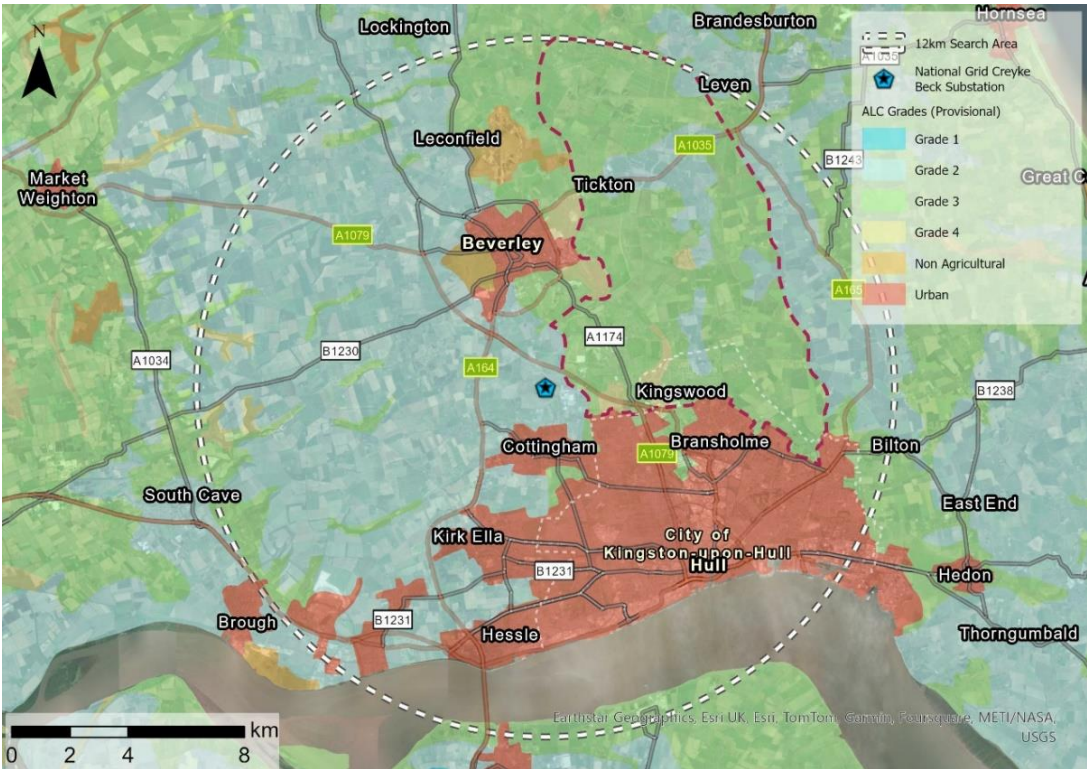


Figure 6 | Provisional ALC within refined Search Area

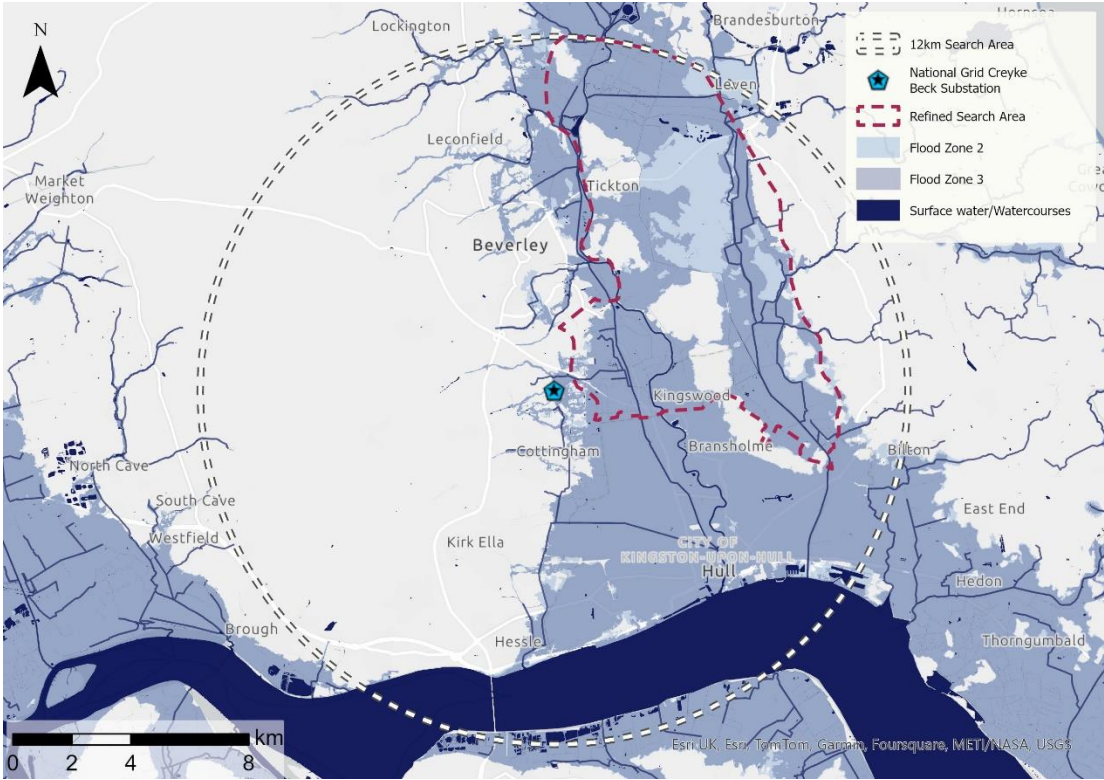


Figure 7 | Flood Mapping within refined Search Area

4.4.4 The following spatial constraints were identified within the refined Search Area.

Table 4.1: Environmental Constraints Considerations

Consideration	Discussion
Designated international and national ecological and geological sites	Figure 4 above shows the location of ecological and geological sites scattered within the Search Area. Within the refined Search Area, there is a small area of Ancient Woodland and two SSSIs identified in the north of the refined Search Area. The site selection process has sought to avoid these areas.
Nationally designated landscapes	The presence of any National Landscapes or National Parks were considered. Figure 4 above, confirms there are no National Landscapes or National Parks within the refined Search Area.
Scheduled Monuments and conservation areas	Figure 4 above shows the location of Scheduled Monuments and Conservation Areas within the Search Area. There are a number of scheduled monuments and Conservation Areas scattered through the Search Area, with a cluster of conservation areas around Hull, Cottingham, Beverley and north east of Beverley. There are seven Scheduled Monuments and two Conservation Areas within the refined Search Area. The site selection process has sought to avoid sites which contain Scheduled Monuments and Conservation Areas.
Proximity to sensitive human receptors	Consideration was given to the proximity of nearby sensitive human receptors which include residential dwellings and populated areas/villages.
BMV	In line with NPS EN-3 the site selection process sought to avoid areas of higher grade BMV (Grade 1 and Grade 2). As such the Applicant focussed on the predominantly provisional Grade 3 land within the refined Search Area. Figure 5 above shows the provisional ALC gradings within the refined Search Area.
Flooding	Large parts of the initial Search Area were located within a flood zone (classified as Flood Zone 2 or Flood Zone 3) as shown in Figure 6 above. The flood zone mapping is based on 'undefended tidal flooding'. We note flooding in the Search Area is mitigated by the Hull Tidal Surge Barrier which prevents tidal waters from flowing up the River Hull from the Humber Estuary, as well as significant defences on the Humber Estuary inland of the barrier.

	Having had regard to the factors influencing site selection as set out in NPS EN-3, the Applicant in the first instance sought to avoid areas of higher quality agricultural land, notably the large swathe of provisional Grade 2 to the west of Hull and Beverley. However, large areas of the Search Area are located in Flood Zones 2 and 3 albeit on land of provisional lower quality agricultural land. The Applicant considered the constraints, and the policy implications set out in NPS EN-1 and NPS EN-3. On the basis that there is a technical solution to mitigating potential impacts of developing in the flood zone the Applicant focussed the site selection process around the area of higher flood zone sensitivity and sought to avoid the higher quality agricultural land, urban areas and clusters of Conservation Areas and Scheduled Monuments. It is considered potential flooding impacts can be appropriately mitigated through detailed design and as such areas affected by flooding have not been discounted. discounted.

4.5 Stage 3 – Identifying Potential Solar Development Areas

- 4.5.1 Following the identification of the grid capacity and consideration of the above planning and environmental designations, the Applicant approached numerous landowners within the refined Search Area.
- 4.5.2 Within the initial stages of discussions, the Applicant was focused on finding an appropriate amount of land to secure both the connection capacity and the required mitigation and enhancement land that was close to the substation.
- 4.5.3 The use of previously developed (brownfield) land was also considered.
- 4.5.4 The following sections explain the criteria applied to the potentially suitable areas identified at Stage 2.

Site Size and Land Assembly

- 4.5.5 As set out in NPS EN-3 paragraph 2.10.17, a solar farm requires between 2 to 4 acres for each MW of output. NPS EN-3 outlines that a typical 50 MW solar farm

will consist of around 100,000 to 150,000 panels and cover between 125 to 200 acres. Based on this, to achieve the grid connection of 320 MW, the Applicant determined that they would need approximately 2,000 acres / 820 ha based on an overplanting ratio of 1.6.

- 4.5.6 The Applicant identified a threshold of at least 30 ha of land for an individual parcel to be the minimum land parcel size for the Proposed Development. This was the indicative parcel size threshold considered by the Applicant to be economically and technically viable (based upon the balance of costs of connecting infrastructure between individual parcels and electricity losses from the multiple connection cabling necessary).
- 4.5.7 The minimum size for individual parcels and the overall area required were determined by the Applicant's economic analysis of the MW output per ha, considering infrastructure costs such as grid connection, as well as the need to allocate a portion of the land for environmental mitigation, if required.
- 4.5.8 Paragraph 4.3.22 of NPS EN-1, states that 'only alternatives that can meet the objectives of the proposed development need to be considered'. In accordance with this principle, as the Applicant already held a grid connection agreement of 320 MW with National Grid, they did not consider delivering a smaller scheme with less generation capacity. In addition to not maximising the grid connection agreement, a smaller scheme would also not result in the same energy security and climate change benefits as a 320 MW scheme and would therefore not address the urgent need as outlined in part 3 of NPS EN-1.

Previously Developed Land

- 4.5.9 As part of the site selection process, consideration was given to previously developed land (PDL)/brownfield sites, commercial rooftops, and lower-quality agricultural land.
- 4.5.10 NPS EN-3 places emphasis on large scale solar utilising either previously developed land, brownfield land, contaminated land, industrial land or lower grade (3b, 4 or 5) land and, where possible, avoiding BMV agricultural land. Paragraph 2.10.29 of NPS EN-3 states "while land type should not be a predominating factor in determining the suitability of the site location applicants should, where possible, utilise suitable previously developed land, brownfield land, contaminated land and industrial land. Where the proposed use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land avoiding the use of "Best and Most Versatile" agricultural land where possible. Paragraph 2.10.20 of NPS EN-3 continues to acknowledge that "whilst solar development is not prohibited on Best and Most Versatile agricultural land, or sites designated for their natural beauty or

recognised for ecological or archaeological importance and that the impacts of such are expected to be considered”.

- 4.5.11 Paragraph 2.10.30 of NPS EN-3 states that “it is recognised that at this scale, it is likely that applicants’ developments will use some agricultural land. Applicants should explain their choice of site, noting the preference for development to be on suitable brownfield, industrial and low and medium grade agricultural land”.
- 4.5.12 The Applicant considered whether sufficient PDL would be available to develop a utility scale solar development, however an assessment of PDL/brownfield land within the wider initial Search Area, which includes parts of Hull and Beverley, identified no land of an adequate land area to facilitate a large-scale solar project either individually or in combination with other sites.
- 4.5.13 Local Planning Authority’s are required to keep a register of PDL suitable for residential development. The latest data for ERYC is from 2021 and is contained within the relevant brownfield registers. The Applicant discounted sites smaller than 1 ha as they did not meet the minimum land area for individual parcels established by the Applicant to be technically and economically viable.
- 4.5.14 Table 4.2 below contains (in ascending order of site size) details of the 10 brownfield sites within the Search Area that are 1 ha and above in size. Of the sites over 1 ha in size, no sites were found over 30 ha (as outlined in paragraph 4.5.7 above, 30 ha was considered to be the minimum viable land area for an individual site) and therefore no individual brownfield site from the register provides an adequate area to facilitate the Proposed Development.
- 4.5.15 Seven of the sites have planning permission for a range of residential and educational uses, with a number of the approved developments already constructed. Sites with planning permission for residential land uses - which attract significantly higher land values than agricultural land is considered unavailable and economically unviable for solar development.
- 4.5.16 Of the remaining three sites above 1 ha, these are all located within built up areas, in proximity to residential receptors. Additionally, it is not considered viable to link these small sites as they would not meet the minimum 30 ha threshold. Even if this were feasible, they would still be insufficient to provide the minimum site size for a 50 MW project or in combination, provide an alternative site for the Proposed Development.

Table 4.2: PDL Sites from Brownfield Registers of East Riding of Yorkshire

Site Ref	Location	Site Size (ha)	Comments
59	South of Lord Roberts Road, Beverley	1	No existing planning permission. Too small to be developed on its own or in combination with other brownfield sites within Beverley to achieve a viable network of sites.
56	Bridgeview School, Hessle	1.35	Planning permission for the development of 26 dwellings has been granted for the site and construction completed. The site was not considered further.
93	Land at Station Road, Cottingham	2.04	The site has in principal permission for the development of 53 to 70 dwellings. The site is located within a built up area. The site was not considered further.
91	Longcroft Lower School Church Road, Beverley	2.27	No existing planning permission. Too small to be developed on its own or in combination with other brownfield sites within Beverley to achieve a viable network of sites.
235	Hessle High School And Sixth Form College, Boothferry Road, Hessle	2.31	Full planning permission for the development of a special needs school with residential accommodation has been granted for the site and development has commenced. The site was not considered further.
131	Beverley College Gallows Lane, Beverley	2.73	The site has been redeveloped to accommodate a number of residential dwellings. The site was not considered further.
103	Hessle Dock Livingston Road, Hessle	3.36	No existing planning permission. Too small to be developed on its own or in combination with other brownfield sites within Hessle to achieve a viable network of sites.
142	Land South of Castle Road, Cottingham	4.26	Planning approval for the development of 125 dwellings on the site was granted in 2015. The dwellings have

			since been delivered and as such the site was not considered further.
240	Former Sir Leo Schultz Centre, Woodmansey	6.15	The site has an existing planning approval for the development of 128 dwellings. Development has commenced on this site as such it was not considered further.
55	Land at Wolfreton Upper School, Kirk Ella	8.6	Outline planning permission for the development of 224 dwellings has been granted for the site. The site is located within built up residential area and does not adjoin any other available land. It was not considered further.

Grid Connection and Willing Landowners

- 4.5.17 As outlined in section 2.2, recent solar NSIP decisions have confirmed that the SoS supports the approach to site selection of the grid connection point being an appropriate starting point.
- 4.5.18 Considering the minimum land areas required to achieve the 320 MW grid connection agreement and lack of suitable PDL within the Search Area, the Applicant sought to approach landowners within the refined Search Area whose land had been identified as meeting the key site selection criteria identified in Stage 1 and sought to minimise interface with key environmental constraints identified in Stage 2.
- 4.5.19 Once the Applicant had identified willing landowners with sufficient land to maximise the Grid Connection, the initial Order Limits were created.

5 Summary of findings

- 5.1.1 There is demonstrable urgent need for renewable energy development in the UK, as set out in the National Policy Statements. The Proposed Development provides a significant opportunity to make a major contribution towards the UK's obligations to deliver net zero by 2050 and decarbonisation of the energy sector by 2035.
- 5.1.2 The Applicant followed a logical and sequential three stage approach to inform its site selection process starting from the point of connection at the National Grid Creyke Beck Substation.
- 5.1.3 The Applicant sought to find land that was available and suitable for large scale solar deployment, from an irradiance and topography perspective and having regard to environmental and planning constraints.
- 5.1.4 The Applicant took into account all of the above considerations and used this to identify land that met the criteria within the refined Search Area. The Applicant then sought to approach owners of this land to understand their willingness to be involved in the project.
- 5.1.5 As outlined in paragraph 4.5.6 above, the Applicant understood they needed approximately 2,000 acres / 840 hectares of land to achieve the 320 MW grid connection they had secured. As such, once they had identified willing landowners with sufficient land to meet this threshold, the initial Order Limits were created. **ES Volume 3, Figure 4.1: Stage 1 Layout Masterplan [EN010157/APP/6.3]** details of the initial Order Limits were presented at the launch of the Proposed Development.
- 5.1.6 The initial Order Limits were then further refined through engagement, additional surveys and design as set out in **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** and illustrated within **ES Volume 3, Figure 4.2: Stage 2 Layout Masterplan [EN010157/APP/6.3]**.
- 5.1.7 The key design change to the Order Limits between the Stage 2 layout and final Order Limits was the removal of Land Area A. Land Area A was removed following further assessment of ecological receptors in the area and feedback from statutory parties and the community, as well as the results of flooding and transport assessments. Further details on the design changes are provided in **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**.
- 5.1.8 The Order Limits are presented in **ES Volume 3, Figure 1.1: Order Limits and Administrative Boundaries [EN010157/APP/6.3]**. The Order Limits are located

on land between the villages of Tickton, Riston, Wawne, Weel and Woodmansey and predominantly consists of agricultural fields (mostly arable with some grassland) interspersed with hedgerows, ditches, small woodland blocks and farm access tracks.

5.1.9 The Order Limits are made up of five Land Areas, which comprise:

- **Land Area B:** This area comprises two separate sections. One lies west of the A165 and is bounded to the north by the A1035, to the west by Meaux and Routh East Drain, to the east by an unnamed ditch, and to the south by Land Area C. Monk Dike runs through the centre of this section. The other smaller section of Land Area B lies east of the A165 and north of Long Riston and is bounded by agricultural fields and ditches.
- **Land Area C:** This area lies adjacent to the southern boundary of Land Area B. It is bounded to the west by Arnold West Carr Drain/Arnold and Riston Drain and to the south by Kidhill Lane. Along the eastern boundary are ditches and agricultural land.
- **Land Area D:** This area is located in the centre of the overall Order Limits. It is adjacent to Land Area E, which lies to the south-west. The area is bounded by various drains and ditches and crosses Meaux Lane. On the eastern border is Cote Wood Local Wildlife Site and semi-natural ancient woodland. Meaux Abbey Scheduled Monument lies to the south.
- **Land Area E:** This area comprises three separate sections. The westernmost of these, located approximately 300 m east of Weel at the closest point, lies either side of Carr Lane and is bounded by ditches and agricultural land. The largest section of Land Area E is primarily bounded to the west and south by Holderness Drain, to the east by Meaux West ditch, and to the north-east by Land Area D. To the north is agricultural land, within which is Meaux duck decoy Scheduled Monument. Beyond this is the third section of Land Area E, which is divided in two by a strip of woodland. Meaux Abbey Scheduled Monument lies to the south-east of Land Area E.
- **Land Area F:** This is the southernmost area, lying approximately 730 m north-east of Wawne at the closest point. It is largely bounded to the north and east by Holderness Drain. In other directions are agricultural fields. To the north, beyond Holderness Drain, is Meaux Abbey Scheduled Monument. Meaux Road runs north to south through this Land Area.

5.1.10 The final Order Limits perform well against the site selection criteria outlined in section 2.10 of NPS EN-3 and assessed through this Site Selection Assessment. In particular, the Order Limits:

- are located in an area of high irradiance and generally flat topography;

- are well separated from built up areas and provide sufficient buffers to residential properties.
- comprise predominantly non BMV agricultural land (Grade 3b (46.6%), Grade 4 (17.5%) and non-agricultural land (1.1%)) with some areas of BMV agricultural land (Grade 3a (16.8%), Grade 2 (12.8%) and Grade 1 (1.2%)).
- avoid areas of particular environmental and landscape sensitivity. In particular, the Order Limits avoid any statutory landscape designations, with the nearest National Landscapes, the Lincolnshire Wolds and Howardian Hills National Landscapes, over 30 km away.
- avoid areas of statutory ecological designations. There are no statutory ecological designations within the Order Limits however there are a number of internationally and nationally statutorily designated sites as well as non-statutorily designated sites within the surrounding area. These include five international statutory designations covering three sites within 10 km of the Order Limits, two statutory nationally designated sites within 2 km of the Site and seven non-statutory designated sites (Local Wildlife Sites) within 1 km of the Order Limits, including Cote Wood Local Wildlife Site, which borders Land Area D. There is one area of ancient semi-natural woodland within 1 km of the Site, Cote Wood Local Wildlife Site, which is adjacent to Fields D11 and D17, though on the other side of a ditch.
- avoid designated cultural heritage assets. There are no known designated heritage assets within the Order Limits. There are three Scheduled Monuments which border the Order Limits and two Grade II Listed Buildings which are within 125 m of the Order Limits.

5.1.11 It is acknowledged that the Order Limits are predominantly within Flood Zones 2 and 3. The site selection process has sought to avoid higher risk areas of Flood Zone 3b and all sensitive infrastructure such as hybrid packs and on-site substations have been located outside of areas identified to be Flood Zone 3b. The appropriate tests have been applied to the Proposed Development and further details are provided within the **ES Volume 4, Appendix 5.6: Flood Risk Assessment [EN010157/APP/6.4]** and section 8 of this **Planning Statement [EN010157/APP/5.5]**.

6 Conclusions

- 6.1.1 This site selection assessment has followed a three-stage approach to evaluate the suitability of land for the Proposed Development within the identified Search Area.
- 6.1.2 Based on the point of connection at the National Grid Creyke Beck Substation and consideration of the maximum commercially viable cable distance from the point of connection for a project of this capacity, taking into account the distance from the grid connection, underground cable costs and capital costs, the site selection process has considered potential solar development areas within a 12 km Search Area.
- 6.1.3 The site selection assessment concluded the Order Limits performed well against the site selection criteria outlined in section 2.10 of NPS EN-3 and that are no available, more suitable, alternatives within the Search Area compared to the Order Limits. The Order Limits is assessed to be suitable for the scale of solar development proposed.
- 6.1.4 The Applicant's site selection process accords with the approach to the consideration of alternatives set out in section 2.10 of NPS EN-3.



Peartree Hill Solar Farm

Site Selection Assessment Appendix 1 – Cable Route Corridor Selection

1 Introduction

1.1 Introduction

- 1.1.1 This Cable Route Corridor Selection Appendix has been prepared on behalf of RWE Renewables UK Solar and Storage Ltd (the 'Applicant') in support of an application for a Development Consent Order ('DCO') (the 'DCO Application') for Peartree Hill Solar Farm, a solar photovoltaic ('PV') electricity generating and storage facility ('the Proposed Development'). The Proposed Development consists of five Land Areas for solar development and a cable route which would connect via underground cabling to the National Grid Creyke Beck Substation, located approximately 5.6 kilometres (km) south-west of the southern extent of the areas proposed for solar panels ('Land Areas').
- 1.1.2 This Appendix provides an overview of the cable route corridor selection process undertaken by the Applicant to identify the route of the cable corridor for the Proposed Development. It also sets out how the cable route corridor options were considered and how these options performed relative to the selected corridor option, taking into consideration a number of environmental, engineering and community factors.
- 1.1.3 There are two types of higher voltage cable required for the Proposed Development: low voltage and 33 kilovolts (kV) interconnecting underground cables between the Land Areas, and 132 kV cables which connect the on-site substations to the National Grid Creyke Beck Substation. This assessment considers the cable route corridor options for the 132 kV cables which would connect the on-site substations to the National Grid Creyke Beck Substation (the 'Point of Connection').

1.2 Principles of cable route selection

- 1.2.1 As noted within the **Site Selection Assessment** at Appendix 2 of the **Planning Statement [EN010157/APP/5.5]**, the location of the Proposed Development was driven by the available Northern Powergrid connection at National Grid Creyke Beck Substation. Once the grid connection was secured the Applicant sought to find land for the Land Areas that was suitable and had willing landowners within close proximity to the point of connection. Details of the Land Area site selection process are provided within the main body of this report.
- 1.2.2 Once the Land Areas were secured, potential cable route corridor options to connect the Proposed Developments on-site substations to the Point of Connection were explored. A summary of the steps involved is provided below:

1. Grid Connection from Northern Powergrid secured;
2. Land Areas selected;
3. Potential cable route corridor options explored.

- 1.2.3 The Proposed Development is made up of five Land Areas, identified as Land Area B, Land Area C, Land Area D, Land Area E and Land Area F. As a starting principle for determining the cable route corridor options, the Applicant sought to find a technically viable route from the Land Areas to the Point of Connection whilst seeking to avoid engineering, environmental and community constraints.
- 1.2.4 It is considered that there are three main options for the routing of cables in solar farm development. These are considered in the assessment below and include:
- all cables installed along existing road routes ('on-road' routes).
 - all cables installed on greenfield land ('off-road' routes).
 - a hybrid approach with cables utilising both greenfield land and existing road routes.
- 1.2.5 Throughout the cable route corridor selection process, the Applicant sought a broad corridor to maintain optionality.

1.3 Policy

- 1.3.1 Section 3 within the **Site Selection Assessment** at Appendix 2 of the **Planning Statement [EN010157/APP/5.5]** provides an overview of the relevant policy. There are no policies specifically relating to cable route corridor selection within the Overarching National Policy Statement for Energy (NPS EN-1) **[Ref. 2]** or the National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) **[Ref. 3]**. However, Section 2.2 of the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) **[Ref. 4]** sets out factors influencing site selection and design of new electricity networks infrastructure, including cable routes. Specifically, paragraph 2.2.7 sets out that 'The connection between the initiating and terminating points of a proposed new electricity line will often not be via the most direct route. Siting constraints, such as engineering, environmental or community considerations will be important in determining a feasible route'.

2 Cable Route Selection

2.1 Overview

- 2.1.1 Careful planning and assessment have determined the most efficient and environmentally responsible cable route corridor.
- 2.1.2 The cable route corridor selection has also been informed by feedback received during consultation, as well as detailed studies and surveys. The cable route corridor selection process is explained in more detail below. Details of consultation feedback are provided within the **Consultation Report [EN010157/APP/5.1]**.

2.2 Assessment methodology

- 2.2.1 There is no standard methodology for the selection of cable route corridors. As such, the cable route corridor assessment has taken a similar approach as the site selection assessment and has been informed by relevant planning policy as outlined in paragraph 1.3.1 above and in Section 3 of the main Site Selection Assessment. This assessment has considered a number of engineering, environmental and community factors in accordance with paragraph 2.2.7 of NPS EN-5 [Ref. 4] to determine the most appropriate cable route corridor. The factors considered include the following:
- **Environmental considerations** – proximity to designated international and national ecological and geological sites, woodland and hedgerows;
 - **Heritage considerations** - proximity to Listed Buildings and Scheduled Monuments;
 - **Potential impacts to homes and businesses** – proximity to residential properties and business as well as access;
 - **Potential impacts on open space** – proximity to areas of open space or Common Land;
 - **Engineering deliverability and viability** – technical engineering considerations and impacts of road/watercourse/rail crossings; and
 - **Cable route length and complexity** – distance of cable route and number of landowners.
- 2.2.2 The assessment methodology has been split into three stages which follow a logical and sequential approach:
- Stage 1 – Establishment of technically viable cable route corridor options;

- Stage 2 – Exclusion of environmental, spatial and engineering constraints; and
- Stage 3 – Refinement of cable route corridor options following statutory consultation.

3 Assessment

3.1 Stage 1 - Establishment of cable route corridor options

- 3.1.1 Once the grid connection and Land Areas were initially established, potential cable route corridor options to connect the Land Areas to the point of connection were explored.
- 3.1.2 As a starting principle for determining the cable route corridor options, the Applicant sought to find the most efficient route from the Land Areas to the point of connection whilst seeking to avoid engineering, environmental and community constraints. **Figure 2** below depicts the location of heritage assets, Conservation Areas, Local Nature Reserves, Registered Common Land and green space in relation to the cable route corridor options. To minimise impacts on the local community and environment, the cable routes were designed to avoid notable designations within the search area, including:
- Ancient Woodland / Woodland Trust sites;
 - Local and National heritage features;
 - Sites of Special Scientific Interest;
 - Registered and National Parks;
 - Conservation Areas; and
 - Royal Society for the Protection of Bird Reserves.
- 3.1.3 Following the above criteria, the initial cable route corridor options are illustrated on **Figure 1** below and included the following options:
- **Full Highways Option:** the Full Highways Option would run from the southern boundary of Land Area F and would connect the Proposed Development to the National Grid Creyke Beck Substation. The Full Highway Route Option followed Meaux Road from the southern boundary of Land Area F, through the village of Wawne continuing on Sutton Road and Wawne Road. The Full Highways Option would continue through Hull along Bude Road, Raich Carter Way and the A1079. The Full Highway Route Option would connect to the National Grid Creyke Beck Substation along Dunswell Road.

- **Area E Route Options:** the Area E Route Option runs from the southern boundary of Land Area E and would connect the Proposed Development to the National Grid Creyke Beck Substation either directly or via the Area E-F Combined Option. The route passes south of Weel and either west or east of Woodmansey. It crosses the River Hull and the A1174 and could potentially cross the A1079 and the railway line to the west of the Proposed Development depending on the final route selected.
- **Area F Route Options:** the Area F Route Option runs from the southern boundary of Land Area F and would connect the Proposed Development to the National Grid Creyke Beck Substation via the Area E-F Combined Option. The route would pass either west or east of Wawne depending on the final route selected and north of Kingswood. The route would pass either north or south of Dunswell. It also crosses the River Hull and the A1174.
- **Area E-F Combined Options:** The Area E-F Combined Option would cover the section of cable route from either Area E Route Option or Area F Route Option to the National Grid Creyke Beck Substation. Part of this route option could cross the railway line to the west of the Proposed Development depending on the final route selected.

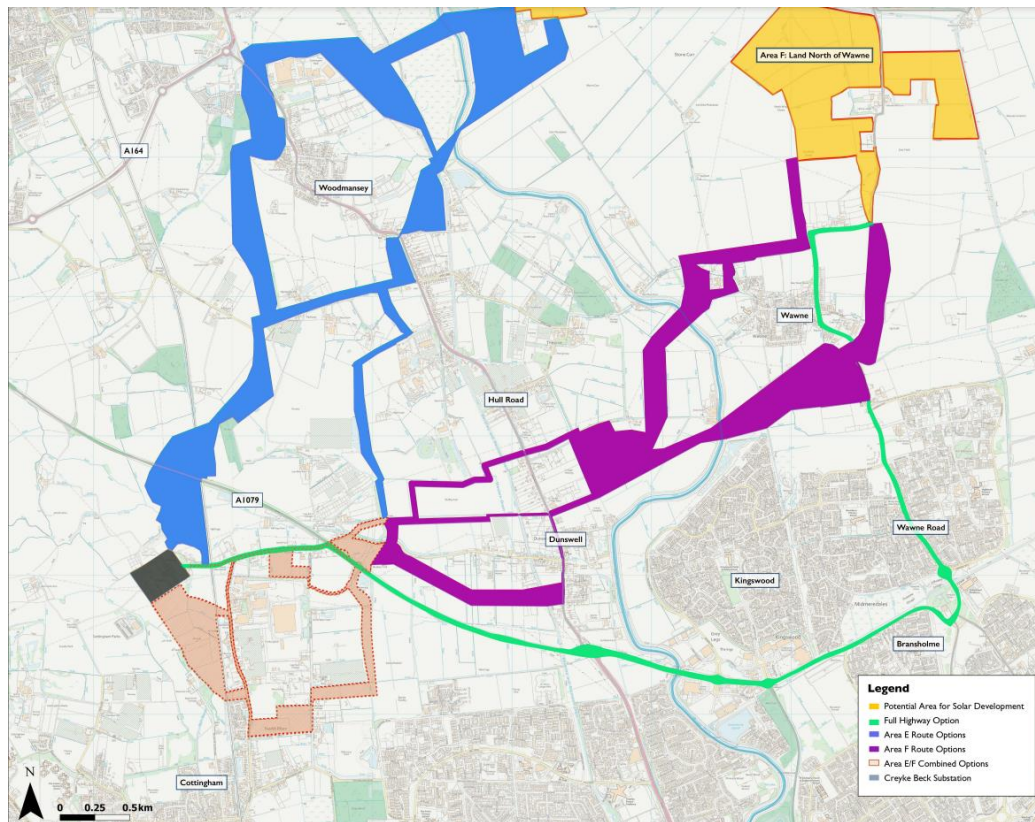


Figure 1 | Initial Cable Route Options

3.1.4 These initial cable route corridor options were explored and presented at non-statutory consultation, which ran from Monday 9 October to Monday 6 November 2023. As part of this consultation, respondents were asked via a dedicated question in the feedback form for any comments regarding the potential cable route corridor options. Question 5 asked respondents the following question, ‘We have shared our options for cable corridors to connect Peartree Hill to Creyke Beck substation via underground cables. We are working to refine these options as we develop our proposals. Do you have any comments on the cable corridor options presented?’. A summary of the feedback received to Question 5 is provided below:

- The cables for Peartree Hill must be located underground.
- Why has the project had opted for underground cables as opposed to overhead lines / can you use existing overhead cables instead on new cables.
- Respondents stated that Peartree Hill should connect into the nearest substation?
- Land must be reinstated after cables are installed.
- Cables should be located away from Weel.

- Cables going through private land.
- Question what the capacity of Creyke Beck substation.

3.1.5 The Applicant provided detailed responses to each of the concerns raised regarding the cable route corridor options which were presented in the Non-Statutory Consultation Report published in January 2024, further details are provided in **Appendix A-2: Non-Statutory Consultation Report** of the **Consultation Report Appendices [EN010157/APP/5.2]**.

3.2 Stage 2 – Exclusion of environmental, spatial and engineering constraints

- 3.2.1 Following non-statutory consultation, the cable route corridor options were further assessed and refined. Stage 2 was informed by desktop assessments and site visits carried out by the Applicant's environmental and engineering specialists.
- 3.2.2 The further assessment considered a number of engineering, environmental and community factors to determine the most appropriate cable route corridor. The factors considered include the following:
- Environmental considerations;
 - Heritage considerations;
 - Potential impacts on public rights of way;
 - Engineering deliverability and viability;
 - Cable route length and complexity;
 - Potential impacts to homes and businesses; and
 - Potential impacts on open space and Common Land.
- 3.2.3 The location of heritage assets, Conservation Areas, Local Nature Reserves, Registered Common Land and green space in relation to the cable route corridor options are shown in **Figure 2** below.

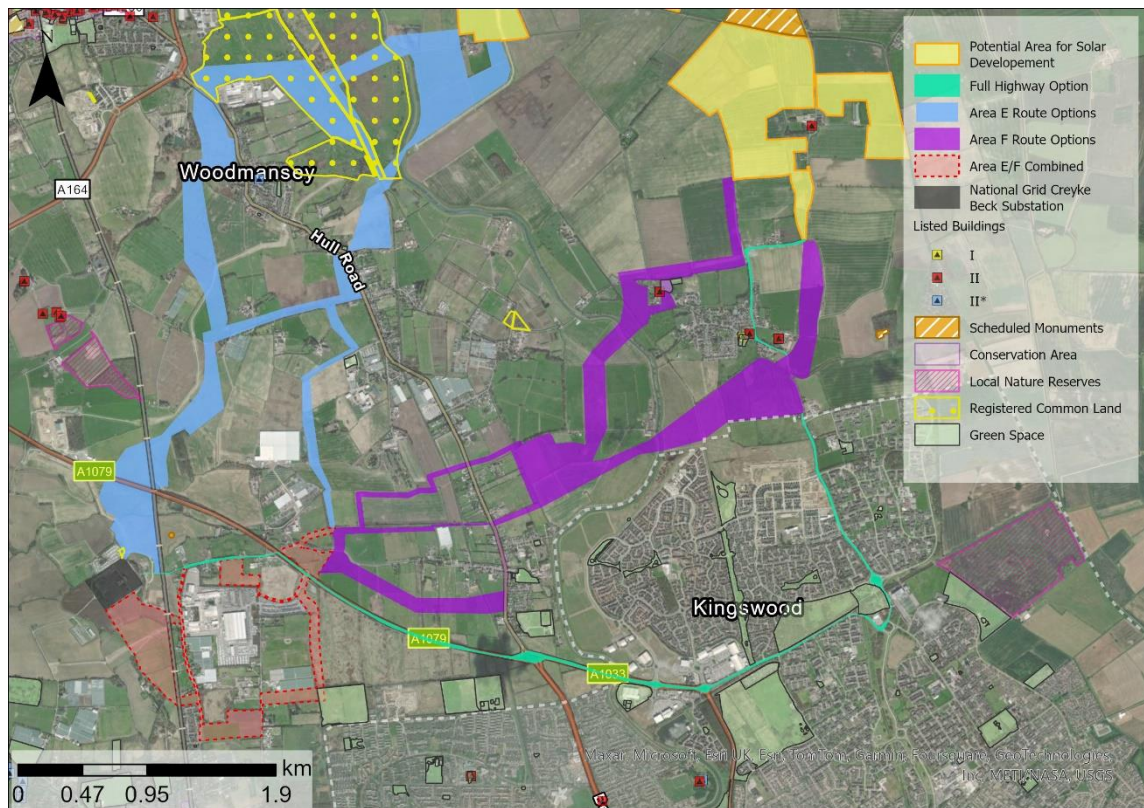


Figure 2 | Spatial constraints - Initial cable route options

3.2.4 A summary of the engineering, environmental and community constraints is provided in the **Tables 2 - 5** below, along with a breakdown of which cable route corridor options were carried forward to statutory consultation.

Table 2: Full Highways Option considerations

Consideration	Discussion
Environmental (designated international and national ecological and geological sites)	The Full Highway Option does not cross any statutory and non-statutory environmentally designated sites. The Full Highway Option performs better from an ecological perspective than the off-road routes as it minimises the impacts on existing hedgerows.
Heritage	This Full Highway Option does not include any statutory or non-statutory heritage assets within the route, however, two Grade II Listed Buildings are located in close proximity to the northern section of the Full Highway Option.

Impact to homes and businesses

The Full Highway Option does impact on homes and business identified on the final section of the proposed cable route corridor option.

There are significant engineering constraints associated with the final section of road at Park Lane connecting into Dunswell Road and the existing level crossing, as the approach to the level crossing is considered too narrow for construction vehicles and installation to take place (see below Figures 2 and 3). As a result of this, to facilitate access to install the cable, access to one home and a livery business would be temporarily impacted while the cable was being laid.



Figure 3 | Aerial image of Park Lane

	 <i>Figure 4 Street View of Park Lane</i>
Impacts to open space / Common Land	The Full Highway Option does not cross any areas of open space or Common Land.
Engineering deliverability / viability	The engineering assessment found this cable route corridor option to be heavily constrained from a technical engineering perspective. In particular, the assessment identified the following constraints: Dunswell Lane – A1079 underpass, is relatively new build and can only be passed via a centre lane excavation for a total of 50 m. Beverley and Barmston Drain bridge crossing – very difficult from a technical perspective due to low cover on the bridge deck. Raich Carter Way single deck bridge crossing the River Hull - presents a significant issue for the Full Highway Option. The bridge can lift either side for vessels to pass under and as such is not feasible to lay the cable. Cable would require Horizontal Directional Drilling (HDD) under the river to bypass the bridge for a distance of approximately 200 m which was not considered technically feasible from engineering perspective. Traffic management issues along Sutton Road and Meaux Road due to narrow road verges and existing drainage channels.

Cable route length and complexity	The Full Highway Option was the longest and least direct cable route corridor option of the proposed routes. This cable route corridor option was identified as having a high degree of complexity and is likely to take greater time and cost to install.

Table 3: Area E Route Option

Consideration	Discussion
Environmental (designated international and national ecological and geological sites)	There are some small pockets of woodland identified adjacent to sections of the Area E Route Option. There are some existing hedgerows within parts of this cable route corridor option.
Heritage	There are no statutory or non-statutory designated heritage assets identified within the Area E Route Option.
Impact to homes and businesses	There is a consented warehouse identified off Long Lane adjacent to eastern portion of this cable route corridor option. No homes or business were identified which would be impacted by the Area E Route Option.
Impacts to open space / Common Land	The northern section of the Area E Route Option includes part of Figham Common, which is identified as Common Land and open space.
Engineering deliverability / viability	Within the northern section of the Area E Route Option, to the east of Woodmansy, a number of engineering constraints were identified due to water crossings and existing underground utilities. Eastern route option – a number of constraints identified including: HDD required to cross the River Hull, the existing Dogger Bank offshore cable, the A1079 Road, and Beverley Dike. Pinch point identified at Barmston Lane between St Peters Church and graveyard on Hull Road and the house at 175 Hull Road.
Cable route length and complexity	Degree of complexity associated with various river crossings; however, the route is considered feasible from an engineering and construction perspective.

Table 4: Area F Route Option

Consideration	Discussion
Environmental (designated international and national ecological and geological sites)	There are some existing hedgerows within parts of the Area F Route Option, however, does not contain any statutory environmental designated assets.
Heritage	One Grade II Listed Building was identified in close proximity to the northern section of the Area F Route Option.
Impact to homes and businesses	No homes or business were identified which would be impacted by the Area F Route Option.
Impacts to open space	This cable route corridor option does not impact open space.
Engineering deliverability / viability	There are three arms within the southern section of the Area F Route Option. Of these, the southernmost arm contains a significant number of large drains and dikes which would need to be crossed and is prone to flooding.
Cable route length and complexity	There are two areas requiring HDD to cross which were considered to have engineering complexities given they are located entirely within the flood plain from the River Hull. The Area F Route Option includes multiple landowners was considered to create complexities in agreeing a route for the cable, however, the route was considered feasible from an engineering and technical perspective.

Table 5: Area E-F Route Option

Consideration	Discussion
Environmental (designated international and national ecological and geological sites)	There are some existing hedgerows within parts of the Area E-F Route Option, however, does not contain any statutory environmental designated assets.
Heritage	No statutory or non-statutory designated heritage asset are located within this cable route corridor option.
Impact to homes and businesses	The Area E-F Route Option is located in close proximity to commercial and logistics buildings on the northern and southern extent of the route, however, the route was not considered to impact on the operations of the

		buildings during the construction of the Area E-F Route Option.
Impacts to open space		The Area E-F Route Option does not impact open space.
Engineering deliverability viability	/ /	The Area E-F Route Option was considered to possess construction and engineering constraints owing to the potential HDD requirements with crossing the A1079 Road as well the existing railway line.
Cable route length and complexity		There are multiple areas that were considered to require HDD as part of the construction process, however, the route was considered feasible from an engineering and construction perspective.

Findings

- 3.2.5 The environmental assessment confirmed that all cable route corridor options worked from an environmental perspective and would not result in harm to any environment designated assets.
- 3.2.6 The heritage review confirmed that all cable route corridor options worked from a heritage perspective and would not result in adverse impacts on any heritage assets within the area noting that all the cable route corridor options are proposed to be installed underground.
- 3.2.7 The assessment found that there would be some impact to homes and engineering deliverability issues within some of the cable route corridor options, these are explained in more detail below.
- 3.2.8 Following non-statutory consultation and the further assessment, the Full Highway Option was discounted based on specialist engineering advice. The Applicant sought to minimise impacts to local communities that may be derived from utilising routes along existing roads, such as disruption to local access during the works. The Full Highway Option included two bridge crossings and an underpass crossing which were considered to be technically unfeasible. In addition, the route would significantly impact access to a residential property and business during construction.
- 3.2.9 Following a review of the environmental, spatial and engineering constraints, the cable route corridor options presented at non-statutory consultation were further refined, see **Figure 4** below. The changes included:
- Full Highway Option discounted.

- Area E Option expanded in north and renamed to Cable Route 1. The corridor area in the north was expanded to increase flexibility and allow for further ground investigation of river crossing points.
- Area E Option (Cable Route 1) refined to remove alternate route to the east of Woodmansy due to engineering constraints associated with the extent of HDD required and lack of available space for the HDD equipment at the pinchpoint between St Johns Church and the adjoining property.
- Area Option F renamed to Cable Route Option 2 and refined from three alternatives to a single cable route corridor option to the north of Dunswell as a result of engineering constraints associated with existing land drains and flooding.
- Area E-F Route Option renamed to Cable Route Mixed Option with no changes to the proposed corridor.

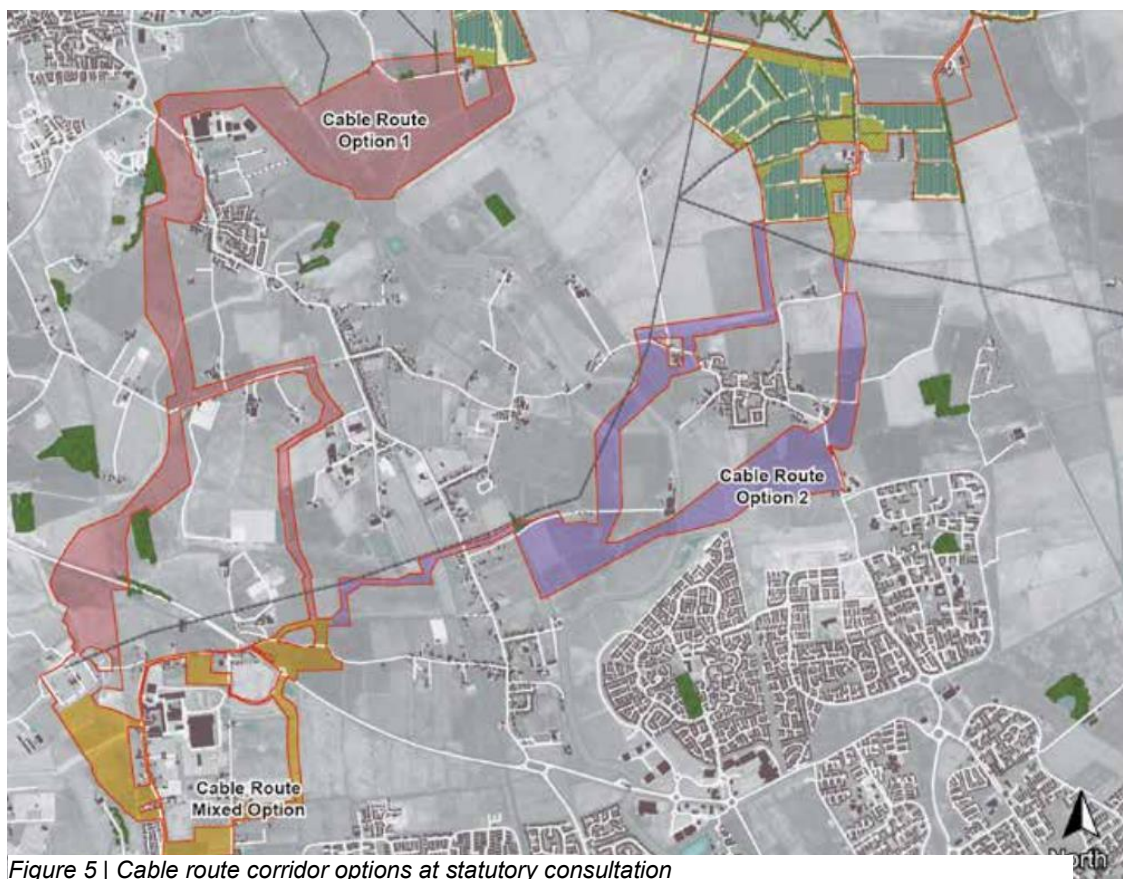


Figure 5 | Cable route corridor options at statutory consultation

3.3 Stage 3 – Refinement of cable route corridor options following statutory consultation

3.3.1 Following stage 2, the cable route corridor options were reduced from four to three and the routes refined as outlined in paragraph 3.2.11 above. The refined cable route corridor options included:

- **Cable Route Option 1:** this cable route option runs from the southern boundary of Land Area E and would connect the Proposed Development to the National Grid Creyke Beck Substation either directly or via the Cable Route Mixed Option. The route passes south of Weel and west of Woodmansey. It crosses the River Hull and the A1174 and could potentially cross the A1079 and the railway line to the west of the Proposed Development depending on the final route selected.
- **Cable Route Option 2:** this cable route option runs from the southern boundary of Land Area F and would connect the Proposed Development to the National Grid Creyke Beck Substation via the Cable Route Mixed Option. The route would pass either west or east of Wawne depending on the final route selected and north of Kingswood. It also crosses the River Hull and the A1174.
- **Cable Route Mixed Option:** The Cable Route Mixed Option would cover the section of cable route from either Cable Route Option 1 or Cable Route Option 2 to the National Grid Creyke Beck Substation. Part of this route option could cross the railway line to the west of the Proposed Development depending on the final route selected.

3.3.2 Cable Route Option 1, Option 2 and the Mixed Option were presented at statutory consultation, which ran from 15 May to 26 June 2024.

3.3.3 During statutory consultation, respondents were asked via a dedicated question in the feedback form for any comments regarding the potential cable route corridor options. Question 6 stated, 'We have shared our updated options for cable corridors to connect Peartree Hill to Creyke Beck Substation via underground cables. Please see page 16 of our consultation brochure. Do you have any comments on the cable corridor options presented?'. Responses to question 6 included:

- Concern regarding disruption associated with the cable route.
- Concern regarding the impact of the cable route on agricultural machinery.
- Concern regarding the impact on environment associated with the cable route.
- Concern that cable route option 2 would impact their land.
- General approval of the cable route.
- General concern regarding the cable route.
- Question regarding why the Proposed Development has to link to Creyke Beck substation.

- Statement of preference of Cable Route Option 1.
- Statement that a long cable will be required to reach Area A.
- Statement that advice would be needed if their land was required for cable routing.
- Statement that area outlined for cables should not be used for panels.
- Statement that cable route depth should be a minimum of 1.2 m.
- Statement that cable route should not run through people's land.
- Statement that more details are required on the cable route.
- Statement that the cable route should cause as little damage to countryside as possible.
- Statement that the cable route should not be located close to Weel.
- Statement that the cable route will not impact highways is positive.
- Statement that the cable route will run near their property on either route.
- Statement that the cable route would displace from their homes.
- Statement that the cables will not be needed if the Proposed Development does not go ahead.
- Statement that the local area is already impacted by cable routing from Dogger Bank.
- Statement that the local area is already impacted by cable routing from other schemes.
- Statement that underground cables are preferable to overhead pylons.
- Suggestion that the cable route should be kept close to boundary of Tokenspire Business Park.
- Suggestion to locate the cable route away from houses/villages.
- Suggestion to locate the cable route offshore.
- Suggestion to use existing cable routes.
- Suggestion to use overhead cables.

3.3.4 The Applicant has provided detailed responses to each of the concerns raised and the regard had to them under Section 49 of the PA 2008 [Ref. 1]. Please refer to the **Appendix G-4: Regard had to comments from consultees under s47 of PA 2008** of the **Consultation Report Appendices [EN010157/APP/5.2]** for further details.

3.3.5 The Applicant has also had regard to responses received from consultees under Section 42(1)(a) of the PA 2008 [Ref. 1] in considering the cable route corridor. Please refer to **Appendix G-1: Regard had to comments from consultees**

under s42(1)(a) of PA 2008 in the **Consultation Report Appendices [EN010157/APP/5.2]** and Chapter 6 of the **Consultation Report [EN010157/APP/5.1]** for details of comments received and the regard the Applicant has had under Section 49 of the PA 2008 **[Ref. 1]**.

- 3.3.6 Following statutory consultation, the cable route corridor options were further assessed, with support from additional technical studies and surveys undertaken, including walkovers.
- 3.3.7 Further studies with particular focus on engineering and deliverability of the cable route corridor options were also undertaken.
- 3.3.8 A summary of the findings of the further studies for each cable route corridor option is provided below.

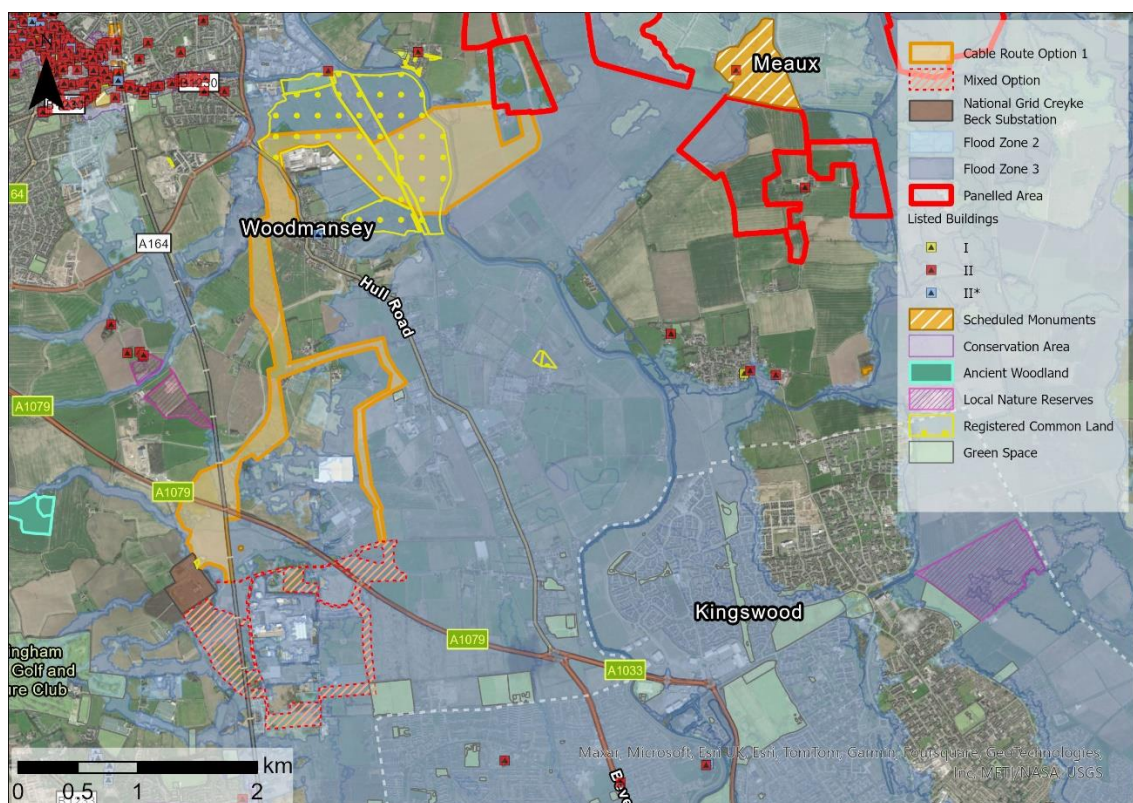


Figure 6 | Spatial constraints - Cable Route Option 1

Table 6: Cable Route Option 1

Consideration	Discussion
Ecological survey findings	Walkovers of Cable Route Option 1 were undertaken and no major environmental constraints were identified which would inhibit the cable route construction.

Impact to homes and businesses	As discussed above, there is a consented warehouse identified off Long Lane adjacent to eastern portion of this cable route corridor option. No homes or businesses were identified on the Cable Route Option 1 which would be impacted on by the construction of the route.
Impacts to open space	This cable route corridor option runs through Figham Common, which is identified as open space and Common Land.
Engineering deliverability viability	/ / This cable route corridor option has the fewest HDD crossings which is beneficial from a technical delivery perspective, as additional land for launch pits will not be required.
Number of landowners	This cable route corridor option has the fewest affected landowners of the three options, with a total of 42 impacted landowners.

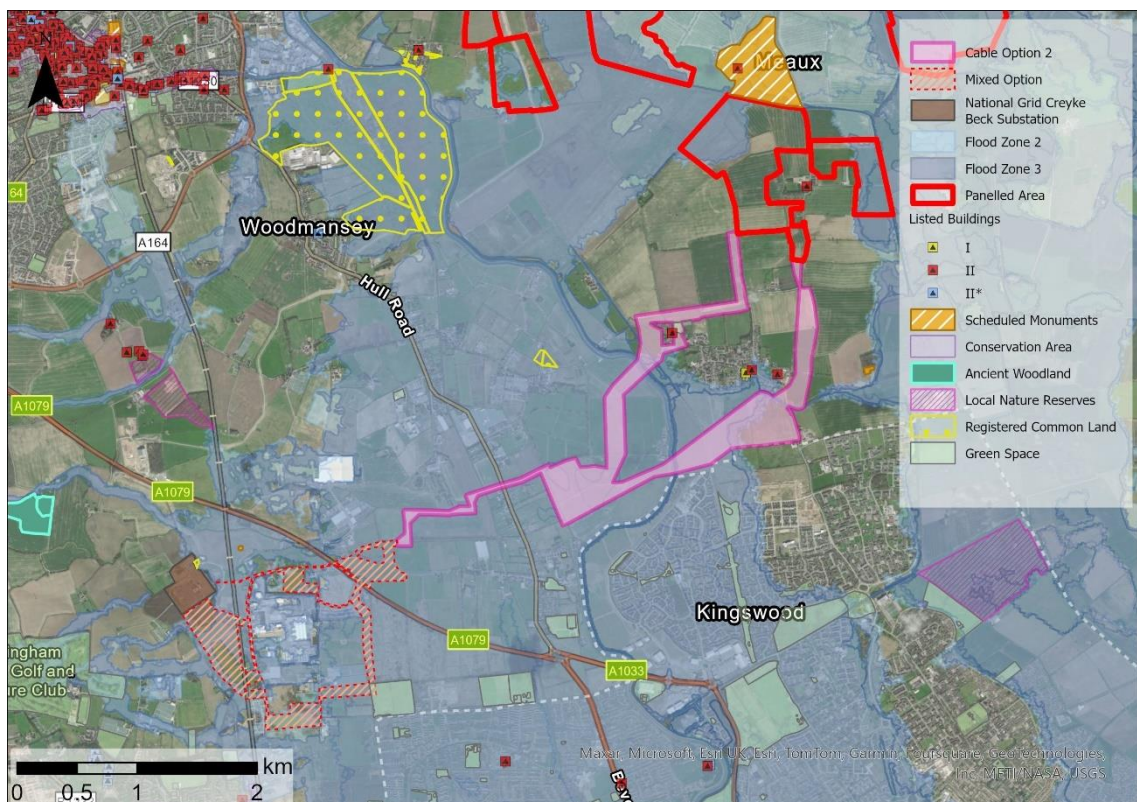


Figure 7 | Spatial constraints - Cable Route Option 2

Table 7: Cable Route Option 2

Consideration	Discussion
Ecological survey findings	There are some existing hedgerows within parts of the Cable Option 2, however, does not contain any statutory environmental designated assets.
Impact to homes and businesses	The northern arm of this cable route corridor option is located in close proximity to residential properties and has the potential to burden development land near Wawne. A large works area would be required to accommodate a launch pit for the HDD under the River Hull west of Wawne. The southern arm of this cable route corridor option is located in close proximity to residential properties and has the potential to burden development land south of Wawne and north of Kingswood with cable easements. In addition, the southern arm includes works on Sutton Road which may cause traffic impacts for local residents. There would also be potential impact to development land located off Hutt Road and Sicey Lane. Potential impact to residential properties to the south of Hutt Road as HDD may be required to cross Hutt Road given the number of underground cables already in this area.
Impacts to open space	The corridor does not impact open space.
Engineering deliverability viability	/ / It is anticipated that numerous HDD crossings required are required from the landform along the Cable Route Option 2 which creates constraints from an engineering and constructability perspective. Additionally, as seen on Figure 7, the Cable Route Option 2 is located within large sections of Flood Zone 3 designated areas and as such increases the construction and engineering constraints associated with HDD and wider construction activities.
Number of landowners	The Cable Route Option 2 contains multiple small land titles would result in a need to engage with multiple parties for small easements.

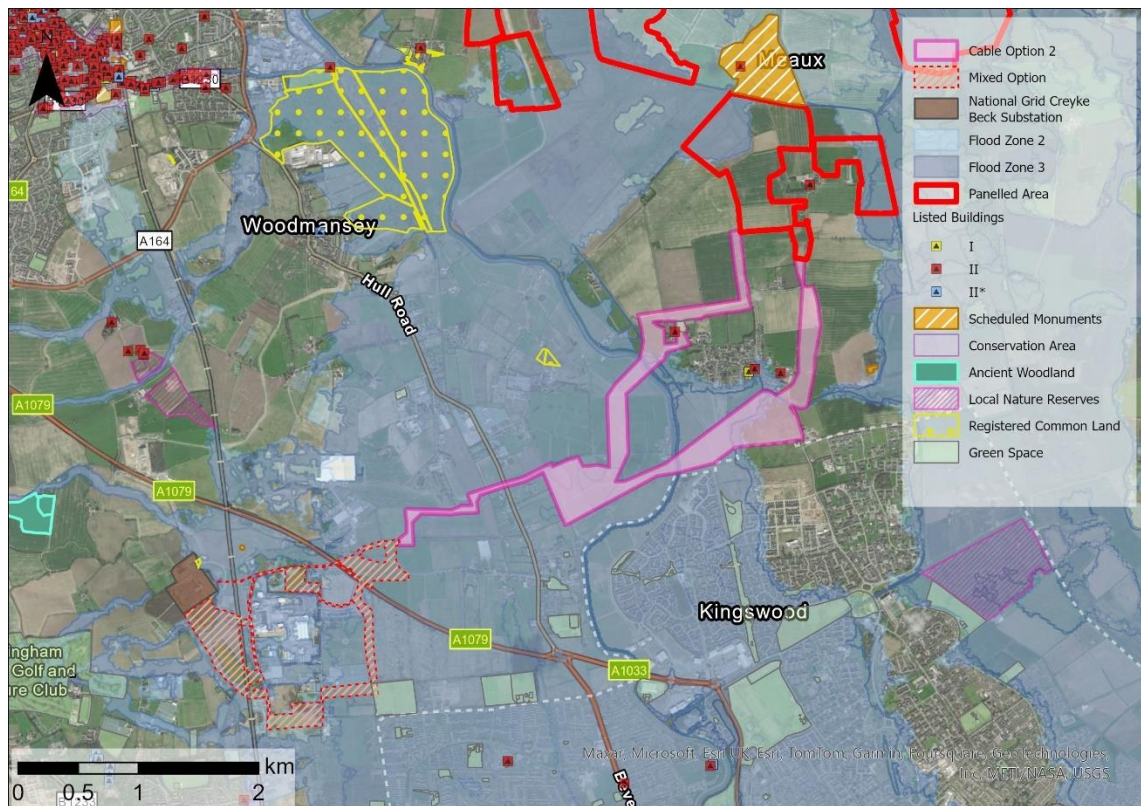


Figure 8 | Spatial constraints - Cable Route Mixed Option

Table 8: Cable Route Mixed Option

Consideration		Discussion
Ecological survey findings		There are some existing hedgerows identified within the Cable Route Mixed, however, there are no environmental designations located within the route.
Impact to homes and businesses		This cable route corridor option is located in close proximity to residential properties north of Dunswell Road as well as the commercial and logistics buildings.
Impacts to open space		The corridor does not impact open space.
Engineering deliverability viability	/	Potential complexities associated with the existing tree line on Skidby Carr Lane which would require HDD. / Engineering constraints associated with crossing the A1079 Road through the use of HDD.
Number of landowners	of	Multiple small land titles would result in a need to engage with multiple parties for small easements.

3.4 Summary

- 3.4.1 Based on the assessments set out in Tables 6 – 8 above, Cable Route Option 1 was found to perform most favourably against the engineering and construction criteria and as such, was chosen as the cable route corridor option for the Proposed Development as set out in **ES Volume 3, Figure 1.2: Land Areas and Cable Routes Plan with Field Numbering System [EN010157/APP/6.3]**.
- 3.4.2 Cable Route Option 1 was found to have the least impacts to homes and business and also benefits from the fewest number of landowners, reducing the number of people impacted and also the process of obtaining cable route easements.
- 3.4.3 Cable Route Option 1 was found to be the least constrained from an engineering perspective and required fewer HDDs than the other cable route corridor options.
- 3.4.4 Cable Route Option 1 does involve crossing part of Figham Common, however given the nature of the underground cable works, there will be no visual impact, permanent disturbance to the surface soil or removal of vegetation. As such, there will be no change in the way the Beverley Pasture Masters, responsible for the management of Figham Common or public are currently entitled to use the land and it is concluded that, the land will be no less advantageous to the Beverley Pasture Masters or the public. Further details regarding the use of Common Land are provided within Section 1.5 of the **Planning Statement [EN010157/APP/5.5]**, the **Statement of Reasons [EN010157/APP/4.1]** and the **Special Category Land Plans [EN010157/APP/2.5]**.
- 3.4.5 Following a review of the consultation responses, discussions with the Beverley Pasture Masters and further development of the cable route constraints, the Applicant has been able to remove 20.6 ha of Figham Common from the Order Limits, a reduction of 35%.

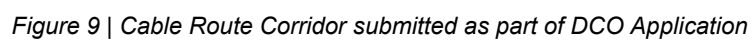
Further refinements to selected corridor

- 3.4.6 Following its selection as the most appropriate cable route corridor option, further detailed design of Cable Route Option 1 was undertaken and additional areas of land were identified as needing to be added to the Order Limits. The amendments primarily related to additional land required to facilitate access to the cable route corridor for construction.
- 3.4.7 Revised plans for the Cable Route were presented at targeted consultation which ran from Tuesday 8 October to Friday 8 November.

- 3.4.8 Where possible, the amendments also had regard to other proposed renewable energy projects proposing to connect to the National Grid Creyke Beck Substation, based on early feasibility studies shared by other developers.

3.5 Summary and Conclusion

- 3.5.1 The route of the cable corridor has been carefully considered, taking into consideration environmental, spatial and engineering factors as well as feedback from the consultation processes.
- 3.5.2 Iterations of the cable route corridor options were presented at each stage of consultation and feedback was sought through specific questions regarding the cable route corridor options.
- 3.5.3 The Applicant sought to find the most efficient route from the Land Areas to the point of connection, whilst taking into account environmental, engineering and community constraints such as built up areas, residential housing and major roadways, as supported by paragraph 2.2.7 of NPS EN-5 [Ref. 4].
- 3.5.4 The assessment followed a logical and sequential approach, starting with the establishment of four cable route corridor options (Stage 1), which were then refined through the consideration of environmental, spatial and engineering constraints alongside community consultation responses (Stage 2). A final cable route corridor was then selected and further refined during detailed design (Stage 3).
- 3.5.5 The assessment found that Cable Route Option 1 was the most suitable cable route corridor option, with the least environmental, engineering and residential impacts. It is acknowledged that Cable Route Option 1 includes some areas of Common Land, however it is considered this can be appropriately managed.
- 3.5.6 **Figure 9** below provides an extract of **ES Volume 3, Figure 1.2: Land Areas and Cable Routes Plan with Field Numbering System [EN010157/APP/6.3]** and depicts the cable route corridor submitted as part of the DCO Application.



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Peartree Hill Solar Farm

Appendix 3: Statement of Need

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Acronyms

Abbreviation / Term	Definition
AR4/5/6	Allocation Round 4/5/6 of the Contracts for Difference scheme
BECCS	Bioenergy with Carbon Capture and Storage
BESS	Battery Energy Storage System
BEV	Battery Electric Vehicle
CCC	The Committee on Climate Change
CCGT	Combined Cycle Gas Turbine
CCUS	Carbon Capture Use and Storage
COP2	Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC)
DCO	Development Consent Order
DESNZ	Department for Energy Security and Net Zero
DUKES	Government's Digest of UK Energy Statistics
ETYS	National Grid ESO's Electricity Ten Year Statement
EV	Electric Vehicle
E-W	East-West solar panel layout
FES	National Grid ESO's Future Energy Scenarios
FiT	Feed in Tariff
FSF	Fixed South Facing solar panel layout
GBN	Great British Nuclear
GDA	Generic Design Assessment
GHG	Greenhouse Gas
GSP	Grid Supply Point
GWh / GW	Gigawatt hour (energy) / gigawatt (power). 1GW = 1,000 MW
ha	Hectare
HAR	Government's Hydrogen Allocation Round
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
kWh / kW	Kilowatt hour (energy) / kilowatt (power). 1 MW = 1,000 kW
LCOE	Levelised Cost of Energy
LULUCF	Land Use, Land-use Change and Forestry
MCS	Government's Microgeneration Certification Scheme
MtCO₂ / MtCO₂(e)	Million tonnes of carbon dioxide (equivalent)
MWh / MW	Megawatt hour (energy) / megawatt (power)
NDC	Nationally Determined Contributions
NESO	National Energy System Operator (formerly NGESO)
NETS	National Electricity Transmission System
NGESO	National Grid Electricity System Operator (now NESO)
NGET	National Grid Electricity Transmission
NIC	National Infrastructure Commission

Abbreviation / Term	Definition
NOA	National Grid ESO's Network Options Assessment
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NZS	Government's Net Zero Strategy
ONR	Office for Nuclear Regulation
PV	Solar Photovoltaics
REPD	Government's Renewable Energy Planning Database
SAT	Single Axis Tracker solar panel layout
SMR	Small Modular (nuclear) Reactor
SP	Settlement Period (of the GB electricity market)
TEC	Transmission Entry Capacity
TWh / TW	Terawatt hour (energy) / terawatt (power). 1TW = 1,000 GW
WMO	World Meteorological Organisation
ZEV (Mandate)	Zero Emissions Vehicle (Mandate)

Executive summary

The Secretary of State must have regard to the current suite of National Policy Statements (NPSs) for energy as relevant NPSs and must decide the application for development consent under Planning Act 2008 for Peartree Hill Solar Farm (the Proposed Development) in accordance with those NPSs.

The NPSs confirm that substantial weight should be given to the need for low-carbon generation schemes, such as the Proposed Development, which are covered by the NPSs.

The NPSs confirm that large-scale ground mounted solar farms have a critical role to play in achieving the government's aims, and establish a critical national priority (CNP) for low-carbon infrastructure, including large-scale solar farms, because of the decarbonisation, energy security, and affordability benefits that they deliver.

The NPSs also confirm that assets which provide flexibility to the national electricity system, or to the energy system generally, are also needed to achieve national decarbonisation and energy security aims. The NPSs state that government is supportive of solar that is co-located with storage to maximise the efficiency of land use. The Proposed Development, which is a large-scale solar plus co-located Battery Energy Storage System (BESS) scheme, is therefore fully aligned with the government's aims.

The NPSs explain that the availability of grid connection, suitable irradiance levels, and local topography are key inputs to the selection of sites suitable for large-scale solar generation developments. The number of locations within the UK at which large-scale solar generation is suitable is therefore likely to be limited, and this is a material issue when considering how the UK is to meet the urgent need for low-carbon generation as is set out in the NPSs.

Whilst the NPSs establish that the Secretary of State is not required to consider the specific contribution of any individual project to satisfying the need established in the NPSs, this Statement of Need provides relevant legal, policy, and industry evidence in support of the urgent need for decarbonisation and action to support security of electricity supplies in the UK.

This Statement of Need also provides evidence on the substantial benefits brought forwards by large-scale ground mounted solar electricity generation generally, and the Proposed Development specifically, towards meeting the UK's critical strategic needs.

This Statement of Need concludes that the decarbonisation, security of supply, and affordability benefits delivered by the Proposed Development to the national urgent need

for low-carbon generation should be accorded substantial weight when assessing the planning balance.

Urgent and unprecedented actions are required on a global scale to halt climate change. A rapid increase in the supply of low carbon electricity is needed for the UK to meet its legally binding climate change targets. Solar generation is a critical part of the UK's strategy to achieve net zero by 2050, a key step towards which is the decarbonisation of the UK's electricity system, which is to be delivered through the government's national mission for 'Clean Power by 2030'.

Government's Clean Power 2030 Action Plan, published in December 2024, reinforces the urgent need for low-carbon generation schemes to come forwards to pave the way to decarbonising the wider economy by 2050 as the electrification of heat in buildings, of transport and of industry, is pursued.

However, the Clean Power 2030 Action Plan also confirms that the need for new clean power will not stop at 2030. The continued delivery of low-carbon generation facilities beyond 2030 is necessary to meet future electricity demand growth and achieve essential wider societal carbon savings. 'Clean Power by 2030' prepares the UK for the rapid growth in power demand expected over the 2030s and 40s. It is also important to continue to bring forward schemes in the event that 'Clean Power by 2030' is not achieved.

The capacity ranges set out by government in its Clean Power 2030 Action Plan provide a framework for the National Energy System Operator (NESO) to work with Transmission Owners and Distribution Network Operators to prioritise connection offers for strategically aligned projects that can demonstrate that they have the means to deliver.

Progress has been made in the development of different low-carbon electricity generation technologies. However, many of the technologies with potential to play a role in the delivery of a net zero energy system have uncertain delivery timescales. Developments with the proven ability to achieve carbon savings comfortably within in the next decade are essential to keep the UK on its legally binding carbon reduction path. Large-scale solar is one of the most likely technologies to be deliverable at scale against the timeframes required to support net zero.

Many factors are important in the design of a large-scale solar scheme within the context of a particular location, and flexibility in design is important to allow for the scheme to be designed in to optimise its benefits. Optimising the use of existing and available grid infrastructure is necessary in the next decade to achieve the government's national mission for 'Clean Power by 2030' and to meet future electricity demand growth and achieve essential wider societal carbon savings beyond 2030.

The location of the Proposed Development enables it to deliver against the urgency of need, in relation to decarbonisation, security of supply, and affordability. The Proposed Development makes use of existing and available grid infrastructure by connecting to the

National Electricity Transmission System (NETS) at the existing National Grid Creyke Beck Substation. The Connection Offer provides for the import and export of up to 320 MW of power, connecting in 2033. No adverse grid operability effects are anticipated as a result of connecting the Proposed Development to the NETS at the proposed location.

Solar generation contributes to security of supply. Aggregated generation output from portfolios which consist of multiple different renewable technologies, including solar, is more predictable and less variable than single-technology portfolios. Solar generation is needed to support a high level of generation adequacy and generation dependability within the Great British electricity system. Storage facilities also contribute to security of supply by storing energy when it is generated in abundance, and releasing it to the grid when it is needed. Storage facilities also provide grid balancing services which are essential for the continued safe and secure operation of the NETS by helping to address any impacts arising from increasing intermittent solar generation on the grid.

Solar facilities are already among the cheapest form of electricity generation in the UK and previous government department forecasts indicate that costs will continue to reduce in the future. By generating low carbon electricity at a low marginal cost, large-scale solar power reduces the energy generated by more expensive and more carbon intensive forms of generation. Solar therefore decarbonises the electricity system and lowers the market price of electricity.

In summary, a significant capacity of low-carbon solar generation is urgently needed in the UK. The Proposed Development will, if consented, provide an essential progression to meeting the government's objectives of delivering sustainable development to enable decarbonisation. By doing so, the Proposed Development will address the climate change emergency that affects everyone's lives and the environment, by ensuring our energy supply is secure, low-carbon and low-cost.

1 Overview

1.1 Document purpose

- 1.1.1 RWE Renewables UK Solar and Storage Ltd (the ‘Applicant’) is seeking a Development Consent Order (DCO) for the installation of a solar photovoltaic (PV) array electricity generating facility, Battery Energy Storage System (BESS) and associated infrastructure (the Proposed Development).
- 1.1.2 This Statement of Need for solar generation describes how and why the Proposed Development addresses all relevant aspects of government policy, in particular the National Policy Statements EN-1 and EN-3 (NPS EN-1 and NPS EN-3). These Statements were published by the previous government in November 2023 and designated on 17 January 2024 **[Ref. 1, Ref. 2]**. The decision to consent the Proposed Development must be taken in accordance with the NPSs. NPS EN-1 confirms that there is a demonstrated urgent need for the infrastructure covered by the NPSs and establishes a CNP for nationally significant low-carbon infrastructure, the definition of which includes solar PV.
- 1.1.3 NPS EN-1 explains that:
- “The urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible” **[Ref. 1, Para 3.3.63]**.
- 1.1.4 This Statement of Need demonstrates the important contribution the Proposed Development will make to the three national energy policy aims:
- Net zero and the importance of urgently deploying low-carbon generation assets at scale
 - Security of supply (geographically and technologically diverse supplies)
 - Affordability and reducing exposure to volatile international markets
- 1.1.5 This Statement of Need for the development of large-scale solar generation demonstrates why the Proposed Development is urgently needed at the scale proposed; why the proposed location is highly suitable for such a scheme; and how the Proposed Development addresses all relevant aspects of established and emerging government energy and climate change policy and commitments.

- 1.1.6 The government's election manifesto includes their ambition to deliver 'Clean Power by 2030'. This ambition brings forward the ambitions set by the previous government to decarbonise Great Britain's (GB's) electricity supply and support wider decarbonisation with more secure and affordable energy supplies. Further information on their manifesto pledges, which include the tripling of solar capacity by 2030, is included at **Section 2.4** of this Statement. The delivery of large capacities of low-carbon generation, including large-scale solar generation, is a critical part of the government's plans.
- 1.1.7 Delivering 'Clean Power by 2030' is an important step towards delivering the UK's legally binding target of national net zero carbon emissions by 2050. **Chapter 4** of this Statement provides evidence that delivering net zero requires electricity demand to grow as transport, heat, and industrial energy demand is decarbonised with clean power.
- 1.1.8 However, government's Clean Power 2030 Action Plan [**Ref. 3**] describes that the need for new clean power does not stop at 2030. The continued delivery of low-carbon generation facilities beyond 2030 is necessary to meet future electricity demand growth and achieve essential wider societal carbon savings. It is also important to continue to bring forward renewable energy schemes, in the event that 'Clean Power by 2030' is not achieved.
- 1.1.9 This Statement of Need therefore provides evidence that solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector. It calls on established and emerging primary analysis and opinion by qualified third parties, to support the need case for the Proposed Development. The Proposed Development is required to ensure that the UK remains on track to meet its legally binding carbon emissions reduction targets, while enhancing national security of supply, and at a cost which, in relation to other electricity generation infrastructure developments, provides value for money for end-use consumers.

1.2 Document overview

- 1.2.1 This Statement of Need provides relevant legal, policy, and industry evidence in support of the urgent need for decarbonisation and action to support security of electricity supplies in the UK.
- 1.2.2 This Statement of Need also provides evidence in support of ground mounted solar electricity generation generally, and the Proposed Development specifically, in relation to the benefit brought towards meeting the UK's critical strategic needs.
- 1.2.3 This Statement of Need should be read in conjunction with the international and national policy context relevant to the need for and benefits of this Proposed Development.

- 1.2.4 **Chapter 2** of this Statement of Need explains that urgent and unprecedented actions are required on a global scale to halt climate change. A critical step in the strategy to fight climate change, is a full decarbonisation of the GB electricity system by 2035. It is noted that the government's election manifesto describes its aim to bring this target forwards to 2030.
- 1.2.5 **Chapter 3** of this Statement of Need summarises those National Policy Statements (NPSs) which 'have effect' in relation to the Proposed Development. The decision to consent the Proposed Development must be taken in accordance with those NPSs. The NPSs provide that there is a CNP for nationally significant low carbon infrastructure, including solar development, for both energy security and Net Zero, and that grid connection, irradiance, and site topography are key inputs to the selection of sites suitable for large-scale solar generation developments.
- 1.2.6 **Chapter 4** provides evidence that decarbonisation will increase demand for electricity and describes the policies and strategies already in-flight which are increasing, or are set to increase, electricity demand.
- 1.2.7 **Chapter 5** provides an overview of progress in the development of different technologies with potential to play a role in the delivery of a net zero energy system. It highlights the uncertainty of delivery timescales for many technologies, and the opportunity brought forward by developments with the proven ability to achieve carbon savings comfortably within the next decade. Storage assets will support the operation of low-carbon generators to achieve carbon savings.
- 1.2.8 **Chapter 6** provides evidence on technical considerations associated with the development of solar in the UK including principles associated with the siting and location of large-scale solar schemes and describes factors which are important in the design of a scheme within the context of a particular location.
- 1.2.9 **Chapter 7** sets out the benefits of the location of the Proposed Development in relation to decarbonisation, security of supply, and delivering against the urgency of need. The chapter also provides evidence on the suitability of the proposed location from a grid operability and connection availability perspective.
- 1.2.10 **Chapter 8** provides evidence that solar generation contributes to security of supply as part of a multi-technology aggregated generation portfolio. While **Chapter 5** provides evidence for the need for storage facilities to be developed as renewable generation capacity grows, **Section 6.9** describes how co-located solar plus storage schemes can deliver flexibility.
- 1.2.11 **Chapter 9** provides evidence that solar facilities are already among the cheapest form of electricity generation in the UK and the development of more solar schemes will help to reduce the cost of wholesale electricity.

- 1.2.12 **Chapter 10** provides the overall conclusions of this Statement of Need which are that a significant capacity of low-carbon solar generation is urgently needed in the UK. Developing this Proposed Development will be an essential step in meeting governmental objectives to deliver sustainable development to enable decarbonisation. By doing so, the Proposed Development will address the climate change emergency that affects everyone's lives and the environment, by ensuring our energy supply is secure, low-carbon, and low-cost.

1.3 Description of the Proposed Development

- 1.3.1 A full description of the Proposed Development is included in the **Environmental Statement (ES) Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]**. An overview of the Proposed Development and its environmental impacts is provided in the **ES Volume 4, Non-Technical Summary [EN010157/APP/6.4]**.

2 Legal and policy background supporting the need for urgent decarbonisation

2.1 Chapter summary

- 2.1.1 This chapter describes the global context of international climate change aims, commitments, and actions taken to date, and future actions needed to limit global temperature increase to 1.5°C above pre-industrial levels.
- 2.1.2 It is important to emphasise the urgency of the need to decarbonise UK energy generation to meet national climate change target and climate budgets.
- 2.1.3 The urgency required of actions to deliver decarbonisation globally is increasing. Carbon has a cumulative warming effect, and it is well understood that decarbonisation progress to date must accelerate in all countries to limit the temperature increase to 1.5°C above pre-industrial levels.
- 2.1.4 Actions to deliver a zero carbon UK society must accelerate for the UK to keep on track with meeting its five-yearly carbon budgets, its 2030 Nationally Determined Contribution (NDC), and its net zero target by 2050.
- 2.1.5 The need for and the scale of future carbon reduction actions is increasing. The only way that need and scale will decrease in the future, while still limiting global temperature increases, is by delivering actions like the Proposed Development without undue delay.

2.2 Global decarbonisation

- 2.2.1 The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016.
- 2.2.2 The overarching goal of the Paris Agreement is to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels” and pursue efforts “to limit the temperature increase to 1.5°C above pre-industrial levels.”
- 2.2.3 In October 2018, following the adoption by the UN Framework Convention on Climate Change of the Paris Agreement, the Intergovernmental Panel on Climate Change (IPCC), which is the United Nations body for assessing the science

related to climate change, published a Special Report on the impacts of global warming of 1.5°C above pre-industrial levels. This report concluded that human-induced warming had already reached approximately 1°C above pre-industrial levels, and that without a significant and rapid decline in emissions across all sectors, global warming would not be likely to be contained, and therefore more urgent international actions to decarbonise are required.

- 2.2.4 NDCs are at the heart of the Paris Agreement and the achievement of its long-term goals. NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement (Article 4, Paragraph 2) requires each Party to prepare, communicate, and maintain successive NDCs that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions.
- 2.2.5 The IPCC Working Group III (IPCC WG3) published its Summary of Climate Change as part of the IPCC's Sixth Assessment Report in April 2022 [Ref. 4]. The IPCC WG3 report notes that although the rate of growth of average global annual greenhouse gas (GHG) emissions was lower between 2010 and 2019 than in the previous decade, average global annual GHG emissions during the last decade were higher than in any previous decade on record.
- 2.2.6 The IPCC WG3's global GHG emissions for four modelled scenarios are included in **Figure 3-1** of this Statement. The red band shows global annual GHG emissions considering global decarbonisation policies which at the time of writing the report had been implemented. Implemented policies are likely to slow the historical increase in annual emissions but are not yet sufficient to reduce them. In other words, policies which have already been implemented will keep global GHG emissions continuing at their current level through to 2050, rather than reducing them.
- 2.2.7 The purple, green, and blue bands show the IPCC's conclusions on different decarbonisation pathways, which must be followed to meet three scenarios of global temperature increases.
- 2.2.8 The purple band shows the decarbonisation path achieved by NDCs to 2030 followed by the decarbonisation path required to limit temperature increase to 2°C above pre-industrial levels with a probability of at least 67%. The red band is higher than the purple band, which implies that policies implemented to date are not yet sufficient to meet 2030 NDC commitments.
- 2.2.9 The green band shows the decarbonisation path which will achieve the same outcome as the purple path, by increasing actions in the 2020s and overshooting current NDCs. By urgently increasing decarbonisation actions now, future year-

on-year carbon reductions to meet the same outcome can be lower and therefore are likely to be more achievable.

- 2.2.10 The cumulative warming effect of carbon means that not delivering against plans set out for the 2020s will lead to a greater scale and urgency to future plans and their delivery in order to meet the temperature increase limit set by the Paris Agreement. Delaying decarbonisation actions increases the risk of losing the fight against climate change, whilst in the meantime ongoing climate change events and impacts are unlikely to slow or decrease, putting lives and livelihoods at risk.
- 2.2.11 The blue band shows the decarbonisation path which will meet the commitments of the Paris Agreement with a probability of 50%.
- 2.2.12 Conclusions arising from **Figure 3-1** are:
- Global climate change commitments are not yet sufficient to meet nor sustain a (likely) successful track towards containing global temperature rise below 1.5°C
 - Policies implemented to date fall short even of those commitments
 - The delivery of measures will be required beyond 2030 to ensure that the 2050 target is met
- 2.2.13 The IPCC WG3 report findings also imply that mitigation after 2030 can no longer establish a pathway which will likely not exceed 1.5°C global temperature increase vs. 1990, during the 21st Century.
- 2.2.14 The compelling need for global action to decarbonise continued to be reinforced through the IPCC's 20 March 2023 publication of its 2023 assessment of global climate change. The report concludes that the world is likely to pass a dangerous temperature threshold within the next 10 years, pushing the planet past the point of catastrophic warming — unless nations drastically transform their economies and immediately transition away from fossil fuels **[Ref. 5]**.
- 2.2.15 The Synthesis Report of the IPCC's Seventh Assessment Report will be produced after the completion of the Working Group reports and released by late 2029.
- 2.2.16 In a June 2024 news report which accompanied the publication of its Global Annual to Decadal Climate Update (2024 – 2028) report, the World Meteorological Organisation (WMO) stated that "There is a 47% likelihood that the global temperature averaged over the entire five-year 2024-2028 period will exceed 1.5°C above the pre-industrial era" **[Ref. 6]**. This implies that sufficient progress on fighting climate change has not yet been made and more needs to be done in both mitigation and adaption.

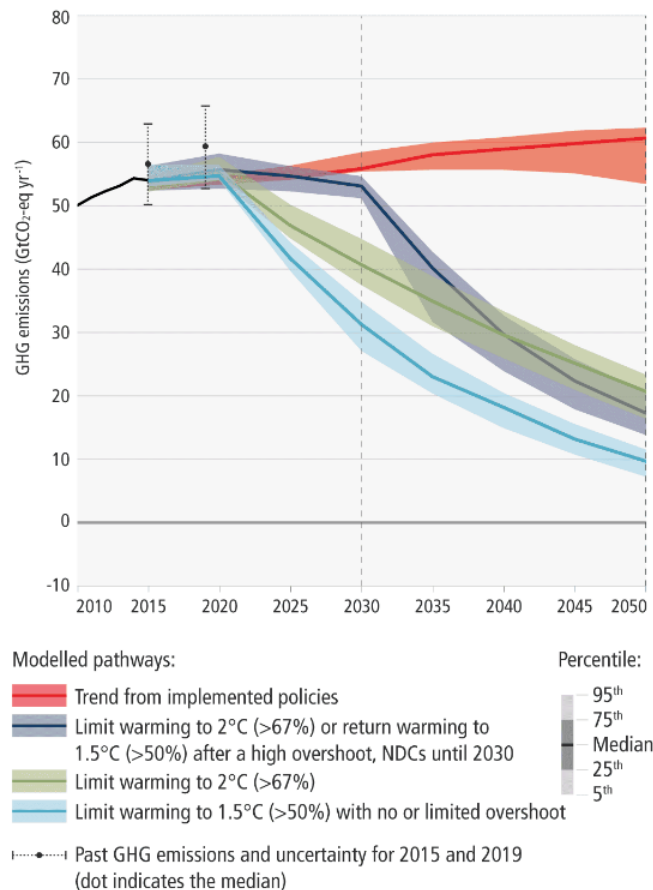


Figure 3-1: Representation of global GHG emissions of modelled pathways [Ref. 4, Figure SPM.4]

- 2.2.17 The 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28) was held in Dubai in December 2023. COP28 achieved agreement among the parties, to “tripling renewables and doubling energy efficiency”. On a global basis, COP28 concluded the requirement for action to abolish carbon emissions is more urgent now than ever it has been.
- 2.2.18 The same is true for the UK [Ref. 7], and in July 2024, the Secretary of State for Energy Security and Net Zero met with past and future COP Presidents to discuss the need for greater urgency in tackling the climate crisis while underlining “the UK’s determination to act as a global leader and reliable partner on climate action” and “the importance of the UK’s renewed domestic leadership in encouraging ambitious action abroad. Climate and clean energy are at the heart of the government’s agenda. The UK is taking immediate action to unlock investment in onshore wind, [and] begin a solar revolution” [Ref. 8].

- 2.2.19 COP29 closed in November 2024. At the conference, a new finance goal was agreed which will help countries to protect their people and economies against climate disasters. COP29 was reminded that in 2025 stronger national climate plans (measured through NDCs) become due from all countries. These new climate plans must cover all greenhouse gases and all sectors, to keep the 1.5°C warming limit within reach. The UK delegation clearly signalled at COP29 that the UK plans to ramp up climate actions that are in the interests of the economy and people **[Ref. 9]**.

2.3 Decarbonisation in the UK

- 2.3.1 As a result of its commitments to the Paris Agreement, in June 2019 the UK became the first major economy to legislate for a 2050 net zero GHG emissions target through the Climate Change Act 2008 (2050 Target Amendment) Order 2019 **[Ref. 9]**.
- 2.3.2 Decarbonisation is therefore a UK legal requirement.
- 2.3.3 In December 2020, the UK communicated its NDCs under the Paris Agreement to reduce GHG emissions by at least 68 per cent from 1990 levels by 2030. In April 2021, the then government legislated for the Sixth Carbon Budget (CB6), which requires the UK to reduce GHG emissions by 78 per cent by 2035 compared to 1990 levels.
- 2.3.4 UK governmental objectives are to ensure the supply of energy to the national energy system always remains secure, reliable, affordable, and consistent with meeting legally binding GHG emissions including the NDC. NPS EN-1 states that government has identified that this will require a step change in the decarbonisation of the UK's energy system **[Ref. 1, Para 2.3.3]**, and large-scale ground mounted solar has an important role to play in the UK.
- 2.3.5 The Climate Change Committee (CCC), a national independent advisory committee, made clear in its Progress Report to Parliament in **2019 [Ref. 11(2019)]** that the UK is not on track to meet its fourth (2023-2027) or fifth (2028-2032) carbon budget.
- 2.3.6 This position was reinforced in the latest 2024 report which states that:
- “Urgent action is needed to get on track for the UK's 2030 target ... only a third of the emissions reductions required to achieve the 2030 target are currently covered by credible plans. Action is needed across all sectors of the economy, with low-carbon technologies becoming the norm” **[Ref. 11(2024), p8]**.

And

“The UK should now be in a phase of rapid investment and delivery ... Annual offshore wind installations must increase by at least three times, onshore wind installations will need to double and solar installations must increase by five times” [Ref. 11(2024), p9].

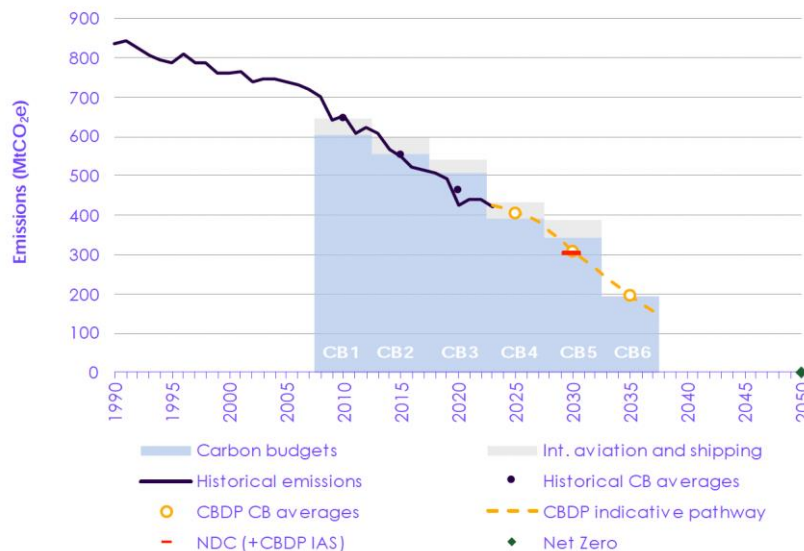


Figure 3-2: UK historical emissions, the CBDP indicative pathway and the UK's targets
[Ref. 11(2024), Figure 1.1]

- 2.3.7 Emissions in the UK have steadily fallen over the last three decades and the UK met its first three carbon budgets covering the period 2008 - 2022 [Ref. 11(2024), p18]. In 2023 emissions were 49.5% below 1990 levels according to provisional estimates [Ref. 11(2024), p19].
- 2.3.8 **Figure 3-2** shows historical emissions and performance against historical Carbon Budgets. The CCC's Carbon Budget Delivery Plan (CBDP, yellow) for Carbon Budgets CB4, CB5, and CB6 are also shown, as is the UK's NDC in 2030.
- 2.3.9 The reduction in carbon emissions required from CB5 to achieve CB6 is significant. The delivery of new low-carbon electricity generation beyond 2030 is essential for progress to towards the UK's 2050 net zero legally binding target to continue to be made. The Proposed Development will meet the need for new low-carbon generation to be brought online beyond 2030.
- 2.3.10 The CCC concluded that the main driver of carbon emission reductions in 2023 was from electricity supply, largely due to increased electricity imports and reduced electricity exports, as "the UK returned to its normal status as a net importer of electricity, after one year as a net exporter of electricity in 2022" [Ref.

11(2024), p19], suggesting that there is still work to do to decarbonise electricity generation in the UK. The annual pace of change required to meet the UK's 2030 NDCs is 18.8 MtCO₂(e) per year from 2023 to 2030, however the average annual rate over the previous seven years was only 13.8 MtCO₂(e) per year. The CCC report that outside the electricity supply sector, the average annual rate of reduction over the previous seven years was only 6.3 MtCO₂(e) per year, but will need to more than double to 14.3 MtCO₂(e) per year over the next seven years to meet the 2030 NDC.

- 2.3.11 The CCC conclude that “This will require substantial increases in the rates of reduction in most sectors outside of electricity supply” **[Ref. 11(2024), p17]**. **Chapter 4** shows that decarbonisation of other sectors is largely reliant on the availability of sufficient quantities of low-carbon electricity as a substitute for carbon-emitting fuels. It therefore follows that the development of new low-carbon electricity generation infrastructure also needs to accelerate.
- 2.3.12 Progress in decarbonising electricity supply has been delivered by phasing out coal -generated electricity and increasing the share of renewable generation. The CCC conclude that to maintain progress, “We now need to rapidly reduce oil and gas use as well.” **[Ref. 11(2024), p8]**.
- 2.3.13 Without adequate supply of low-carbon electricity, the urgent requirement for a rapid decarbonisation of other sectors (as will be required to meet future Carbon Budgets) is unlikely to be achieved.

2.4 The government's energy strategy

- 2.4.1 The UK's general election in July 2024 saw a change of government. However, the UK's 2030 NDC remains unchanged at 68 per cent reduction in territorial emissions by 2030 on 1990 levels. The Sixth Carbon Budget (2033-2037) also remains unchanged, requiring the UK to reduce GHG emissions by 78 per cent by 2035 compared to 1990 levels.
- 2.4.2 In October 2024, the Climate Change Committee provided advice to the government for the UK's 2035 NDC commitment to reduce greenhouse gas emissions to increase to 81% from 1990 to 2035. The Applicant notes, however, that the newly recommended 81% reduction is consistent with the ambition legislated in the Sixth Carbon Budget, but has been updated to include International Aviation and Shipping emissions and for a change in accounting methodology **[Ref. 12]**.
- 2.4.3 The government made major commitments to the delivery of clean energy in its election manifesto **[Ref. 15]**, including to achieve ‘Clean Power by 2030’.

- 2.4.4 In August 2024, government requested advice on decarbonising the power sector by 2030 from the National Energy System Operator (NESO). NESO published their advice in November 2024, and it is summarised in **Section 2.14** of this Statement.
- 2.4.5 In December 2024, the Prime Minister reconfirmed the government’s mission to make Britain a clean energy superpower. The government has taken onboard NESO’s advice to achieve “at least 95% clean power by 2030, while accelerating the UK to net zero” **[Ref. 17, p6]** thereby staying on track to “secure our energy supply with home-grown, clean power” **[Ref. 17, p40]**.
- 2.4.6 Also in December 2024, the government published the Clean Power 2030 Action Plan, which “sets out how the government will work with the clean power sector, including industry, trade unions, investors, policy makers and others to achieve our clean power goal” **[Ref. 3, p6]**.
- 2.4.7 Government’s Clean Power 2030 Action Plan is summarised in **Section 2.15** of this Statement. It is important to note that:
- The government’s strategy to deliver societal decarbonisation through decarbonisation of the electricity sector and electrification of other sectors, is consistent with the previous government’s strategy
 - The government’s decarbonisation and energy security strategy pledges are more ambitious than those of the previous government at the time of the general election
 - The delivery of large capacities of low-carbon generation, including large-scale solar generation, is a critical part of the government’s plans
 - Delivery of ‘Clean Power by 2030’, if achieved, must be followed by further measures to ensure that energy stays green beyond 2030. This is also true if ‘Clean Power by 2030’ is not achieved
- 2.4.8 In March 2020, the Energy System Catapult’s Innovating to Net Zero report observed that:
- “Net Zero narrows the set of viable pathways for the future energy system. Where an 80% target allowed considerable variation in relative effort across the economy, with some fossil fuels still permissible in most sectors, Net Zero leaves little slack” **[Ref. 14, p5]**.
- 2.4.9 It therefore follows that the government’s proposed approach to achieve net zero, shares many similarities with the approach taken by the previous government and indeed there is nothing inconsistent between the government’s approach and the approach taken by the previous government which would mean a move away from existing policies in support of renewable electricity supplies.

- 2.4.10 That said, one key aspect of difference, is that the urgency of the need to implement measures which deliver decarbonisation is now greater because of the reasons described in **Section 2.2** of this Statement. The government's support for renewable generation going forwards is therefore highly likely to be no lower than the support set out in existing publications and strategies and if anything may be more supportive, as evidenced by the approval of four large-scale solar DCOs (Sunnica Energy Farm, Mallard Pass Solar Project, Gate Burton Energy Park, and Cottam Solar Project) in the first months of the government's term in office, the first three of which were overdue decisions, and the approval of a further two large-scale solar DCOs in January 2025 (Heckington Fen Solar Park and West Burton Solar Project).
- 2.4.11 The need for new clean power does not stop at 2030. The continued delivery of low-carbon generation facilities beyond 2030 is necessary to meet future electricity demand growth and achieve essential wider societal carbon savings. It is also important to continue to bring forward schemes in the event that 'Clean Power by 2030' is not achieved.
- 2.4.12 This chapter therefore calls on existing publications, including those published under the previous governments, to support the evidence base for the need for large-scale solar in the UK to deliver energy security, decarbonisation, and affordability benefits, and notes that the urgency to deliver these benefits has increased under this government.

2.5 The UK's strategic plan for decarbonisation

- 2.5.1 The UK chose to largely decarbonise its power sector by adopting low carbon sources quickly, and invited industry to bring forward new low carbon developments to meet the twin challenge of energy security and climate change [Ref. 1, Para 4.2.2].
- 2.5.2 Implementing this strategy by closing generation capacity with high carbon emissions and replacing it with low-carbon renewable energy has delivered significant decarbonisation benefits in the UK to date.
- 2.5.3 **Figure 3-3** shows that carbon emissions associated with the UK's electricity system (green dashed line) have reduced by approximately 70% between 2005 and 2022 (the most recent year for which data is available from this source). Non-electrical emissions have also reduced but by a lower percentage.
- 2.5.4 The domestic and transport sectors had the highest carbon emissions in 2022. Fossil fuels remain a major source of energy to these sectors. Critically the percentage reductions of emissions in those sectors between 2005 and 2022 were significantly lower than national average emission reductions, at 42% and 21% respectively. Emissions from the domestic sector had also reduced by just 21% when measured excluding reductions in emissions from electricity.

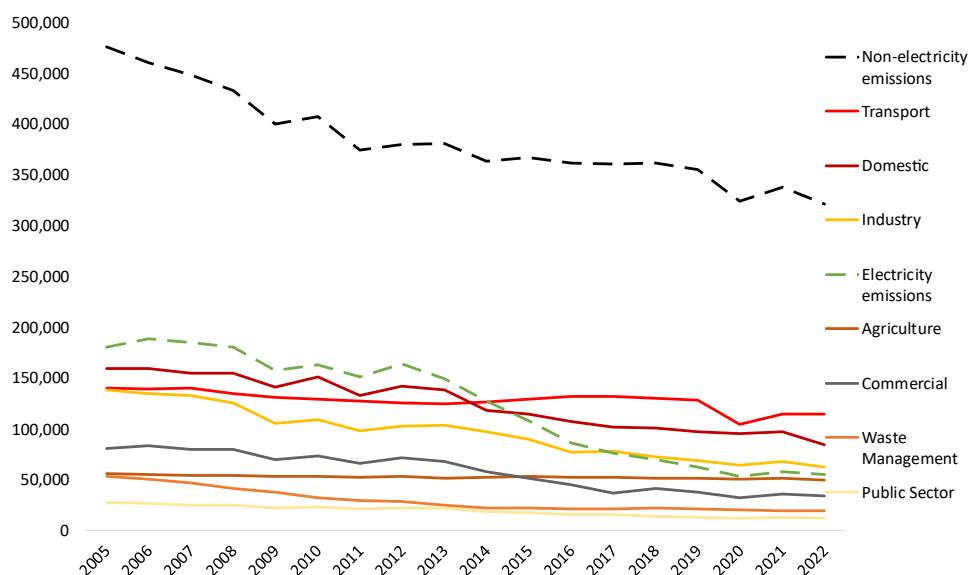


Figure 3-3: National (UK) District GHG Emissions 2005 - 2022
(LULUCF net benefits small and not shown)
[Ref. 12, Author Analysis]

- 2.5.5 **Figure 3-3** suggests that the transport, domestic, and industrial sectors require a significant intervention to reduce carbon emissions, and that the reduction of emissions from those sectors will be critical if net zero 2050 is to be reached.
- 2.5.6 The government's strategy to reduce these emissions is to increase low carbon electricity supplies such that electricity may be used to displace fossil fuels from those other sectors. The continued delivery of low-carbon electricity generation facilities beyond 2030 is necessary to reduce emissions from those sectors.

2.6 The Energy White Paper

- 2.6.1 The Energy White Paper **[Ref. 16]**, published in December 2020, outlined a strategy to transform the energy system, tackling emissions while continuing to ensure secure and reliable supply, and affordable bills for households and businesses.
- 2.6.2 Solar has helped increase UK renewable generation capacity five-fold between 2010 and 2020 **[Ref. 16, p40]**.
- 2.6.3 A low-cost, net zero consistent system is likely to be composed predominantly of wind and solar **[Ref. 16, p43]**.
- 2.6.4 Onshore wind and solar will be key building blocks of the future generation mix, along with offshore wind. We will need sustained growth in the capacity of these sectors in the next decade to ensure that we are on a pathway that allows us to meet net zero emissions in all demand scenarios **[Ref. 16, p45]**.
- 2.6.5 Solar plays an increasingly important role in supporting an affordable and fair energy system by displacing price-setting gas from the electricity system **[Ref. 16, p30]**.
- 2.6.6 Government's Clean Power 2030 Action Plan reconfirms that it is critical for the UK to build "and energy system that is affordable for the long term, keeping our supply secure, and cutting our emissions before it is too late" **[Ref. 3, p18]**, thereby continuing to increase the UK's low carbon generation capacity to support the decarbonisation of energy demand outside of the traditional electricity sector.

2.7 Net Zero Strategy – Build Back Greener

- 2.7.1 The Net Zero Strategy (NZS) [Ref. 18], published in October 2021, set out a long-term plan for the economy-wide transition to net zero that will take place over the next three decades.
- 2.7.2 The NZS's key policy is for the UK to be powered entirely by clean electricity by 2035, subject to security of supply [Ref. 18, p20], a policy which is consistent with government's more ambitious aim to deliver 'Clean Power by 2030' but has been superseded by it.
- 2.7.3 The NZS states that a sustained increase to the deployment of land-based renewables such as locally supported onshore wind and solar in the 2020s and beyond is required to meet CB6 [Ref. 18, p103 and Ref. 11(2024), p9)].
- 2.7.4 The NZS includes up-to-date evidence of the low cost of large-scale solar globally, which is supporting the necessary increase in capacity of large-scale solar builds in the UK [Ref. 18, p312].

"Gas will continue to play a role in setting the electricity price for some years to come but, over time, will do so less frequently, as more and more low carbon generation (such as wind and solar) connect to the electricity system ... This will help put downward pressure on wholesale electricity prices" [Ref. 18, p337].

2.8 The British Energy Security Strategy

- 2.8.1 The British Energy Security Strategy, published in April 2022, set out the immediate need to manage the financial implications of soaring commodity prices in the near term and also the long-term goal of "address[ing] our underlying vulnerability to international oil and gas prices by reducing our dependence on imported oil and gas" [Ref. 19, p6].
- 2.8.2 The British Energy Security Strategy recognises the critical role of renewables in accelerating the transition away from fossil fuels [Ref. 19, p16].
- 2.8.3 The British Energy Security Strategy introduced the then government's increased ambition for solar generation, supporting a five-fold increase in deployment of solar technology by 2035, recognising the abundant source of solar energy in the UK and an 85% reduction in cost of solar power over the last ten years. [Ref. 19, p19]. The online British Energy Security Strategy includes an explicit ambition for up to 70 GW of British solar on roofs and on the ground by 2035.

- 2.8.4 For ground-mounted solar, the strategy indicates a future consultation on planning rules to strengthen policy in favour of development on non-protected land, while ensuring communities continue to have a say and environmental protections remain in place. **[Ref. 19, p19]**.
- 2.8.5 Critically, the British Energy Security Strategy includes actions such as the bringing forward of electricity into home heating and supporting the rollout of electric vehicles (EVs) as part of the Electric Vehicle Infrastructure Strategy, which will increase demand for electricity in future years, from potentially as early as the mid-2020s.
- 2.8.6 The government’s mission to deliver ‘Clean Power by 2030’ is consistent with the themes and measures recommended in the British Energy Security Strategy, albeit the target quanta differ in that the government’s ambitions with regard to the scale and pace of delivery of low-carbon electricity generation, are larger, and quicker, than those of the previous government. Indeed, “By accelerating the switch to domestic renewable electricity sources and accelerating the application of clean electricity to the wider energy system, we will be able to reduce our reliance on fossil fuels faster. This enhances energy security, making the UK less vulnerable to global market disruptions or geopolitical tensions that effect energy prices” **[Ref. 3, p21]**.

2.9 Mission Zero – the Skidmore Review

- 2.9.1 Mission Zero was published in January 2023 by Rt Hon Chris Skidmore MP, Chair of the then government’s Independent Review of Net Zero. The report was commissioned to ask how the UK might deliver its own net zero targets in a manner that was more affordable, more efficient, and in a pro-business and pro-enterprise way. Mission Zero recognises the importance of taking action on net zero. It also recognises the fact that the energy transition is a new economic reality, particularly amid the global reality of the energy security crisis and rising gas and fossil fuel prices in 2022.
- 2.9.2 Mission Zero reconfirms the global importance of the UK’s commitment to achieve net zero and makes recommendations which should be taken forwards, alongside other wider recommendations. It states that the UK should be proud of the steps it has taken so far to achieve net zero, and that climate change and the economy are intertwined. The UK must however move quickly, not only to protect and secure delivery of our national climate commitments but also deliver the economic benefits of moving away from a carbon economy. The review finds that “The benefits of net zero will outweigh the costs” and believes that “This is too important to get wrong” **[Ref. 20, p8]**.
- 2.9.3 Sir Patrick Vallance, a former UK Chief Scientific Advisor and recently appointed Minister of State for Science in the Department for Science, Innovation, and

Technology (July 2024), explains, in regard to government’s mission for ‘Clean Power by 2030’, that “We can be the innovators and the implementers, helping ourselves and exporting our solutions worldwide. But if we choose to go slowly, others will provide the answers, and ultimately, we’ll end up buying these solutions rather than selling them” **[Ref. 15, p48]**, thereby supporting the commercial imperative to proceed with decarbonisation at pace, as previously described in Mission Zero.

2.9.4 Mission Zero made the following recommendations which are relevant to the growing need for large-scale ground mount solar to be deployed in the UK:

- Priority Mission no. 2: “Full-scale deployment of solar including a rooftop revolution to harness one of the cheapest forms of energy, increase our energy independence and deliver up to 70 GW of British solar generation by 2035”. The government’s Clean Power 2030 Action Plan includes a range of 45 to 47 GW of solar being connected by 2030 and 45 to 69 GW by 2035 **[Ref. 3, Connections Reform Annex, Table 1]**
- Priority Mission no. 8: “Working towards gas free homes by 2035 [or earlier]” and Recommendation 1 is to set a legislative target for gas-free homes and appliances. The government’s Warm Homes Plan “will offer grants and low interest loans to support investment in insulation and other improvements such as solar panels, batteries and low carbon heating to cut bills.” **[Ref. 15, p56]** which when delivered will reduce domestic reliance on natural gas
- Recommendation 15 is the swift delivery of Zero Emissions Vehicles (ZEVs) and the ZEV mandate to apply from 2024. Powering Up Britain (see following) remains ambitious and forward-thinking in its targets for the decarbonization of light road transport, but is less explicit in regard to associated timelines – noting the practical requirement to remain compatible (from a supply chain / industry change perspective) with the wider European position: “Between 2030 and 2035, new cars and vans will only be able to be sold if they offer significant zero emission capability” **[Ref. 22, p27]**. The government’s election manifesto sets out their support for “the transition to electric vehicles by accelerating the roll out of charge points, [and] giving certainty to manufacturers by restoring the phase-out date of 2030 for new cars with internal combustion engines” **[Ref. 15, p31]**
- Priority Mission 8 and Recommendations 1 and 15 add weight to the argument for rollout of solar and other renewable generation to meet the growing demand which will arise from their delivery, consistent with the government’s mission to deliver ‘Clean Power by 2030’
- Priority Mission no. 9 is to “Embed nature and habitat restoration ... maximising co-benefits for climate and nature wherever possible.” Ground

mount solar can deliver on this Priority Mission through delivering biodiversity net gain because of development

- Recommendation 11 is to “Set up taskforce and deployment roadmaps in 2023 for solar to reach up to 70 GW by 2035.” This Recommendation recognises that the current pipeline for solar projects in the UK, and the most ambitious industry projections for solar deployment, are not yet of sufficient scale to meet the then government’s ambition without undue levels of risk associated with the deployment of other technologies. A change in government does not materially change the risk to delivery of projects in the near term, and on 9 July 2024, Ed Miliband, the new Secretary of State for Energy Security and Net Zero appointed Chris Stark, the former chief executive of the CCC, to “head new Mission Control, tasked with turbocharging UK to clean power by 2030” **[Ref. 21]**. Government’s Clean Power 2030 Action Plan provides a framework for prioritising the connection queue to support 45 to 47 GW of solar power being connected to transmission and distribution networks by 2030 and 45 to 69 GW by 2035 **[Ref. 3]**
- Mission Zero recognises the importance of local action and local plans to the achievement of net zero. People and places must be empowered to deliver net zero through a full alignment on a local level with a net zero future through the introduction of a ‘net zero test’. All local authorities will be required to play their part in achieving carbon neutrality in the future. Ground-mounted solar (at both Nationally Significant infrastructure and local planning authority scale) is a leading deliverable low-carbon generation technology which will enable local authorities to deliver against plans to decarbonize on a local level

2.9.5 The government’s mission to deliver ‘Clean Power by 2030’ is consistent with many of the findings of Mission Zero. For example:

- Government’s ‘Clean Power Capacity Range’ provides a foundation to guide rapid policy development and focus delivery of significant new capacities of onshore and offshore wind and solar power
- Great British Energy has been established to put the UK on a “path to become a clean energy superpower” **[Ref. 3, p70]**
- Establishing the Mission Control for Clean Power (also called the Clean Power 2030 Advisory Commission), with four strands of activity including: setting and tracking the overall approach to delivering 2030 across the energy system, real time monitoring of progress on UK infrastructure projects critical to 2030, acting as an innovation centre by encouraging discussion among experts, and serving as a convener for the Mission Control approach across government and with industry **[Ref. 21]**

2.10 Powering Up Britain

- 2.10.1 The previous government's Powering Up Britain Strategy, Powering Up Britain: Energy Security Plan and Powering Up Britain: Net Zero Growth Plan, set out how the UK will achieve energy security, promote green growth, and meet its net zero targets.
- 2.10.2 Powering Up Britain was published in March 2023 to present the most up to date information on the previous government's energy strategy, explaining "how the Government will enhance our country's energy security, seize the economic opportunities of the transition [to renewables], and deliver on our net zero commitments" **[Ref. 22(1), p6]**, and observes that "The [Mission Zero] Review was unequivocal in its assessment that the plan set out in the Net Zero Strategy was the right one, whilst providing recommendations to strengthen delivery." **[Ref. 22 (1), p16]**.
- 2.10.3 Powering Up Britain concludes that "We need investment at scale ... to rapidly rollout existing technologies ... at pace to meet our ambitions for decarbonising power and [lower] wholesale UK electricity prices" **[Ref. 22(1), p9]**, and observes that "a significant proportion of technologies we will need for 2050 are currently at the demonstration or prototype phase" **[Ref. 22(1), p9]**. This implies that while we should continue to strive for innovation, waiting for novel technologies to deliver comes with risk (as some technologies may not deliver) and therefore the Government's strategy to deliver a rapid rollout of existing technologies while continuing to invest in new technologies is of critical importance in the fight against climate change.
- 2.10.4 Indeed, government's Clean Power 2030 Action Plan explains that "whilst the 'Clean Power Capacity Range' provides a foundation to guide rapid policy development and focus delivery, the scenarios developed now cannot be exhaustive or definitive, and it is only right that some optionality is retained" **[Ref. 2, p31]**.
- 2.10.5 However, it is important to recognise that ground-mounted large-scale solar is a mature technology which is capable of delivering a reliable and rapid rollout once projects are consented. Therefore, alongside more recent publications, Powering Up Britain recognises the huge potential solar generation can have in decarbonisation. Large-scale ground-mounted solar is a mature technology, capable of delivering a reliable and rapid rollout once projects are consented, and is one of the cheapest forms of electricity generation that is readily deployable at scale.
- 2.10.6 Powering Up Britain therefore includes the acceleration of renewables deployment as critical to support the delivery of the then government's plans.

- 2.10.7 Powering Up Britain's Energy Security Plan confirms that the then government was "aiming for 70 GW of ground and rooftop capacity together by 2035 ... We need to maximise deployment of both types of solar to achieve our overall target" **[Ref. 22(5), p37]**.
- 2.10.8 In support of the emphasis Powering Up Britain places on the need to maximise the deployment of ground-mounted solar, the strategy states that the "Government seeks large scale solar deployment across the UK, looking for development mainly on brownfield, industrial, and low/medium grade agricultural land. The government will therefore not be making changes to categories of agricultural land in ways that might constrain solar deployment" **[Ref. 22(1), p20]**.
- 2.10.9 Powering Up Britain makes it clear that the then government expected the operational capacity of both large-scale and rooftop solar to grow in pursuit of net zero. In other words, that development on agricultural land is also anticipated.
- 2.10.10 Through the establishment of Great British Energy and Mission Control for 'Clean Power by 2030', the government has already set in place organisations to speed the transition towards UK energy security and net zero. The government's action to consent four large-scale transmission connected ground mount solar schemes in their first month in office, and two further schemes in January 2025, makes it clear that large-scale solar has a role to play in their plan for a secure and low-carbon energy future.

2.11 Climate Change Committee Progress Report to Parliament, 2024

- 2.11.1 The CCC published the 2024 edition of their annual Progress Report to Parliament in July 2024. The report leads with the Committee's view that "the new government will have to act fast to hit the country's [climate] commitments" **[Ref. 11(2024), p8]**.
- 2.11.2 The Committee summarised that "the cost of key low-carbon technologies is falling, creating an opportunity for the UK to boost investment, reclaim global climate leadership and enhance energy security by accelerating take-up. British-based renewable energy is the cheapest and fastest way to reduce vulnerability to volatile global fossil fuel markets. The faster we get off fossil fuels, the more secure we become" **[Ref. 11(2024), p8]**.
- 2.11.3 Further, the Committee assessed that "only a third of the emissions reductions required to achieve the 2030 target are currently covered by credible plans. Action is needed across all sectors of the economy, with low-carbon technologies becoming the norm," and that rapid reductions in the use of oil and gas must also be secured **[Ref. 11(2024), p8]**.

- 2.11.4 The Committee's assessment also implies that plans to achieve emissions reductions beyond 2030 are not yet credible and therefore that schemes which come forwards which will help deliver those reductions in that timeframe are also needed.
- 2.11.5 To deliver this, the Committee recommend that:
- Annual offshore wind installations must increase by at least three times, onshore wind installations will need to double, and solar installations must increase by five times
 - Approximately 10% of existing homes in the UK will need to be heated by a heat pump, compared to only approximately 1% today
 - The market share of new electric cars needs to increase from 16.5% today to nearly 100%
- 2.11.6 These recommendations are consistent with a continuing move away from the use of fossil fuels and towards an energy system with electricity at its centre, either directly or through the use of hydrogen, produced at least in part, by the electrolysis of water.
- 2.11.7 The CCC report that “indicators for low-carbon technology roll-out are off track, with rates needing to significantly ramp up” to achieve 2030 targets **[Ref. 11(2024), p9]**, including on engineered removals. While technologies with substantial lead-times continue to be progressed, delivery of essential nearer-term carbon emission reductions will need to come from increasing renewable electricity generation capacity.

2.12 Energy Act 2023

- 2.12.1 In October 2023, the Energy Act 2023 (EA 2023) came into law. The EA 2023 aims to strengthen energy security and support the delivery of net zero and affordable energy bills for households in the long term.
- 2.12.2 The government press release at the time of Royal Assent **[Ref. 23]** describes the key elements of the EA 2023 as follows.
- 2.12.3 The EA 2023 brings heat networks into the remit of the Office for Gas and Electricity Markets (Ofgem), further supporting the UK's whole-system approach to energy, and updates their remit further so that the Office considers net zero targets as part of its everyday decisions.
- 2.12.4 New measures will also support consumers in their transition to 'smart products' which will pave the way to the automatic response of UK electricity demand at

times of abundance or potential scarcity – a key measure if households are to deliver flexibility to the UK's energy system.

- 2.12.5 On the energy supply side, the EA 2023 legislates for the regulation of nuclear fusion, an important enabler of the UK's prototype fusion ambitions for 2040.
- 2.12.6 The EA 2023 also introduces a new licensing framework for CO₂ and hydrogen transport and storage to help deliver the UK's first carbon capture and hydrogen production sites.
- 2.12.7 Further provision is made within the EA 2023 to support the growth of offshore wind while ensuring that compensation for any adverse environmental effects is delivered strategically as opposed to being delivered on a scheme-by-scheme basis.
- 2.12.8 The EA 2023 should therefore be seen as enabling legislation which will support the UK to deliver on technology development to achieve net zero by 2050. Further discussion on those technologies is included in **Chapter 5** of this Statement.
- 2.12.9 A forthcoming Energy Independence Act will establish the framework for the government's energy and climate policies.

2.13 Connections Action Plan

- 2.13.1 Securing a timely grid connection is a critical enabler for low carbon infrastructure to contribute towards a zero-carbon electricity system in the 2030s but grid connection availability is currently constrained.
- 2.13.2 This section explains critical aspects of the current shortage of grid connections and the challenges with managing new connections to the UK's electricity system at the pace and scale required to meet government's targets. The Connections Action Plan describes actions proposed by NESO, Ofgem and government to improve the near-term deliverability of new low carbon generation assets. Government's Clean Power 2030 Action Plan ([Ref. 3], see **Section 2.15**) builds on these proposals to provide a framework for the prioritisation of connection offers for projects which align with NESO's advice which are deliverable by 2030, and which can demonstrate that they have the means to deliver
- 2.13.3 As the government explained in their election manifesto: "The national grid has become the single biggest obstacle to the deployment of cheap, clean power generation and the electrification of industry. With grid connection dates not being offered until the late 2030s, important business and infrastructure investment is being stalled or lost overseas. Labour will work with industry to upgrade our national transmission infrastructure and rewire Britain" [Ref. 15, p55].

2.13.4 In November 2023, DESNZ and Ofgem jointly published a Connections Action Plan which states:

“Nearly half of transmission generation projects have a connection date at least five years from now, with some scheduled to wait ten years or more. This is simply too slow and remains the biggest risk to our ability to decarbonise our power system by 2035 ...

The Plan is aimed at getting a significant majority of projects connected by their requested connection date, up from 14 per cent today, and to reduce the average delay a project faces in connecting to the transmission network from five years to six months.” **[Ref. 24, p7].**

2.13.5 The Connections Action Plan includes reforms to the connections process which have been designed to enable viable projects to connect in a timely and cost-effective manner. The reforms are:

- Raising entry requirements, including evidence of landowner permission, to deter speculative connection applications
- Removing stalled projects to release capacity for more viable projects
- Better utilising existing network capacity to reduce connection timelines, and
- Allocating available network capacity to connect projects that are readier to progress and are able to quickly make use of capacity

2.13.6 The Connections Action Plan explains that the efficient utilisation of existing networks can defer or negate the need for expensive new infrastructure, which takes time to deliver **[Ref. 24, pp26&27]**, and that ensuring that existing and future capacity is allocated efficiently will allow timely connection offers, aligned with net zero objectives.

2.13.7 In relation to increasing network capacity, the Connections Action Plan describes that there are two approaches. The first is to increase network build and the second, which is described as “more efficient” and “typically lower cost”, is to “maximise the use of the currently available and planned network capacity” **[Ref. 24, pp40&41].**

2.13.8 Capacity allocation is defined in the Connections Action Plan as an approach to “maximise the benefits of available capacity such that projects that are more ready and able to connect can do so ahead of those which are stalled, while maintaining appropriate opportunities for technologies with varying lead times, in line with net zero pathways” **[Ref. 24, p44].**

2.13.9 Schemes which propose to develop technology which will support the move to net zero (such as solar and storage schemes) are therefore aligned with the government’s aims and strategy. Schemes which propose to connect to existing

and available connection infrastructure are aligned with the Connections Action Plan reforms.

- 2.13.10 Ensuring assets can connect to the electricity network where and when they need to is crucial to achieving net zero, as well as to delivering affordability for consumers and maintaining security of supply.
- 2.13.11 However, there are currently insufficient existing National Grid or distribution network substations suitably located with the capacity available to connect the new solar, onshore wind, and offshore wind assets which are required to meet the government's low-carbon aims.
- 2.13.12 New substations will need to be proposed, designed, and constructed to deliver the government's ambition and other substations will need to be expanded to connect new schemes. This programme of work will need to occur at the same time as other schemes are connected to existing substations which have available capacity.
- 2.13.13 All schemes with grid connection dates in or before 2030 are valuable to deliver the government's ambition to deliver 'Clean Power by 2030', and it is important to continue to bring forward schemes with connection dates in the 2030s in the event that 'Clean Power by 2030' is not achieved.
- 2.13.14 Any positive interventions made by the government or other statutory bodies, such as those set out in the Connections Action Plan and in the government's Clean Power 2030 Action Plan (see **Section 2.15**), provide for the possibility that earlier connection dates may be achievable for schemes which meet National Grid's queue entry and prioritisation requirements as they evolve.
- 2.13.15 The Proposed Development proposes to connect a large-scale solar plus storage asset to an existing part of the National Electricity Transmission System via an existing point of connection at Creyke Beck. The Connection Offer provides for the import and export of up to 320 MW of power, connecting in 2033. Through the design of the Proposed Development, the Applicant seeks to maximise use of the connection capacity which is to be made available to it. The Proposed Development is therefore fully aligned with the direction of travel of relevant policy and action plans in support of achieving the government's ambition of delivering 'Clean Power by 2030'.

2.14 Advice on decarbonising the power sector by 2030

- 2.14.1 In November 2024, following a request from government, NESO provided their input into the development of the government's plan for 'Clean Power by 2030' by publishing their Clean Power 2030 report **[Ref. 25]** in November 2024.

- 2.14.2 Clean power supports decarbonisation by offering consumers electricity with no carbon emissions for their current demand and also for the future electrification of heating and transportation. This is needed to further displace imports of gas and oil, reducing overall reliance on imported energy in the British energy system and increasing protection for GB consumers from volatile international energy markets. **[Ref. 25, p80]**.
- 2.14.3 NESO state that ‘Clean Power by 2030’ is the foundation for wider electrification and for achieving net zero **[Ref. 25, p68]**. Clean power is needed by 2030 and in preparation for the 2030s, to “ensure the [electricity] system is able to keep pace with accelerated electrification through the 2030s, which is expected to add approximately 19 TWh per year to demand” **[Ref. 25, p67]**.
- 2.14.4 NESO state that: “With a short and shrinking window of time, pace must be the primary goal” **[Ref. 25, p6]**, that “There is no path to clean power without mass deployment of offshore wind, together with onshore wind and solar,” and that “Accelerating build rates now for renewables is crucial to enabling the continued growth of demand due to electrification” **[Ref. 25, p68]**.
- 2.14.5 NESO’s pathways “see a doubling of onshore wind capacity from 14 GW in 2023 to 27 GW by 2030 and a trebling of solar from 15 GW to 47 GW by 2030” **[Ref. 25, p16]**. Further, “Flexibility is vital in a system with more variable renewables.” **[Ref. 25, p7]** and NESO pathways include “an increase in grid connected battery storage from 5 GW to over 22 GW” **[Ref. 25, p8]**.
- 2.14.6 NESO’s analysis demonstrates that to achieve ‘Clean Power by 2030’, “offshore wind, onshore wind, solar, batteries [and other key supply technologies] will all need to deploy more on average each year to 2030 than they have ever done in a single year before. This will inevitably stretch supply chains and require accelerated decision making in planning, permitting and awarding of contracts” **[Ref. 25, p9]**.
- 2.14.7 Therefore, and in alignment with the view set out in NPS EN-1 **[Ref. 1, Para 3.3.10]**, NESO conclude that “to manage delivery risk, there is a high value in pursuing multiple options where they exist and encouraging competition between, not just within, different technologies,” **[Ref. 25, p7]** recommending aiming high on the deployment of critical technologies in any pathway to ‘Clean Power by 2030’ to reduce the risk of under delivery as a whole and also to reduce reliance on any single project **[Ref. 25, p49]**.
- 2.14.8 A key enabler of achieving ‘Clean Power by 2030’, is a “connections queue ... formed of ready-to-connect projects that align with the Government’s plan for clean power by 2030” **[Ref. 25, p10]**. Such a queue would help NESO speed up the “critical and challenging” delivery of essential strategic transmission infrastructure needed to achieve ‘Clean Power by 2030’ **[Ref. 25, p34]**.

2.14.9 NESO observe that:

“The connections queue currently comprises a greater volume of projects than required for 2030 across our pathways. However: a) not all of those projects may be ‘ready’ or committed to progressing; and b) there may be projects with connection dates after 2030 that could usefully contribute to the 2030 system, for example with lower delivery barriers or lower costs” **[Ref. 25, p61]**.

2.15 Clean Power 2030 Action Plan

2.15.1 Government published their Clean Power 2030 Action Plan in December 2024. The plan states that delivering Clean Power 2030:

“Paves the way to decarbonising the wider economy by 2050 as we pursue the electrification of heat in buildings, transport, and industry. By 2050, annual electricity demand is likely to at least double. Clean power by 2030 prepares us for the rapid growth in power demand expected over the 2030s and 40s” **[Ref. 3, p11]**.

2.15.2 Further, the plan reiterates the energy security and affordability benefits of pursuing a low-carbon future:

“In an era of heightened geopolitical risk, switching fossil fuelled generation for homegrown clean energy from renewables and other clean technologies offers us security that fossil fuels simply cannot provide.

It is crucial we complement renewables with flexible capacity to ensure we can deliver clean power no matter the weather” **[Ref. 3, p21]**.

2.15.3 However, government also states that “to get this right we need to act – and act quickly – because 6 years is a short time in building energy infrastructure” **[Ref. 3, p18]**.

2.15.4 Government’s definition of Clean Power 2030 is that:

- Clean sources produce at least as much power as Great Britain consumes in total (2023: 56%, **[Ref. 3, p26]**), and
- Clean sources produce at least 95% of Great Britain’s generation (2023: 60%, **[Ref. 3, p26]**)

2.15.5 However, government “will aim to deliver above this ambition where the system and consumer benefits align so that potential challenges in some areas of clean power delivery can be compensated by deployment elsewhere” **[Ref. 3, p25]**.

- 2.15.6 To deliver above this ambition, government “accepts the NESO advice on the infrastructure required for 2030 – decisions are required now to ensure the grid needed for the system in 2030 can be put in place” **[Ref. 3, p31]** and recognises that the grid connections process needs reform and the queue to connect must be reduced to “prioritise projects needed for 2030, while maintain[ing] a robust pipeline [of projects] beyond 2030” **[Ref. 3, p11]**.
- 2.15.7 **Table 3-1** sets out government’s ‘Clean Power Capacity Range’ compared to its view of installed capacity (GW) in December 2024 for major generation technologies.
- 2.15.8 The Capacity Range provides a framework for the prioritisation of offers for projects which:
- Align with NESO’s advice on connections which are deliverable by 2030, and
 - Can demonstrate that they have the means to deliver

Table 3-1: DESNZ ‘Clean Power Capacity Range’ and current capacity (GW)

[Ref. 3, Table 1 & Connections Reform Annex, Table 1]

Technology	Current Installed Capacity (*)	DESNZ 2030 ‘Clean Power Capacity Range’	2035 FES-derived Capacity Range
Offshore Wind	15	43 – 50	72 – 89
Onshore Wind	14	27 – 29	35 – 37
Solar	17	45 – 47	45 – 69
Nuclear	6	3 – 4	4 – 6
Low Carbon Dispatchable Power	4	2 – 7	Up to 25
Unabated Gas	36	35	NA
Batteries	5	23 – 27	24 – 29
Other flexible assets	15	26 – 32	51 – 63

(*) Government’s view of the publicly available data for Great Britain at the point of publication of Clean Power 2030 Action Plan

2.15.9 Importantly, government states that NESO’s engagement with Distribution Network Operators indicates that an additional 9 to 10GW of rooftop solar projects could deploy before 2030. It is therefore possible that the 2030 Clean Power solar capacity range of 45 to 47GW could yield around 54 to 57GW of installed capacity by 2030, subject to solar PV pipeline of rooftop solar projects **[Ref. 3, Connections Reform Annex, Table 1, Footnote 10]**.

2.15.10 Therefore, government has:

“set out national pathway figures for the capacity which should be prioritised for all technologies, and further regional breakdowns for the capacity which should be prioritised for solar, batteries and onshore wind.

These FES-derived ranges do not constitute a government pathway, but rather an established, public basis through which to provide longer-term certainty on connections” **[Ref. 3, Connections Reform Annex, p5]**.

2.15.11 Critically, the Clean Power 2030 Action Plan does not seek to limit, constrain or cap the capacity of low carbon generation assets which will be delivered over the coming years. Indeed, quite the opposite is true, and the Clean Power 2030 Action Plan seeks to de-clutter the front end of the connection queue to ensure that a sufficient capacity of low carbon generation assets are able to connect in suitable timeframes.

2.15.12 This is important because connection queues experience attrition. Therefore, to ensure that a sufficient capacity of low carbon generation assets is delivered requires a greater capacity of low carbon generation assets to come forwards in development pipelines (**Section 5.3** of this statement provides more information on pipeline attrition in the UK).

- 2.15.13 Further, to ensure that the energy transition delivers value for money for consumers, competition must be enabled in commercial aspects of project delivery and contracting, for example through the Contracts for Difference mechanism (CfD), see **Section 5.3**. Competition at contract award also requires a greater capacity of low carbon projects to progress through planning than are required to deliver government's targets.
- 2.15.14 Indeed, "Whilst the 'Clean Power Capacity Range' provides a foundation to guide rapid policy development and focus delivery, the scenarios developed now cannot be exhaustive or definitive, and it is only right that some optionality is retained" **[Ref. 3, p31]**.
- 2.15.15 These factors combine to lead to the conclusion that government is "expecting an increase in planning applications with the Clean Power 2030 target" **[Ref. 3, p55]**, and indeed planning applications will need to continue to be made if the Clean Power 2030 target is to be met.

2.16 Conclusions on decarbonisation policy context

- 2.16.1 Urgent and unprecedented action is needed on an international scale to meet the commitments established through the Paris Agreement to decarbonise society and stop global warming.
- 2.16.2 The UK has legally binding targets to decarbonise. The UK is developing new policies, and is enhancing existing policies to ensure that those targets are met in a secure and affordable fashion.
- 2.16.3 However, policies are not yet sufficient to deliver to those national commitments, and delivery against those UK policies is further behind.
- 2.16.4 Without a rapid increase in the supply of low-carbon electricity, the urgent requirement to decarbonise other sectors (as will be required to meet future Carbon Budgets) is unlikely to be achieved.
- 2.16.5 Solar generation is increasing in both scale and importance within emerging government policy. Not only for the benefits it delivers to decarbonisation, but also because of the need for secure and affordable energy supplies.
- 2.16.6 The government's ambition is for 45 to 47GW of solar capacity to be prioritised for connection by 2030 and 45 to 69GW prioritised for connection by 2035, alongside ambitious onshore and offshore wind growth targets.

- 2.16.7 To deliver the government's ambition, the equivalent of approximately one large-scale solar scheme would need to be switched on each and every month between the end of 2024 and 2030.
- 2.16.8 Schemes such as the Proposed Development which are more ready to build and which make use of existing grid infrastructure are valuable to deliver the government's ambition to deliver 'Clean Power by 2030'. It is important to continue to bring forward such schemes to meet future growth in electricity demand and also in the event that 'Clean Power by 2030' is not achieved.
- 2.16.9 The Proposed Development will, if consented, make an important and significant contribution towards achieving the government's legally binding net zero target by 2050.

3 National Policy Statements

3.1 Planning policy for Nationally Significant Infrastructure Projects

- 3.1.1 The legal requirement to achieve net zero underpins the urgent need for the delivery of large capacities of consentable and affordable electricity generation schemes which make best use of GB's natural low-carbon energy resources and available grid connection points.
- 3.1.2 The NPSs were established against obligations made as part of the Climate Change Act 2008 (CCA2008) and were first designated in June 2011. Following a period of revision and consultation, a revised suite of NPSs were designated by the previous government on 17 January 2024.
- 3.1.3 The overarching National Policy Statement for Energy (NPS) EN-1 **[Ref. 1]** sets out national policy for energy infrastructure in England and Wales. It has effect, in combination with NPS EN-3 (for renewable energy infrastructure) **[Ref. 2]** and NPS EN-5 (for electricity networks) **[Ref. 25]**, on recommendations made by the appointed Examining Authority (ExA) to the relevant Secretary of State (at the time of submission, the Secretary of State for Energy Security and Net Zero) on applications for energy developments that fall within the scope of the NPSs **[Ref. 1, Paras 1.1.1, 1.1.2]**.
- 3.1.4 NPS EN-1 states that the Secretary of State should assess all applications for development consent for the types of infrastructure included by the NPS (including solar) on the basis that there is a demonstrated urgent need for them, that substantial weight should be given to this need, and that the Secretary of State is not required to consider the specific contribution of any individual project to be satisfied that need is established **[Ref. 1, Paras 3.2.6 – 3.2.8]**.
- 3.1.5 The NPSs include the then government's conclusion that there is a CNP for the provision of nationally significant low-carbon infrastructure, which includes large-scale solar farms, because a combination of many or all types of such infrastructure is urgently required for both energy security and Net Zero.
- 3.1.6 NPS EN-1, when combined with the relevant technology-specific energy NPS, provides the primary basis for decisions by the Secretary of State for developments that fall within the scope of the NPSs. NPS EN-1 is clear that the overarching need case and the substantial weight to be given to the need, is the starting point for the assessment of all applications for energy infrastructure types which are covered by the NPSs **[Ref. 1, Para 4.2.6]**.

- 3.1.7 NPS EN-3 covers those technologies which, at the time of publication, were technically viable at generation capacities of over 50 MW onshore and 100 MW offshore. Critically, this includes solar generation, and as such the need for this technology is fully covered and established by the NPSs.
- 3.1.8 By virtue of intended generating capacity of the Proposed Development, the NPSs 'have effect' in relation to the Proposed Development and are the primary basis on which decisions must be taken.
- 3.1.9 This Statement of Need for the development of large-scale solar generation reflects the national policy position, that there is a demonstrated urgent need and a CNP for nationally significant low-carbon infrastructure, including solar generation, and that solar is a key part of the national strategy for low-cost decarbonisation of the energy sector. It builds upon the policy position established in the NPSs to further demonstrate why the Proposed Development is urgently needed at the scale proposed; why the proposed location is highly suitable for such a scheme, and how the Proposed Development also addresses all relevant aspects of established and emerging government energy and climate change policy and commitments.
- 3.1.10 Section 104 of the Planning Act 2008 (PA 2008) makes clear that where an NPS exists relating to the type of development applied for, the Secretary of State must have regard to it as a relevant NPS, and must decide the application in accordance with that NPS. The NPSs provide specific policy in relation to solar development, and the policies set out in NPS EN-1, 3, and 5 therefore apply as 'relevant' NPSs under s104.
- 3.1.11 The urgent national need for energy generating stations set out in the NPSs is of great significance to the determination of the Proposed Development. The NPSs establish that:
- “Subject to any legal requirements, the urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy” **[Ref. 1, Para 3.3.63]**.
- 3.1.12 There is a presumption under the NPSs that the urgent need for CNP infrastructure will outweigh any residual effects in all but the most exceptional cases. This presumption does not apply to residual impacts which present an unacceptable risk to, or interference with, human health and public safety, defence, irreplaceable habitats, or unacceptable risk to the achievement of net zero. Where no such residual impacts exist, the presumption weighs in favour of the need for CNP infrastructure.

- 3.1.13 Policies within NPSs EN-1, EN-3, and EN-5 are relevant to the Proposed Development and those in accordance with which this Application must be decided are set out in **Section 3.2** to **Section 3.4** of this Statement.
- 3.1.14 The urgency of the need for nationally significant low carbon infrastructure established in the NPSs requires actions to be taken in the near-term for that need to be met and therefore the urgent need for the Proposed Development is demonstrated by the urgent need for new energy infrastructure as set out in NPS EN-1. **[Ref. 1, Para 3.3.63]**.
- 3.1.15 The government's action to consent four large-scale transmission connected ground mount solar schemes in their first months of office, makes it clear that large-scale solar has a role to play in their view of a secure and low-carbon energy future.
- 3.1.16 The urgent national need for energy generating stations means that substantial weight should be attributed to the Proposed Development's ability to contribute to meeting that need, in line with NPS EN-1 **[Ref. 1, Para 3.2.7]**.

3.2 A synthesis of National Policy Statement EN-1

- 3.2.1 The fundamental need for the large-scale infrastructure, which NPS EN-1 considers, recognises the UK's legal commitment to decarbonise to net zero by 2050 and so contribute to holding the increase in global average temperature due to climate change, to well below 2 degrees above pre-industrial levels. The NPS states that:

“Using electrification to reduce emissions in large parts of transport, heating and industry could lead to more than half of final energy demand being met by electricity in 2050, up from 17 per cent in 2019, representing a doubling in demand for electricity. Low carbon hydrogen is also likely to play an increasingly significant role” **[Ref. 1, Para 2.3.7]**.

- 3.2.2 The national policy direction established by the previous government is to develop an integrated energy system which relies on low-carbon electricity generation for a significant proportion of its supply. The government's election manifesto supports the continuation of this policy direction albeit with greater speed. As a consequence:

“Demand for electricity is likely to increase significantly over the coming years and could more than double by 2050 as large parts of transport, heating and industry decarbonise by switching from fossil fuels to low carbon electricity. The Impact Assessment for CB6 shows an illustrative range of 465-515TWh in 2035 and 610-800TWh in 2050” **[Ref. 1, Para 3.3.3]**.

- 3.2.3 The stated policy objectives for the energy system are “to ensure our supply of energy always remains secure, reliable, affordable, and consistent with meeting our target to cut GHG emissions to net zero by 2050” **[Ref. 1, Para 2.3.3]**.
- 3.2.4 Meeting this objective will require a step change in the decarbonisation of our energy system, in particular to deliver a dramatic increase in the volume of energy supplied from low carbon sources **[Ref. 1, Para 2.3.5]**.
- 3.2.5 The security, reliability, and affordability of energy supplies is also of critical importance because of the role energy plays in delivering economic prosperity and social well-being **[Ref. 1, Para 2.5.1]**.
- 3.2.6 Accelerating deployment of renewables, nuclear, hydrogen, CCUS, and network infrastructure will help address the UK’s current vulnerability to international energy prices through the supply of clean, secure, and affordable UK-sourced power on a route to achieving net zero **[Ref. 1, Para 2.5.6]**.
- 3.2.7 There is a need for significant amounts of new large-scale infrastructure to meet national energy objectives and the NPS establishes that the need for such infrastructure is urgent **[Ref. 1, Para 3.1.1]**.
- 3.2.8 There must always be sufficient electricity to meet demand, with margin to accommodate unexpectedly high demand, unexpected plant closures, or extreme weather events and NPS EN-1 explains that the larger the margin, the more resilient the system will be with dealing with those types of events **[Ref. 1, Para 3.3.1 & 3.3.2]**.
- 3.2.9 No single type of electricity infrastructure will be able to meet any UK government’s objectives in isolation, so new generators of varied technology, assets that provide flexibility, and new networks will all be needed **[Ref. 1, Para 3.3.4]**. However, the previous government concluded from its analysis that “a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar” **[Ref. 1, Para 3.3.20]**. The government’s election manifesto also calls for significant increases in deployed capacities of wind and solar **[Ref. 15, p51]**.
- 3.2.10 The NPS states that decentralised and community energy systems, which by definition would include rooftop solar installations, could lead to some reduction in demand on the main transmission system, but “the government does not believe they will replace the need for new large-scale electricity infrastructure to meet our energy objectives.” NPS EN-1 goes on to explain that the connection of large-scale generation facilities via high voltage transmission systems enables the pooling of generation and demand and enables the efficient bulk transfer of power between areas with surplus and areas in deficit **[Ref. 1, Para 3.3.12]**.

- 3.2.11 The government's election manifesto sets out that Great British Energy "will deploy local energy production to benefit communities across the country" and that "Local power generation is an essential part of the energy mix and reduces pressures on the transmission grid" **[Ref. 15, pp53-54]**.
- 3.2.12 The government's election manifesto also sets out their ambition to "upgrade our national transmission infrastructure and rewire Britain" **[Ref. 15, p55]**. Alongside this pledge, the consent of four large-scale ground mount solar schemes in the first month of their term in office, has confirmed that new large-scale solar assets are also a part of their plan to deliver 'Clean Power by 2030'.
- 3.2.13 NPS EN-1 also states that "it is prudent to plan on a conservative basis to ensure that there is sufficient supply of electricity to meet demand across a wide range of future scenarios" **[Ref. 1, Para 3.3.10]**.
- 3.2.14 To hit the target of UK commitments to decarbonise the power sector by 2035 **[Ref. 27]**, the NPSs conclude that it is necessary to bring forward new renewable electricity generating projects as soon as possible. The need for new renewable electricity generation projects is therefore urgent.
- 3.2.15 To achieve the government's ambition of delivering 'Clean Power by 2030', the need for new renewable generation projects becomes more urgent still.
- 3.2.16 The NPS establishes that substantial weight should be given to this need when considering applications for development consent under the PA 2008, and the Secretary of State is not required to consider separately the specific contribution of any individual project to satisfying the need established in the NPS **[Ref. 1, Paras 3.2.7 & 3.2.8]**.
- 3.2.17 NPS EN-1 explains that large capacities of low-carbon generation will be required to:
- Ensure that there is sufficient electricity to meet increased demand
 - Replace output from retiring plants
 - Ensure there is sufficient margin in our supply to accommodate unexpectedly high demand
 - Mitigate risks such as unexpected plant closures and extreme weather events **[Ref. 1, Section 3.3]**
- 3.2.18 The NPSs conclude that national energy security and net zero ambitions will only be delivered through the development of new low carbon sources of energy at speed and scale **[Ref. 1, Para 4.2.2]** and therefore that there is a CNP for the provision of nationally significant low carbon infrastructure **[Ref. 1, Para 4.2.4]**. Low carbon electricity generation infrastructure is described as "all onshore and offshore generation that does not involve fossil fuel combustion" **[Ref. 1, Para**

4.2.5] and as such large-scale solar generation is classified as CNP infrastructure under NPS EN-1.

3.2.19 The NPS sets the expectation that “For projects which qualify as CNP Infrastructure, it is likely that the need case will outweigh the residual effects in all but the most exceptional cases” **[Ref. 1, Para 4.1.7]**.

3.2.20 The Proposed Development meets the definition of CNP Infrastructure because it is for the development of greater than 50 MW capacity of a low carbon source of energy. The Proposed Development is also of a greater capacity than the proposed 100 MW capacity threshold for solar projects into the NSIP regime proposed by government in its Clean Power 2030 Action Plan **[Ref. 3, p56]**. As CNP infrastructure, the urgent need for the Proposed Development to achieving the UK’s energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy **[Ref. 1, Para 3.3.63]**.

3.2.21 In noting the crucial national benefits of increased system robustness through new electricity network infrastructure projects, NPS EN-1 also recognises the particular strategic importance in the next decade of the role of solar generation in the UK’s generation mix.

“As part of delivering [a secure, reliable, affordable, net zero consistent system in 2050], government announced in the British Energy Security Strategy an ambition to deliver up to 50GW of offshore wind by 2030 ... and the requirement in the Energy White Paper for sustained growth in the capacity of onshore wind and solar in the next decade” **[Ref. 1, Para 3.3.21]**.

3.2.22 The siting of new solar capacity is therefore important and the location of points of connection to existing networks to enable that capacity to come forwards, are an important consideration.

3.2.23 In relation to integration technologies, NPS EN-1 states that:

“New generating plants can deliver a low carbon and reliable system, but we need the increased flexibility provided by new storage and interconnectors (as well as demand side response ...) to reduce costs in support of an affordable supply.

Storage and interconnection can provide flexibility, meaning that less of the output of plant is wasted as it can either be stored or exported when there is excess production.” **[Ref. 1, Paras 3.3.5 & 3.3.6]**.

- 3.2.24 NPS EN-1 goes on to explain that storage is needed to reduce the costs of the electricity system and increase reliability by storing surplus electricity in times of over-supply, to provide electricity when demand is higher. **Section 6.9** of this Statement explains that storage can achieve the benefits set out in the NPS from stand-alone facilities or facilities co-located with renewable generation facilities.
- 3.2.25 The local and national benefits which storage assets can provide are also referenced in NPS EN-1 **[Ref. 1, Para 3.3.6]**, being:
- Maximising the usable output from intermittent low carbon generation
 - Reducing the total amount of generating capacity required to meet peak demand
 - Reducing the need for new network infrastructure
 - Providing a range of balancing services to help operate the electricity system
 - Reducing constraints on the electricity network
- 3.2.26 The role of 'low-carbon hydrogen' is also signalled as likely growing in significance in the UK's future energy system, and therefore supports the need for infrastructure which can generate low-carbon electricity to produce low-carbon hydrogen **[Ref. 1, Paras 2.3.5 - 2.3.7]**.

3.3 A synthesis of National Policy Statement EN-3

- 3.3.1 NPS EN-3 **[Ref. 2]** covers nationally significant renewable energy infrastructure which includes solar photovoltaic (PV) at more than 50 MW in England and more than 350 MW in Wales **[Ref. 2 Para 1.6.1]**.
- 3.3.2 NPS EN-3 bolsters the support for solar development in the UK that was previously provided in the draft 2021 versions, now stating that it has "committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions. As such solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector" **[Ref. 2, Para 2.10.9]**.
- 3.3.3 The statement goes on to re-iterate the contribution that solar generation is expected to make to achieving net zero targets and the energy security goals set out in the British Energy Security Strategy, of "a five-fold increase in combined ground and rooftop solar deployment by 2035 (up to 70GW)" **[Ref. 2, Para 2.10.10]**.
- 3.3.4 The government has set out its ambition to triple solar capacity by 2030, implying the need for a higher rate of deployment than required to meet the previous government's goals.

- 3.3.5 Because “Solar farms are one of the most established renewable electricity technologies in the UK and the cheapest form of electricity generation.” **[Ref. 2, Para 2.10.13]**, solar is also expected to bring forwards affordability benefits for consumers.

“Solar farms can be built quickly and, coupled with consistent reductions in the cost of materials and improvements in the efficiency of panels, large-scale solar is now viable in some cases to deploy subsidy-free.” **[Ref. 2, Para 2.10.14]**.

- 3.3.6 NPS EN-3, states that:

“Government is supportive of solar that is co-located with other functions (for example, agriculture, onshore wind generation, or storage) to maximise the efficiency of land use”. **[Ref. 2, Para 2.10.10]**.

- 3.3.7 Grid connection, and in particular the likely proximity of schemes to suitable connection points on the transmission network, is also addressed:

“The connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal.”

“To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs applicants may choose a site based on nearby available grid export capacity.” **[Ref. 2, Paras 2.10.24 & 25]**.

- 3.3.8 NPS EN-3 also lists irradiance and site topography as key inputs to site selection **[Ref. 2, Paras 2.10.19 & 20]**.

- 3.3.9 NPS EN-3 suggests anticipated levels of land efficiency for solar generation, recognising both the land take which schemes such as this one requires, but also that evolution in the technology is anticipated and this may bring about efficiency benefits through the life of the Proposed Development:

“Along with associated infrastructure, a solar farm requires between 2 to 4 acres for each MW of output. A typical 50 MW solar farm will consist of around 100,000 to 150,000 panels and cover between 125 to 200 acres. However, this will vary significantly depending on the site, with some being larger and some being smaller. This is also expected to change over time as the technology continues to evolve to become more efficient.” **[Ref. 2, Para 2.10.17]**.

- 3.3.10 The degradation of solar efficiency over time is addressed in NPS EN-3 **[Ref. 2, Para 2.10.55]**, suggesting that developers may need to account for the light-induced degradation effects on solar panels by overplanting solar panel arrays.
- 3.3.11 The design life of solar panels should also be considered “when determining the period for which consent is required. An upper limit of 40 years is typical, although applicants may seek consent without a time-period or for differing time-periods of operation.” **[Ref. 2, Para 2.10.65]**.

3.4 A synthesis of National Policy Statement EN-5

- 3.4.1 NPS EN-5 covers new, non-exempt above ground electricity lines over 2km in length whose nominal voltage is expected to be 132kV or above and other kind of electricity infrastructure in England which is constituted as associated development for which consent is sought along with an NSIP **[Ref. 25, Para 1.6.2]**.
- 3.4.2 NPS EN-5 explains that “significant amounts of new electricity networks infrastructure is required” **[Ref. 25, Para 2.2.3]**, something with which the government agrees **[Ref. 15, p55]**.
- 3.4.3 NPS EN-5 acknowledges that the siting of new electricity transmission infrastructure is determined by “the location of new generating stations or other infrastructure requiring connection to the network, and/or system capacity and resilience requirements determined by the Electricity System Operator” **[Ref. 25, Para 2.2.2]**.
- 3.4.4 If the UK’s Centralised Strategic Network Planning process (currently under development by NESO with an aim to consult on a draft methodology in Q2 2025) identifies strategic investments intended to facilitate achieving net zero and decarbonisation targets, “the Secretary of State should have regard to the need case for new electricity networks infrastructure set out in Section 3.3 of NPS EN-1” **[Ref. 25, Paras 2.8.2 & 2.8.3]**.
- 3.4.5 The Proposed Development proposes to connect to an existing substation, to which other low-carbon generation schemes are also proposing to connect. That substation will connect to an existing part of the national grid with available transmission capacity, bringing the potential for large quantities of low-carbon energy to be transmitted to the National Electricity Transmission System and on to consumers nationally. This is a benefit of the Proposed Development within the context of the significant need for new electricity networks infrastructure.

3.5 Conclusions on national policy

- 3.5.1 As set out in **Paragraph 3.1.10** of this Statement, Section 104 of the PA 2008 makes clear that where an NPS (e.g. NPSs EN-1, EN-3 and EN-5) exists relating to the type of development applied for (e.g. the Scheme), the Secretary of State must have regard to it as a relevant NPS, and must decide the application in accordance with that NPS.
- 3.5.2 Solar generation is expected to make an important contribution to the UK's renewable energy generating capacity towards 2050.
- 3.5.3 The NPSs demonstrate that:
- The need for solar technology (as a renewable source) in GB is urgent and significant and has increased, with nationally significant solar technology now defined as CNP infrastructure
 - Large-scale solar is technically and economically feasible
 - Large-scale solar can and will bring benefits for the UK
 - Flexibility is also needed
- 3.5.4 Integration technologies which provide flexibility will play an essential role in full decarbonisation of the whole GB energy system, by enhancing the benefits brought by low-carbon generation. NPS EN-1 supports the need for integration technologies, and BESS is a suitable and beneficial integration technology.
- 3.5.5 These factors manifest in the material contribution brought by solar and storage schemes to the UK's legal decarbonisation targets, the enhancement of security of supply; and managing the affordability of electricity for GB consumers.
- 3.5.6 NPS EN-3 provides that grid connection, irradiance and site topography are key inputs to the selection of sites suitable for large-scale solar generation developments.
- 3.5.7 Therefore, the number of locations at which large-scale solar generation is suitable is likely to be limited, and the number of locations at which co-located large-scale solar plus storage generation is suitable is likely to be limited even further.
- 3.5.8 This is a material issue when considering how the UK is to meet the urgent need for low-carbon generation as is established in the current NPSs.

4 Electricity demand must grow to deliver net zero

4.1 Chapter summary

- 4.1.1 This chapter provides information to support and quantify the policy position that future electricity demand will need to grow to a very significant degree in order to achieve net zero. As set out in NPS EN-1:

“[Government] analysis suggests that even with major improvements in overall energy efficiency, and increased flexibility in the energy system, demand for electricity is likely to increase significantly over the coming years and could more than double by 2050 as large parts of transport, heating and industry decarbonise by switching from fossil fuels to low carbon electricity” **[Ref. 1, Para 3.3.3]**.

- 4.1.2 Energy final consumption in the UK in 2023 was 1,506TWh, with 18% (269TWh) in the form of electricity **[Ref. 28, Table 1.1au]**. Electricity demand is expected to grow significantly in the future as carbon-intensive sources of energy are displaced by electrification of other industry sectors, or production of non-carbon energy vectors, such as hydrogen, by use of electricity. Energy efficiency measures may mean that total UK energy consumption decreases in the future, but an increasing share of that consumption will come from electricity generated by low-carbon sources.
- 4.1.3 The annual National Grid ESO (NGESO) Future Energy Scenarios (FES) documents provide important and relevant information on these points. The FES are discussed in more detail in the following sections.
- 4.1.4 On 1 October 2024, NGESO became the NESO. This Statement references reports and data published before the organisation’s name change and therefore refers to the organisation as either NGESO or NESO, depending on context.

4.2 Introducing the FES

- 4.2.1 NGESO’s FES **[Ref. 29]** are annual publications which explore strategic, credible choices to propel GB on the route to decarbonisation.
- 4.2.2 The FES are an important point of view, which contributes to an objective assessment of the need for, and scale of, how much energy GB might need and where it could come from, to build a picture of the ways in which net zero could be reached.

- 4.2.3 The 2024 FES includes pathways which outline a narrower range of outcomes than the scenarios included in previous FES publications, to help “drive forward Great Britain’s strategic investment needs and to support the rapid and fundamental change that is required,” **[Ref. 29(2024), p6]**.
- 4.2.4 Three of the 2024 FES pathways meet net zero in 2050. A counterfactual that does not meet net zero is presented alongside the pathways that do.
- 4.2.5 NGESO recommend that direct comparisons should not be made between previous year’s scenarios and the 2024 pathways due to the change in framework. In particular:
- NGESO have included economic modelling where previously their scenarios were cost agnostic. The FES therefore now assesses all three national policy aims of decarbonisation, security of supply and affordability
 - Efficiency of location and network infrastructure is also considered through the impact of network constraints in the analysis
- 4.2.6 The net zero commitment underpins the urgency for new low carbon generation infrastructure to be built and commissioned, and government support for such developments is critical.
- 4.2.7 The key observation is that in all lower-carbon futures, the electricity sector will not operate in isolation from other energy sectors. Rapid decarbonisation is required across all areas of demand – including residential, transport, industrial, and commercial. Deep electrification of all those areas is required in order to meet net zero, and until widespread electrification is achieved, the need for urgent electrification will increase year-on-year.
- 4.2.8 The 2023 FES includes an Energy Background Document in which it is stated that:
- “A range of technologies with different characteristics can, in combination, help deliver secure, affordable low carbon electricity supplies and harness the potential of domestic renewable resources. More electricity from wind and solar is vital to help UK meet its target for net zero by 2050” **[Ref. 30, p15]**.
- 4.2.9 The Energy Background Document also provides an example of how strategic coordination and whole system thinking can deliver a secure and affordable energy system built largely on renewables and hydrogen, although in reality, the need for low carbon electricity generation capacity is, based on currently known and deliverable technologies, independent of the scale of adoption of hydrogen in the UK.

“Producing hydrogen via electrolysis can create additional demand when needed to avoid curtailing wind and solar generation and this hydrogen can then be used to generate power at times of peak demand or low renewable output” [Ref. 30, p18].

- 4.2.10 Consumer engagement in demand side flexibility and demand reduction measures across the pathways is a key component of what makes the pathways differ from each other. All net zero pathways follow the ZEV mandate for car sales while different take-up rates for hydrogen use in home heating drives differences between the scenarios.
- 4.2.11 From their look-back at previous years, NGESO has found that “a high usage of renewables is enabling the carbon intensity of electricity generation to continue to fall,” [Ref. 29(2024), p15]. NGESO also conclude from their analysis that “Solar power generation remains one of the lowest cost options to meet our energy needs and, if efficiently integrated, can minimise the total system cost.” [Ref. 29(2024), p115].
- 4.2.12 **Chapter 9** of this Statement provides additional evidence that, based on current economics, solar generation is likely to be one of the cheapest sources of electricity in both the 2020s and 2050 energy mix. A diverse mix of low-carbon generation will be required to meet national decarbonisation targets.
- 4.2.13 The pathways analysis was completed prior to 2024’s general election, but the government’s ambitions to deliver ‘Clean Power by 2030’ are at least as ambitious as the previous government’s ambitions over the next important years. The 2024 FES therefore remains relevant and useful to support the need for the Proposed Development. Indeed, both NESO and the government have based the capacity ranges for prioritisation by 2035 on FES projections in their Clean Power 2030 publication [Ref. 25] and the Clean Power 2030 Action Plan [Ref. 3].

4.3 Trends in UK electricity demand

- 4.3.1 In the 1990s and early 2000s, GB electricity demand grew only slowly, but from 2005 electricity demand has fallen year-on-year due to:
- A decline in economic growth rate (particularly with the recession of 2009)
 - A reduction in the level of electricity intensity as the economy has shifted to less energy-intensive activities
 - The introduction of energy efficiency measures such as more efficient lighting and technology development more generally [Ref. 31, p28 & Ref. 32, p48]
 - The COVID-19 pandemic (2020-2021) and cost of living crisis (2022-2023)

- 4.3.2 Today's view of future GB electricity demand is, however, one of returning growth, through:
- The switching of sources of final-use power for heating and transport from carbon-intensive sources to electricity, the generation of which can be decarbonised using technologies already available today, will put upward pressure on demand
 - The least-cost energy efficiency measures, such as introduction of low-voltage LEDs for lighting, have now been implemented across business and domestic sectors
 - Economic restructuring in GB away from manufacturing to a service-based economy has largely occurred, however the growth of new high-technology and highly skilled manufacturing, both contributing to national economic growth and prosperity, is likely to place additional pressures on the electricity sector
- 4.3.3 The FES shows that achieving net zero requires electricity demand to grow. Consequentially, low-carbon electricity supply will need to increase further to meet that demand, including the potential for increased anticipated demand for green hydrogen, which could be produced using renewable electricity to electrolyse water with zero carbon emissions.
- 4.3.4 The majority of industry projections of GB electricity demand to 2050 are for a significant increase from today's level of circa 300TWh. The amount by which forecasts increase varies according to the level of decarbonisation of non-energy sector demand, and the source of that decarbonisation. For example, hydrogen is an important energy vector which may be able to help decarbonise hard to reach sectors of transport, space heating, and heavy industry. Off-grid hydrogen production would require the generation of low-carbon power, but this would be counted outside of the transmission system demand projections for 2050 (i.e. in addition to the views included in the following list):
- The NPSs foresaw a doubling of current demand [**Ref. 1, Para 2.3.7**], i.e. to circa 600TWh
 - NGESO present a range from 533TWh for their counterfactual pathway to between 667 and 700TWh for the three net zero pathways [**Ref. 29(2024), p26**]
 - The National Infrastructure Commission forecasts 465 – 595TWh [**Ref. 33, p35**]
 - The Energy Systems Catapult forecasts 525 – 700TWh [**Ref. 14, pp23 & 27**]
 - The CCC's sixth carbon budget presents a range from 550 – 680TWh [**Ref. 34, Table 3.4.a**]

- Government's impact assessment for Carbon Budget 6 (CB6) presents a range from 610 – 800TWh [Ref. 1, Para 3.3.3 & Ref. 35, p29]
- The 2020 Energy White Paper presents a range from 575 – 665TWh [Ref. 16, p42]
- Mission Zero suggests that “electricity demand by 2050 could be roughly double today's level of total electricity demand” [Ref. 20, Paras 287 & 299]
- The Connections Action Plan projects electricity demand of between 570-770 TWh by 2050 depending on how net zero is met [Ref. 24, pp68-70]
- Government's Clean Power 2030 Action Plan expects that “By 2050, annual electricity demand is likely to at least double” [Ref. 3, p11]

- 4.3.5 The increasing level of future demand is relevant to the need for low carbon generation capacity because sufficient capacity must be developed to meet that demand. Further, as indicated in Mission Zero and borne out historically by industry data, in the future, demand on winter days “could be double that of milder days” [Ref. 20, Para 299]. Therefore, timing demand to periods of high supply, or with supply, will be important, as will building sufficient generation capacity to meet demand under a variety of weather conditions. NPS EN-1 states that “it is prudent to plan on a conservative basis to ensure that there is sufficient supply of electricity to meet demand across a wide range of future scenarios” [Ref. 1, Para 3.3.10].
- 4.3.6 **Figure 5-1** shows how NGESO's forecasts for electricity demand in Great Britain developed from 2019 (prior to the UK's 2019 commitment to net zero), through 2023 to 2024. Each annual forecast is represented as a shaded area ranging from the lowest forecast demand scenario to the highest scenario per delivery year, for those scenarios which met the 2050 climate targets of the time.
- 4.3.7 Without the drive to electrify traditionally non-electric sectors such as heat and transport, GB electricity demand reduced year-on-year.
- 4.3.8 Current forecasts for future GB electricity demand have increased significantly. Increased electrification of transport, heat, and industrial demand is essential for the achievement of net zero and is a key driver for the increase in future electricity demand.
- 4.3.9 The range of demand provided by recent sources shows a shallow increase in forecast GB electricity demand over the coming five years as the aforementioned policies start to take hold. The forecasts then ramp up significantly around the end of the 2020s and thereafter. For the avoidance of doubt, the UK electricity demand forecasts shown include the use of electricity in the production of hydrogen.

- 4.3.10 2024 FES system demand forecasts include electricity vehicle (EV) electricity demand which follows the ZEV mandate, removing some uncertainty from previous forecasts, but the use of hydrogen across multiple sectors is included only in later years because progress in developing hydrogen production in the UK has been slower than planned.
- 4.3.11 Since the UK made its 2019 commitment to net zero, forecast GB electricity demand in 2050 has converged towards a range from 650 – 700TWh. Achieving net zero in the UK will require a significant increase in electricity demand in all scenarios.
- 4.3.12 It is implicit that the trajectories shown in **Figure 5-1** can only be met (and therefore net zero achieved) if there is sufficient operational low-carbon electricity generation capacity to generate the low-carbon energy demanded by consumers.
- 4.3.13 In 2023, 285TWh of consumer demand was met by 166TWh of low-carbon generation and 119TWh of carbon intensive generation. Consumer demand across the three net zero FES pathways in 2030 averages 330TWh. Therefore low-carbon generation will need to increase by approximately 164TWh between 2024 and 2029 to deliver ‘Clean Power by 2030’.
- 4.3.14 Consumer demand across the three net zero FES pathways in 2040 averages 530TWh. Therefore low-carbon generation will need to increase by approximately a further 200TWh between 2030 and 2039 to keep power clean through the 2030s.

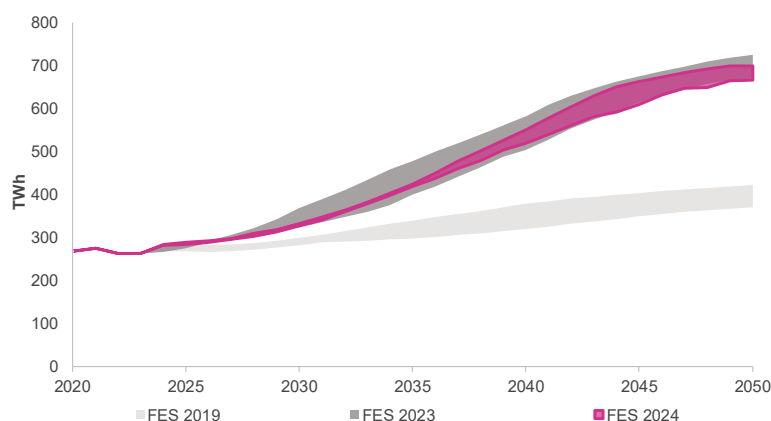


Figure 5-1: Evolution of UK electricity demand projections (2019, 2023 & 2024)
[Ref. 29, Author Analysis]

- 4.3.15 The capacity of new low-carbon schemes which will need to come on-line prior to 2030 to achieve ‘Clean Power by 2030’ is unprecedented. However, an even greater capacity of new low-carbon schemes will need to come on-line in the 2030s to keep power clean through to 2040 as other sectors also decarbonise.

- 4.3.16 This provides evidence for the need for new low-carbon generation facilities to continue to come on-line into the 2030s, to meet that anticipated growth in demand.

4.4 Transport policies underpin a growth in future electricity demand

- 4.4.1 Surface transport is currently the largest source of UK GHG emissions. Surface transport accounted for just under one quarter of the UK's 2022 emissions, **[Ref. 11(2024), Figure 1.3, Charts and Data]**. Continuing the shift to low emission vehicles will give a significant boost to UK decarbonisation.
- 4.4.2 Growth in the use of EVs is expected to create significant new demands on the electricity network. Having proposed a ban on the sale of all new petrol and diesel vehicles to be effective from 2030 **[Ref. 36]** alongside a ban on sales of new hybrid vehicles by 2035, the previous government, in September 2023, announced that the UK's ban on the sale of new petrol and diesel cars would be pushed back to 2035, allowing petrol and diesel cars to be purchased new up to that date, and permitting second hand trades thereafter.
- 4.4.3 The ZEV mandate was introduced by the then government on 1 January 2024. It demands that at least 22% of all cars and 10% of all vans sold in Britain in 2024 are pure electric, rising to 80% of cars and 70% of vans by 2030, and 100% of each by 2035.
- 4.4.4 The government's election manifesto includes their intent to restore the phase-out date of 2030 for new cars with internal combustion engines, bringing forward the additional future electricity demand versus the ZEV mandate trajectory **[Ref. 15, p31]**.
- 4.4.5 Although this policy reversion has not been formally announced, the government has signalled that the majority of new cars sold in the UK will have to be fully electric by 2030 **[Ref. 15, p31]**.
- 4.4.6 The Society of Motor Manufacturers and Traders reported a 17.8% increase in Battery Electric Vehicle (BEV) sales in the UK in 2023 versus 2022, and 16.5% of all new vehicle purchases in the UK in 2023 were BEV **[Ref. 37]**. In 2024, BEV sales were up a further 21.4% year-on-year, to 19.6% of all new vehicle purchases in the UK in 2024.
- 4.4.7 Reducing costs and improvements in the range of EVs, inter-brand competition encouraged by the ZEV mandate and improving charging infrastructure are expected to encourage consumers to choose EVs over petrol and diesel cars.

- 4.4.8 The eventual and necessary transition of all cars from fossil fuels to support net zero will continue due to their lower run costs, improving performance, increasing model choices, and zero emission capability.
- 4.4.9 The net zero FES pathways include an increase in annual electricity demand in the UK of ~27TWh in 2030 and 101 – 127TWh by 2050. **[Ref. 29(2024), Chart EC.07]**. A growing use of hydrogen in the surface transport sector could further increase electricity demand through the need to produce hydrogen via electrolysis.
- 4.4.10 The Electric Vehicle Infrastructure Strategy (March 2022) **[Ref. 39]** facilitates the adoption of electricity into transport and sets the expectation, by 2030, of there being around 300,000 public charge points as a minimum in the UK, up from just 64,642 on 1 July 2024 **[Ref. 40]**. The government’s election manifesto describes that they will “support the transition to electric vehicles by accelerating the roll out of charge points” **[Ref. 15, p31]**.
- 4.4.11 The UK has put leadership of a low-carbon transport revolution at the heart of its Industrial and Clean Growth strategies and regards EVs as a critical new technology which will be vital in the fight against climate change. Commitments by both the previous and current government to invest in ‘gigafactories’ for the mass production of batteries and EV supply chain, **[Ref. 41, Ref. 42, Ref. 43, and Ref. 15, p30]** provide evidence that, there is strong political support for the rapid development and rollout of EVs, with which will come significant additional electricity demand. Indeed, as the SMMT data shows, the rollout of EVs has already begun.
- 4.4.12 To support efforts in the decarbonisation of heavier transport (e.g. road freight, rail and air), government pledged to invest £140 million in 2021/22 across hydrogen-powered freight trials and the delivery of 4,000 zero emission buses **[Ref. 16, p94]**. The application of hydrogen as a fuel for flight and rail, and in industrial energy-intensive processes, is also progressing.

4.5 Energy policies for homes underpin a growth in future electricity demand

- 4.5.1 In 2023, the domestic sector accounted for approximately 36% of the UK's electricity demand and 44% of the UK's demand for natural gas **[Ref. 29(2024), Tables ED1 & ED3]**.
- 4.5.2 Government-backed energy efficiency schemes seek to improve the insulation of the UK's homes as well as reduce demand from lights, appliances, and services.
- 4.5.3 Reducing UK domestic electricity demand will support the move to a zero-emissions electricity system. Flexibility in consumption, either through variable 'time of use' tariffs or demand flexibility schemes, may allow consumers to support the flexibility needs of a low-carbon electricity system.
- 4.5.4 Improved insulation and improved boiler efficiency may help reduce domestic demand for gas and thereby reduce carbon emissions associated with the use of gas in the home. However, the domestic use of gas must be substituted out for either electricity or hydrogen for domestic carbon emissions to fall to zero or very close to zero. The CCC state that, by 2030, "approximately 10% of existing homes in the UK will need to be heated by a heat pump, compared to only approximately 1% today," for the UK to reach its 2030 climate targets **[Ref. 11(2024), p9]**.
- 4.5.5 The Energy White Paper sets out an aim to increase the rate of installation of home electric heat pumps from 30,000 per year to 600,000 per year by 2028. The British Energy Security Strategy aims to ensure that by 2050 all UK buildings will have low-carbon heating, and reconfirms **[Ref. 19, p12]** the then government's intent to phase out the sale of new and replacement gas boilers by 2035 – an intent which was replicated in Powering Up Britain and confirmed by the then government in September 2023. Beyond 2035, certain gas boiler replacements will no longer be permitted.
- 4.5.6 The government has proposed measures to reduce home energy demand, including:
- A Warm Homes Plan to offer grants and low interest loans to support investment in insulation and other improvements such as solar panels, batteries and low carbon heating
 - Work with the private sector to provide further private finance to accelerate home upgrades and low carbon heating
 - Ensuring that homes in the private rented sector meet minimum energy efficiency standards by 2030

- 4.5.7 FES 2024 pathways show flat residential demand against 2023 levels, however in the 2030s residential demand is shown to increase as the domestic use of gas is systematically reduced and replaced by electricity. Net zero pathways in 2050 show increases in residential electricity demand of between 68% and 79% vs. 2023 levels, primarily due to the electrification of home heat and cooking.

4.6 Peak electricity demand is also expected to grow

- 4.6.1 The future daily profile of electricity demand is less easy to forecast for the future, but estimated peak demand (the highest instantaneous level) remains a key determinant of required installed generation capacity.
- 4.6.2 **Figure 5-2** illustrates National Grid ESO's forecast of peak GB power demand (using NGESO's Average Cold Spell methodology) out to 2050. In the three net zero pathways, peak demand is anticipated to range between 62GW and 65GW by 2030 (2023, for comparison, was 58GW); between 89GW and 103GW in 2040, and between 104GW and 119GW in 2050 [**Ref. 29(2024), Figure ES.03**].
- 4.6.3 All net zero pathways show an increase in peak demand from as early as 2025, driven by underlying industrial and commercial demand growth (through substitution of other energy sources) and the electrification of heating and transport.
- 4.6.4 Historically, electricity peak demand has tended to occur on winter weekday evenings, when industrial and commercial demand overlaps with residential. However, NGESO state that "as the share of renewable electricity supply increases, electricity peaks could occur at other times" [**Ref. 29(2024), p101**], an important point relating to security of supply, which is discussed in **Chapter 8** of this Statement.
- 4.6.5 EVs and hydrogen vehicles will require the deployment of additional electricity generation capacity and may also act as integration measures for renewable and baseload generation, capable of shifting load from when demand is high, to periods where supply is higher.
- 4.6.6 Sufficient electricity generation capacity will need to be deployed to be able to meet instantaneous demand, as well as forecast annual demand, under normal and unfavourable weather conditions, supporting the need for significant growth in UK low-carbon electricity generation capacity.

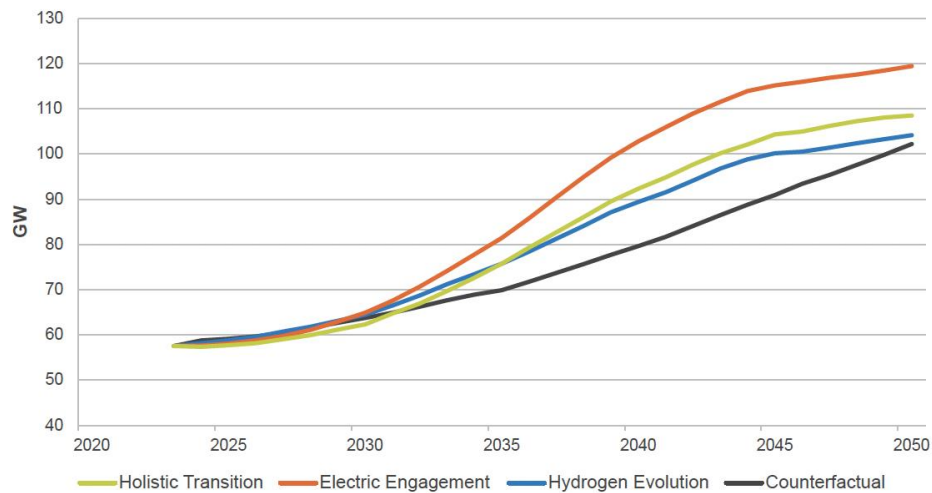


Figure 5-2: Electricity average cold spell peak demand
(GW, including losses)
[Ref. 29(2024), Figure ES.03]

4.7 Conclusions on future electricity demand

- 4.7.1 Policies are already in place to substitute electricity for fossil fuel as a source of energy in non-traditional sectors in the UK, and many of those policies have started to deliver both on a national and local basis.
- 4.7.2 GB electricity demand will increase during the 2020s as a result of this substitution, supporting the urgent need for new low-carbon electricity generation facilities to come forward to meet demand.
- 4.7.3 Peak electricity demand is uncertain but is likely to grow. Significant capacity of new, low-carbon generation will be required to meet both peak demand and electricity needs across a wide range of weather conditions, which may increasingly occur outside of the traditional winter peak periods due to the anticipated increase in electricity consumption through electrification of non-traditional sectors and the increased share of electricity supplies from a range of renewable generation technologies.
- 4.7.4 The capacity of new low-carbon schemes which will need to come on-line prior to 2030 to achieve 'Clean Power by 2030' is unprecedented. However, an even greater capacity of new low-carbon schemes will need to come on-line in the 2030s to keep power clean through to 2040 as other sectors also decarbonise.
- 4.7.5 Rapidly increasing low-carbon supplies will reduce the cost and carbon content of produced electricity in the UK as is explained in **Chapter 9** of this Statement. Lower cost and lower carbon energy supplies will incentivise other sectors to move away from fossil fuels to electricity.

- 4.7.6 Increasing UK-located low-carbon generation capacity will also prevent an increase in UK electricity demand from increasing GB consumers' exposure to volatile energy prices and reducing GB security of supply.
- 4.7.7 Without a rapid increase in low-carbon supply, the decarbonisation of other sectors is less likely to occur due to potentially unfavourable commercial factors, and potentially heightened supply risk amid growing demand. This could place at risk progress which needs to be made on decarbonising other sectors to achieve national carbon reduction targets in 2030 and beyond.
- 4.7.8 The Proposed Development will contribute to meeting GB's growing electricity demand and will therefore be a critical enabler of achieving the UK's decarbonisation and energy security aims.

5 Delivering net zero through clean electricity supplies

5.1 Chapter summary

- 5.1.1 This chapter reviews selected current policy support and development / delivery in technologies which are being tasked to support the delivery of net zero.

5.2 Current and future generation mix

- 5.2.1 The Net Zero Strategy's key policy is for the UK to be powered entirely by clean electricity by 2035, subject to security of supply **[Ref. 18, p20]**.
- 5.2.2 Electrification is a key strategy to deliver decarbonisation in the UK and the previous government targeted a zero-carbon electricity system by 2035 **[Ref. 27]**. The government have signalled an increase in that ambition by establishing a mission to deliver 'Clean Power by 2030' **[Ref. 15, p51]**. By growing the UK's low-carbon electricity generation capacity, the carbon emissions associated with the electricity we use to light our homes and power our appliances will decrease.
- 5.2.3 By growing the UK's low-carbon electricity generation capacity further, electricity can be used instead of carbon emitting fuels in other non-traditional sectors (e.g. petrol in transport) and further decarbonisation can be achieved. The decarbonisation of all sectors is essential for the UK to meet net zero **[Ref. 11(2024), p8]**.
- 5.2.4 To decarbonise the UK's electricity system, less electricity must be sourced from carbon emitting generation capacity. Low-carbon generation capacity must therefore be developed both as a substitute for carbon emitting capacity, and to increase the amount of electricity generated to meet additional, non-traditional demand.
- 5.2.5 It is important to clarify that this Statement of Need does not seek to justify, or promote the exclusion of any other generation technologies from the future GB generation mix.
- 5.2.6 **Figure 6-1** below shows historical electricity generation in the UK from 1996 to 2023 by fuel source, measured in terawatt hours (TWh, 1 TWh = 1,000,000 MWh), and the resulting average grid carbon intensity, measured in gCO₂(e)/kWh.

- 5.2.7 **Figure 6-1** shows that Coal + Oil generation reduced from approximately a one-half share of UK generation in 1996 to nearly zero by 2023. The last UK coal fired power station closed in September 2024 and 'Coal + Oil' generation will therefore be zero from 2025 onwards.
- 5.2.8 Low-carbon generation, including renewable wind and solar, increased from near zero in 1996 to over 40% of UK generation in 2022.

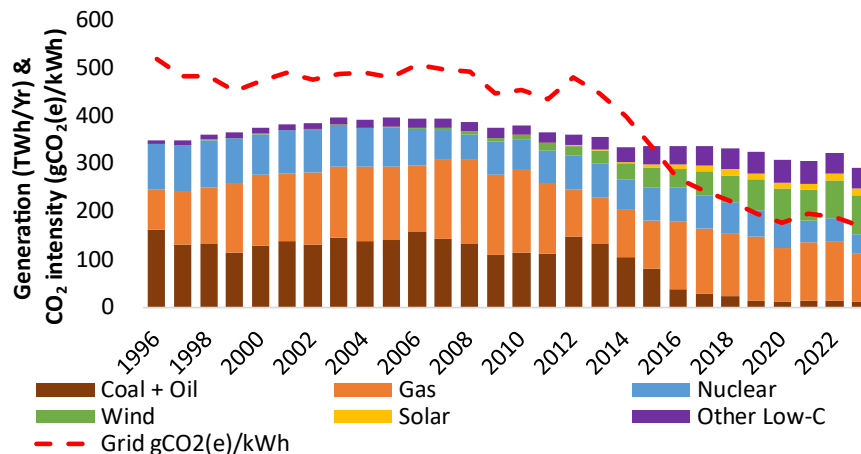


Figure 6-1: Historical Electricity generation and carbon intensity
(TWh/Yr and gCO₂(e)/kWh)
[Ref. 28, Tables 5.6 & 5.14]

- 5.2.9 Nuclear has reduced from generating over one quarter of the UK's electricity needs in 1996, to just 14% in 2023. Gas has contributed approximately 40% of UK generation each year throughout much of the period shown.
- 5.2.10 GB Grid carbon intensity reduced from over 500 gCO₂(e)/kWh in 1996 to 171 gCO₂(e)/kWh in 2023, a reduction of 67%, while electricity generation reduced by just 17% over that period.
- 5.2.11 The carbon intensity of the GB Grid has reduced since 1996 due to a regulatory increase in the cost of emissions from high-carbon intensity generation assets, the subsequent closure of coal plants in the UK, and a significant increase in low-carbon, low-marginal cost generation (predominantly wind and solar) since 2010. **Section 9.2** of this Statement explains how GB electricity market arrangements support this essential shift.
- 5.2.12 As well as providing views on future national electricity demand, the FES pathways provide projections for how that demand will be met. **Figure 6-2** shows projected electricity generation in the UK from 2023 to 2050 by fuel source, measured in terawatt hours under NGESO's 'Holistic Transformation' pathway, and the resulting average grid carbon intensity, measured in gCO₂(e)/kWh.

- 5.2.13 The ‘Holistic Transformation’ pathway shown in **Figure 6-2** shows that wind generation will increase from 96TWh in 2023 to 467TWh in 2050. Nuclear generation more than doubles from 42TWh to 97TWh over the same timeframe. Solar generation increases approximately seven-fold, from 16TWh to 115TWh. Under a ‘Hydrogen Evolution’ pathway, where solar capacity deployment is the lowest of NGESO’s net zero pathways, solar generation increases approximately five-fold, to 76TWh in 2050.
- 5.2.14 These low-carbon generation sources, if delivered, will provide the much-needed electricity required to reduce grid carbon intensity from current levels to zero or lower in 2035, aligned with government decarbonisation targets. To achieve the government’s mission to deliver ‘Clean Power by 2030’, the rollout of low-carbon and negative carbon emissions generation will have to be similar in pace and scale to that included in NGESO’s current net zero pathways.

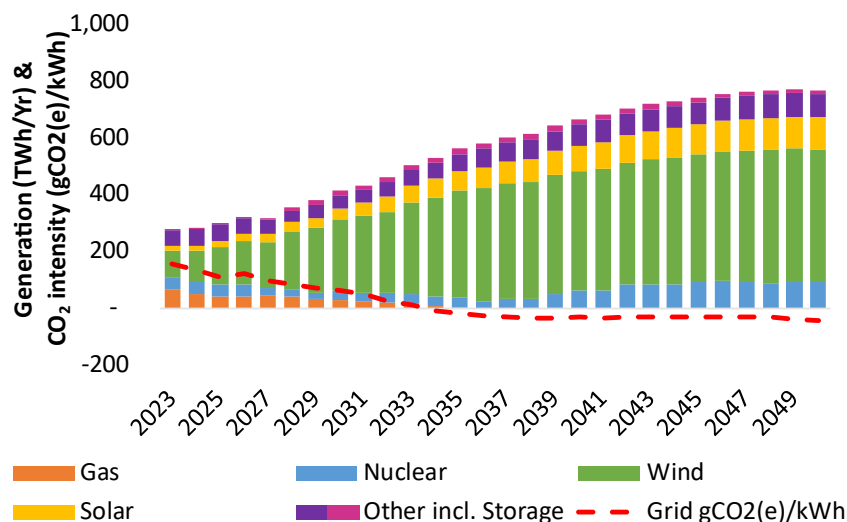


Figure 6-2: Projected electricity generation and carbon intensity
(TWh/Yr and gCO₂(e)/kWh)
[Ref. 29(2024), Tables ES.08-11 & ES1 – ‘Holistic Transformation’]

- 5.2.15 Critically, grid carbon intensity reaches zero at the same time as unabated gas generation ceases. Carbon Capture, Usage, and Storage (CCUS) technology must be deployed at scale and integrated into the existing gas generation network, for gas technology to have a role in the future electricity system. Abated gas generation (i.e. gas plus CCUS) is included in the purple ‘Other’ category in **Figure 6-2**. **Figure 6-2** also shows only the generation and not the power consumption of storage assets (e.g. Pumped Storage (Hydro) or batteries).
- 5.2.16 The UK is also pursuing a strategy of interconnection with other markets. Interconnectors are physical cables through which energy can flow in either direction. Market forces determine which direction the energy flows, from low price to high price markets.

- 5.2.17 Interconnectors can support energy security but, as the British Energy Security Strategy states, “If we’re going to get prices down and keep them there for the long term, we need a flow of energy that is affordable, clean and above all, secure. We need a power supply that’s made in Britain, for Britain” **[Ref. 19, p3]**.
- 5.2.18 Government’s Clean Power 2030 Action Plan is consistent with this point and states that “By accelerating the switch to domestic renewable electricity sources and accelerating the application of clean electricity to the wider energy system, we will be able to reduce our reliance on fossil fuels faster. This enhances energy security, making the UK less vulnerable to global market disruptions or geopolitical tensions that affect energy prices” **[Ref. 3, p21]**.
- 5.2.19 The UK has traditionally been an importer of energy from European markets, of National Grid scenarios project that the UK will be a net exporter of energy from the 2030s, however, interconnectors may play an important role in meeting UK electricity demand at certain times of the day or year. For simplicity, interconnector flows have been excluded from **Figure 6-2**.
- 5.2.20 The share of UK electricity generation which is to be met by onshore and offshore wind power is projected to increase from 34% in 2023 to approximately 60% by 2050 under all net zero pathways. However, the UK’s approach to electricity supply will be more resilient to and secure against variations in the weather, technical failures and market forces through being the multi-technology approach proposed by the government (and the previous government) and incorporated in NGESO’s FES pathways.
- 5.2.21 NPS EN-1 states that “We need to ensure that there is sufficient electricity to always meet demand; with a margin to accommodate unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events” **[Ref. 1, Para 3.3.1]**.
- 5.2.22 Government’s Clean Power 2030 Action Plan is consistent with this and states that “Our 2030 mission will grow the UK’s overall generation capacity and expand our network infrastructure so that we can safely and securely meet changing demand patterns in 2030 and beyond ...” **[Ref. 3, p24]** by ensuring that by 2030, in a typical weather year, “Clean sources produce at least as much power as Great Britain consumes in total” (2023: 56%) **[Ref. 3, pp25&26]**.
- 5.2.23 The expected growth in electricity demand leads to a need for increased capacities of electricity generation. The national shift from dispatchable carbon-emitting generation to low-carbon renewable generation also implies a growth in electricity generation capacity.

- 5.2.24 **Section 4.3** of this Statement describes the scale of electricity demand required to be met by new generation facilities to achieve ‘Clean Power by 2030’ and then maintain clean power through to 2050.
- 5.2.25 To improve the likelihood of being able to ensure system adequacy from renewable generators in all but the most unlikely of meteorological situations, a large capacity of interconnected assets from as broad as possible a range of technologies and geography may be beneficial.
- 5.2.26 **Figure 6-3** shows, for the same ‘Holistic Transformation’ pathway, the significant increase in installed capacity of each technology required to meet the output projections shown in **Figure 6-2** above.

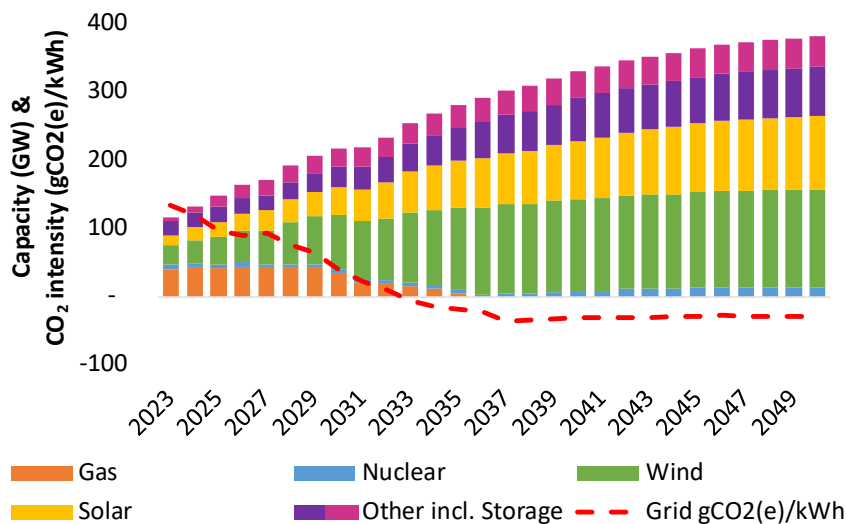


Figure 6-3: Projected electricity generation capacity and carbon intensity
(GW and gCO₂(e)/kWh)
[Ref. 29(2024), Tables ES.09 & ES1 – ‘System Transformation’]

- 5.2.27 **Figure 6-3** shows that electricity generation capacity must increase to three-fold current installed capacity in order to generate sufficient output to meet demand in 2050. The growth trajectory is consistent with the trajectory implied by the capacity ranges set out by government in its Clean Power 2030 Action Plan [Ref. 3, Table 1].
- 5.2.28 To provide some points of comparison for further along the UK’s route to net zero, the NIC anticipate that 129 – 237GW of renewable capacity must be in operation by 2050, including 56 – 121GW of solar, 18 – 27GW of onshore wind, and 54 – 86GW of offshore wind [Ref. 33, p19].
- 5.2.29 Energy Systems Catapult (ESC) projections are comparable capacities. 165 – 285GW of capacity will be required in 2050, including 18 – 80GW of solar [Ref. 14, pp23&27]. The ESC includes higher expectations of future nuclear capacity

than other analyses, anticipating 20 – 38GW of nuclear versus 11 – 22GW (NGESO) and just 5GW (NIC).

- 5.2.30 Approximately ten percent of NGESO's 'Holistic Transition' capacity pathway in 2050, or 44GW, is expected to be short duration storage, shown in pink in **Figure 6-3**. Long Duration Storage, including Pumped Hydro and hydrogen, is included within the purple 'Other' data series. Further information on electricity storage is included in **Section 5.11** of this Statement.
- 5.2.31 The quantity of new generation capacity required in the UK to meet its net zero targets is enormous, and unprecedented in relation to capacity growth seen at any previous time. Yet such projections have been broadly consistent between different expert bodies and between years, since the net zero target was written into law in 2019.
- 5.2.32 NPS EN-1 also articulates the view that it is prudent to plan infrastructure development on a conservative basis "to ensure that there is sufficient supply of electricity to meet demand across a wide range of future scenarios" [**Ref. 1, Para 3.3.10**]. Prudence would imply not over-relying on technologies which are yet to be proven, have long development lead-times, or which have historically experienced funding difficulties. For this reason, NGESO's pathways include major contributions from wind and solar generation rather than CCUS, hydrogen or nuclear generators. Government's Clean Power 2030 Action Plan is consistent with NGESO's pathways [**Ref. 3, Table 1**].
- 5.2.33 Such an expansion of capacity, across many technologies, does not come without risk. It is very possible, if not probable, that one or more technologies will miss their targets. This would increase the need for technologies which are successfully being deployed to accelerate their deployment further, in compensation.
- 5.2.34 Challenges will come through international competition in supply chains, technology and labour markets, and also in grid connection. FES 2023 reiterated the obvious point that "sufficient electricity connection capacity is vital" to support capacity projections [**Ref. 29(2023), p132**].
- 5.2.35 This is a key point of the Clean Power 2030 Action Plan, in which government has stated that "we need to act – and act quickly – because 6 years is a short time in building energy infrastructure. We are not alone in wanting to rebuild our energy system and are competing with other countries for investment and to secure supply chains ... it can take over a decade to develop and build renewables projects" [**Ref. 3, p18**].

- 5.2.36 Grid is a finite but critical enabler to decarbonisation both in terms of absolute scale and timing to connect. NPS EN-3 recognises the benefit to decarbonisation and consumers of using already available grid infrastructure:

“To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs applicants may choose a site based on nearby available grid export capacity” **[Ref. 2, Para 2.10.25]**.

- 5.2.37 The CCC also continue to identify grid connection as a potential brake to beating climate change and delivering energy security. They recommend that the government ensures that “electricity networks have the capacity to meet growing need due to changes to sources of electricity and increased demand across sectors” **[Ref. 11(2024), p95]**. The implication of this recommendation is that, in their view, network capacity and connections are not currently adequate to meet UK needs.
- 5.2.38 Put simply, to fight climate change, we need to make the most of the infrastructure we have available, and we will need to build more. This context provides further support for the Applicant’s proposal to develop a large-scale solar facility with co-located BESS at an existing point of connection, which connects into existing and available section of the transmission system. **Chapter 7** provides more information on this point.

5.3 Development pipelines

- 5.3.1 The following sections in this chapter provide additional evidence in relation to the main categories of renewable generation technologies tasked to support the delivery of a low-carbon and secure electricity system by 2035, and their contribution to decarbonisation, security of supply and affordability.
- 5.3.2 New energy projects follow a uniform high-level development process.
- The first step is to secure a grid connection offer and define the project cognisant of technical, environmental, land, and planning constraints. Data on current and potential future connections for large-scale projects is available on National Grid’s Transmission Entry Capacity (TEC) Register **[Ref. 44]**
 - The second step is to apply for and obtain planning consent. The government’s Renewable Energy Planning Database (REPD) **[Ref. 45]** provides insight into determined and yet to be determined renewable energy projects at all scales nationally
 - The third step is to secure revenues for the project. System adequacy is primarily managed through GB’s Capacity Market in which eligible assets

compete at annual auctions for capacity payments in return for providing an equivalent firm supply of capacity to the electricity system

- 5.3.3 Reforms to the grid connection process which are currently being implemented are addressing the bottleneck that Ofgem, NESO and government have identified in the near-term delivery of low carbon generation connections. Hitherto, the barriers to obtaining a grid connection and the obligations on developers to progress subsequent development steps were low. This has led to a plethora of projects in the connections queue. Many projects in the queue are not sufficiently advanced to deliver to the timeframes required for Clean Power 2030, yet they hold their position in the connection queue thus potentially delaying other projects which are able to support Clean Power 2030 from connecting sooner, or from coming to delivery.
- 5.3.4 Government's Clean Power 2030 Action Plan states that at the time of publication, the connections queue consists of nearly 750GW of projects. Connections Reform seeks to reshape the connections queue to ensure that those projects which are more ready to deliver are prioritised.
- 5.3.5 To support Connections Reform, government has set 'capacity range' to assess the 'strategic alignment' of projects with the capability to deliver a connection in the timeframes required for Clean Power 2030. However, "whilst the 'Clean Power Capacity Range' provides a foundation to guide rapid policy development and focus delivery, the scenarios developed now cannot be exhaustive or definitive, and it is only right that some optionality is retained ... until more clarity on which scenario is most likely is available" [Ref. 3, p31].
- 5.3.6 Importantly, the capacity ranges do not constitute a government pathway [Ref. 3, **Connections Reform Annex, p5**] and therefore should not be interpreted as a cap or ceiling on the requirement for low carbon electricity generation capacity.
- 5.3.7 Net zero 2050 will require a very large capacity of low carbon generation to be delivered, which is much larger than the capacity ranges set out in the Clean Power 2030 Action Plan. The Action Plan is therefore a framework to support the rapid delivery of projects at the front end of the UK's critical journey to net zero, and the need for projects to come forwards to 'feed' the plan is urgent and absolute.

Support mechanisms for low carbon generation

- 5.3.8 Wind and solar technology were first included as eligible technologies in the Capacity Market in 2019, however the Capacity Market is not open to assets which already hold Contracts for Difference (CfD) contracts (and vice versa). The inclusion of renewable generation technologies in the Capacity Market underlines

the contribution renewable energy can make to system adequacy and system security:

“The system is typically better off with intermittent capacity than without it – wind farms, for example, can contribute to overall security of supply” **[Ref. 46, p114]**.

- 5.3.9 The CfD scheme is the government’s main mechanism for supporting low carbon electricity generation.
- 5.3.10 The CfD scheme was introduced under the Energy Act 2013 to incentivise investment in renewable energy by providing developers of projects with high upfront costs and long lifetimes with direct protection from volatile wholesale prices. CfDs also protect consumers from paying increased support costs when electricity prices are high.
- 5.3.11 Renewable generators located in Great Britain that meet the eligibility requirements can apply for a CfD by submitting bids into CfD Allocation Rounds, in which a range of different renewable technologies compete directly against each other for a contract.
- 5.3.12 The Low Carbon Contract Company’s CfD Register **[Ref. 47]** and the EMR Delivery Body’s Capacity Market Registers **[Ref. 48]** hold data on contract award.

Attrition in project development pipelines

- 5.3.13 Although lists and registers provide important evidence towards current and future generation capacities, the listing of a scheme on any grid connection register, a planning database or a commercial contract register, does not guarantee that the scheme will come forwards.
- 5.3.14 For example, in February 2023 National Grid ESO shared their analysis that “only 30-40% of projects [schemes] in the [connections] queue make it to fruition” **[Ref. 49]**. **Section 2.13** of this Statement describes reforms being taken under the Connections Action Plan to deter speculative connection applications and remove stalled schemes from the connections queue.
- 5.3.15 Of the 243GW of projects of all technologies listed on the REPD in late 2024, just 51.3GW are operational and 39.3GW will not move forwards due to having been refused planning consent, being abandoned (by the developer), or planning permission having expired.
- 5.3.16 Analysis of the CfD Register **[Ref. 47]** shows that even schemes which have achieved consent, and a revenue contract are not guaranteed to deliver. 81

schemes with CfDs have registered a reduction to the capacity of the CfD Unit or have had their CfD terminated:

- Offshore wind: four schemes (1,408 MW) terminated, 1,494 MW reduction on 21 schemes still going forwards
- Onshore wind, including Remote Island Wind: five schemes (341 MW) terminated, 81 MW reduction on 14 schemes still going forwards
- Biomass / Waste / CHP / Advanced Conversion schemes: thirteen schemes (292 MW) terminated, 25 MW reduction on two schemes still going forwards
- Solar PV: ten schemes (288 MW) terminated, 77 MW reduction across 12 schemes still going forwards

5.3.17 Developers may elect to terminate CfD contracts for a variety of reasons, including change of ownership or commercial opportunities outside of the CfD framework. Reducing the capacity allocated to a CfD contract may also improve the commercial performance of a scheme under certain market conditions. However, the risk of non-delivery rises on capacity which has not yet commenced its CfD contract and which has dropped out of, or been terminated from its CfD contract.

5.3.18 However, NPS EN-1 states that it is the government's view that infrastructure development should be planned on a conservative basis **[Ref. 1, Para 3.3.10]**, without over-relying on technologies which are yet to be proven, have long development lead-times, or which have historically experienced funding difficulties.

5.3.19 This data and corresponding analysis suggests that it is not prudent to assume the full delivery of pipeline projects listed on various registers, because it is highly unlikely that a significant proportion of that capacity will be commissioned.

5.4 Offshore Wind

5.4.1 The UK is a world-leader in offshore wind technology with ambition to prioritise the connection of 43 to 50GW of operational capacity by 2030, up from 14.7GW operational in 2023 **[Ref. 29(2024), Table ES1]**. The government's election manifesto calls for a quadrupling of offshore, i.e. to over 55GW, by 2030 **[Ref. 15, p51]**.

5.4.2 None of National Grid's 2024 FES pathways meet the government's 2030 target, and only one meets the previous 50GW target, highlighting the massive scale of renewable infrastructure required to meet net zero. Of the three net zero pathways, offshore wind capacity in 2030 ranges between 43.4GW and 53.6GW, generating between 165TWh and 192TWh of low-carbon energy each year.

- 5.4.3 Offshore wind is expected to produce a significant proportion of the UK's future low-carbon electricity needs, however the government's proposals (and those of the previous government) take a multi-technology approach to the future electricity system, in part to provide security of supply through variable weather conditions.
- 5.4.4 Offshore wind is not tasked with meeting, and cannot be expected to meet future UK electricity needs on its own.
- 5.4.5 National Grid's TEC Register [Ref. 44] lists projects which have accepted a connection offer.
- 5.4.6 **Figure 6-4** shows, in blue columns, the grid connection capacity of potential future Offshore Wind projects by their current contracted year of connection.
- 5.4.7 The red line shows the capacity projection for offshore wind from NGESO's 'Electric Engagement' pathway, which is the middle capacity projection of the three net zero pathways in FES 2024.
- 5.4.8 The red triangle marks the government's approximate level of ambition as described in their election manifesto, to 'quadruple offshore wind' [Ref. 15, p51].

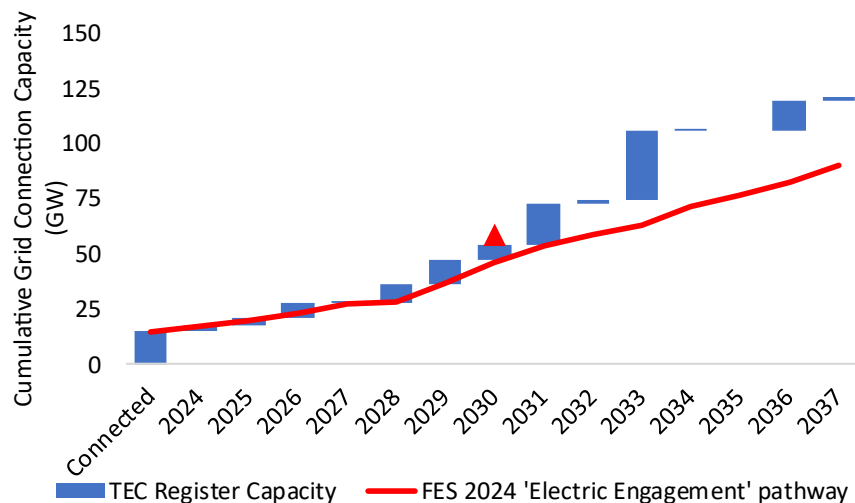


Figure 6-4: Current and potential future connected offshore wind capacity [Ref. 44, Ref. 29(2024), Table ES1, Author Analysis]

- 5.4.9 Of the total offshore wind (including floating wind) pipeline shown, which amounts to 122GW of capacity, 10GW, connecting between 2026 and 2036, proposes a mix of technologies while 112GW is proposed to be stand-alone offshore wind. The TEC Register records the connection capacity for the development and does not identify the proposed capacity for each of the constituent technologies proposed to be installed. However, it may be a reasonable assumption that,

because offshore wind assets tend to be large, their grid connection agreement has been sized with the intended capacity of offshore wind in mind, and co-located assets have been included in **Figure 6-4**.

- 5.4.10 **Figure 6-4** should therefore be interpreted as an approximation rather than a precise view of the offshore wind development pipeline, but as described previously, not all of that capacity can be assumed to deliver.
- 5.4.11 At the end of January 2025 the TEC register lists a total of 32.1GW of capacity which has not yet connected but is scheduled to connect before 2030 bringing the UK's total operational offshore wind capacity to 47.5GW in 2030, if all of the pipeline delivers. This is broadly in line with both the most ambitious FES pathways and is within the current capacity range of 43 to 50GW targeted for prioritised connection in 2030 [**Ref. 3, Table 1**], but does not include project attrition and therefore cannot guarantee to deliver sufficient capacity to meet the government's ambition. This will increase the need for capacity to come forwards to feed government's Clean Power 2030 Action Plan and to deliver beyond 2030 to keep the UK on track for net zero 2050.
- 5.4.12 The connection of many schemes with connection agreements in the late 2020s and beyond will be dependent on a significant number of onshore and offshore transmission network reinforcement works. The Connections Action Plan makes clear the level of network development required to facilitate the connection of 43 to 50GW of offshore wind to the UK electricity network by 2030 and the risks associated with the delivery of these pipelines should not be understated.
- 5.4.13 While it is not a given, there is potential for any network development delays to affect multiple offshore wind schemes. This is important because National Grid's approach to offshore transmission development is currently favouring a network of connections with transmission assets being shared by multiple schemes. Previously offshore transmission assets have been developed for individual schemes [**Ref. 24, p62**]. The impact of a delay on the delivery of an offshore transmission development may therefore be felt across more than one scheme.
- 5.4.14 Schemes which are preparing for planning consent submission appear on the government's Renewable Energy Planning Database [**Ref. 45**]. The relationship between projects listed on the TEC Register and projects listed on the REPD is not one-to-one because developers may take different approaches to planning and delivery for example in the phasing of schemes for consent and delivery.
- 5.4.15 Data from the REPD [**Ref. 45**] shows that 46 offshore wind farms took on average over 6 years from submitting their planning applications, to achieving commercial operation. Achieving planning consent took approximately two years, leaving on average nearly 4.5 years to construct and commission each scheme.

- 5.4.16 The TEC Register lists 21 offshore wind schemes comprising 21.3 GW proposing to connect in the period January 2024 – 2028. In order to meet these dates, prior experience of project development timelines suggest that it is likely that planning consent must have already been secured. The REPD lists 21 offshore wind schemes comprising 21.2 GW in ‘awaiting construction’ or ‘under construction’ status (1.8GW listed as ‘Built’ on the TEC Register has been cross-referenced and excluded from this total). All consented offshore wind capacity must deliver at historical development rates to keep on track with the Electric Engagement pathway, **Figure 6-4**, however not all capacity is commercially contracted by 2027.
- 5.4.17 On receipt of planning consent, offshore wind developers are currently eligible to compete with other projects for CfDs, although government is developing proposals which would change the participation rules to allow fixed bottom offshore wind projects to participate in upcoming CfD auctions before planning consent has been secured [**Ref. 3, p57**].
- 5.4.18 10.2 GW of offshore wind schemes have secured but not yet commenced their CfDs. Many of these projects are still in construction, but approximately 1.9GW are already operating, suggesting that their contracts will soon commence.
- 5.4.19 The data therefore suggests that 21.3 GW of offshore wind is not yet operational but has an agreement with National Grid to connect in 2028 or earlier, and a similar capacity has secured planning consent but is not yet operational. However, only 10.2 GW has already secured a CfD. A CfD, or alternative funding mechanism, will be required for the balance of consented capacity to proceed to construction and operation.
- 5.4.20 However, the number of schemes which have secured funding and commenced construction still does not indicate a commitment by or obligation on the promoter to deliver that project at all or, if it does, at a particular generation capacity. Indeed, government’s Clean Power 2030 Action Plan recognises that a range of outcomes of negotiations and contract award processes is possible for assets with long development lead-times, including offshore wind. Therefore government has retained optionality in its prioritisation framework until there is further clarity on progress towards delivering the capacity ranges indicated [**Ref. 3, p31**].
- 5.4.21 In July 2023, for example, the previous developer of Norfolk Boreas wind farm (1.8GW) announced that it was halting development of its because it “no longer made financial sense to continue” [**Ref. 50**]. Norfolk Boreas, Norfolk Vanguard West and Norfolk Vanguard East, with a combined planned capacity of 4.2 GW, were purchased by the Applicant in December 2023. Development of the schemes has now resumed.

- 5.4.22 CfD Allocation Round 5 (AR5) was held in summer 2023. The Allocation Rounds follow a competitive process, so information on project prequalification for the allocation round is not published. When AR5 results were published in September 2023, however, no contracts had been awarded to offshore wind projects.
- 5.4.23 The Allocation Round Price Cap for AR5 was £44/MWh in 2012 money (equivalent to approximately £61.40/MWh in 2024). One possible conclusion of the AR5 result, is that developers require a strike price of more than £61.40/MWh to make their projects economically viable, yet could not be awarded a contract at a higher value than the Price Cap and therefore no contracts were awarded to offshore wind projects in AR5.
- 5.4.24 The long-term effect of the AR5 outcome on the future development of offshore wind remains to be seen. In November 2023 the then government increased the Administrative Price Cap for offshore wind in advance of CfD AR6 which opened in March 2024.
- 5.4.25 AR6 results were published in September 2024. 3.4 GW of new offshore wind secured contracts for delivery in 2028/29 at a strike price of £58.87/MWh (2012 money, equivalent to approximately £82.10/MWh in 2024) [Ref. 47].
- 5.4.26 Another possible knock-on effect on offshore wind delivery of the AR5 result is an over-subscription in future Allocation Rounds from schemes unsuccessful in previous rounds and schemes which have recently secured planning competing for contracts. Greater competition in future rounds may drive price down, but only to a level of commercial acceptability.
- 5.4.27 As offshore wind capacity grows, schemes may be located further from shore, or in deeper water, or incorporate new technology – for example floating platforms – which may all increase future development costs over those achieved within the technology class to date.
- 5.4.28 The UK's current offshore wind pipeline shows great potential to deliver significant decarbonisation and energy security benefits. However, it is clear from recent scheme and contracting progress that delivery of the pipeline should not be taken for granted.
- 5.4.29 With some schemes under construction currently paused and a temporary hiatus in securing revenue contracts for schemes which have already secured planning consent and overcome significant complexity in associated grid connection works, the risk of non-delivery of offshore wind capacity has increased over the last two years.
- 5.4.30 The next Contracts for Difference Allocation Round, AR7, is currently scheduled to be held in 2025 and AR8 is expected to follow in 2026. Based on historical

project development rates, these two allocation rounds may represent the last opportunity to contract new UK offshore wind capacity which may deliver before 2030.

- 5.4.31 It is therefore not a given that the government's ambition for 43 to 50 GW of offshore wind will be met, or even that National Grid's FES pathways for the technology class will be achieved by 2030.
- 5.4.32 Any shortfall in the delivery of offshore wind projects against National Grid's scenarios will need to be made up for instead by other technologies prior to 2030 and / or adds to the need to develop schemes which will deliver in the 2030s to make up for any shortfalls prior to 2030 as well as continued to keep power clean beyond 2030.

5.5 Onshore Wind

- 5.5.1 FES reports that 13.7 GW of GB onshore wind capacity was operational in 2023 **[Ref. 29(2024), Table ES.07]**, rising to 1.4 GW at the end of 2024 **[Ref. 3, Table 1]**.
- 5.5.2 In 2015 the then Government placed an effective moratorium on further onshore wind development in England. According to the REPD, operational onshore wind capacity in England increased by just 0.7 GW between the end of 2015 and January 2024.
- 5.5.3 FES net zero consistent pathways cover a range of 23 – 27 GW of onshore wind operational by 2030, which increases to 32 – 42 GW by 2050 **[Ref. 29(2024), Table ES.07]**. Government's Clean Power 2030 Action Plan has set a capacity range of 27 to 29 GW to prioritise onshore wind connections by 2030 **[Ref. 3, Table 1]**.
- 5.5.4 In September 2023, the previous government announced a proposed lift on the ban on onshore wind in England, by introducing changes to the National Planning Policy Framework (NPPF).
- 5.5.5 The government reversed the moratorium in July 2024 by revising planning policy to place onshore wind on the same footing as other energy development in the NPPF. This is to support the delivery of the Clean Power 2030 Action Plan.
- 5.5.6 With the moratorium having been in place for such a long time, onshore wind development pipelines in England are currently thin. Re-establishing a pipeline of onshore wind schemes in England may take some time.

- 5.5.7 National Grid's TEC Register [Ref. 44] shows that no new onshore wind schemes in England and Wales have agreements to connect to the Transmission system before 2025, and only 3.3 GW holds agreements to connect before 2030. Other schemes totalling approximately 2.7 GW have been accepted to connect to the English and Welsh electricity distribution networks, with just 1.1 GW proposing to connect in England, albeit with a current connection date of 2037. The REPD shows that just 39 applications for a total of 800 MW of onshore wind have been made but are not yet determined in England and Wales. 42 schemes for a total of 360 MW are awaiting construction. Just one 35 MW development in Wales secured a CfD as part of AR5, and a total of 73 MW of capacity in AR6, mainly for delivery in 2027/28.
- 5.5.8 Data from the REPD also shows that onshore wind schemes that achieve planning consent in Great Britain take between five and seven years to pass through the planning system (average duration between commercial operations date and planning application submission date, for successful onshore wind schemes listed on the REPD). Pre-application development may last for two or more years beforehand although this will be highly scheme specific.
- 5.5.9 It is therefore not a given that the changes to the NPPF will deliver the required generation capacity to meet even its share of National Grid's least optimistic projections for the technology class, or the government's ambition to double onshore wind capacity by 2030.
- 5.5.10 The UK will therefore need to look to Scotland to support an increase in onshore wind capacity through the next circa five years.
- 5.5.11 The REPD pipeline for Scotland shows 7.6 GW of consented schemes which are not yet operational (just 1.5 GW of these are listed as under construction) as well as 8.7 GW of applications in Scotland which have not yet been determined.
- 5.5.12 The REPD also shows that of the total capacity of Scottish onshore wind schemes listed in the REPD as having been determined, only 54% has been consented (17.6 GW consented of 32.5 GW determined). If historical consent rates continue into the future with a pace consistent of that of the past, the Scottish pipeline of onshore wind schemes is not of a sufficient scale to deliver the range of onshore wind required by 2030 in National Grid's net zero compatible scenarios.
- 5.5.13 Therefore, relying solely on Scottish onshore wind to deliver against the National Grid's projections is also not a prudent approach to delivering progress against the UK's decarbonisation and energy security targets.
- 5.5.14 The UK's Contracts for Difference Allocation Round 6, results of which were published in September 2024, allocated contracts to 1 GW of onshore wind, predominantly in Scotland and delivering predominantly in 2027/28.

- 5.5.15 Any shortfall in the delivery of onshore wind schemes against government's Clean Power 2030 capacity range scenarios will need to be made up for instead by other technologies.

5.6 Nuclear

- 5.6.1 GB operational nuclear capacity is, at the time of submission of this report, at 6 GW, down from over 9 GW in 2020. Two stations (2.4 GW) are due to close in March 2027 +/- one year and a further two stations (also 2.4 GW) are due to close in 2030 +/- two years **[Ref. 51]**.
- 5.6.2 The government has committed to “extending the lifetime of existing plants” **[Ref. 15, p52]**, but operational lifetime is limited at these four stations by irreversible engineering processes deep inside the reactor cores and any life extension is not a guarantee of operation up to that date.
- 5.6.3 It therefore remains highly unlikely that any significant lifetime extension commitments will be made by the operator in these station's final years of operation. An ongoing programme of inspection and testing will continue to inform the operator, with oversight from the UK's independent nuclear regulator, on the ability of these stations to operate safely until their next programmed inspections and towards their current estimated closure dates.
- 5.6.4 Therefore, by as early as 2028, it could be the case that only one currently operational nuclear power station, Sizewell B (1.2 GW) will be operating in the UK. Operator EDF is likely to seek permission to extend the life of this reactor by 20 years to 2055. A 60-year operational lifetime is commonplace for the nuclear technology in use at Sizewell B.
- 5.6.5 Nuclear power is a low-carbon power source, therefore the likely closure within the next five years of 4.8 GW of capacity, which has historically generated c.30TWh/year of low-carbon electricity, will need to be made up by other low-carbon sources of electricity, just to prevent an increase in grid carbon intensity over the next five years. Government's Clean Power 2030 Action Plan includes a capacity range of 3 to 4 GW for nuclear power **[Ref. 3, Table 1]**.
- 5.6.6 New nuclear has been a part of every UK government energy strategy since the mid-2000s and many barriers to nuclear development have been removed over the last decade. For example, site selection (the National Policy Statement for Nuclear Power Generation, although the validity of this NPS has now expired), early regulatory approval of reactor designs (the Generic Design Assessment (GDA) process) and revenue and back-end cost certainty through the CfD, a key element of the 2013 Electricity Market Reform, and the Funded Decommissioning and Waste Management Plan. The Energy Act 2013 also created a body

corporate, the Office for Nuclear Regulation (ONR) to regulate, in Great Britain, all nuclear licensed sites.

- 5.6.7 The nuclear development process is neither easy, nor short. Nuclear projects have long development and construction lead times with many regulatory and commercial approvals and decision points along the way. Hinkley Point C development started in earnest in the late 2000s and civil site construction commenced in 2016. Hinkley Point C is still under construction.
- 5.6.8 The government has committed to “get Hinkley Point C over the line” **[Ref. 15, p52]**, but it was announced in January 2024 that the plan to start commercial operations has already been further delayed to between 2029 and 2031 **[Ref. 52]**, due to construction delays. Government’s Clean Power 2030 Action Plan advises that the first unit at Hinkley Point C (1.6 GW) is scheduled for completion between 2029 and 2031, however “there are uncertainties associated with having Hinkley Point C online by the end of the decade, given delays in the past few years” **[Ref. 3, p81]**.
- 5.6.9 Sizewell C, which is proposed to be a replica of Hinkley Point C, received a Development Consent Order in July 2022 but in January 2025 remained uncommitted, although non-nuclear construction ground and associated development works have commenced.
- 5.6.10 In November 2022, the then government took a £700 million stake in Sizewell C and became a 50% shareholder in the project’s development with EDF. A further £511 million was made available “to continue project development and prepare the Suffolk site for construction” **[Ref. 53]**. Since September 2023, the government have been working together with EDF to raise private capital investment for the project. In December 2023, the then government invested an additional £1.3 billion in the project, consolidating its position as the majority shareholder **[Ref. 56]**.
- 5.6.11 In August 2024 the government announced the Sizewell C Development Expenditure (Devex) Subsidy Scheme of up to £5.5 billion to “enable continued support to the development of the proposed new nuclear power plant Sizewell C (SZC) to the point of a Final Investment Decision (FID)” **[Ref. 54]**. Government stated an intention to take a Final Investment Decision on whether to proceed with the project at Phase 2 of the Spending Review, which will conclude in late spring 2025 **[Ref. 55, Para 3.76]**.
- 5.6.12 If a Final Investment Decision is taken early in the government’s term of office, and formal construction commences soon afterwards, overlaying Hinkley Point C’s construction programme would see first commercial operation at Sizewell C well into the second half of the 2030s. Construction efficiencies may be secured

through replication of construction methods from Hinkley Point C to Sizewell C but are not guaranteed.

- 5.6.13 Great British Nuclear (GBN) was launched by the then government in 2023, as an ‘arms-length body’ with its first priority being to “administer a competitive process to select the best small modular reactor (SMR) technologies from around the world. This SMR technology selection process will underpin government’s commitment to two nuclear Project Final Investment Decisions during the next Parliament [i.e. the Parliament sitting at the date of writing this Statement], with at least one of these being into an SMR project” **[Ref. 57]**.
- 5.6.14 SMRs are nuclear facilities which are proposed to achieve economies of scale through multiples of projects, rather than the size of a single project. Modular construction of nuclear facilities is largely anticipated to be factory based, requiring only the installation of prefabricated components in situ. In this way, learning can be applied during subsequent manufacturing in a controlled environment, delivering anticipated rewards in terms of construction duration, cost, and quality.
- 5.6.15 The first three SMR designs are now being assessed under GDA by the ONR, a process which has previously taken three or more years. SMRs will require the construction of approved manufacturing facilities prior to delivery of the first unit. Although SMRs may bring decarbonisation and energy security benefits to the UK, the first SMR unit is very unlikely to be operational in the UK within this decade.
- 5.6.16 In October 2023, GBN down-selected six companies through the initial stage of a nuclear technology competition, successful companies were considered to “offer the greatest confidence in being able to make a final investment decision in 2029” and be “most able to deliver cutting-edge technology by [the] mid-2030s” **[Ref. 58]**. GBN are currently assessing four bids made for government development support contracts, two companies are now no longer part of the competition.
- 5.6.17 Any reactor which succeeds in becoming commercially operational, whether large or small, will need to pass through GDA, be allocated an approved site, secure grid connection and secure a Development Consent Order. Manufacturing facilities may also require nuclear-level consenting and approval. Reactor operating companies will need to secure a Nuclear Site Licence and become both intelligent customer and controlling mind of the end-to-end design, operation, and decommissioning of the site.
- 5.6.18 Revenue mechanisms will also need to be developed, funding secured, and then the process of construction and installation commenced, and facilities commissioned.

- 5.6.19 It is clear that nuclear development does not come without risk. In the 2010s, three mature GW-scale reactor projects progressed towards Financial Investment Decision, but only one, Hinkley Point C (EDF, 3.2 GW) has been taken forwards to construction. The other two (Wylfa and Moorside) were discontinued in 2019 and 2017 respectively, due primarily to commercial matters.
- 5.6.20 It is therefore not yet the case that the existence of a governmental plan for nuclear, and companies currently participating in that plan, can be relied upon to deliver the potential benefits of such a plan.
- 5.6.21 In the FES 2024 net zero pathways, NGESO assumes the closure of two existing nuclear stations prior to 2030 and the commissioning of Hinkley Point C reactor between 2029 and 2031, in line with developer announcements. SMRs appear from 2034 at the earliest, and Sizewell C commissions in the second half of the 2030s.
- 5.6.22 Achieving even the minimum of the four FES pathways require that Sizewell C will go ahead, but operation is not forecast to be until 2036 in the most optimistic net zero FES pathway and 2039 in the other two. **Figure 6-5:** shows the average and the range of the annual nuclear capacity projections for National Grid's net zero compatible FES projections.
- 5.6.23 Further, this analysis suggests that based on recent experience, no nuclear facility other than Hinkley Point C will be able to join the existing Sizewell B reactor on the grid before 2035, the previous government's target date for full decarbonisation of the electricity system, and the closure of 4.8 GW of existing nuclear power before 2030, the year by which the government aim to have delivered clean power, may be inevitable.

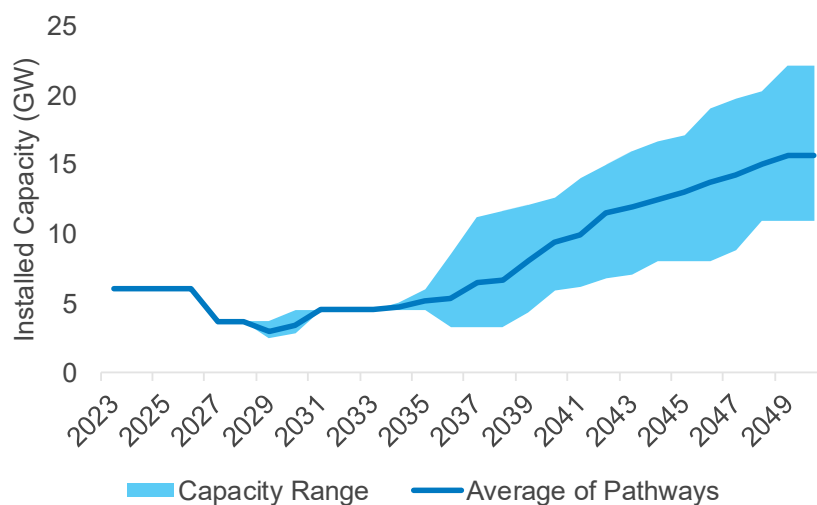


Figure 6-5: FES future nuclear capacity pathways 2023-2050 (GW)
[Ref. 29(2024), Table ES.21, Author Analysis]

- 5.6.24 In October 2023, the then government also published ‘Towards Fusion Energy 2023’, the next stage of the UK’s nuclear fusion energy strategy **[Ref. 59]**.
- 5.6.25 The UK’s nuclear fusion strategy sets out two objectives. Firstly, a UK demonstration of commercial viability of fusion from a UK prototype plant which delivers net energy, and secondly the development of a world-leading fusion industry.
- 5.6.26 Not detracting from the important activity of fusion research and development, it is relevant for the purpose of examination of this scheme to place this exciting prospect in the UK into context. In support of the first objective:
- “The STEP Programme will design, develop and build, by 2040, a prototype fusion power plant capable of delivering net energy” **[Ref. 59, p20]**.
- 5.6.27 EA 2023 legislates for fusion regulation, an essential pre-requisite for developers to plan prototype projects.
- 5.6.28 Any possible decarbonisation contribution from nuclear fusion will therefore not materialise in time to support the then government’s target to decarbonise the electricity system by 2035, and it is not yet clear that achieving the government’s current fusion targets, including a successful demonstration STEP project, will enable nuclear fusion to make a net contribution to decarbonisation from any facilities following STEP, prior to 2050.

5.7 Unabated fossil fuels and abatement technologies

- 5.7.1 National Grid’s FES shows that 29.4 GW of CCGT (Combined Cycle Gas Turbine) generation capacity was operational in the UK in 2023, and in 2023 this capacity contributed nearly one quarter of the UK’s total annual generation output. 6.5 GW of other gas-fired generation capacity, including Open Cycle Gas Turbines, smaller gas reciprocating engines, and gas-fired combined heat and power was also operational in 2023 **[Ref. 29(2024), Table ES1]**.
- 5.7.2 Currently all UK CCGT (and other gas-fired) capacity is fully unabated, meaning that the CO₂ emitted as a by-product of generating electricity is released to the atmosphere and contributes to global warming. Progressing towards a zero-carbon electricity system requires the decarbonisation of these assets, or the replacement of their generation capacity with alternative low-carbon sources. The most significant decarbonisation requirement is on the CCGT fleet.
- 5.7.3 However, it is important to note that the Government’s definition of Clean Power by 2030 allows for up to 5% of Great Britain’s electricity generation to come from unabated fossil fuels (down from 40% in 2023) **[Ref. 3, pp26&26]**.

- 5.7.4 Decarbonisation of the fuel used to generate electricity in the CCGT fleet can be achieved by burning hydrogen. Capturing carbon emissions and storing them away from the atmosphere would also decarbonise the assets and is dependent upon the deployment at scale of Carbon Capture Usage and Storage (CCUS).
- 5.7.5 FES 2024 net zero pathways include gas schemes with carbon capture operating from 2033 at the earliest. Deploying CCUS more quickly will provide a greater capacity of low-carbon dispatchable generation to the market to complement renewable generation assets in meeting demand. Deploying CCUS more quickly than the FES 2024 pathways is important to support government's ambition to deliver 'Clean Power by 2030'.
- 5.7.6 The net zero FES pathways include 18.8 – 34.7 GW of dispatchable low-carbon generation in operation in 2040, from a base of 0 – 1.3 GW in 2030.
- 5.7.7 CCUS is also required to facilitate Bioenergy with Carbon Capture and Storage (BECCS), as described in **Section 5.9**.
- 5.7.8 Powering Up Britain aimed to deliver four operational CCUS clusters to capture and store 20-30 million tonnes of carbon dioxide (MtCO₂) by 2030 **[Ref. 22(1), p21]**. This was confirmed by the previous Prime Minister in September 2023 **[Ref. 38]**.
- 5.7.9 CCUS has a key role in the UK's Net Zero Strategy. It is a prominent feature of the National Infrastructure Strategy **[Ref. 60]**, Energy White Paper **[Ref. 16]** and Industrial Decarbonisation Strategy **[Ref. 61]**. Previous governments have recognised that "the technology has not been delivered at scale and significant risks remain" [54, p53] but recent progress has been made in developing and consenting projects as well as developing a commercial framework to support the technology. The government's current CCUS Deployment Pathway seeks to secure an option to deploy CCUS at scale during the 2030s, subject to costs coming down sufficiently.
- 5.7.10 However, the CCC note in their 2024 Progress Report to Parliament, that "progress on developing engineered removals is behind schedule and achieving the Government's ambition to remove at least 5 MtCO₂ per year by 2030 is increasingly challenging" **[Ref. 11(2024), p81]**.
- 5.7.11 CCUS deployment is currently progressing under a cluster approach with Track 1 and Track 2 projects now identified and under development.
- 5.7.12 Eight projects were selected from the Track 1 cluster sequencing process for CCUS to proceed to negotiations for government support. Three are part of the East Coast Cluster and five are part of the HyNet Cluster. Both clusters have previously been identified as funding recipients.

- 5.7.13 HyNet report the potential to reduce CO₂ emissions by 10 million tonnes every year by 2030 by producing and transporting hydrogen to end users through a network of dedicated pipes, while also capturing the associated CO₂ emissions and piping them in a separate pipe to an undersea storage facility. The HyNet Carbon Dioxide Pipeline was granted a Development Consent Order in March 2024. The Hynet North West Hydrogen Pipeline planning application, is now expected to be submitted to the Planning Inspectorate in 2025, delayed from early 2024.
- 5.7.14 The East Coast Cluster aims to capture and store an average of around 23 MtCO₂ per year by 2035, with three selected Track 1 projects aiming to connect to the cluster by 2027.
- 5.7.15 The Net Zero Teesside project, a Track 1 CCGT + CCUS project with associated CO₂ transportation infrastructure, which is part of the East Coast Cluster, was granted a Development Consent Order in February 2024. In the Decision Letter, the then Secretary of State recognised the urgent need for gas-fired electricity generation with CCS infrastructure as set out in EN-1 and determined that the project would help deliver the UK's net zero commitment by 2050. Therefore, the project would be in line with the then government's wider policy statements on energy and climate change.
- 5.7.16 A planning application for a second part of the East Coast Cluster, the Humber Low Carbon Pipelines project, was withdrawn by previous developer National Grid Carbon Limited in January 2024. The project was to construct CO₂ and hydrogen transportation pipelines to connect various emitters and generators in the Humber region and is now being taken forward under a separate DCO application by new owner, Northern Endurance Partnership.
- 5.7.17 Both HyNet and East Coast Clusters provide the possibility of directly capturing and storing emissions from CCGT and Biomass electricity generation facilities located close to the clusters as well as the opportunity to decarbonise heavy industry in the areas local to the proposed pipelines.
- 5.7.18 Progress has been made on project definition, design, and consenting in recent years. EA 2023 provides a licensing framework for CO₂ transport and storage. In December 2024, government announced that financial close has been reached for East Coast Cluster projects with construction due to commence in 2025 ahead of operation, currently planned from 2028 **[Ref. 61]**.
- 5.7.19 The Cluster approach, when it is delivered, will provide abatement for a significant proportion of the UK's operational CCGT fleet and other industrial carbon emissions. However, an extension of the UK's CCUS or hydrogen pipelines will be required to take emissions out of the many CCGT facilities which are not near to an existing or proposed cluster.

- 5.7.20 A prudent approach to future energy supply would suggest that sufficient progress in decarbonising the existing UK CCGT fleet should not be assumed by 2030.
- 5.7.21 Therefore, other low-carbon supplies may be required to make up for facilities which have by 2030 not yet been abated in order to secure the government's aim to deliver 'Clean Power by 2030' and keep power clean through to 2050 and beyond.

5.8 Hydrogen

- 5.8.1 The previous government's 2021 UK Hydrogen Strategy **[Ref. 63, p2]** explains that hydrogen has "the potential to overcome some of the trickiest decarbonisation challenges facing our economy", especially in enabling the decarbonisation of industry and land transport, and as a potential substitute for current carbon-intensive marine and aviation fuels.
- 5.8.2 Currently most hydrogen is produced by converting methane to hydrogen and carbon dioxide (this is known as 'blue hydrogen'). As blue hydrogen production emits carbon as a by-product, the development of blue hydrogen facilities will require CCUS capability to achieve net zero carbon. CCUS clusters with hydrogen and carbon dioxide pipelines are hoped to become operational in the second half of the 2020s.
- 5.8.3 Hydrogen can also be produced through the electrolysis of water (this is known as 'green hydrogen'). The 'green' label for electrolysed hydrogen presumes that the input electricity used in the hydrogen production process is itself low-carbon, therefore, there are no carbon emissions associated with the process.
- 5.8.4 Green hydrogen production relies on considerable amounts of renewable energy to electrolyse water. Electrolysis currently accounts for approximately 1% of global hydrogen production. However, a growth in electrolysis capability and capacity opens out the prospect of using renewable generation to produce hydrogen, in potentially significant quantities.
- 5.8.5 Powering Up Britain confirms the then government's ambition for up to 1 GW of electrolytic hydrogen and up to 1 GW of CCUS-enabled hydrogen in operation or construction by the end of 2025, subject to affordability and value for money. **[Ref. 22(1), p22]**. Progress in the governmental Hydrogen Allocation Rounds (HARs) for electrolytic hydrogen **[Ref. 64]** implies that this ambition is unlikely to be met. Government expected to "award contracts totalling up to 250 MW of capacity from HAR1, subject to affordability and value for money. We aim for contracts to be awarded in Q4 2023, with first projects becoming operational in 2025." Eleven schemes totalling 125 MW of capacity were awarded contracts under HAR1 in December 2023 and are currently at various stages of development.

- 5.8.6 The second HAR closed for applications in April 2024 and intends to award up to 875 MW of capacity, taking the combined capacity of the first two allocation rounds to 1 GW if fully subscribed.
- 5.8.7 The consultation document related to market engagement for HAR 2 **[Ref. 65]** describes that, despite the previous government's aim to deliver 1 GW by 2025, projects will be able "to select a delivery year between March 2026 until March 2029" **[Ref. 65, p8]**. This suggests that the government's initial Hydrogen capacity aims will not be met, and the potential for demonstration Hydrogen projects to be delayed.
- 5.8.8 Delaying the bulk production of hydrogen will also delay the benefits arising from its use. The development of fully commercial, at-scale schemes will encourage further development and rollout, but secure supplies will be needed to entice early adopters to showcase this new technology.
- 5.8.9 NGESO's FES 2023 estimates that between 110 and 186TWh of electrical energy will be required annually in the UK by 2050 to produce hydrogen through electrolysis to meet its many potential end-uses **[Ref. 29(2024), Table ES.K]**. The wide range of future demand estimates is due to different net zero compatible scenarios producing hydrogen in different ways. The Energy System Catapult foresee the need for "a new low carbon hydrogen economy ... delivering up to 300TWh per annum, roughly equivalent to electricity generation today" and concluding that "electricity generation itself may have to double, or even treble if most hydrogen is to be produced by electrolysis" **[Ref. 14, pp6 & 36]**.
- 5.8.10 Hydrogen remains an interesting and valuable technology to support net zero. Once hydrogen has been produced, it can be stored, transported, and used in a range of applications as a substitute for natural gas or other carbon intensive fuels. EA 2023 lays the foundations for a future which includes hydrogen technology by creating provisions for business modes for hydrogen production, transport, and storage.
- 5.8.11 The government plans to allocate £500 million to support the manufacturing of green hydrogen **[Ref. 15, p27]** and also plans to introduce a market intervention to de-risk investment in hydrogen to power technology, and support its accelerated deployment **[Ref. 66]**.

5.9 Biomass

- 5.9.1 FES 2024 stated that 4.3 GW of Biomass generation was operational in the UK in 2023, producing approximately 30TWh of low-carbon electricity **[Ref. 29(2023) Table ES1]**.

- 5.9.2 The previous government’s Biomass Strategy, published in 2023 reaffirmed that “Only biomass use that complies with strict criteria is considered to be low carbon and to deliver genuine CO₂ emissions savings” **[Ref. 67, p6]**.
- 5.9.3 Building on the already green credentials of the technology, the Biomass Strategy sets a vision to continue to use sustainable biomass in power generation in the 2020s. The Biomass Strategy aimed to transition away from unabated uses of biomass by 2035 by incorporating, where possible and with priority, BECCS to make biomass use net negative carbon emissions.
- 5.9.4 Recognising that “Biomass can play a significant role in decarbonising nearly all sectors of the economy” the previous government also stated that “Biomass is not a silver bullet, and neither is carbon capture. We will rely on a range of solutions to achieve net zero” **[Ref. 67, p4]**.
- 5.9.5 BECCS is not currently operating at scale in the UK, however demonstration and commercial scale plants are operational in other countries. Active work is therefore being undertaken in government and industry to develop business models which support biomass and the delivery of low-carbon electricity as well as negative emissions through the deployment of CCUS to deliver BECCS in the UK.
- 5.9.6 Consideration is being made within government as to whether new or refurbished biomass plants must, on commissioning, be fit to deploy carbon capture in the future.
- 5.9.7 Against the backdrop of national biomass capacity reducing as existing plant reach the end of their commercial life, FES net zero pathways include BECCS capacities coming online progressively from 2030 towards an operational capacity of approximately 2 GW by 2035 and 3.4 – 4.7 GW by 2050 **[Ref. 29(2024), Table ES1]**. In January 2024, the then Secretary of State approved plans to convert two existing biomass units at Drax Power Station to BECCS.
- 5.9.8 BECCS will be dependent upon the delivery of CCS infrastructure to support the capture of emissions, and any shortfall in the delivery of BECCS schemes against the FES pathway projections will need to be made up for instead by other technologies.

5.10 Solar Power

- 5.10.1 The government’s solar photovoltaics deployment information resource **[Ref. 68]** records installed and operational solar capacity in the UK. The government’s data shows that at the end of November 2024, the UK had 17.6 GW of operational capacity, of which 0.4 GW was located in Northern Ireland.

- 5.10.2 UK Solar has generated over 10TWh annually since 2017, rising to 13.9TWh in 2023 [Ref. 28, Table 5.6]. UK solar generation makes an important and reliable annual contribution to meeting national demand. Solar is well placed to play the role it has been ascribed in recent government publications, including those summarised in **Chapter 2** of this Statement.
- 5.10.3 **Figure 6-5** of this Statement shows how solar capacity has grown in the UK each year since the records began in 2010.
- 5.10.4 Growth in UK solar capacity has been characterised by two phases, the first was supported by the Feed in Tariff (FiT) scheme, that entered into law by the Energy Act 2008 and took effect from April 2010. This phase is denoted by the yellow columns in **Figure 6-5**. The FiT scheme paid a guaranteed £/MWh revenue to owners of solar installations (and other renewable generation assets) with a capacity lower than 5 MW.

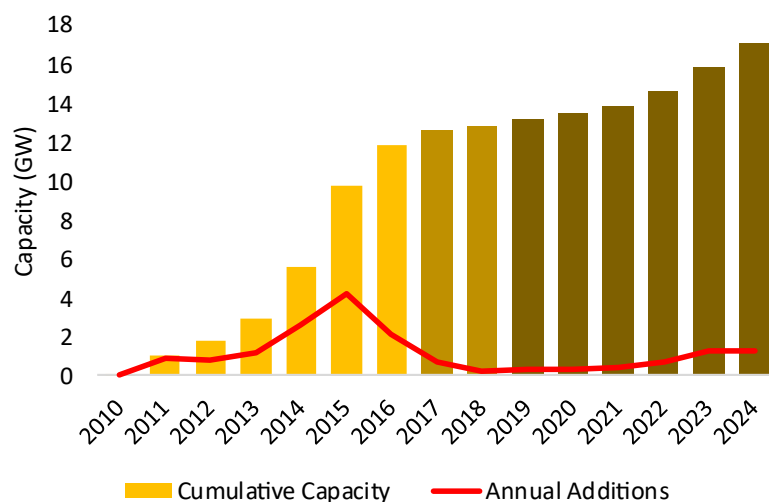


Figure 6-5: Cumulative and annual installed solar capacity in the UK (2010 – 2024)
[Ref. 68, Author Analysis]

- 5.10.5 **Figure 6-5** shows that the scheme was effective in increasing solar capacity over the period 2010 to 2015. A tariff reduction was announced in December 2015, reflecting reducing installation costs and therefore less of a requirement to incentivise new installations. Annual installations reduced over 2017 and 2018 (light brown columns) as capacity accredited by the scheme before the 2015 tariff announcement continued to be constructed.
- 5.10.6 The FiT scheme closed to new applicants in 2019, and solar capacity growth since 2019 has been supported by market revenues only (dark brown columns).

- 5.10.7 Annual installations are shown by the red line. Additions in the period January to November 2024 have been pro-rated to provide a comparative annual run rate for 2024. Annual installations peaked at 4.2 GW in 2015 and averaged 1.1 GW over the period 2010 to 2024.
- 5.10.8 Solar has undergone significant technological advances in scale and commercial efficiency, and the UK has many areas of commercially viable solar irradiation. It is therefore important to make best use of this natural, renewable energy resource to meet the UK's legal carbon emission reduction obligations.
- 5.10.9 The previous government stated that it expected a 5-fold increase in the deployment of solar by 2035 [Ref. 19, p19] equivalent to 70 GW of operational capacity by the same date. In its Clean Power 2030 Action Plan, government has set a capacity range of 45 to 47 GW for solar to be prioritised for connection by 2030 and 45 to 69 GW by 2035 [Ref. 3, Connections Reform Annex, Table 1].
- 5.10.10 Importantly, to achieve either of these aims, solar capacity (excluding rooftop capacity, see commentary to **Table 3-1** of this Statement) will have to increase by over 4 GW each year starting from 2024, i.e. new installations in every year of the government's current term in office, will have to be higher than the UK's previous single highest record of annual installations.
- 5.10.11 The FES 2024 net zero pathways for solar consider 28 – 40 GW installed capacity in 2030, 50 – 85 GW in 2040, and 72 – 108 GW in 2050 [Ref. 29(2024), Table ES.14]. In every scenario, a pathway to net zero includes a significant future increase in solar capacity beyond that which is installed or in development today, as shown in **Figure 6-6**.
- 5.10.12 **Figure 6-6** superposes FES forecast ranges for solar capacity from 2019, 2023, and 2024, with each range shown as a shaded area covering the pathway with the lowest forecast capacity to the highest capacity in each year. Historic installed capacity is shown by the yellow line in 2020-2023.

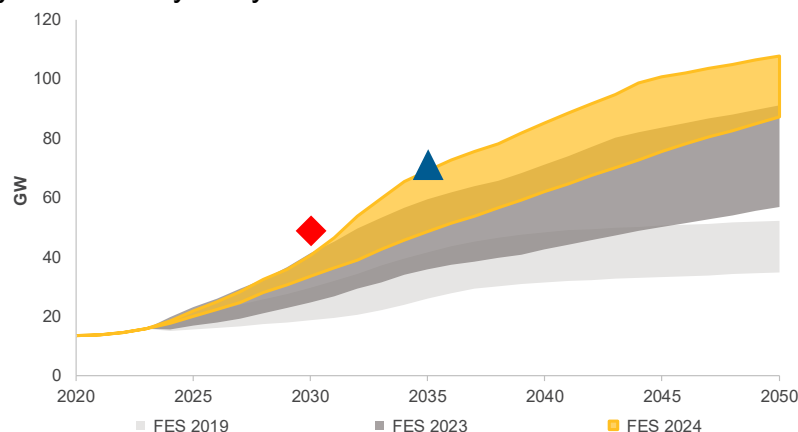


Figure 6-6: Evolution of future solar capacity forecasts in the UK

(2019 – 2024)

[Ref. 29, Author Analysis]

- 5.10.13 **Figure 6-6** shows that the range of future solar capacity forecasts for different FES pathways increased from FES 2019 to FES 2023, and again to the most recent publication.
- 5.10.14 The UK's net zero commitment in 2019 manifested in FES pathways as a further increase in solar capacity, shown by the dark grey range in **Figure 6-6** (the 2023 forecast) being higher than the light grey 2019 forecast.
- 5.10.15 The blue triangle shows the top end of the 2035 capacity range and the red diamond shows the government's 2030 capacity range for the prioritised connection of solar capacity, both sourced from government's Clean Power 2030 Action Plan [Ref. 3, Connections Reform Annex, Table 1].
- 5.10.16 To achieve the top end of the 2035 capacity range, installations would need to track the most aggressive FES 2024 pathway for the next ten years.
- 5.10.17 To achieve the 2030 capacity range, an even more aggressive deployment rate is needed over the next five years.
- 5.10.18 This underscores the need for solar schemes to come forwards for delivery in the 2030s as well as to continue to come forwards beyond 2030 to deliver the ongoing need for the technology in the UK.
- 5.10.19 Year-on-year cost reductions have made solar technology progressively more attractive (and now preferential) compared to many other forms of electricity generation, promoting the commercial rationality for the UK to prioritise the development of solar capacity. The incorporation of a cost perspective in the 2024 FES is therefore likely to be one reason why capacity installation pathways have increased from the 2023 forecast to the 2024 forecast. Solar capacity helps to address energy affordability challenges (see **Chapter 9**) as well as meet the already urgent need for schemes to come forwards to support decarbonisation and energy security aims.
- 5.10.20 Each of the annual ranges of future installed solar capacity in **Figure 6-6** may be explained by the extent to which other low carbon technologies including onshore and offshore wind, nuclear, CCUS and BECCS are deployed in the UK. Delays or shortfalls in the deployment of any technologies versus their FES pathways will require a compensatory acceleration or expansion in the deployment of other technologies for the UK to remain on track to achieve net zero.
- 5.10.21 In this context, the urgent development of large capacities of technologies which are proven in development and operation is clearly a prudent approach and is

consistent with the government's conservative approach to infrastructure development described in NPS EN-1 [Ref. 1, Para 3.3.10]. This is also consistent with government setting capacity ranges to increase the deployment of different technologies by 2030 and 2035 which maintain some optionality until more clarity is available on achieved and forecast progress [Ref. 3, p31].

- 5.10.22 The solar sector is proven in operation with over 17 GW of installed capacity already reliably delivering zero-carbon electricity to the UK's electricity system. The solar sector is also proven in delivery because of its short development duration and is therefore well placed to deliver to the urgent need for low-carbon generation.
- 5.10.23 Data from the REPD [Ref. 45] quantifies the average duration from planning submission to operation of a solar farm in the UK is 1.4 years (over an average of 1,308 projects) with a 1-year construction timeframe post consent.
- 5.10.24 Larger projects may take longer to consent and construct. 14 solar projects with capacity over 40 MW are listed as operational in the REPD. These projects took on average 2 years from planning submission to operation, of which construction lasted on average 1.4 years.
- 5.10.25 This data is in stark contrast to historical development timescales in the UK for onshore wind (see **Section 5.5**), offshore wind (see **Section 5.4**) and nuclear power (see **Section 5.6**).
- 5.10.26 However, many large-scale schemes have target operational dates which are determined by available grid connection dates. Large-scale schemes may therefore follow a development plan to coordinate with those dates. Larger schemes of over 50 MW capacity are also required to apply for development consent under the PA 2008, with different statutory timelines to smaller schemes, which may affect the time elapsed from planning submission to operation as NSIP schemes start to deliver.
- 5.10.27 At first view, solar pipelines look healthy but must be viewed with caution, particularly in relation to the analysis included at **Section 5.3** of this Statement regarding the attrition of projects and capacity from pipelines and registers prior to commercial operation. Clean Power 2030 will be achieved only if the pipeline of credible and viable projects which are ready to proceed (such as the Proposed Development) continually feeds the connections and contracting process through the intervening years.
- 5.10.28 Solar schemes can be developed stand-alone or co-located with storage or other generation technologies. Both stand-alone and co-located schemes play essential roles in contributing to the three pillars of energy policy: decarbonisation, security of supply, and affordability.

- 5.10.29 **Section 5.11** of this Statement explains that storage is an essential part of the future energy system. **Section 6.9** explains that the co-location of storage with renewable generation has benefits, however it is not necessary (and nor is it a policy requirement) that all renewable energy schemes are co-located with storage.
- 5.10.30 Stand-alone solar schemes (and schemes using other renewable generation technologies) are already prevalent and will likely continue to be prevalent in the UK's future electricity system.
- 5.10.31 **Figure 6-8** shows that in each of the three FES pathways which are compatible with net zero, the capacity of solar generation always outstrips that of storage. It is therefore anticipated by the Electricity System Operator, that the future electricity system will consist of both stand-alone solar (and other renewable) projects, as well as co-located projects.
- 5.10.32 Stand-alone renewable schemes generate, from a renewable source, zero-marginal carbon electricity. Therefore, stand-alone schemes also provide an essential contribution to reaching net zero.
- 5.10.33 The TEC Register [**Ref. 44**] lists 3.1 GW of stand-alone solar and 21.4 GW of co-located solar projects with connection dates prior to 2030. The TEC register does not record the capacity of individual technology types within an application. Therefore, it is more precise to state that solar technology is proposed to be installed at projects which comprise a total of 24.5 GW of connection capacity to the NETS prior to 2030.
- 5.10.34 A point of connection is absolutely necessary for a developer to secure for a development to be viable to take forwards and in many cases grid connection can be secured prior even to engaging local landowners. The current scarce nature of grid connections in GB, coupled with expectations of large capacities of connections being required in the future, prioritises the procurement of grid entry connection capacity as a critical project development activity.
- 5.10.35 The cost of securing and holding a grid connection for a potential scheme is also not prohibitive in relation to development costs as a whole. It is therefore understandable that the current 'connection queue' capacity is very high. This does not however mean that all capacity in the connections queue will make it to commercial operation, and the Connections Action Plan resolves to remove de-prioritise less ready schemes in the connections queue, and prioritise those which are more advanced in their development.
- 5.10.36 Planning consent is required for all schemes greater than micro-scale. The REPD lists 14.5 GW of consented projects awaiting construction but only 2.4 GW is

currently under construction. Of the total 16.9 GW with planning consent, 3 GW of these schemes are of a Nationally Significant scale.

- 5.10.37 Applications totalling a further 7.2 GW of solar capacity have been submitted to planning authorities other than the Planning Inspectorate, but have not yet been determined. Given average development durations, it is possible for successful schemes to deliver in 2025 or 2026, subject to their grid connection dates (which are not listed on the REPD).
- 5.10.38 A further 2.5 GW of capacity in England, across 8 schemes, has been submitted to the Planning Inspectorate but has not yet been determined. Grid connection dates for these schemes range from late 2027 to 2031.
- 5.10.39 A further 18 schemes, totalling approximately 9 GW, are at the pre-application stage with the Planning Inspectorate, including the Proposed Development, with application submission dates estimated from late 2024 (up to 6 schemes) through 2025 (up to 9 schemes) and 2026 (three schemes). Grid connection dates for these schemes range from 2025 to 2033.
- 5.10.40 At best, therefore, approximately two thirds of the capacity of solar schemes with agreements to connect to the NETS prior to 2030 have so far engaged with the Planning Inspectorate. It is not a given however that all capacity which comes forward proceeds to the development consent / planning stage, or will be successful in its planning application, or will proceed onwards through commercial contracting, investment decisions, construction and ultimately to operation.
- 5.10.41 In relation to revenue contracting, the pipeline is even further constrained although results of the government's recent CfD allocation rounds support solar's ability to deliver to shorter timeframes than other renewable generation technologies. Solar secured contracts to deliver the majority of contracted capacity in CfD Allocation Rounds AR4 and AR5 delivering in 2025 (1.6 GW) and 2028 (1.1 GW) **[Ref. 47]**.
- 5.10.42 A further 3.3 GW of solar was awarded a CfD in AR6, delivering in 2026/27 (1.1 GW) and 2027/28 (2.2 GW).
- 5.10.43 However, data also suggests that an attrition or stall rate could be significant. Approximately 10% of potential pre-2030 connected capacity has passed through planning and secured a revenue contract.
- 5.10.44 It is the Applicant's view, that if a significant capacity of solar generation is not built out to a scale comparable with the projections provided by NGESO and others, then the UK will be highly unlikely to continue to reduce its carbon

emissions over the coming decade, and ultimately meet its legally binding net zero target.

5.10.45 The size of the pipelines for solar schemes is encouraging across all scales of development, but the data shows that the attrition of schemes through the development process is a real risk to the delivery of that capacity.

5.10.46 A significant proportion of low-carbon schemes currently listed on registers will not become operational, and with that as context, bringing this Proposed Development forwards will be a critical step in the development and delivery of large-scale solar capacity in the UK.

5.11 Flexibility

5.11.1 Government's Clean Power 2030 Action Plan describes the need for flexibility in the UK's future energy system:

“As we build an energy system reliant increasingly on variable renewables, improving the flexibility of the wider electricity system is key ... A significant increase in short-duration flexibility of 29-35 GW across battery storage, consumer led flexibility and interconnection capacity from 2023 levels will reduce the amount of more costly generation and associated network infrastructure that needs to be built, whilst maintaining security of supply.”
[Ref. 3, p14].

5.11.2 Flexibility is delivered through interactions between both supply (generation) and demand (consumption) to help the national energy system function safely and efficiently. The full operation of flexible assets within that system requires them to both store energy from (or save) and release energy to (or use more) the energy system in response to market drivers, as will subsequently be explained.

5.11.3 The overriding themes for the GB electricity market in the coming decade are those of decarbonisation through an increase in deployment of renewable generation, and higher demand due to the electrification of heat, transport, and industrial demand, while meeting Security of Supply standards and affordability aims.

5.11.4 This means a move away from dispatchable fossil-driven assets and towards renewable plant: a theme which will alter the needs of the GB electricity system. System security of supply will need to address:

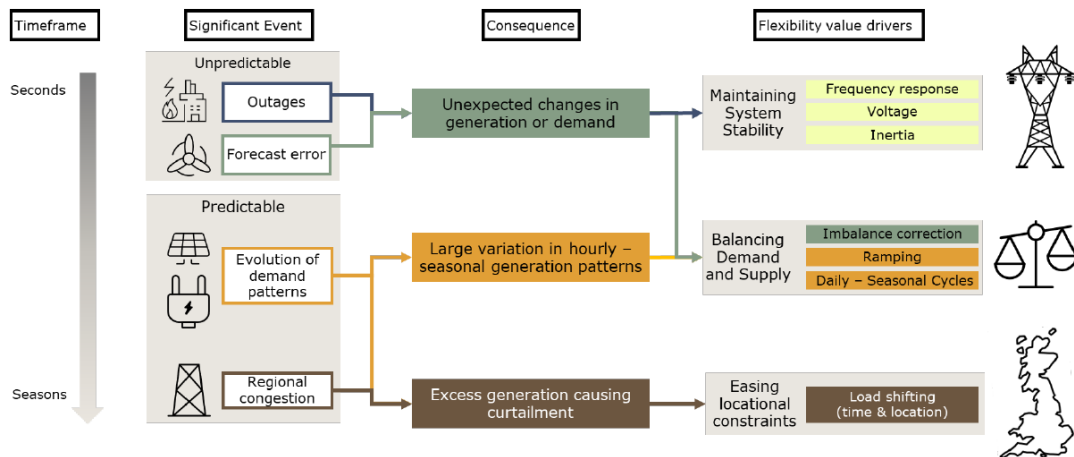
- Changing patterns of, and variability in, residual demand (demand net of renewable output)
- A reduction in the proportion of synchronous plant connected and available to support system frequency
- A shift in the location of generation reflecting resource (wind and solar) distribution

5.11.5 **Figure 6-7** above illustrates the events, consequences, and value drivers over different timeframes for flexibility in the GB electricity market. Greater variability in residual demand (i.e. demand net of renewable generation supplied) will increase the need for flexibility solutions across multiple timeframes.

5.11.6 Flexibility is needed to maximise the use of renewables when there is an abundance of generation, and to fill the supply gaps in periods of shortfall.

5.11.7 Storage provides flexibility. Flexibility is the ability to shift in time or location the consumption or generation of energy. Flexibility is also the ability to shift energy from one medium (vector) to another, e.g. electrical energy to gravitational potential energy through Pumped Storage schemes, and back again.

Figure 6-7: Drivers of flexibility requirements



[Ref. 71]

5.11.8 NPS EN-1 sets out the policy position in favour of electricity storage:

“Storage has a key role to play in achieving net zero and providing flexibility to the energy system, so that high volumes of low carbon power, heat and transport can be integrated.” [Ref. 1, Para 3.3.25].

5.11.9 Storage facilities need to be able to import energy and export energy. Sources of energy import are discussed later in this section.

Types of flexibility

5.11.10 Storage has the capability to deliver flexibility over different timeframes and can be categorised as:

- Short Duration Storage (SDS) with durations of four hours or lower, suited to addressing short duration balancing needs
- Medium Duration Storage (MDS) with durations of over four hours, up to 12 hours, suited to addressing within day balancing
- Long Duration Storage (LDS) with durations of over 12 hours, required for multi-day and seasonal balancing needs

- 5.11.11 Here, ‘duration’ refers to the amount of energy a storage facility can hold, rather than the time for which energy can be efficiently stored between import (charge) and export (discharge).
- 5.11.12 Short Duration Storage addresses the increasing need for flexibility in matching supply with demand within-day, i.e. balancing increasing levels of renewable electricity supply with demand and providing system services to support the operation of a high-renewable electricity system.
- 5.11.13 Long Duration Storage addresses the view that, in the future, the electricity system is expected to exhibit greater seasonal variability and provide for the potential of periods of days or weeks where there may prolonged excesses, or shortfalls, of renewable output.
- 5.11.14 Extreme but rare extended periods of low renewable generation (sometimes referred to as ‘Dunkelflaute’ events) possibly lasting up to several weeks have the potential to pose a security of supply risk. There is still considerable uncertainty around forecasting when these events will occur and how long they will last, so there is a need for both sufficient storage capacity and generation capacity to manage security of supply through these periods while also supporting decarbonisation targets.
- 5.11.15 Conversely, enduring periods of high renewable generation can better contribute to overall electricity system decarbonisation if abundant generation can be stored rather than curtailed.
- 5.11.16 Long Duration Storage assets are an important part of the anticipated solution to help manage both types of events, but these are not the events which Short Duration Storage assets, such as those which form part of the Proposed Development, are designed to address.
- 5.11.17 There are many technologies which have potential to provide grid scale electricity storage functions, ranging from pumped storage hydro schemes, BESS or more novel technologies such as liquid air storage, compressed air storage for SDS, or hydrogen with potential for LDS application. Pumped storage hydro schemes have been in existence for over 50 years. BESS are becoming increasingly commonplace in the UK. Other novel technologies are now being designed and developed with varying timescales for deployment.
- 5.11.18 Key differentiators between storage technologies are not only how energy is stored but is also how much energy can be stored, and for how long it can be stored, from both a technical and commercial basis.
- 5.11.19 NPS EN-3 also describes the government’s support for solar which is co-located with storage **[Ref. 2, Para 2.10.32]**.

- 5.11.20 Storage systems which are co-located with solar in the UK have so far tended to be SDS systems because SDS systems complement the generation profile of solar facilities and provide system functions which support the operation of the solar facility by (among other functions) balancing supply with demand.
- 5.11.21 The co-location of MDS or LDS systems with solar has not yet been proposed in the UK but future advances in technology may make this a viable possibility.
- 5.11.22 BESS are short duration electricity storage systems.

Quantifying future flexibility needs

- 5.11.23 FES 2024 net zero pathways indicate that storage and interconnection (flexibility) capacity will need to increase (from 15.8 GW in 2023) to 38.8 – 45.7 GW in 2030 and 56.9 – 76 GW by 2050 to balance supply and demand both within the GB system and across borders. Net zero pathways show Short Duration Storage system capacity increasing from 4.7 GW in 2023 to 22.8 – 27.8 GW by 2030, 31.1 – 38.6 GW by 2040 and 36 – 44 GW by 2050 [Ref. 29(2024), Table ES1]. Government's capacity ranges for batteries and other flexible assets for deployment by 2030 and 2035 are included at **Table 3-1** of this Statement.
- 5.11.24 As renewable generation capacity increases on the GB electricity system, so too will the total capacity of operational storage systems to balance an increasingly variable supply portfolio with demand across timeframes ranging from milliseconds to seasons.
- “Storage and interconnection can provide flexibility, meaning that less of the output of plant is wasted as it can either be stored or exported when there is excess production. They can also supply electricity when domestic demand is higher than generation, supporting security of supply. This means that the total amount of generating plant capacity required to meet peak demand is reduced” [Ref. 1, Para 3.3.6].
- 5.11.25 **Figure 6-8** shows FES solar and Short Duration Storage capacity projections from 2024 to 2050. The annual projections for SDS capacity (y-axis) are plotted against the annual projections for solar capacity (x-axis) for each of the three FES net zero pathways. The data has been re-cast to show increases versus a 2023 baseline. **Figure 6-8** shows anticipated growth in SDS capacity as a function of increasing solar capacity.
- 5.11.26 Each pathway follows a similar trend. An increase of 10 GW of solar (i.e. increasing GB installed solar capacity from c.16 GW as at the time of submission to c.26 GW) corresponds to a projected increase of c.15 GW of Short Duration Storage (i.e. increasing GB installed storage capacity to c.20 GW). An increase

of 40 GW of solar capacity corresponds to an increase of c.25 GW of Short Duration Storage.

5.11.27 The data shows that Short Duration Storage capacity initially needs to increase by c.1500 MW per 1000 MW of solar capacity growth, but NGESO's current pathways show that growth can then settle to c.250 MW per 1000 MW of solar capacity growth thereafter.

5.11.28 This analysis provides an indication of the scale of the need for SDS in the UK electricity system, however, it will not be solely a growth in solar capacity, but more likely a growth in the capacity of all renewable generation, which drives the requirement to increase capacity of many types of storage technology.

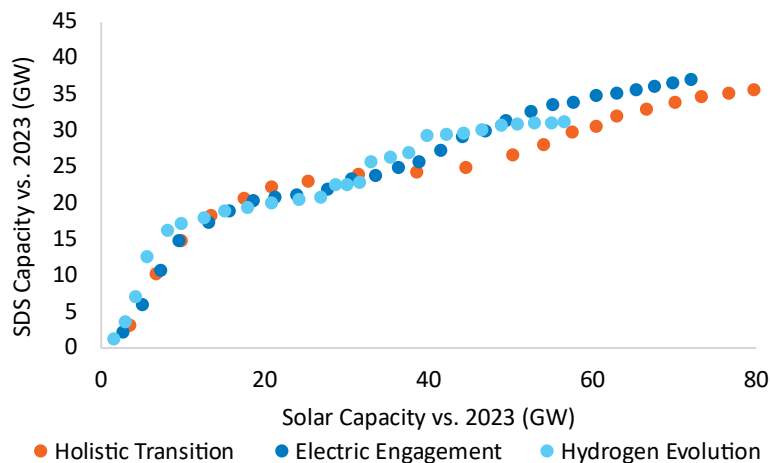


Figure 6-8: Growth in Short Duration Storage capacity vs. Solar capacity (2024 – 2050)
[Author Analysis, Ref. 29(2024), Tables ES.09 & ES1]

Co-location and stand-alone schemes

5.11.29 As both renewable generation capacity and storage capacity are expected to increase, projects which seek to connect to grid connection points which can accommodate storage facilities may propose to bring forwards energy storage facilities which are co-located with renewable generation.

5.11.30 As described in **Section 5.10**, storage facilities may also be developed as stand-alone from any renewable generation schemes.

5.11.31 Developments may identify location-specific reasons why storage schemes will not be co-located with renewable generation schemes, but it is important to recognise that stand-alone storage schemes are already commonplace in GB. Such schemes have already and are likely to continue to come forwards,

delivering decarbonisation and energy security benefits as part of the UK's electricity system through their own grid connections. It is not necessary (nor is it a policy requirement) that all storage is co-located with a renewable energy scheme but as NPS EN-1 makes clear, co-location is an approach which is supported because it can help to maximise the efficiency of land used by a scheme.

5.11.32 **Figure 6-8** shows that in each of the three FES pathways which deliver net zero, the capacity of operational solar generation outstrips that of operational storage capacity at all times. It is therefore anticipated by the Electricity System Operator, that the future electricity system will consist of both stand alone solar schemes (and by extension other renewable schemes), as well as co-located schemes.

5.11.33 However, where grid connections offers enable the co-location of renewable generation with storage, a scheme which includes both may be proposed and by doing so would – among other reasons – ensure that the greatest use can be made of the scheme's grid connection infrastructure.

5.11.34 Projects which are being brought forwards as stand-alone generation schemes still play an essential role in contributing to the three pillars of energy policy: decarbonisation, security of supply, and affordability, because of their critical ability to generate, from a renewable source, zero-marginal carbon electricity – which is something that storage, on its own, cannot do.

5.11.35 The size of the import connection secured by connection agreement with National Grid at the point of connection is an important input into the maximum power capacity of the BESS proposed at a facility. Other physical parameters may limit specific elements of the scheme, including parameters which will have the effect of capping the energy capacity of the proposed BESS.

5.11.36 Given the need for flexible sources of generation to support the rollout of renewable generation capacities onto the NETS, it follows that where the deployment of storage facilities is acceptable in a planning sense, that the consent process does not impart any conflicting or arbitrary caps on either energy or power capacity of an installed storage facility. Developers may therefore approach consent in such a way that secures flexibility in design (by way of a 'Rochdale envelope' approach) to allow provision in the DCO for technological innovation and improvements that may be realised at the time of procurement and construction.

5.11.37 This will ensure that the scheme may be constructed to incorporate future and as yet unknown innovation, safety improvements, and cost-efficiencies.

BESS provide flexibility

- 5.11.38 BESS provide flexibility to the electricity systems because they can import power when national supply outstrips demand, and export power when demand outstrips supply. BESS are also able to provide Ancillary (Balancing) Services.
- 5.11.39 Typically, BESS (as opposed to other forms of storage, e.g. pumped hydro, or in the future hydrogen) are used to balance supply and demand over short time periods (e.g. milliseconds to days). BESS may import energy at times of low demand (e.g. overnight) or high supply (e.g. the middle of a sunny day, or when wind generation is high) and release that energy when demand is high.
- 5.11.40 In the UK, demand currently tends to be higher in the morning (e.g. 07:00 to 09:00) and in the early evening e.g. 17:00 to 19:00) than it is at other times of the day, although it is conceivable that the daily shape of national demand will trend towards the daily shape of national supply through the implementation of smart meters, time of use tariffs, electric heating and transport needs in domestic and commercial properties.
- 5.11.41 Ancillary (Balancing) Services are procured by NESO and under these contracts, operators respond to NESO'S requests for them to import or export power. Ancillary (Balancing) services are important because supply of and demand for electricity must be matched at all times, and the electricity system needs to be kept in balance and within statutory control parameters. Ancillary (Balancing) Services are used by NGENSO to do this and the need for Ancillary (Balancing) Services is projected to increase as the capacity of intermittent renewable generation on the UK's electricity system increases.
- 5.11.42 **Table 6-1** describes the potential contributions made by a storage asset as part of the Proposed Development to the GB electricity market. This includes the role of the storage asset in supporting the operation of the solar asset by directing energy from times when generation is in abundance to times when it is needed. The storage asset is also able to provide ancillary services which support the operation of the solar asset as part of a decarbonised GB electricity system and help to mitigate the impact arising from an increasing portion of the UK's electricity being supplied from intermittent renewable sources. Further explanation of the associated nature of the storage development is included in main report of the **Planning Statement [EN010157/APP/5.5]**.
- 5.11.43 **Table 6-1** describes on each row, the different types of service, or commercial application, available to BESS. The second column provides an explanation of the service. The third column addresses the applicability of each service to either solar, storage or both (whether co-located or not).
- 5.11.44 The fourth column describes whether the service is an Ancillary Service, procured by NGENSO for the proper functioning of the electricity system or has other purposes which help 'keep the lights on' but are not those services specifically

described by the NIC as those which “support renewables and maintain the security of the electricity system” **[Ref. 70, p6]**.

5.11.45 The fifth column describes whether in providing each Ancillary Service (as categorised in the fourth column), a co-located solar + BESS would import, export, or both, power from/to the NETS.

5.11.46 BESS are needed to provide these services, because the assets which currently provide these services, being thermal (coal or CCGT plant), are either closing to reduce emissions associated with electricity generation to achieve net zero, or are expected to run less and less in the future as renewable energy grows, and the majority of these services can only be delivered by plant which are already operating.

“Rapid progress will need to be made to ensure that the electricity system can be operated securely and cost effectively using zero carbon ancillary services

NESO will continue developing short and medium-term balancing service markets, in order to help deliver a cost-efficient system: NESO’s Roadmap outlines measures to enhance utilisation of batteries in providing flexibility services” **[Ref. 3, p89]**.

5.11.47 Under an Ancillary (Balancing) Services contract, thermal plant would provide positive regulation (i.e. are ready to increase their output) by operating at a low level of power which can then be increased in very short order following instruction from National Grid ESO. Thermal assets which are already operating at higher levels of power are able to provide negative regulation (i.e. are ready to decrease their output) in a similar way by turning their output down following instruction from National Grid ESO.

5.11.48 BESS will be able to provide both upward and downward regulation by ensuring that they are entering their contracted period with a 50% State of Charge. This allows the BESS to import energy under instruction and store it until it is full (i.e. SoC reaches 100%), or export energy until it is empty (i.e. SoC reaches 0%).

Table 6-1: The potential contributions of storage assets to the GB electricity market
[Author analysis]

Service	Explanation	Applicability	Service Type	Connection
Trading	Forward balancing of anticipated energy supply with energy demand.	Solar assets generate energy. Storage directs energy from when it is produced to when it is needed. Storage can be co-located with solar assets or developed independently.	Other	
Balancing Mechanism	Being available to NGESO to balance supply and demand at delivery.	Solar can provide downward flexibility, at the 'cost' of low-carbon energy unless that energy is instead stored. Co-locating RES and storage allows for upward and downward flexibility. Storage supports RES assets avoid losing low-carbon energy. Stored energy can be dispatched over milliseconds to days, depending on technology and need.	Other	
Frequency Response / Dynamic Services	Changing output over seconds / minutes to help maintain national system frequency at the statutory level of 50Hz.		Ancillary	Both
Reserve Operation	Changing output over minutes / hours to re-balance supply and demand following a fault or other event on the electricity system.			
Reactive Power	Locational service which supports the 'flow' of power from source to destination.	A mandatory service, delivered by all transmission-connected assets.	Ancillary	Export
Inertia	Helps to slow the rate of change of the electricity system in response to an unforeseen event, stopping faults from escalating.	Solar inverters are able to provide synthetic inertia. Storage also provides synthetic inertia.	Ancillary	Both
Black Start	A locational service which would help 'turn back on the lights' if the national electricity system failed.	Stand-alone Solar is unlikely to provide Black Start. Stand-alone storage may provide limited Black Start support. Co-located assets may be more useful.	Ancillary	Both
Constraint Management	Changing output in response to local energy supply, demand and transmission conditions, to ensure locational adequacy at all timescales.	Solar can provide downward constraint management services. Co-locating solar and storage can allow for the provision of upward and downward constraint services.	Ancillary	Both
Infrastructure	By connecting generation assets where they are needed and where infrastructure already exists, less new electricity transmission and distribution infrastructure needs to be delivered.	RES and storage can help with reducing new infrastructure requirements, and sharing connection points by co-locating assets means that, ultimately, less connection points will be needed.	Other	

5.11.49 **Table 6-1** illustrates that the provision of many services requires both an import and an export connection, which allows for the upward and downward regulation as previously described.

5.11.50 Not all grid connections have available import capacity, so it follows that where export and import capacity is available at a particular grid connection point, BESS should be considered and assessed. If those available connections are not used, it is possible that storage will not be able to come forward to the capacity and timings required to support the full integration of low carbon power into the UK electricity system because new connection points will be needed to connect the scale of storage foreseen as necessary by NGESO.

5.11.51 A co-located BESS is foreseen to undertake the following five types of operation during its operational life:

- Importing from the co-located solar facility when local solar generation is high but national generation is higher than national demand
- Exporting to the grid when co-located solar generation is low but national demand is higher than national generation
- Importing from the grid when national demand is low but national generation is high
- Exporting to the grid when national generation is low but national demand is high
- Importing or exporting from the grid under an Ancillary (Balancing) Service contract instruction from NGESO

5.11.52 BESS will operate in the electricity market in response to a market need. Market need manifests as a differential in market price at different times, driving the BESS to import or export accordingly. A greater market need will drive a greater price differential. Electricity is bought and sold ahead of time (based on operational forecasts of supply and demand, see following) and also by NGESO much closer to (or at) delivery. Buying or selling ahead of time is called trading and commitments are then delivered through BESS operations, as is illustrated in the following. Any other operation at delivery will be under an Ancillary (Balancing) Services contract arrangement.

BESS operational parameters

5.11.53 Two important operational parameters which describe the size of a BESS are its power capacity and its energy capacity. It has already been stated that the size of the import connection secured by connection agreement with National Grid at the point of connection is an important input into the maximum power capacity of the BESS proposed at a facility.

- 5.11.54 The following examples describe how the operational parameters for the size of the BESS are related to each other, using as an illustration, a 100 MW, 200 MWh lithium-ion system.
- 5.11.55 Power capacity is measured in MW and describes the maximum instantaneous level of power export or import achievable by the BESS. This is analogous to the power capacity of a conventional generator.
- 5.11.56 Energy capacity describes how much energy the BESS can store. Energy equals power multiplied by time. Energy capacity is measured in megawatt hours (MWh) and can be described as MWh, simply hours, or by a C-rate.
- 5.11.57 For clarity, energy capacity does not relate to how long energy can be stored for (elapsed time between charge and discharge) although different technologies may have different technical or commercial factors which provide a practical limit to that elapsed time.
- 5.11.58 A BESS with 100 MW power capacity would, at any specific moment, be able to import, or export (not both at the same time) up to 100 MW of electrical power.
- 5.11.59 If that BESS was able to store enough energy to export at full capacity for one hour, it would have an energy capacity of 100 MWh (100 MW x 1h).
- 5.11.60 A BESS with two hours of energy capacity would be able to store 200 MWh (100 MW x 2h). This energy could be exported to grid at its maximum power rate (100 MW) for two hours.
- 5.11.61 Once fully depleted (i.e. all stored energy has been exported from the BESS), the BESS would take two hours at full import power rate (also 100 MW) to reach a full state of charge. The state of charge (SoC) can be measured as an absolute number (e.g. when full, the state of charge in this example would be 200 MWh) or as a percentage of the energy capacity of the BESS (e.g. when full, the state of charge would be 100%).
- 5.11.62 The battery C-rate describes the ratio of the power capacity and energy capacity, and the C-rate is the inverse of the number of hours required fully to charge the BESS from empty to full. This example describes a 0.5C BESS which takes at least two hours to discharge all of its energy from full (100% SoC) to empty (0% SoC).
- 5.11.63 In reality, BESS are not normally operated across the full 0% - 100% range of state of charge, instead cycling across 80% to 90% of that range (i.e. from c.10% SoC to c.90% SoC) to preserve battery cell life. Neither are BESS 100% efficient, and a Round Trip Efficiency (RTE) measure describes the percentage of energy

which has been imported to the BESS is then available for export. A current typical RTE value is 88%.

5.11.64 **Section 6.9** of this Statement shows how a co-located Solar and BESS scheme may operate and how the BESS may support the solar facility as well as fulfil additional functions to support high-RES electricity system operation in the UK energy market. In the examples given in that section, to simplify the explanation given on how BESS may operate, both round trip efficiency and the operational range of state of charge have been ignored.

5.11.65 **Section 9.2** of this Statement describes the commercial operation of the UK's electricity market and how changing levels of forecast supply and demand may affect electricity price. In summary, if over some future period of time, the national supply of electricity is expected to be higher than the national demand for electricity, then market price will be low. If national demand is forecast to be higher than supply over a different period of time, then market price will be higher.

5.11.66 A BESS which imports during lower price periods and exports that power during higher price periods will therefore help balance supply and demand in both periods.

5.11.67 Once charged, a lithium-ion BESS is able to hold its charge without significant depletion (charge leakage) for a period of at least days, meaning that BESS are able to import energy one day and export it the next.

5.11.68 In practice however, lithium-ion BESS are anticipated to provide short term balancing and electricity market operations and the long-term storage of imported energy in the BESS is not currently foreseen as a normal mode of operation for any lithium-ion BESS co-located with a solar facility.

5.11.69 Evidence on possible modes of operation of a co-located solar and BESS scheme are included at **Section 6.9**.

5.12 Conclusions on clean electricity supplies

5.12.1 This Statement of Need aligns with NPS EN-1 and concludes that many low-carbon generating technologies are urgently needed to meet the government's energy objectives by:

- Providing security of supply
- Providing an affordable, reliable system (through the deployment of technologies with complementary characteristics)
- Ensuring the system is net zero consistent

- 5.12.2 Government's Clean Power 2030 Action Plan sets out capacity ranges for key technologies for 2030 and 2035. The capacity ranges create a framework to help increase the pace of delivery of schemes which are more ready to be developed and can be connected to the grid in those timeframes. However, the capacity ranges do not constitute a government pathway **[Ref. 3, Connections Reform Annex, p5]** and therefore should not be interpreted as a cap or ceiling on the requirement for low carbon electricity generation capacity.
- 5.12.3 This Statement of Need describes progress made in the development of as yet unproven, unconsented, or unfunded schemes or schemes with long or as yet unproven development timelines.
- 5.12.4 Yet, to address the ongoing climate emergency, it is critical that the UK urgently develops a large capacity of low carbon generation.
- 5.12.5 The evidence shows that there are many significant uncertainties associated with the development of such schemes, particularly in relation to the timeframes in which material contributions to decarbonisation and security of supply must be made. Put plainly, such schemes cannot yet be relied upon to contribute to the delivery of net zero and many simply will not be ready to contribute in a meaningful way to decarbonisation before the 2030s. Achieving meaningful progress in decarbonisation during the 2020s is of critical importance in the fight against climate change.
- 5.12.6 The evidence therefore points to the development of proven technologies such as large scale solar as necessary to mitigate against the potential for non-delivery of other technologies. Such schemes should be brought forwards with urgency to make tangible and essential advances in decarbonisation in the near term.
- 5.12.7 The government's current policy of developing market-led frameworks to support the development of low-carbon generation from diverse sources of energy remains important. Such schemes have the potential to complement the UK's growing renewable generation capacity to bring decarbonisation and security of supply benefits forwards before 2030 and beyond into the next decade.
- 5.12.8 Solar power generation has global momentum, and large-scale schemes are already being developed in GB. Solar is a proven technology. It is already delivering as part of the UK's electricity system and will continue to deliver further critical benefits to consumers through the urgent and continued decarbonisation, security of supply, and affordability.
- 5.12.9 The IPCC has stressed the importance of urgent action to decarbonise electricity generation, and the CCC have reported that the UK needs to commission more low-carbon generation, and more quickly, to meet its net zero obligations.

- 5.12.10 The prompt development and deployment of proven technologies, such as solar, is a lower-risk pathway for delivering low-carbon generation both now and for the longer term, than waiting for technologies which may not deliver.
- 5.12.11 This is consistent with the approach described in NPS EN-1 which articulates the prudence of planning infrastructure development on a conservative basis, including for scenarios in which the future use of hydrogen is limited. **[Ref. 1, Para 3.3.10].**
- 5.12.12 Solar generation is needed in the UK to keep the country on course in its fight against climate change because it is a beneficial, fundable, and deliverable technology.
- 5.12.13 Flexibility of supply is also necessary to maximise the use of renewables when there is an abundance of generation, and to fill the supply gaps in periods of shortfall. Storage capacity is needed to increase to support renewable electricity generation capacity growth. The Proposed Development includes BESS facilities co-located with the solar array.
- 5.12.14 The Proposed Development should therefore be recognised for the critical contribution it will make to the UK's journey to net zero. Consenting the Proposed Development, such that it will be able to be constructed and operated as intended, will bring the UK closer to its required track through to meet its legally binding carbon emissions reduction targets. The delivery timing associated with current forward nuclear and CCUS projections strengthen this conclusion.
- 5.12.15 It is vital that the development of low-carbon generation capacity occurs urgently in the near-term and also on an ongoing basis to facilitate wider necessary decarbonisation actions. It is important that schemes with long development timescales continue progressing their plans to achieve or sustain carbon reductions in decades to come.
- 5.12.16 Developments with the proven ability to achieve carbon savings comfortably within in the next decade are essential to keep the UK on its legally binding carbon reduction path.
- 5.12.17 An actual, potential, or aspirational pipeline for longer term low-carbon generation schemes presents additional opportunity for future decarbonisation. However, the presence of such a pipeline cannot legitimately be used as an argument against the consent and development of a scheme proposing to use proven technology and short development timescales, thereby delivering dependable decarbonisation benefits.
- 5.12.18 The Proposed Development is a viable proposal, which currently is planned to deliver in the early 2030s. It will achieve significant carbon reduction benefits

through the deployment of a proven, low-cost technology at a very suitable grid connection. As such, the Proposed Development possesses exactly those attributes identified as being required both in the near-term and in the future to continue to make material carbon reductions in the UK electricity sector.

6 Technical considerations for UK solar schemes

6.1 Chapter summary

- 6.1.1 This chapter provides an overview of the characteristics of solar power and the delivery of large-scale projects.

6.2 Large-scale and small-scale generators

- 6.2.1 Generation assets can be ‘centralised’ (connecting to the NETS) or ‘decentralised’ (connecting to the distribution networks or ‘behind the meter’ in consumer premises).
- 6.2.2 Electricity transmission networks operate at high voltages. High voltage operation reduces transmission losses and makes the bulk flow of energy over longer distances more efficient. Distribution networks operate at a lower voltage than the transmission networks, and are located closer to points of final demand. A lower voltage connection means that Generators which connect to distribution systems must be of a smaller capacity than those which connect to the NETS. Therefore, to connect the same total capacity of generators, more connections would be required at the distribution network level (at a potentially greater overall cost to consumers) than would be required directly into the NETS.
- 6.2.3 The NETS was designed to allow for the connection of large generating assets, but distribution networks were originally designed to transmit power to consumers. Distribution networks were not designed to connect significant capacities of electricity generation. Connecting generation assets of any meaningful size to distribution systems is becoming more difficult and more expensive (ultimately to the bill-payer). The Connections Action Plan includes an example of how distribution network constraints cause a significant delay to the installation of rooftop solar for an industrial consumer [Ref. 24, p79]. It is therefore not the case that the connection of renewable generation to the distribution networks is either quick, or cheap.
- 6.2.4 By virtue of their role in transferring power from the bulk NETS to businesses, built facilities and houses, many distribution networks are in built up areas, away from areas of large natural resource potential. Geographical and technical constraints may therefore arise as generators continue to be connected to these networks, applying upward pressure to the costs and durations required to grant a connection agreement. This may materialise as significant cost, timing, and complexity considerations both for asset developers as well as for consumers

who ultimately pay for the developments and the operation of the complex distribution systems which result.

- 6.2.5 However, in 2023 31% of all generation capacity was connected to the distribution networks. FES net zero pathways project that the proportion may decrease up to 2030, but may increase in some net zero pathways by 2050, up to 35% **[Ref. 29(2024), Figure ES.07]**.
- 6.2.6 The proportion of generation capacity in 2050 connected to the distribution networks in the 2020s has decreased year-on-year in NGESO's analyses since the government committed to net zero by 2050.
- 6.2.7 This reflects the increased and urgent need for renewable generation capacity to come forwards, but with increasing complexity associated with connecting generation to distribution networks. An ongoing programme of work is seeking to increase the capacity of the NETS in as affordable a way as possible **[Ref. 72]**.
- 6.2.8 In their election manifesto, the government stated that "Local power generation is an essential part of the energy mix and reduces pressures on the transmission grid" **[Ref. 15, p54]**. Although the total capacity of generators connected to distribution systems is expected to grow, the total capacity of generators connected to transmission systems is also expected to grow.
- 6.2.9 Government states that "Wherever renewables can connect to the distribution network, this should be encouraged for reasons of speed and efficiency" **[Ref. 3, p63]** but also that "Much of the generation capacity that will be deployed by 2030 is likely to come from large-scale, commercial energy infrastructure" **[Ref. 3, p78]**.
- 6.2.10 FES 2024 net zero pathways triple the capacity of generation connected to the transmission network (2050 vs. 2023 capacity) to a total of 238.5 – 247.5 GW. The capacity of generation connected to distribution networks is projected to increase by a factor of approximately 3.3 (2050 vs. 2023 capacity) but to a smaller total of 95.1 – 131.4 GW **[Ref. 29(2024), Figure ES.07]**.
- 6.2.11 A wholesale decentralisation of the UK's electricity system is not expected to occur in the next 30+ years, and even in the most consumer-led scenario, the share of generation capacity connected to distribution networks is anticipated to rise to only 35%.
- 6.2.12 Decentralisation is not in itself a strategy or a requirement of the energy system but is a trend which will go some way to delivering a flexible, low-carbon, and affordable energy system. Distributed generation will contribute to meeting carbon emissions targets and improving energy security.

- 6.2.13 While it is right to encourage local generation capacity growth, local generation alone will not replace the need for new large-scale electricity infrastructure to meet UK energy objectives **[Ref. 1, Para 3.3.12]**.
- 6.2.14 Operating a mainly national electricity system (as current) will likely be more affordable than operating multiple distribution systems, connected by a 'light' transmission system.
- 6.2.15 By connecting more decentralised assets to distribution networks, less power will flow on the NETS and its unit cost of operation, which must be passed to consumers, will increase.
- 6.2.16 However, to ensure local as well as national adequacy of supply, the connection of more assets to distribution systems would also require either investment in power transfer capability between each separate distribution system and the NETS, or a greater capacity of local low-carbon generation on each distribution system to manage local peak power security of supply.
- 6.2.17 In contrast, a system with a high proportion of transmission-connected assets would offer "a number of economic and other benefits, such as more efficient bulk transfer of power and enabling surplus generation capacity in one area to be used to cover shortfalls elsewhere." **[Ref. 1, Para 3.3.12]**.
- 6.2.18 Further, to accommodate more decentralised generation capacity, more investment will be required to reinforce distribution networks and provide more connection capacity.
- 6.2.19 Operating a primarily decentralised electricity system in the UK would also likely be significantly more complex than operating today's primarily centralised system.
- 6.2.20 Electricity consumers, either directly or indirectly, through their energy bills, pay for all costs related to both transmission and distribution systems, including market inefficiencies, economic decision making, asset investments, balancing actions, and transmission and distribution system enhancements. Energy bills will rise if existing assets are underutilised and/or reinforcements are required on other systems.
- 6.2.21 The NETS remains an important measure to maintain interregional connectedness, support the meeting of national peak demand "reliably in all areas" from geographically disparate sources whatever the weather **[Ref. 32, p182]**, and keep power flowing to consumers with the high levels of reliability consumers have come to expect and require.

- 6.2.22 The Applicant has accepted a Connection Offer from National Grid to connect the Proposed Development to the NETS at an existing National Grid substation at Creyke Beck. The Connection Offer provides for the import and export of up to 320 MW of power, connecting in 2033.

6.3 Large-scale, brownfield and rooftop solar

- 6.3.1 Decentralised solar may be installed on domestic or commercial rooftops or on brownfield land. In relation to brownfield locations, some may be suitable for solar deployment, but others will not.
- 6.3.2 Many decentralised sites may be unable to source a cost-effective and timely grid connection to support a stand-alone solar site. Distribution networks, which by 2023 were already straining with 36 GW of distributed generation **[Ref. 29(2024), Table ES.07]**, may also not be able to distribute the energy generated from new generators, even if connection points are found close to potential sites.
- 6.3.3 Many sites may simply not be suitable. They may be in areas of low solar irradiation, have unfavourable topography or be too small to develop in a cost-effective manner. Others may have remediation issues which render sites unavailable for solar development given potential costs or liabilities associated with cleaning up after prior activities.
- 6.3.4 In relation to roof space, larger commercial structures or buildings with shared roof space may have contractual issues relating to ownership, occupation, and upkeep which must be resolved prior to any solar development, or may not be resolvable in a timely and efficient way. Any roof space sloping to the north will be unsuitable for solar panels. Smaller buildings, listed buildings or those with period features are also unlikely to be suitable.
- 6.3.5 Other locations may be suitable from an engineering perspective but may be overshadowed by nearby taller structures or natural features which could significantly impact irradiation and output, and therefore yield and benefit. Shaded homes in built up areas may be a prime example.
- 6.3.6 Other roof space may need to be reinforced to accommodate the additional loading associated with solar infrastructure, all of which will add to installation costs for homes and businesses.
- 6.3.7 **Section 9.3** provides more information on the economics of solar power, and demonstrates that it is already among the cheapest forms of generation over its lifetime. However, the installation costs of small scale solar are significantly higher than that of large-scale solar on a £/kW (installed capacity) basis.

- 6.3.8 Very small installations, such as those on domestic roof spaces, may not be large enough to make solar installation viable once the ‘fixed’ costs of installation (e.g. design, scaffolding, cabling, and commissioning) have been accounted for. This is important because it is for bill payers to pay for the installation of small-scale generation at their properties, and installation costs for small-scale solar have increased both on an absolute scale and in relation to governmental estimates for the installation costs of large scale solar.
- 6.3.9 **Figure 7-1** following shows cost information relating to the installation of domestic solar panels from the government’s Microgeneration Certification Scheme (MCS) [Ref. 73], benchmarked against the capital cost range for small scale (domestic) solar PV and large-sale solar from the government’s Cost of Electricity Generation report [Ref. 74(2023)]. Capital cost includes development, construction, and infrastructure costs where appropriate.
- 6.3.10 The data shows that small scale solar (red area) to be two to four times more expensive to install than large scale solar (green area). During the period 2019 to 2021 inclusive, MCS data shows that actual installation costs were comfortably within the governmental estimated range, however in mid-2022, installation costs rose to above the top of that range.
- 6.3.11 The reported installation cost for small schemes started to reduce again from a high in early 2023, back towards government’s range, but it remains significantly higher than the governmental range for large-scale solar.
- 6.3.12 Many home or business owners may not have the capital reserves to pay for the installation of solar panels on their roof areas and others may not want them. Since the wind-down of the Feed in Tariff scheme, which was introduced on 1 April 2010 but closed to new applicants from 1 April 2019, previous governments have been silent on measures to support domestic and small commercial solar installations, other than the removal of VAT from installation costs.
- 6.3.13 The implication of these factors is that the real potential for decentralised solar in the UK is likely to be much lower than any gross potential identified when the suitability, availability, practicality, and economics of such developments are taken into account.
- 6.3.14 Further, the installation of many thousands of separate systems is likely to take longer than the installation of a smaller number of ground-mount systems to achieve the same capacity. This is an important point in relation to the required urgency for solar generation.
- 6.3.15 Data from the government’s MCS scheme shows that the rate of small-scale installations increased near the end of 2022. The average installation rate from October 2022 to November 2024 inclusive, was 77 MW per month. The average

installation rate from January 2019 to September 2022 was just 23 MW per month **[Ref. 73, Author Analysis]**.

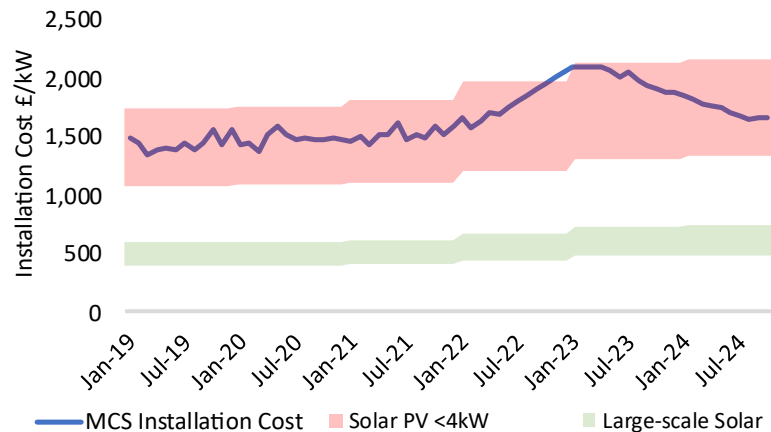


Figure 7-1: An analysis of solar capital costs (£/kW)
[Ref. 73, Ref. 74]

- 6.3.16 To achieve the top end of the government's capacity range of 45 to 769 GW of operational solar by 2035 **[Ref. 3, Connections Reform Annex, Table 1]** to be achieved through microgeneration schemes alone, installation rates would need to increase by a factor of more than six, from their already record current installation rates. This increase would need to start immediately and be maintained throughout the next 11 years.
- 6.3.17 Installation rates would need to reach and sustain an even higher level to meet the top of government's capacity range of 45 to 47 GW of solar by 2030 from microgeneration alone **[Ref. 3, Connections Reform Annex, Table 1]**.
- 6.3.18 It is the Applicant's view that this is not a credible projection and therefore large-scale solar schemes are also required in the fight against net zero.
- 6.3.19 Decentralised generation has an important role to play in decarbonisation, however on its own, smaller scale solar, including rooftop solar, is not likely to deliver a sufficient total capacity at the required pace and at an affordable cost to meet the government's targets.
- 6.3.20 This information shows that smaller scale solar, including rooftop solar, must be considered as additional to, as opposed to instead of, the need for large-scale solar.

- 6.3.21 Government has clarified that its capacity ranges for solar do not seek to prioritise or constrain rooftop solar deployment and are applicable to schemes of over 1 MW in England and Wales. The threshold in Scotland is lower **[Ref. 3, Connections Reform Annex, p5 & Table 1, Footnote 10]**.

6.4 Site selection for large scale solar

- 6.4.1 Site selection is a critical step in the delivery of projects with aims of meeting the UK national need for sufficient low-carbon, low-cost energy supplies to support legal decarbonisation targets and national energy security requirements. This section sets out, in generic terms, the assessment process for sites for large-scale solar generation in the UK.
- 6.4.2 Suitable sites will be:
- Capable of delivering to the required scale (in relation to the need for the scheme)
 - Technically and environmentally feasible within the stated timeframes
 - Commercially attractive to the developer
- 6.4.3 Site selection utilises a screening approach which considers possible alternative sites, taking into account the three requirements listed above. In addition, the screening approach recognises the required urgency of low-carbon development in the UK and therefore, in an approach which is consistent with guidance contained in NPS EN-1, applies a principle of proportionality to options which are vague or immature, **[Ref. 1, Para 4.3.28]**, especially where those considerations are critical for the viability of the project, on the grounds that they are not important and relevant to the Secretary of State's decision. The screening process will prioritise options which are more likely to be able to meet the intended aims of the project, over options which are less likely to proceed due to technical, commercial, or other reasons.
- 6.4.4 Solar developments require three fundamental technical attributes, and these therefore drive the initial screening process. These attributes (which are consistent with NPS EN-3 **[Ref. 2, Paras 2.10.18-48]**) are:
- The existence and availability of sufficient land to deliver to the project to meet the scale set out in the scheme's aims
 - The availability of a suitably placed point of connection to the NETS and/or local Distribution Network
 - Solar irradiation levels which support the potential for the development to produce an energy yield which is both useful and economic

- 6.4.5 Other attributes will also apply later into the screening process, for example those environmental attributes described in NPS EN-3 **[Ref. 2, Paras 2.10.27-48]** and the potential for environmental impacts as also described in NPS EN-3 **[Ref. 2, Paras 2.10.73-126]**. However, a site which does not possess all three fundamental attributes is less likely to be a suitable location for large-scale solar generation than a site which does possess these attributes.
- 6.4.6 Further information on site selection for the Proposed Development can be found in **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**.
- 6.4.7 The UK's approach to the energy sector provides that "It is for industry to propose new energy infrastructure projects that they assess to be viable within the strategic framework set by government" **[Ref. 1, Para 3.2.3]**. It is important therefore to acknowledge that an individual developer's approach to screening may not be rigid and inflexible but instead may be sensitive to local variability and indeed developer approach. Developers may therefore weigh the importance of one or more criteria in their screening approach differently for different schemes to accommodate and incorporate the needs and benefits of different geographies and local characteristics.
- 6.4.8 The site selection process also considers other factors which will not be a simple pass/fail for taking forward a site for development, but sites which are environmentally, technically, operationally, and commercially suitable will likely score favourably on a majority of important characteristics.
- 6.4.9 For example, adjoining land parcels may be both suitable and available for development, resulting in an increased density of solar deployment and an environmental footprint over a more focussed area of the countryside. Other proposals may consider separate land parcels which do not border each other but instead combine to an integrated scheme which is more dispersed within a countryside setting.
- 6.4.10 Further, the connection of separate parcels of suitable land together into a single scheme may, subject to analysis, enable those parcels of land to connect economically to the electricity system, whereas if developed as stand-alone schemes they may not be able to carry the associated costs of connection and therefore may never be developed.
- 6.4.11 Large-scale solar schemes, because of their scale and the area of land required for their development, are more likely to be sited in more rural areas of the country. In order to enhance the energy delivered from the installed capacity, schemes are also more likely to be sited in areas of higher solar irradiation levels.

- 6.4.12 **Figure 7-2** is a map of PV power potential in the UK. Areas of higher irradiance are identified by colours towards the red end of the spectrum, while areas of lower irradiance are towards the blue end of the colour spectrum.
- 6.4.13 The government's Digest of UK Energy Statistics (DUKES) [Ref. 28, Table 6.2] shows that the installed capacity of solar generation in the UK rose above 10 GW in 2016. Further, the average load factor of UK solar generation since that time has been 10.4% (min 9.9% in 2021, max 11.1% in 2018). A 10.4% load factor is equivalent to 910 kWh/Yr/kW(p), a value which corresponds to the boundary between the yellow to the right of 876kWh/Yr/kWp, and the darker yellow to the left of 949kWh/Yr/kWp on the scale shown in **Figure 7-2**.
- 6.4.14 Early experience in panel efficiency, system efficiency, site layout, and scale effects may mean that the load factor of existing solar in the UK is not as high as it would be if all existing solar facilities were re-powered with panels of a current specification and technical performance. However, from **Figure 7-2** it can be seen that any solar facility developed to the east of a line between Aberdeen to Manchester, and south of Manchester, could be expected to experience a higher load factor than the current UK average.
- 6.4.15 However, there may be reasons that developers bring forward schemes for consent which lie to the north and the west of those lines as they may also be beneficial to decarbonisation and energy security aims.
- 6.4.16 Large-scale solar schemes are expected to connect to the NETS. The NETS is an existing national infrastructure asset which is designed specifically for the bulk transmission of energy from its point of generation to nationwide consumers.
- 6.4.17 NPS EN-3 states that:
- “The capacity of the local grid network to accept the likely output from a proposed solar farm is critical to the technical and commercial feasibility of a development proposal” [Ref. 2, Para 2.10.22].
- “Larger developments may seek connection to the transmission network if there is available network capacity and/or supportive infrastructure” [Ref. 2, Para 2.10.23].
- “To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs applicants may choose a site based on nearby available grid export capacity” [Ref. 2, Para 2.10.25].
- 6.4.18 To enhance the overall benefit of the scheme in terms of environmental impact, efficiency, and timeframes for connection, schemes may elect to make use of

existing and available points of connection to the NETS insofar as such connection points exist, in preference to building new connections or increasing the available connection capacity at existing locations.

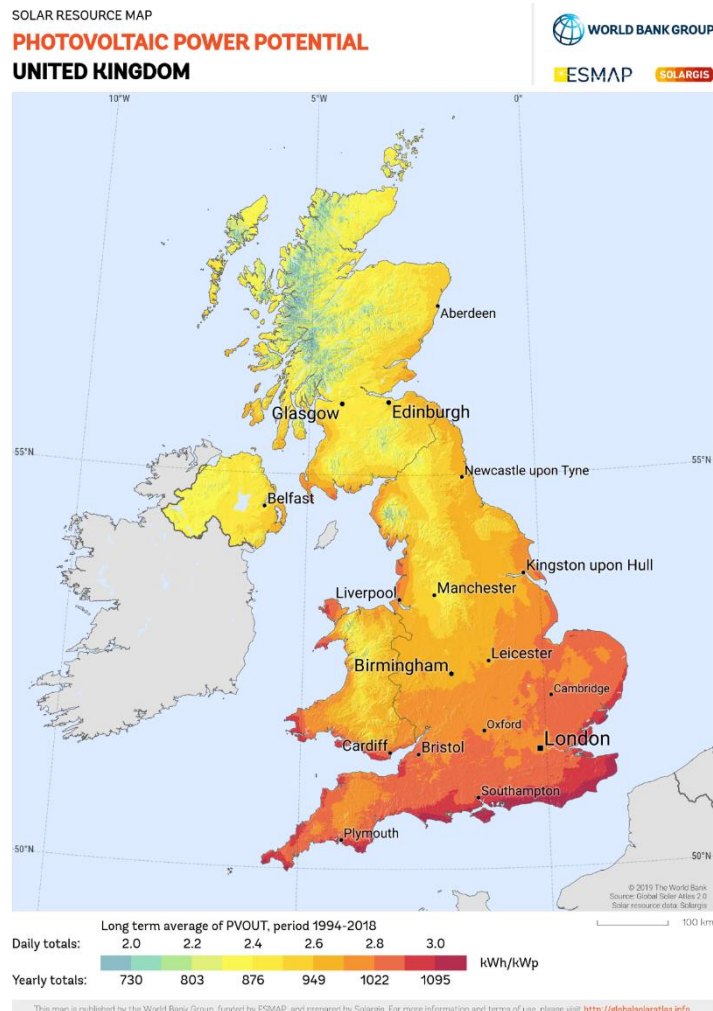


**Figure 7-2: United Kingdom solar irradiation
[Ref. 75]**

- 6.4.19 However, this is not always possible and new substations will be needed to facilitate the connection of schemes which are not located near existing substations. This is a similar development to that which has already occurred for offshore wind.
- 6.4.20 The Applicant has accepted a Connection Offer from National Grid to connect the Proposed Development to the NETS at the existing National Grid Creyke Beck Substn. The Connection Offer provides for the export of up to 320 MW of power, connecting in 2033.

- 6.4.21 **Figure 7-3** following shows data from NGET's online ConnectNow Research Assistant [Ref. 76]. The tool is a useful but sombre reflection of the challenge faced by the UK to bring new large-scale generation developments online in timelines which will support the urgent need for decarbonisation and energy security in the UK.
- 6.4.22 Each numbered circle on the map shows the number of connection points in that broad geography, and the colour represents NGET's view (current at the time of download of the map) of when a new connection might be achieved at each of those locations. The map shows that connecting any new assets (i.e. those which have not already secured a connection agreement with NGESO) to the NETS before 2032, is not currently possible.

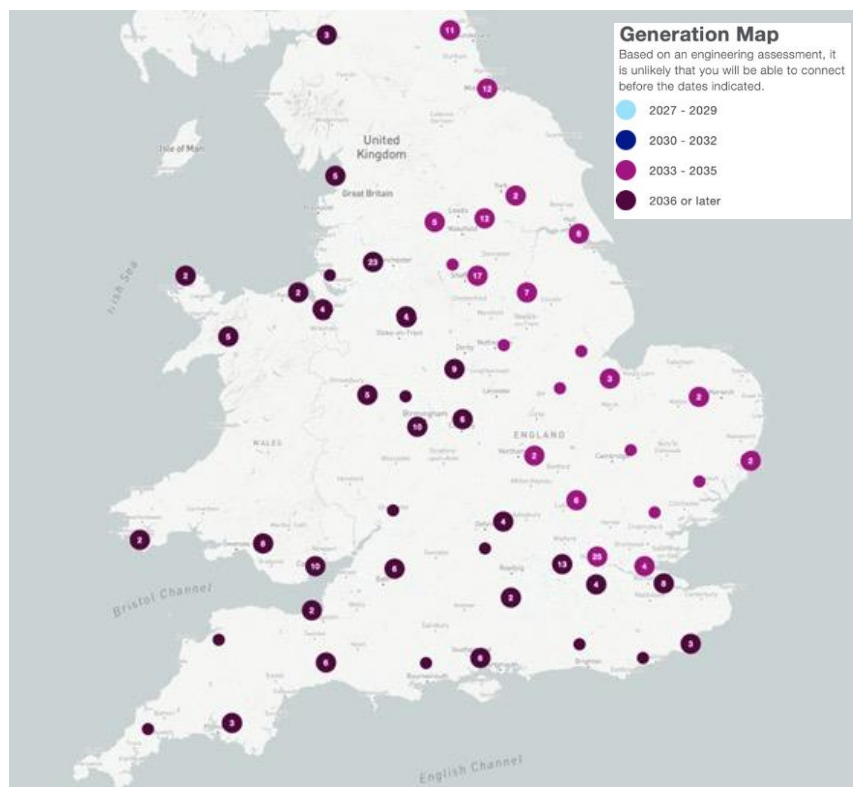


Figure 7-3: Transmission system connection opportunities [Ref. 76]

- 6.4.23 The UK will therefore need largely to look to those schemes which already have connection agreements to deliver the low-carbon capacity required to support the delivery of net zero and energy security aims until the mid-2030s.
- 6.4.24 It is important to recognise therefore, and as evidenced by the data shown in **Figure 7-3**, that connection to the electricity network, which is an essential element of project development, is currently a constraint to many schemes which are coming forwards.

- 6.4.25 This issue has also been acknowledged by Ofgem who in May 2023 issued an open letter launching a policy review on reforming the electricity connections system **[Ref. 77]**, by NGESO who are now working with the industry to undertake a review of the connections queue **[Ref. 78]**, and by the government which published, in November 2023, a Connections Action Plan which explains these sets of actions and how together they will work towards delivering quicker connections for low-carbon generation assets **[Ref. 24]**.
- 6.4.26 The importance of utilising existing and available infrastructure to meet the urgent need for new large-scale solar generation is starkly clear.
- 6.4.27 Further, in light of the urgent need to decarbonise the electricity system and the current lack of available connection points for low-carbon generation assets, developers may make use of different ways of maximising the generation potential from available and accessible land resource through any limited yet available grid connection capacity the project has secured.
- 6.4.28 Great Britain's energy transition to date has been characterised by the decommissioning of (primarily) coal fired power stations and the development of new renewable power plants. When power stations decommission, they leave behind the infrastructure used to connect them to the grid.
- 6.4.29 In light of the grid connection constraints identified above, the re-purposing of existing but unused infrastructure is an incredibly important strategy to help bring renewable power online in the timeframes required to support decarbonisation and security of supply.
- 6.4.30 Existing substations and existing transmission cables with spare transmission capacity provide the opportunity to repurpose existing, therefore largely sunk-cost, infrastructure to connect new schemes to the NETS earlier than would be possible at entirely new connections.
- 6.4.31 Large scale solar schemes must connect to the grid via high voltage electrical cables. Locating solar schemes close to grid connection points will reduce electrical losses (which rise in proportion to cable length) and may also result in a scheme with a lower environmental footprint than a scheme located further away from the point of connection, which would have longer cable routes.
- 6.4.32 The location and capacity of an available point of grid connection is therefore a firm guide for selecting sites for large-scale solar schemes. However, due to the finite number of existing substations – and the smaller number of those substations with available capacity, it is also anticipated that:
- New grid substations may be needed to connect the anticipated capacity of solar required to meet net zero

- Sites may be located at greater distances from existing grid substations than previous developments

- 6.4.33 The number of locations in the UK which satisfy all three core site selection requirements (land availability and suitability, feasible irradiation levels, and grid connection availability) is limited. For example, high population density and a large extent of designated land limits opportunities for large-scale solar development in the south east of England (where **Figure 7-2** shows that irradiation is highest), and the need for proximity to existing and available grid connection capacity limits opportunities in the South West and East Anglia (where **Figure 7-2** shows that irradiation is also high).
- 6.4.34 It should therefore not be expected that large-scale solar is located only where irradiation is highest in GB, nor only where suitable land is available, nor only in close proximity to existing grid substations with available capacity. Developments will be proposed in locations with the blend of characteristics which is assessed as suitable for each scheme, and each scheme may have unique features which are particular to its proposed location.
- 6.4.35 Further evidence supporting the suitability of the Proposed Development is included in **Chapter 7**.

6.5 Technology selection / orientation

- 6.5.1 NPS EN-3 provides guidance that, along with associated infrastructure, a solar farm requires between 2 to 4 acres for each MW of output [**Ref. 2, Para 2.10.17**].
- 6.5.2 There are currently three main configurations of solar panel used in the UK, each has different physical and operational characteristics:
- Fixed South Facing (FSF) panels are installed in rows stretching from east to west, with the receiver side of the panel facing south. The panels will be fixed on frames at an angle to the ground (dependent on latitude and ground slope) which will have been optimised prior to installation
 - Single Axis Trackers (SAT) are installed in rows stretching from north to south. A single table of panels rotates about the north-south axis so that the panel is perpendicular to the incident irradiation from the sun for as long as possible
 - East-West (E-W) panels are installed in rows stretching from north to south, with panels facing both east and west and an apex between them. As with FSF, the panels will be fixed on frames at a set (immovable) angle to the ground

- 6.5.3 Panels may be orientated vertically (portrait) or horizontally (landscape) and may be mounted with one or more above (or next to) the first.
- 6.5.4 Different configurations have different benefits and disbenefits, and some configurations may be better suited to some locations than others.
- 6.5.5 As the sun tracks in the sky, both throughout each day and throughout the year, the inbound irradiation on the panels will vary and frames, axes and panels will be oriented to best optimise irradiation at that location, for that configuration, across the year.
- 6.5.6 A characteristic which is common to all three configurations is the potential for there to be a shadowing effect of one panel on another panel from time to time. Site designers will seek to optimise output given the specific location, the available land, and a known grid connection capacity and this will include reducing panel-on-panel shadowing effects where possible.
- 6.5.7 Latitude will impact on the effects of shadowing and site-specific mitigations for all layouts, but especially so for FSF schemes. At higher latitudes, rows of FSF panels may be spaced further apart to reduce shadowing effects, while at lower latitudes spacing may not be as large. This is because the sun tracks lower in the sky when seen from higher latitude locations, casting longer shadows.
- 6.5.8 Spacing FSF panels further apart increases the ratio of acres / MW for the installation, but also increases the expected generation from each of the panels and therefore increases the ratio of energy generated over capacity installed (MWh / MW(p) / Year) for the scheme.
- 6.5.9 A similar analysis can be carried out for SAT and E-W configurations, however it should be noted that generally:
- SAT requires more land per MW(p) but has the potential to generate more MWh/MW(p) than FSF
 - FSF requires more land per MW(p) but has the potential to generation more MWh/MW(p) than E-W
- 6.5.10 Other local characteristics such as location and land topography may determine which configuration or combination of configurations delivers the greatest benefit in terms of annual MWh generation from a proposed development while considering the land area used, cost of installation and ongoing cost of operation and maintenance of specific developments.
- 6.5.11 The Applicant's **ES Volume 1, Chapter 3: Proposed Development Description [EN010157/APP/6.1]** describes that the Applicant is bringing forward a scheme which optimises use of the available grid connection capacity through the

installation of panels in a preferred SAT orientation. If consented, at the detailed design stage, the Applicant will design a scheme which delivers the greatest possible benefit over its operational lifetime, while respecting any local and environmental constraints set out in the Development Consent Order.

6.6 Overplanting

- 6.6.1 This section describes key aspects of overplanting. The Proposed Development is coming forward with overplanting.
- 6.6.2 Overplanting has been proposed to increase utilisation of the available grid connection capacity vs. the case that no overplanting was considered. The ratio of overplanting considered at this scheme lies within the ranges described in this section and the impacts of the Proposed Development have been assessed including the overplanted capacity.

What is overplanting?

- 6.6.3 NPS EN-3 describes ‘overplanting’ as

“The situation in which the installed generating capacity or nameplate capacity of the facility is larger than the generator’s grid connection” [Ref. 2, Para 2.10.55, Footnote 92].

- 6.6.4 NPS EN-3 also sets out that reasonable overplanting at a scheme should be considered as acceptable in a planning context as long as it can be justified and its impacts have been assessed through the planning process on the basis of the full extent of the scheme including any overplanting **[Ref. 2, Para 2.10.55, Footnote 92]**.
- 6.6.5 By selecting sites with the right blend of characteristics, developers will bring to commercial operation, solar schemes which deliver decarbonisation, security of supply, and affordability benefits.
- 6.6.6 An important consideration for developers is maximising the utilisation of the available grid connection capacity through the life of the scheme because schemes with greater lifetime outputs deliver greater decarbonisation and security of supply benefits and should also be more affordable. Location-specific commercial and environmental constraints also need to be respected in order for schemes to be consentable and financially rational.
- 6.6.7 Solar panels degrade as they age, and as they do they may produce less energy year-on-year for the same irradiation levels. Degradation is caused by physical processes relating to weather effects including the effects of light on the panels

over time. Overplanting provides an opportunity to increase the quantity of valuable low-carbon, zero-marginal cost MWh of electricity transmitted from a solar scheme to the grid over its lifetime.

- 6.6.8 Overplanting is dependent on sufficient suitable land area to be available to the scheme for installing solar panels. Overplanting is commercially rational on all types of scheme subject to the availability and suitability of a sufficient area of land to accommodate the overplanting proposed.
- 6.6.9 Similarly, locations with sufficient local, available, and suitable land but a capped grid connection capacity may seek to use that land by overplanting the scheme, thereby exporting more MWh to the grid over the life of the scheme.
- 6.6.10 However, there may be legitimate reasons why a particular developer, at a particular location, does not pursue an overplanting strategy for that scheme.
- 6.6.11 Further, overplanting is commercially rational for both stand-alone schemes and schemes which include co-located storage facilities, although the optimum extent of overplanting at each type of scheme (i.e. with or without co-located storage) is likely to be different.
- 6.6.12 Indeed (and further subject to the availability of land and co-located storage technology chosen) different schemes may have different optimum overplanting strategies.
- 6.6.13 It is possible that, at the application stage, applicants may not be sufficiently informed to be able to lock in an optimum overplanting strategy. In these circumstances, at the detailed design phase (i.e. post consent) the developer must judge the appropriate trade-offs to make to deliver the optimum deliverable scheme at a specific location, subject to any conditions set out in the DCO. Some constraints may require judgement rather than pure quantitative analysis to resolve in an optimal way, and for that reason flexibility is often sought in DCO applications.

The benefits of overplanting

- 6.6.14 Overplanting increases the generation potential of a scheme through a fixed capacity network connection, especially when the effects of panel degradation are considered. But a balance is necessary. Overplanting implies that when irradiation is high and panels have not yet degraded, sites may be forced to self-curtail because, at those times, they will be generating more power than they are able to export. At these times, inverters will limit the amount of energy exported to the grid, and excess energy is lost. This is sometimes called clipping.

- 6.6.15 However, when irradiation is lower, such that panels are not generating to their maximum potential, it is clear that an overplanted scheme will generate more than a scheme which is not overplanted. This is because at those times output will not be limited by the grid connection capacity. This is illustrated in **Figure 7-4** below.
- 6.6.16 The royal blue line in **Figure 7-4** shows output (against the dark blue connection capacity line) of a unitary solar scheme on an average irradiation day (left hand graph) and a high irradiation day (right hand graph). Note that the term ‘unitary’ is here intended to describe any scheme where the total capacity of the panels installed (MW(p), in DC) equals the export capacity of the scheme (MW, in AC). The grey line on each graph shows the output of a solar scheme which is identical to the representative scheme, except that it has been overplanted (i.e. it has more panels, but no more grid capacity, than the unitary scheme).
- 6.6.17 On an average irradiation day, more energy is exported from the overplanted scheme than the unitary scheme and no energy is clipped.
- 6.6.18 However, on a high-irradiation day, more energy is exported each hour from the overplanted scheme until the grid capacity limit is reached. At this time, the overplanted scheme experiences clipping. The output from the overplanted scheme therefore ‘flatlines’ until lower incident irradiation causes the overall output of the scheme to reduce below the grid export limit again, and more energy is exported each hour from the overplanted scheme until the sun sets.
- 6.6.19 As solar panels degrade, clipped energy volumes will reduce. This is because the peak output from a degraded scheme is lower than the peak output from a scheme which has not yet degraded. Therefore, under the same irradiation conditions, the maximum generation from the degraded scheme would be lower than the maximum generation from the scheme before degradation occurred.
- 6.6.20 In time, the maximum achievable generation from the scheme may fall below the grid export limit. This case is illustrated by the light blue lines in **Figure 7-4** which show overplanted schemes exporting more energy than unitary schemes and not incurring any clipping.
- 6.6.21 Schemes which are overplanted therefore generate more low-carbon electricity than unitary schemes. Overplanted schemes increase the utilisation of the available grid connection capacity throughout a scheme’s operational life. This is a key driver of enabling the transmission of as many MWh of energy onto the grid through the (limited) available grid connection resource as is possible, noting that, nationally, grid connection capacity is currently constrained and is projected to remain constrained over the coming decade.
- 6.6.22 Degradation of solar panels may mean that panels need to be replaced through the operational life of the scheme. Other than in instances of the premature failure

of individual panels (which would likely be replaced under a warranted maintenance arrangement) panel replacement is likely to be guided by data gathered through monitoring panel performance throughout the life of the project. This may be carried out on a rolling or programmed basis subject to any parameters which defined the assessment of the scheme's impacts on the environment.

- 6.6.23 The opportunity to overplant is driven by scheme-specific characteristics, such as available land area, cable access routes, grid connection capacity, panel orientation, and local irradiation levels. Overplanting (or the level to which overplanting is proposed) also has commercial drivers and these may differ from scheme to scheme and between developers.
- 6.6.24 It is therefore expected that solar schemes will overplant where possible while balancing commercial, geographical, and environmental considerations.
- 6.6.25 Developments which seek to make best use of available grid connection capacity will present as highly viable schemes and therefore will help to ensure that the need for large-scale solar generation can be fulfilled. This is an important and relevant factor in the decision-making process.

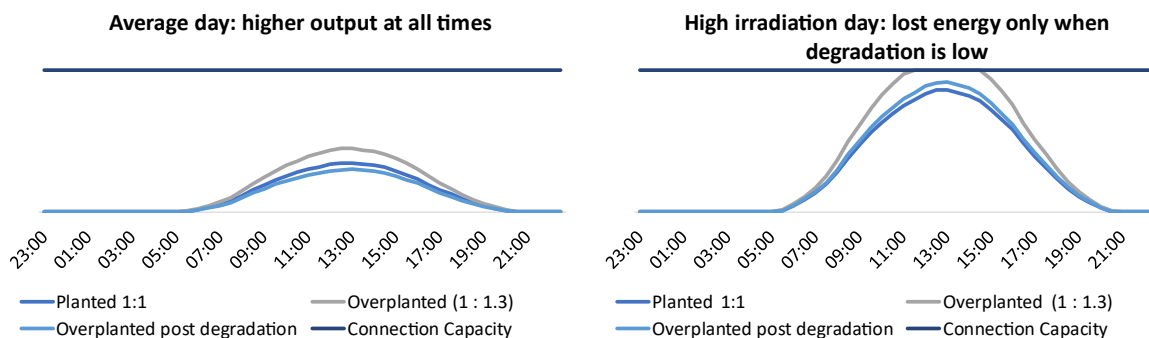


Figure 7-4: Clipped vs. optimised solar generation
[Author Analysis]

- 6.6.26 Given the constrained nature of available connections to the NETS, developers of solar schemes typically look for suitable locations close to existing and available grid connection points.
- 6.6.27 Further, schemes which maximise the generation and transmission of energy through the available connection will deliver a greater quantum of national climate change and energy security benefit through their operation, than schemes which deliver less energy to the grid.
- 6.6.28 Developers are therefore likely to aim to make greatest use of the existing and available grid connection at their contracted substation, by which it is meant to

design a scheme which will export to the grid, the greatest volume of low-carbon energy over the lifetime of the scheme.

- 6.6.29 Overplanting supports developers in achieving this aim, but there are limits to the benefits of overplanting.

Limits to the net benefits of overplanting

- 6.6.30 **Figure 7-5** and **Figure 7-6** below show the results of an analysis of the average annual output of a solar scheme per MW installed (y-axis) as a function of the overplanting ratio (x-axis), for a Fixed South Facing (FSF – blue) scheme and a Single Axis Tracker (SAT – orange) layout.
- 6.6.31 These figures have been derived from inputs which are appropriate for UK-based solar schemes generally and therefore the conclusions following are also applicable across all schemes, excluding the impacts of location-specific parameters.
- 6.6.32 As the overplanting ratio of a scheme increases, clipped solar generation at times of high irradiation and early in the scheme's operational life increases. Those losses may be compensated for by greater output in times of lower irradiation and more generally later in operational life, as illustrated previously. The level of overplanting determines the overall balance between clipped generation during times of high irradiation, and incremental generation at times of lower irradiation.
- 6.6.33 **Figure 7-5** below illustrates the average annual output of a scheme in terms of a Grid Utilisation metric (%) over the first 40 years of its operation.
- 6.6.34 Grid Utilisation is calculated as the total MWh exported through the grid connection during the life of the project, divided by the maximum MWh export possible through the connection during the life of the project, i.e. [grid connection capacity (MW)] x [project life (years)] x 8760 (hours/year).
- 6.6.35 The points on **Figure 7-5** show the lifetime Grid Utilisation for schemes with an overplanting ratio of between 1.0 and 2.2, at regular increments under either an FSF (blue) or a SAT (orange) layout. Clearly an underplanted scheme (i.e. one in which the MW peak installed solar generation capacity is lower than the grid connection capacity), would deliver a lower 40-year average grid utilisation factor than that of a scheme which is planted at unity, or one which is overplanted. Underplanted schemes therefore do not make the greatest use of the available connection capacity. Because connection capacity is nationally constrained, it is of vital importance that schemes which come forwards make the most of that contracted capacity.

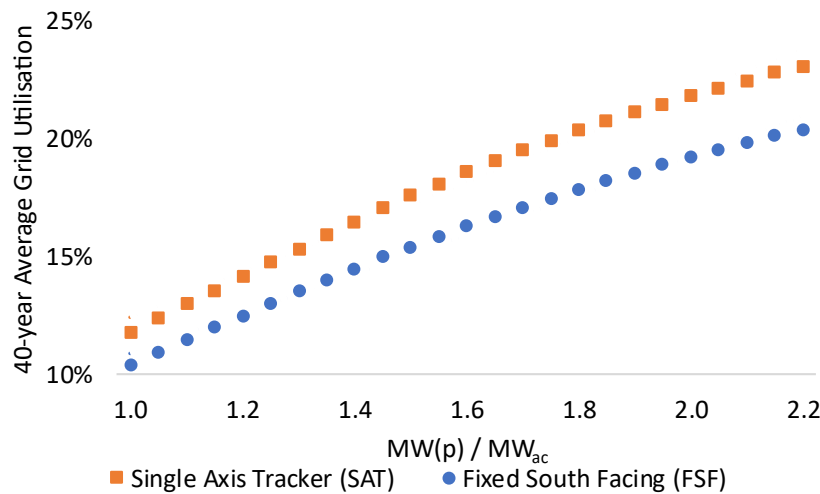


Figure 7-5: Grid utilisation increases with increasing overplanting
[Author Analysis]

- 6.6.36 The orange and blue dotted lines are straight lines of best fit through each 'curve' of points. These are for visual aid only, as they help the reader to assess the gradient of the curve which passes through each point, and where that gradient changes.
- 6.6.37 As the overplanting ratio increases, so too does Grid Utilisation. However, beyond an overplanting ratio of approximately 1.6 (where the coloured points are furthest above the same colour straight trend lines), the incremental benefit of overplanting on grid utilisation reduces (the points start to return back towards the straight line, and ultimately fall below it).
- 6.6.38 **Figure 7-6** following shows that the average annual output of a scheme over the first 40 years of its operation on a MW(p) basis (installed panel capacity) decreases only when the overplanting ratio increases above a certain level.
- 6.6.39 Any scheme which has an installed capacity which is lower than its grid connection capacity would generate less energy than a scheme which is overplanted, and would therefore deliver a lower quantum of overall benefit to energy security and decarbonisation than that delivered by an overplanted scheme. Scale is therefore important.
- 6.6.40 Beyond an overplanting ratio of c.1.3, the curve between the points starts to turn downwards more steeply than it did for a lower overplanting ratio, implying an increasing inefficiency as overplanting ratio increases beyond c.1.3.

- 6.6.41 This analysis does not seek to establish ‘hard and fast’ rules around overplanting, but together **Figure 7-5** and **Figure 7-6** do provide quantifiable evidence which supports a solar overplanting ratio of at least 1.3 to 1.6.

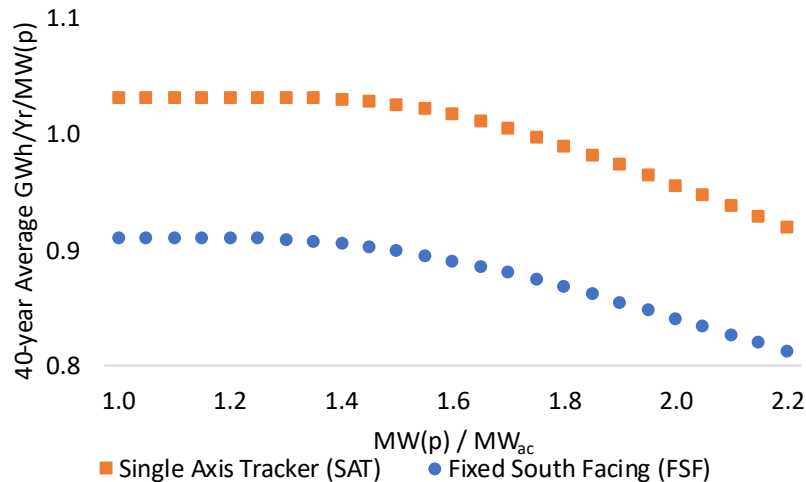


Figure 7-6: The benefit of overplanting is not unlimited
[Author Analysis]

- 6.6.42 The extent to which a proposed location can be overplanted cannot be determined in isolation, however. There is an intrinsic relationship between latitude, orientation, acreage, and overplanting which must be considered in the design of all developments in relation to optimising the benefits of the scheme, while respecting the planning balance. Further, local characteristics of a site, such as topography, archaeology, land, and other environmental factors which may influence the scope for overplanting.
- 6.6.43 The output from any illustrative design may be based on different ways in which the site may be laid out within the parameters which define the extent of the scheme, and which make use of an effective overplanting ratio. The final design and layout will reflect the available technology (and overplanting ratio) arranged in accordance with the assessed parameters.

Overplanting and co-located BESS

- 6.6.44 At proposals for co-located solar and storage facilities, the power and energy capacity of any co-located BESS facility will, alongside environmental factors, also be important in determining the level of overplanting which can be accommodated.
- 6.6.45 Generally, BESS facilities may be connected to generators through Alternating Current (AC) or Direct Current (DC) coupling. AC and DC coupled schemes provide different energy system benefits and different environmental effects.
- 6.6.46 There is no ‘one size fits all’ approach to optimising co-located facilities, however the co-location of BESS at solar schemes provides an opportunity for clipped generation to be stored and released when generation levels are lower.
- 6.6.47 DC-coupled BESS capture and store clipped generation directly from the solar panels, while AC-coupled BESS store generation from the solar panels only after it has passed through an inverter. To capture all clipped generation, AC-coupled systems require the capacity of inverters to match the installed capacity of solar panels at the scheme. DC-coupled systems do not have such requirements. By including DC-coupled BESS at a scheme, a higher level of overplanting may be supported in comparison to a comparable AC-coupled scheme because less energy is lost to clipping.
- 6.6.48 AC-coupled BESS facilities are grouped in one or a small number of locations on site which may be in close proximity to the substation or may have very low LVIA impacts. DC coupled systems are placed in very many small groups, dispersed among the solar arrays.
- 6.6.49 Being located close to the grid substation means that line losses associated with power flows between the BESS and the grid are lower for AC-coupled BESS, while line-losses between the panels and the BESS are lower for DC-coupled BESS.
- 6.6.50 Maintenance access must be available to all BESS groups through the operational life of the scheme, and some locations may render this unachievable for operational or commercial reasons. Schemes may therefore be better suited to one technology over the other from an environmental impact perspective.
- 6.6.51 These considerations may be significant when assessed over the anticipated operational life of the scheme. AC-coupled systems are currently more established in the UK market and developer strategies may not include the development of DC-coupled systems at the time a DCO application is made.

- 6.6.52 **Section 6.9** of this Statement provides further detail on the benefits arising from co-location of storage with solar schemes.

6.7 Land use associated with large-scale solar

- 6.7.1 As noted above, NPS EN-3 indicates that along with associated infrastructure, a solar farm typically requires between 2 to 4 acres for each MW output [**Ref. 2, Para 2.10.17**]. Different configurations have different performance characteristics in terms of acres/MW(p), but MW(p) is not the only metric for the decarbonisation benefit brought forwards by solar schemes.
- 6.7.2 Lifetime average annual generation is the key metric which, if maximised for a scheme, provides the greatest decarbonisation and energy security benefit from the scheme. For a given scheme, lifetime average annual generation depends upon the overplanting ratio while taking into account the potential shading effects of panels on each other.
- 6.7.3 In extremis, it is possible for two panels to be located sufficiently far away from each other for neither to ever be in the shade of the other. In contrast, moving one of those panels to be directly in front of the other, would not change the total installed capacity (two panels) but would halve the annual output because the second panel would always be shaded by the first. The in-extremis example would however use significantly more land area than the contrasting example.
- 6.7.4 In reality, optimising lifetime average annual output across a large array of solar panels while respecting a finite land area and a finite grid connection capacity requires iteration and judgement and is a non-trivial task.
- 6.7.5 The inclusion of co-located storage as part of a scheme may also change the scheme's land take ratios, particularly as different coupling technologies are laid out in different ways.
- 6.7.6 Large-scale solar schemes are also efficient in comparison to other technologies in terms of the energy they generate over their lifetime on a per unit area basis.
- 6.7.7 Solar technology can also generate more energy per hectare of land than other electricity generation technologies, for example by growing crops for energy. By following good design principles, solar schemes can generate a similar amount of energy per hectare of land as onshore wind.
- 6.7.8 For example, a Guardian article [**Ref. 79**] reported that 450Ha of crop is required to provide fuel for a 1 MW biogas plant, implying that a biogas plant may generate 20 MWh per year per hectare of land used. A biogas plant which is fully available may therefore produce 2 GWh/Yr/km² of clean energy.

- 6.7.9 An academic study published in 2020 **[Ref. 80]** indicates that the installed capacity density of onshore wind farms in Europe is 19.8 (6.2–46.9) MW/km², which is equivalent to 0.2 (0.06-0.47) MW/ha.
- 6.7.10 Guidance on industry norms for onshore wind farm developments in the UK suggests that turbine towers should be placed between six and ten rotor diameters apart from each other in order to optimise the output of each turbine. This separation is sufficient to ensure that no turbine lies within the ‘wind shadow’ of any other turbine. It is the Author’s experience however that in practice, turbine towers on UK wind farms tend to be spaced between three and five rotor diameters apart, consistent with the findings of the academic study **[Ref. 80]**.
- 6.7.11 By assuming an annual load factor of 35% for onshore wind it is possible to calculate that onshore wind may generate 61 (18–144) GWh/Yr/km², a factor of thirty more useful low-carbon energy than from biofuels.
- 6.7.12 NPS EN-3 states that UK solar typically uses between 0.8 (High density) and 1.6Ha (Low density) of land per MW of installed capacity **[Ref. 2, Para 2.10.17]** which is equivalent to 62.5–125 MW/km² and the illustrative design for the Proposed Development lies within that range.
- 6.7.13 By assuming a conservative annual load factor of 10% for solar **[Author research]** (see also **Table 9-1**), solar may generate 54–108 GWh/Yr/km². At the midpoint of EN-3’s typical capacity range, large-scale solar may generate 72 GWh/Yr/km² which is higher than the average reported in the academic study **[Ref. 80]**.
- 6.7.14 Biogas will generate just a small percentage of the levels of the two renewable technologies from the same area of land, while for efficient designs, the expected annual generation output per hectare of land for solar and onshore wind will be of a similar magnitude.
- 6.7.15 This analysis demonstrates that large-scale ground-mount solar schemes, including those that are developed with a configuration which maximises annual output, are likely to produce a greater quantity of low-carbon electricity per acre than the output from a crop-to-biogas application.
- 6.7.16 When compared to onshore wind, the energy production from land under solar is of a similar order of magnitude while the environmental effects of solar schemes may be significantly lower.

6.8 Solar cell efficiency

- 6.8.1 It is important to differentiate between the efficiency of solar technology (which is a measure of how much of the energy contained in the sunlight incident on the panel is converted into electrical energy) and the load factor, as described in **Section 6.4**. Both influence the output of a scheme.
- 6.8.2 The load factor of a scheme is influenced by the proposed location, the installed capacity of panels and their orientation and layout. The efficiency of a scheme is influenced by panel selection, the physical properties of those panels, the properties of other electrical components which make up a scheme, and the electrical design of that scheme. In summary, the efficiency of a scheme is intrinsic to its design, whereas the load factor is dependent on location, incident sunlight and panel orientation, as well as the efficiency of the scheme.
- 6.8.3 Solar panels and electrical infrastructure have become larger and more efficient, as shown in **Figure 7-7**, meaning that more electricity can now be generated from the same area of panel, and the same area of land than was previously possible. Consequently, solar is now, and is expected to remain, a leading low-cost generation technology.
- 6.8.4 While they do not represent an independently sourced update to **Figure 7-7**, panel supplier product specification sheets can be used to assess the efficiency of currently available solar panels.
- 6.8.5 **Figure 7-7** shows that the efficiency of solar cell technology has increased over the last 40 years and that Crystalline-Si, Multi-Function, and Thin-Film technology cell efficiencies have increased broadly linearly.
- 6.8.6 A review by the author of 500W + solar panels commonly available on the open market in September 2024 found that they were advertised as being between 21% and 23% efficient and converted incident irradiation at a rate of 210 – 220W/m² **[Author Research]**.
- 6.8.7 For context only, over the period 2019 to 2022, coal generation in the UK achieved an average efficiency of 35.1% and the UK's CCGT achieved 48.6%. Both technologies emit CO₂ as a by-product of electricity generation **[Ref. 81, Author Research]**.
- 6.8.8 The same data reports nuclear efficiency of 39.9%, Hinkley Point C is expected to achieve 36-37%. Smaller gas-fired reciprocating engines achieve similar levels, but they too emit CO₂ when they generate. Wind turbines are 20 – 40% efficient at converting wind energy into electricity **[Author Research]**.

- 6.8.9 The efficiency of solar generation is towards the lower end of the scale of efficiencies for technologies commonly used to generate electricity in the UK, but solar cell efficiency continues to improve.
- 6.8.10 It is important to recognise however that sunlight, the input energy source for solar generation, is abundant, predictable, zero-carbon, and free. Wind is similar but can be more difficult to predict. Solar generation produces no marginal carbon emissions and no long-term radioactive waste. Therefore, the lower efficiency exhibited by solar technology versus other generation sources should not be considered as a material objection to its future use. Solar generation also benefits from free input fuel (sunlight), low height in comparison to other technologies, and zero-carbon operation.
- 6.8.11 Solar panel output increases as a product of panel size (area) and panel efficiency. Panel size has been and remains the key driver of panel power in newly released products, although efficiency increases have been achieved as a result of ongoing research and development.
- 6.8.12 Any increase in panel output due to increasing the size of each panel will not materially affect their coverage across a proposed parcel of land because the total area of panels which can be placed in the parcel will be broadly the same.
- 6.8.13 It is difficult to predict what the future capacity of a PV module will be, but manufacturers are constantly improving the technology. For example, one panel which became available in Q4 2020 was advertised at 21.3% efficiency, while a panel from a different manufacturer, which became available in Q1 2023, was advertised at 23% efficiency **[Author Research]**.
- 6.8.14 It seems reasonable therefore to anticipate that panel efficiency will continue to increase at best linearly over the 2020s.
- 6.8.15 By installing more efficient panels, a facility may install less panels but the total coverage across a site is not expected to change significantly, and it is not a given that the installation of higher efficiency panels will result in reduced land take. Opportunities to enhance the overall efficiency of the scheme may materialise at the detailed design stage, for example by procuring more advanced (efficient) panels and spacing them out more (increasing the pitch) within land parcels to reduce shadowing effects or removing inefficient corners of fields that reduce infrastructure requirements.
- 6.8.16 Proposed designs can only incorporate products which are already available in the market. Similarly, detailed designs, which will be carried out post consent for a scheme, will only incorporate those panels which are available at the time.

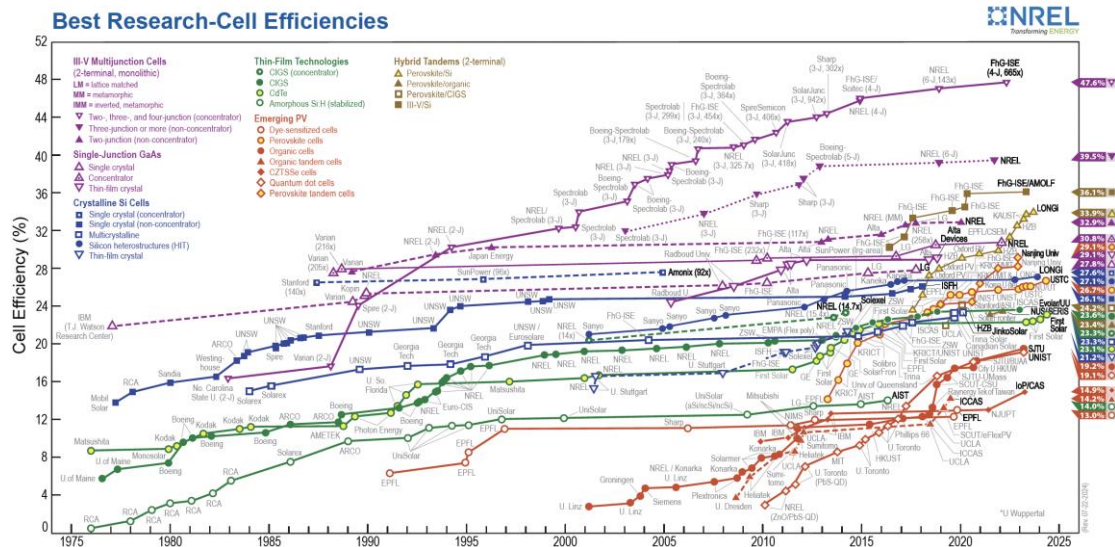


**Figure 7-7: Evolution in solar cell efficiency
1975 - 2024**
[Ref. 81]

- 6.8.17 At the detailed design stage, opportunities will be investigated to increase the lifetime generation output of the scheme and the benefits arising from its development, within the envelope of development secured at consent.

6.9 Co-location

- 6.9.1 NPS EN-3 states that:

“Government is supportive of solar that is co-located with other functions (for example, agriculture, onshore wind generation, or storage) to maximise the efficiency of land use” [Ref. 2, Para 2.10.10].

- 6.9.2 **Section 5.11** describes the role of BESS within a net zero energy system. BESS provide services which support the operation of renewable energy generation schemes and the efficient and secure operation of the UK’s electricity system provided that they are able to both import energy from and export energy to the electricity system.
- 6.9.3 BESS may be proposed as part of solar projects as a resource to hold energy generated by the solar farm during times of low demand and release it to the national grid through the scheme’s grid connection at times of high demand. If a scheme is to connect to the electricity system at a location where the scheme is also able to import electricity from the grid, a co-located BESS could allow energy to be imported from the grid at times of low demand and exported back to the grid at times of high demand.

- 6.9.4 At some locations, the former can be achieved without upgrades being required to existing grid connection substations, but at other locations, significant upgrades to transmission system infrastructure may be required to allow BESS to contribute fully to the electricity system.
- 6.9.5 Such upgrades may be time consuming and/or expensive. Waiting for grid upgrades to deliver before developing a scheme may delay the scheme's commissioning date, thus delaying the delivery of much needed renewable energy as a critical and urgent contribution to meeting net zero. Delays and increased costs may also increase the commercial risk associated with the scheme above the level at which investment may be secured, risking the deliverability of the scheme as a whole.
- 6.9.6 Developers may propose to install storage at sites which do not have a grid import connection, however current commercial, technical, and system operation considerations would suggest that storage is more beneficial to the electricity system, and more likely therefore to be developed, if it is able to both import energy from and export energy to the NETS, as well as store energy generated from the co-located solar panels.
- 6.9.7 **Figure 7-8 to Figure 7-12** illustrate how co-located solar and BESS may work together under a number of different well-defined and distinct market scenarios. The reality of electricity market operation is that BESS and solar operations are unlikely to be so clearly defined and actual operations may vary significantly on a day-to-day basis.
- 6.9.8 For simplicity, **Figure 7-8 to Figure 7-12** illustrate a 500 MW solar array co-located with a 500 MW, 1 hour (therefore 500 MWh energy storage capacity) BESS, but the illustrations are applicable to larger arrays and co-located schemes with different energy storage capacity.
- 6.9.9 In each of **Figure 7-8 to Figure 7-12**, the yellow bell-shape areas in sub-figures (a) and (b) represent solar generation which is transmitted to the grid through the day. The green areas represent energy imports to the BESS, and the red areas represent energy exports from the BESS through the day. In sub-figures (c) the blue area represents the energy stored in the BESS through the day.
- 6.9.10 The import of energy from the co-located solar facility is illustrated by a green area overlapping a yellow area. The import of energy from the electricity network is illustrated by a green area which does not overlap a yellow area.
- 6.9.11 For example, in **Figure 7-8 to Figure 7-12**, the BESS is shown moving from 0% to 100% State of Charge and back again on each operation. In reality this may not be the case, and the BESS may instead undertake many more partial, rather than full, import/export operations.

- 6.9.12 Local solar generation is usually highest in the middle of the day, and national demand is usually highest in the evening (around approximately 17:00 in winters, 19:00 in summers).

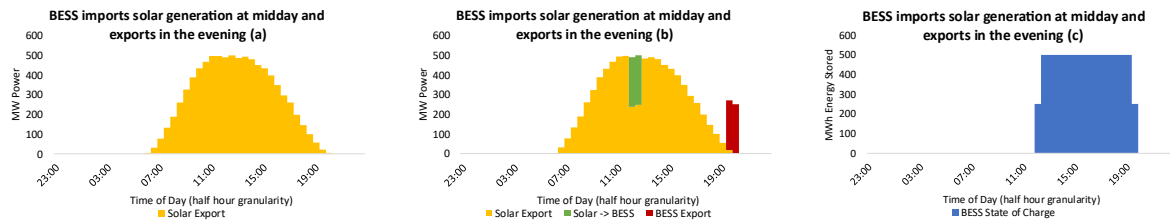


Figure 7-8: BESS imports midday solar and exports in the evening (fast)
[Author Analysis]

- 6.9.13 **Figure 7-8(a)** represents solar generation at the facility over the course of one sunny day. If the asset operator's forward view was that energy may be in surplus in the middle of the day but would be needed in the evening, the operator could schedule the BESS to import from the solar generation during the middle of the day (**Figure 7-8(b)**, green area) and to export that energy later when it was needed more (**Figure 7-8(b)**, red area). **Figure 7-8(c)** shows the State of Charge of the BESS on that day.

- 6.9.14 The BESS may be configured to import and export at a lower rate than its maximum power output, this will allow it to import over a longer period and export as shown in **Figure 7-9**. Critically, the amount of energy the BESS can store is the same as in **Figure 7-8**. Operators would determine their rate of import and export according to market needs.

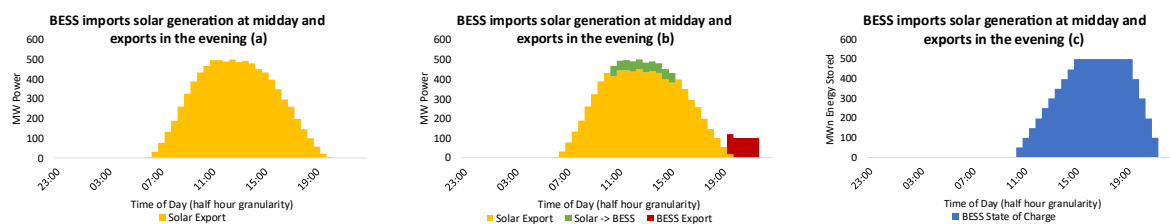


Figure 7-9: BESS imports midday solar and exports in the evening (slow)
[Author Analysis]

- 6.9.15 National UK electricity demand varies through the day, and can also be different from day to day, for example weekdays versus weekends, or summer versus winter days. Additionally, solar is not the only variable renewable generation on the UK electricity system.
- 6.9.16 This means that at times when the BESS is not supporting the operation of the principal solar site, it may be useful for the BESS to support the national supply and demand balance by importing directly from the grid rather than from the co-located solar, as was shown in **Figure 7-8** and **Figure 7-9** previously. A good

example of when the BESS might import from the grid in response to national supply / demand balance, might be when wind generation is high.

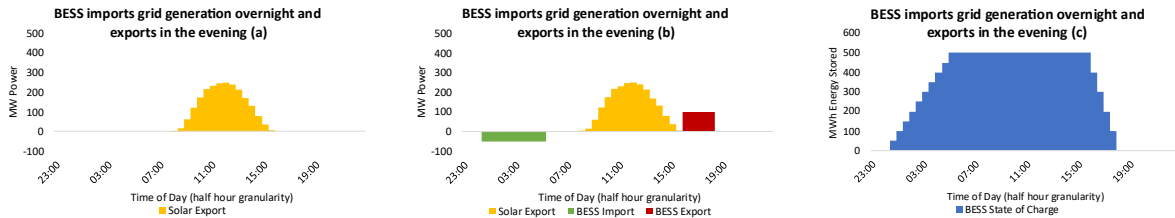


Figure 7-10: BESS imports overnight from grid and evening exports
[Author Analysis]

- 6.9.17 **Figure 7-10** shows how the BESS may import overnight, store its charge through the day, and export in the evening peak. **Figure 7-10** uses a solar output profile which may be more typical of a winter's day, but the type of operation shown is not foreseen to be restricted only to the winter.
- 6.9.18 On some days, operators may foresee the market need for the BESS to operate more than one import/export cycle over a 24-hour period, and **Figure 7-11** shows how this might work. In practice, the BESS operational parameters will limit how the BESS is able to respond to market need.

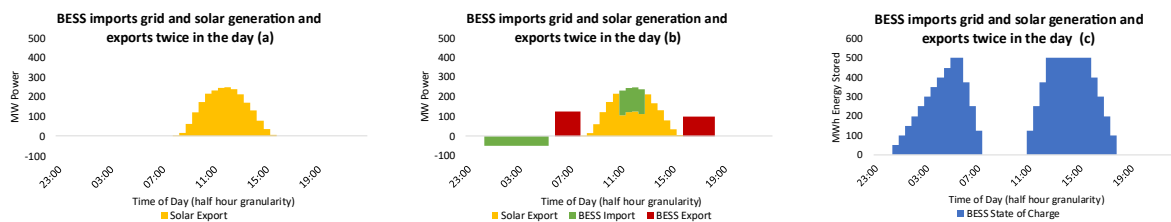


Figure 7-11: BESS imports solar and grid energy and exports twice
[Author Analysis]

- 6.9.19 Ancillary (Balancing) Services are contracted at relatively short notice (e.g. contracted 'today' for delivery 'tomorrow') and service time windows tend to be contracted in multiples of 4 hours, commencing 23:00, 03:00, 07:00, 11:00, 15:00, and 19:00 daily.
- 6.9.20 Subject to certain technical characteristics, BESS are also able to store clipped generation and export it to the grid when solar irradiation falls such that generation from the scheme is lower than the grid export capacity. **Figure 7-12** shows how this might work in practice.
- 6.9.21 **Figure 7-12** assumes an overplanted scheme (e.g. 600 MW) connected to a capped (e.g. 500 MW) grid connection. **Figure 7-12(a)** shows generation on a sunny day might exceed the grid connection cap for multiple hours. A co-located BESS may be able to store this energy, shown by the green area in **Figure 7-**

12(b), so that it can be exported when grid capacity is available as indicated by the red area in **Figure 7-12(b)**.

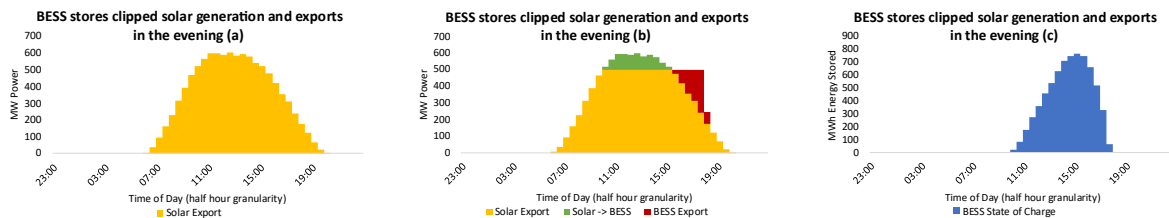


Figure 7-12: BESS stores clipped solar for evening export
[Author Analysis]

- 6.9.22 Abundant generation can be stored in either AC- or DC- coupled energy storage facilities. Storage facilities which are DC-coupled to solar facilities use less equipment and are more suited to capturing otherwise clipped generation. However, they require different physical layouts and therefore may not be appropriate for all schemes. Some schemes are therefore anticipated to come forward as co-located schemes with AC-coupled batteries, or as stand-alone solar schemes.
- 6.9.23 The Proposed Development is for co-located solar and storage, with DC-coupled batteries.
- 6.9.24 Ancillary (Balancing) Services help to keep the UK electricity system operating safely and securely. Some Ancillary (Balancing) Service contracts require BESS to provide upward (export) regulation to the national grid and others require downward (import) regulation. Others require both. However, being able to provide both from the same facility is often a more useful option for both the operator and NESO. To provide services, BESS may need to ensure that their State of Charge before they start a service window is appropriate for the service or services they are contracted to provide. This means that a BESS may therefore need import or export to achieve an appropriate State of Charge immediately prior to a contracted period for Ancillary (Balancing) Service provision.
- 6.9.25 The UK's electricity system operates at a nominal frequency of 50Hz and National Grid procure services over very short timescales, for example sub-second response services, out to minutes or hours for reserve services to keep frequency always at or close to 50Hz.
- 6.9.26 BESS operation under reserve service contracts will be similar to the BESS operation shown in **Figure 7-8** to **Figure 7-12**, i.e. consistent importing or exporting over periods of minutes or hours at pre-agreed levels. BESS operation under response service contracts will however be different.

- 6.9.27 Response contracts require the immediate import or export of energy to the grid based on whether the instantaneous frequency of the national grid is higher or lower than the statutory 50Hz. Importing energy into the BESS has the effect of reducing grid frequency (so import actions are instructed when frequency is high). Exporting energy from the BESS has the effect of increasing grid frequency (so export actions are instructed when frequency is low).
- 6.9.28 Under normal operating conditions, the frequency of the national grid varies by small amounts from the statutory 50Hz level. Short duration injections (or exports) of energy to the grid nudge frequency back to the statutory level. **Figure 7-13** shows how grid frequency changed second-by-second over a 30 minute period of operation in July 2023, and how a BESS operating under a Frequency Response contract may respond to those normal changes in grid frequency.

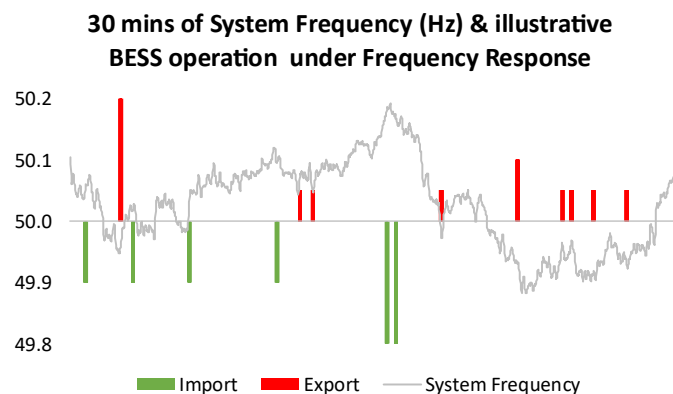


**Figure 7-13: Illustrative BESS Frequency Response operation
[Author Analysis]**

- 6.9.29 **Figure 7-13** seeks to illustrate that if frequency is moving away from the nominal 50Hz line, BESS will respond to bring frequency back towards 50Hz. The height of the green (import) and red (export) columns is intended to signify the magnitude of the BESS response, which would be driven by a combination of the rate of change of frequency (quicker changes require a larger response) and the magnitude of the variation of grid frequency from its nominal 50Hz at the time of the instruction.
- 6.9.30 In reality, BESS imports/exports may be much more frequent than those illustrated in **Figure 7-13**. In normal operational conditions, under Frequency Response, a BESS may import roughly the same amount of energy as it exports, leaving its State of Charge broadly unchanged over the contracted period. However, it is important that the contracted State of Charge is known before the contracted period starts such that in fault conditions, the BESS can be relied upon to deliver the extent of the services it has contracted with NESO.
- 6.9.31 Co-located BESS with both an import and export capability will allow the BESS to charge from the co-located solar and from the grid whenever UK system supply

was greater than UK system demand. This type of operation provides much needed flexibility to the UK power system and therefore will provide benefits to the UK system and decarbonisation generally.

- 6.9.32 Being able to regulate power flows both to and from the grid would allow the BESS to provide many kinds of system-wide ancillary services which will support a further reduction in the UK's reliance on fossil fuels. **Table 6-1** provides more information.

6.10 Conclusions on technical considerations

- 6.10.1 Large-scale solar is a highly beneficial technology within the UK's electricity system.
- 6.10.2 Solar developments require locations to possess three fundamental attributes of sufficient available land, a point of connection to the electricity system, and sufficient solar irradiation levels.
- 6.10.3 Large-scale schemes which connect to the NETS allow for a “more efficient bulk transfer of power” for national consumption [**Ref. 1, Para 3.3.12**] than smaller schemes which connect to distribution systems.
- 6.10.4 Connections to both transmission and distribution systems in the UK are in short supply. The use of existing and available connections is therefore necessary to support the delivery of low-carbon generation in the next decade to meet the previous government's aims for a zero-carbon electricity system by 2035, and the government's aim to deliver ‘Clean Power by 2030’.
- 6.10.5 The development of new points of connection are also foreseen as necessary but are likely to have longer development timeframes than connection points which already exist, therefore the prioritisation of existing and available connections goes towards meeting the urgent need to decarbonise the electricity system.
- 6.10.6 Solar schemes represent an efficient use of land for energy generation purposes.
- 6.10.7 The efficiency of solar generation is towards the lower end of the scale of efficiencies for technologies commonly used to generate electricity in the UK, but solar cell efficiency continues to improve. Sunlight, the input energy source is abundant, predictable, renewable, and free. Solar's lower efficiency than other generation sources should not therefore be considered as detrimental to its future use.
- 6.10.8 Overplanting and panel layout optimisation can both increase the likely annual generation of schemes through their grid connection points. This goes towards

best meeting the urgent need for solar generation within the context of a constrained grid connection queue.

- 6.10.9 The connection of thousands of small-scale (including rooftop) systems to the aggregate capacity targeted by the government under its mission to deliver ‘Clean Power by 2030’ will not, in isolation, meet the urgent need for solar. The installation cost of small-scale schemes, which would be met by individual households, is much higher than the cost of large-scale schemes on a per unit basis.
- 6.10.10 The Proposed Development includes a BESS which is co-located with the solar array. The BESS will support the operation of the solar array and will be able to store energy generated by the solar array and export it to the NETS when it is needed.
- 6.10.11 The Proposed Development considers an appropriate level of overplanting given the land area, grid connection capacity, and preferred SAT panel orientation. By proposing BESS with a DC-coupling to the solar facility, the Proposed Development will also be able to store and export any clipped generation. The characteristics of the Proposed Development seek to optimise the annual average generation over its operational life at its specified location.

7 Suitability of the proposed location for large-scale solar

7.1 Chapter summary

- 7.1.1 This chapter provides an overview of the evidence provided to support the suitability of the proposed location of the Proposed Development for large-scale solar plus storage.

7.2 Local demand / decarbonisation requirements

- 7.2.1 The Applicant has accepted a Connection Offer from National Grid to connect the Proposed Development to the NETS at the existing National Grid substation at Creyke Beck. The Connection Offer provides for the export of up to 320 MW of power, connecting in 2033.
- 7.2.2 Creyke Beck is located close to an existing part of the NETS between Thornton to the north and Keadby to the south. The NETS is well-connected and resilient in this part of the country.
- 7.2.3 The Proposed Development is located near to National Grid's Creyke Beck substation.
- 7.2.4 The Creyke Beck site comprises three separate connections, being Creyke Beck 400kV Substation, Creyke Beck GSP, and Creyke Beck 132kV. National Grid's TEC Register lists eight schemes, including the Proposed Development, comprising 4.8 GW of capacity with agreement to connect at the Creyke Beck site.
- 7.2.5 Although the Proposed Development proposes to connect to the NETS, it is located in the area covered by Northern Power Grid's Yorkshire distribution network.
- 7.2.6 Government's Clean Power 2030 Action Plan sets a regional capacity breakdown for the North Wales, Mersey and the Humber area (which includes Creyke Beck) of 1.2 GW for transmission connected solar required for 2030, rising to 1.7 GW for 2035 [Ref. 3, **Connections Reform Annex, Table 2**]. The capacity of consented transmission connected solar sites in this area is lower than the regional capacity breakdown for that area. This means that there is currently room for more transmission connected solar, such as the Proposed Development in this region of NESO's prioritised connection capacity queue.

- 7.2.7 Grid substations and Grid Supply Points (GSPs) are where the generators connect to the NETS and/or the NETS connects to local distribution systems. At these points, voltage is reduced from the NETS high-voltage cables to lower voltages for more local transmission via Bulk and Primary substations, then on to consumers.
- 7.2.8 The Yorkshire distribution area contains Bulk and Primary substations. These substations, and the distribution cables between them, are not of a sufficient capacity to facilitate connection of the Proposed Development.
- 7.2.9 However, these substations ensure that although the energy generated at the Proposed Development may be transmitted to consumers nationally without constraint, there is a network pathway from the Proposed Development to the local Bulk substations which service local consumers.
- 7.2.10 This does not mean that the energy generated at the Proposed Development will necessarily or solely service either local or national consumption, but it does mean that connecting the Proposed Development at Creyke Beck will enable the unconstrained flow of energy to either local or national consumers, whenever it is needed.
- 7.2.11 **Figure 8-1** shows that the Yorkshire and the Humber has a significant annual energy demand **[Ref. 13]**. In 2022, this amounted to 20.7TWh of electricity (around 8.1% of national electricity consumption). Transport needs in the region consumed 40.2TWh, and a further 73.8TWh (non-electricity demand) was sourced from other fuels such as coal, gas, oils, and biomass.
- 7.2.12 Total energy consumption in Yorkshire and the Humber reduced by 24.5% over the period 2005 to 2022. Electricity consumption decreased by 22.8% and non-electricity consumption including transport decreased by 24.8%.
- 7.2.13 Regional energy consumption reduced in aggregate from 2005 to 2021 across both the domestic and non-domestic sectors, by 22% and 28% respectively. Domestic energy consumption not sourced from electricity has not materially reduced since 2011.

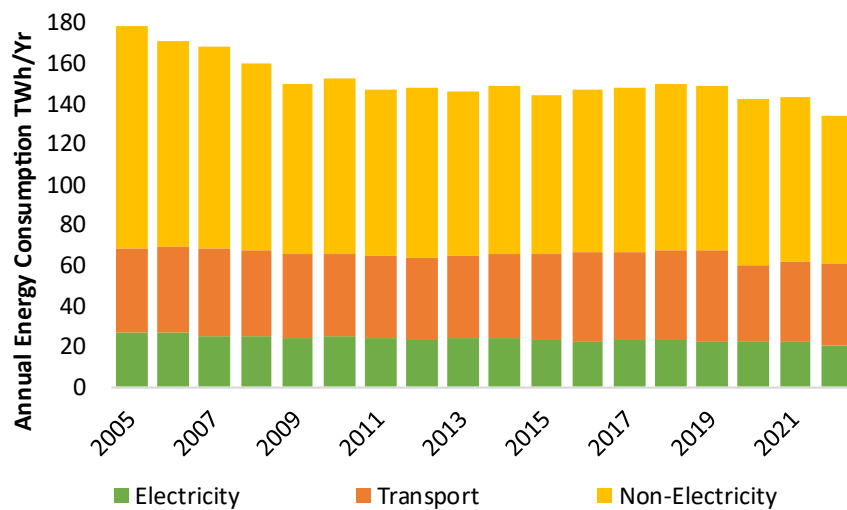


Figure 8-1: Energy consumption in Yorkshire and the Humber (TWh/Yr)
[Ref. 13, Author Analysis]

7.2.14 Transport consumption decreased by only 4% over the period 2005-2022.

7.2.15 The data shows that non-electricity consumption (including transport) in Yorkshire and the Humber, is approximately five times that of electricity consumption. A significant increase in electricity as a share of total energy consumption will be required in the future to meet net zero locally. These trends are broadly consistent with the national trend as described in **Chapter 4** of this report.

7.3 Local Supply

7.3.1 As part of its 2022 FES, National Grid published a map of regional generation carbon intensity on two types of day (a higher wind day and a lower wind day) [Ref. 29(2022), p32]. The map is reproduced in **Figure 8-2**.

7.3.2 In 2023, the average national carbon intensity of generation was reported as 171 g/kWh [Ref. 28, Table 5.14], i.e. at the 'high' end of the 'low' range in **Figure 8-2**.

7.3.3 The map on the left of **Figure 8-2** shows the carbon intensity of generation by region during a higher wind day, and the map on the right shows the same but for a lower wind day. The values indicate the installed wind capacity in each region at the time of publishing the map (therefore current capacities may be higher).

- 7.3.4 As expected, during windy days, the carbon intensity of generation is on average lower than the annual average figure. On days with lower wind, carbon emissions from electricity supply in Scotland and the north of England remains below the annual average, but from Yorkshire and North Wales and further south, the carbon intensity of generation is at best moderate, and may approach double the annual average figure.
- 7.3.5 Measures must be implemented to reduce the carbon intensity of generation outside of Scotland and the north of England during low-wind days. Solar generation is well suited to support a such a reduction.
- 7.3.6 Further, **Figure 8-2** suggests that there is carbon emitting plant located in the south of the country which currently generates when wind output is low. This can be inferred because at times of low wind, the carbon intensity of generation in the south of the country is high. During periods of low wind, National Grid's analysis shows that the Yorkshire and the Humber area has a moderate carbon intensity of generation. The Proposed Development will, if consented, reduce the carbon intensity of generation in the Yorkshire and the Humber area in both 'low' and 'normal' wind conditions. The inclusion of BESS as part of the Proposed Development means that it will be able to store low-carbon energy when generation is in abundance and release it when demand for energy is higher.
- 7.3.7 As **Section 5.2** describes, solar and other renewable generation displaces carbon emitting generation from the grid and therefore has a decarbonising effect on the electricity system. The placement of any solar farms in these areas means that when the sun is shining their generation will be flowing through parts of the transmission system where otherwise the energy generated by carbon emitting plant would flow. It is unlikely therefore that the installation of solar schemes would cause any significant network constraints by connecting in these areas. Further information on the benefits of a multi-technology energy system can be found in **Chapter 8**.
- 7.3.8 **Figure 8-2** shows that the Proposed Development is located in an area with solar irradiation levels above average for the UK, and initial studies suggest that an average annual load factor before degradation at the site is sufficiently high to support the development of a large-scale ground mounted solar facility at the proposed location. The region is well positioned to use its natural resources and existing infrastructure to support the UK's energy needs through the development of the proposed large-scale solar scheme, to generate clean electricity to power homes, locally and nationally, cars, offices, shops and factories.

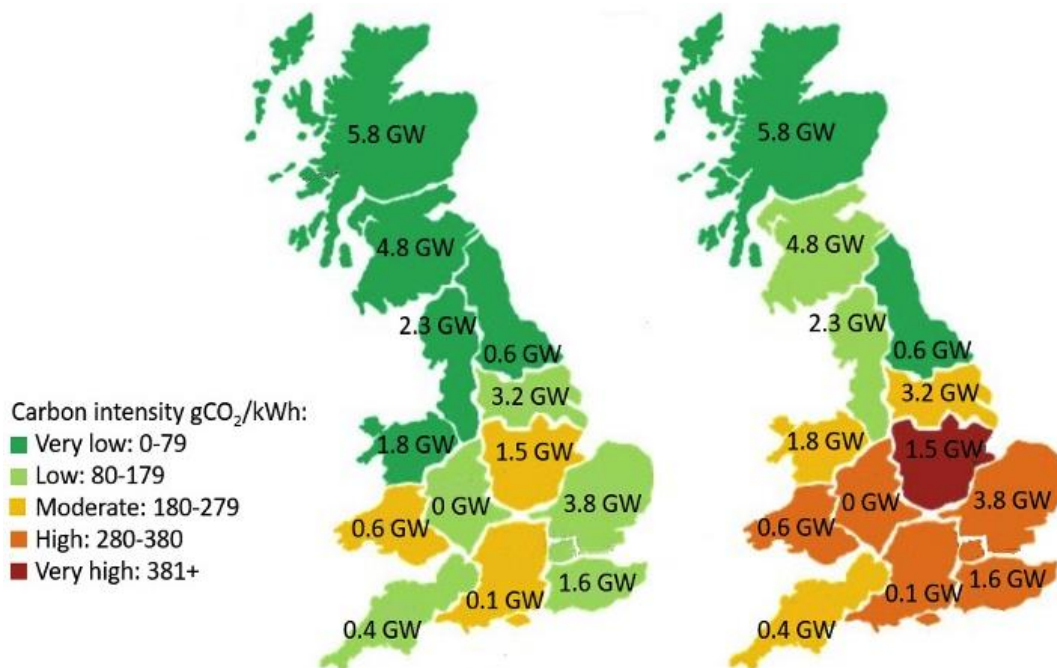


Figure 8-2: NGENO Regional generation carbon intensity analysis
(Left: on a higher wind day, Right: on a lower wind day)
[Ref. 29(2022)]

7.4 Grid suitability

- 7.4.1 Annually, NGENO perform an analysis of the NETS from a security and quality of supply (SQSS) and power flow capability perspective. Their analysis is published as part of their Electricity Ten Year Statements (ETYS) [Ref. 83]. Options to improve power flow capability can be found in their Network Options Assessment (NOA) [Ref. 84].
- 7.4.2 NGENO subdivides its network into operational areas by means of system boundaries. These boundaries are not hard, nor physical, but differentiate areas within which NGENO characterise power flows.
- 7.4.3 The ETYS looks at whether the current network allows GB national demand to be met through two lenses.
- 7.4.4 The first is the Security Criteria. This validates that the capability of each boundary is sufficient to allow the expected maximum flow across that boundary required to ensure security of supplies across the network. In other words, the maximum boundary transfer capability must be greater than that required to maintain, under reasonable 'worst case' conditions, security of supply at all locations on one side of the boundary with supplies from the other side.

“The boundary transfer requirements needed to satisfy demand without relying on intermittent generators or imports from interconnectors” [Ref. 83].

- 7.4.5 The second is the Economy Criteria. This validates that the capability of each boundary is sufficient to allow the expected flow of power across the network such that a national merit order of operation is maintained. In other words, this criteria balances the need for cheap power to flow unconstrained across the network (therefore lowering prices and costs for consumers), against the enabling cost of upgrading the network:

“The boundary transfer requirements when demand is met with high output from intermittent and low carbon generators and imports from interconnectors. This ensures capacity is adequate to transmit power from highly variable generation without any network constraint” [Ref. 83].

- 7.4.6 The NOA then identifies, assesses, and recommends (where appropriate) specific upgrade projects which meet the future needs as anticipated in the ETYS.
- 7.4.7 The Proposed Development proposes to connect to a major existing 400kV transmission circuit which provides a connection through Keadby to demand centres in the south and London.
- 7.4.8 Many of the main transmission circuits south are double transmission lines, providing defence in depth. In the event that one line of a double circuit section of the NETS faults, power can still flow on the other line. Double circuits also deliver high power flow capability [Ref. 83, Appendix A].
- 7.4.9 The Yorkshire and the Humber area, and the East Midlands area to the south of the Proposed Development are home to critical infrastructure connecting generators and consumers across the country. The strength and capacity of connections within these areas contribute to the transfer capacities available across nearby system boundaries.
- 7.4.10 Creyke Beck is located in NGESO’s Transmission Zone 15: *South Lancashire, Yorkshire and Humber*. This zone is connected to the surrounding NETS as shown in **Figure 8-4**. It is located south of National Grid’s B7a boundary but north of the B8 boundary.
- 7.4.11 Boundary B7a bisects England south of Teesside. With large capacities of wind generation connecting into circuits in Scotland and northern England, Boundary B7a is anticipated to become a constraint to the economy criteria relatively soon (i.e. transfer capacity may be insufficient to allow the free flow of wind power to southern demand centres). National Grid’s analysis suggests a strong need to develop the network sufficiently to allow for anticipated flows.

- 7.4.12 Critically, the Proposed Development lies to the south of that boundary, so does not contribute to the identified constraint.
- 7.4.13 Boundary B8 is one of the wider boundaries that crosses the centre of GB from east to west, separating the northern generation zones (Scotland, northern England, and north Wales) from the Midlands and southern demand centres.
- 7.4.14 **Figure 8-3** shows the current and projected level of boundary transfer capacity (thick solid red line) across the B7a (left) and B8 (right) boundaries. The fine solid red line shows the Economy Criteria and the dashed red line shows the Security Criteria for each year to 2042.
- 7.4.15 Boundary B8 transfer capability is currently 2.5 GW higher than the transfer capability of Boundary B7a. Boundary B8 transfer capability is expected to increase to 21.5 GW over the coming twenty years, while B7a is expected to increase to 18 GW. Power flows generally from the north to the south, therefore connecting a large-scale renewable generator between the boundaries is not likely to cause any incremental constraints under either the economy or security criteria.
- 7.4.16 The dip in boundary transfer capacity in 2030 is inferred to indicate a period of outage and/or upgrade of existing infrastructure to facilitate the higher boundary transfer capacities from 2031 onwards.
- 7.4.17 The flow of energy from the Proposed Development will therefore be capable of displacing more expensive and more carbon intensive power generated south of the B7a boundary, and south of the B8 boundary. The displacement of carbon intensive power generation will be to the benefit of electricity system decarbonisation and consumer cost nationally.
- 7.4.18 The current capability of the B7a boundary is not sufficient to meet all of the P25 to P75 confidence range during high wind periods. This means that there may be curtailment down to the boundary transfer capability level, of northern wind which is unable to flow south beyond the B7a boundary when wind generation is too high. In scenarios which meet net zero 2050, curtailment of flows south over the B7a boundary may increase as a result of large capacities of offshore wind connecting in Scotland and northern England.
- 7.4.19 Until (and unless) boundaries are expanded to their Economy Criteria levels, the development of renewable generation facilities south of those boundaries allows for more low-cost, low-carbon electricity to power demand centres nationally, supporting security of supply, decarbonisation, and affordability metrics.
- 7.4.20 Cross-boundary flows will be highest during periods of high wind. Periods of high wind do not usually coincide with periods of high solar irradiation, highlighting a

beneficial natural ‘fit’ between the Scheme (and other large solar facilities in the East Midlands and Yorkshire area) with flows of wind-generated electricity from northern wind farms through this area.

- 7.4.21 Further, decarbonisation of industry and demand located between the boundaries will increase electricity demand in the area, and the location of low-carbon generation schemes between the boundaries will mean that energy can be supplied to those consumers without constraint, even if there are constraints in other areas of the network.

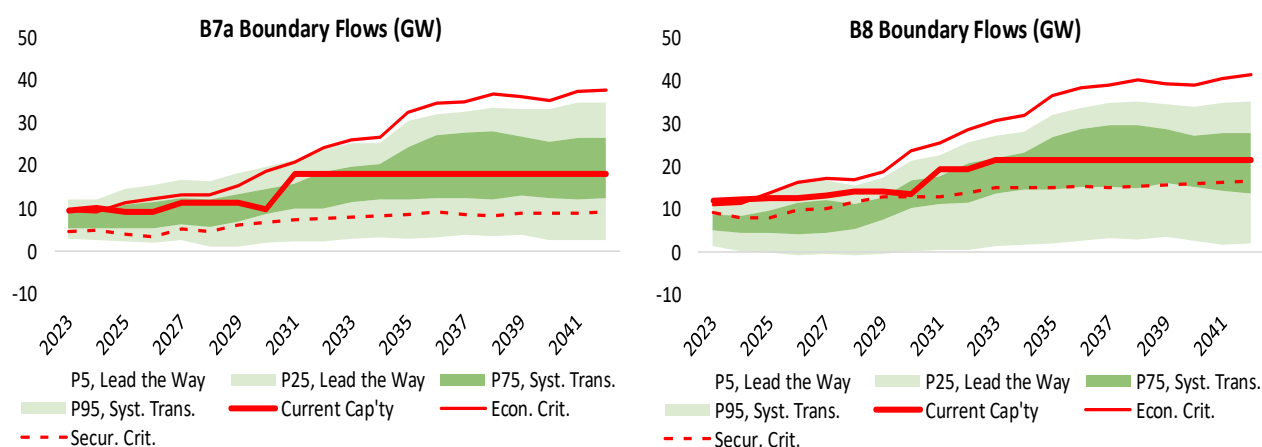


Figure 8-3: B7a and B8 Boundary flows under most extreme scenarios
[Ref. 83, Boundary Data workbook]

- 7.4.22 The inclusion of BESS as part of the Proposed Development provides opportunities for NGESO to manage any potential power flow constraints on the NETS in the vicinity of the Proposed Development over its operational life. This may, for example, include any constraints which occur as a result of high wind or other causes, and minimising these in a cost effective way would be to the commercial benefit of consumers.

7.5 The connection point at Creyke Beck

- 7.5.1 **Figure 8-4** shows a map of the NETS, with a 50km radius drawn in red and centred at Creyke Beck. **Figure 8-3** confirms that no new schemes are able to connect to any of those substations before 2032. Further, **Figure 8-4** shows that Creyke Beck is the only 400kV substation in close proximity to the Proposed Development.
- 7.5.2 Of the other ten National Grid substations located within 50km of Creyke Beck, five are already connection points for operational thermal generators.

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7.5.5 The Applicant's **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]**, and the **Site Selection Assessment** at Appendix 2 to the **Planning Statement [EN010157/APP/5.5]** provides additional information on the Applicant's site selection process.

Table 8-1: Generation technologies accepted to connect at Creyke Beck [Ref. 44]

Technology	Connection Year	Capacity (MW)	Cumulative Total (MW)
BESS	Connected	100	100
BESS	2028	30	130
The Proposed Development	2033	320	450
Solar & BESS	2033	500	950
Solar	2034	200	1,150
Solar & BESS	2035	250	1,400
Hydrogen turbine	2035	3,600	5,000

7.6 Conclusions on locational suitability

- 7.6.1 Yorkshire and the Humber has a history of using its available natural resources to power the UK, firstly through coal and then through natural gas, piped from the UK Continental Shelf for local industrial and power generation use. This analysis, when considered in combination with **Figure 7-2** and **Figure 8-4** shows that the region is well positioned to use its natural resources and existing infrastructure to support the UK's energy needs for a third time, through the development of the proposed large-scale solar and storage scheme to generate, store and release clean electricity to power homes, locally and nationally, as well as cars, offices, shops and factories.
- 7.6.2 This Statement of Need demonstrates that the proposed connection point is suitable and no adverse operability effects are anticipated as a result of connecting at this location.
- 7.6.3 The Proposed Development has a Grid Connection Agreement with National Grid. As part of National Grid's connection reforms, "Energy generators that are not progressing [with project development] and will not meet their connection date will either be able to choose to move backwards or leave the [connection] queue, in order to make way for projects that want to connect and are delivering on their milestones" **[Ref. 78]**.
- 7.6.4 Subject to obtaining the necessary consents, the Applicant aims to construct the Proposed Development ready for connection to the NETS in line with the timeframes set out in the Proposed Development's Grid Connection Agreement.
- 7.6.5 Therefore, if consented, the Proposed Development would contribute to continuing the UK's decarbonisation and security of supply efforts prior to increases in electricity demand from non-traditional sectors in the 2030s.
- 7.6.6 If the DCO is not granted, then a critical opportunity will be missed to deliver a significant capacity of low-carbon solar generation capacity onto the NETS in the

timeframes indicated. This would increase the risk of non-delivery of the UK's legal obligations because:

- The benefits which would have been brought forward by the scheme would need to be delivered by as yet undefined, unconsented schemes
- The criticality and scale of schemes required to deliver in later timeframes to make up for those benefits would both increase
- The pace and cost of delivery of such schemes would also likely be higher than in the case that the Proposed Development was consented

7.6.7 NPS EN-1 is clear on the point of need:

“The Secretary of State should assess all applications for development consent for the types of infrastructure covered by this NPS on the basis that the government has demonstrated that there is a need for those types of infrastructure which is urgent” **[Ref. 1, Para 3.2.6]**.

7.6.8 NPS EN-1 further states that “the Secretary of State has determined that substantial weight should be given to this need when considering applications for development consent under the Planning Act 2008” **[Ref. 1, Para 3.2.7]** and that the “Secretary of State is not required to consider the specific contribution of any individual project to satisfying the need established within the NPS” **[Ref. 1, Para 3.2.8]**.

7.6.9 The need for the Proposed Development is urgent and substantial weight should be given to that need. The proposed location is a highly suitable location for large-scale solar because of the existence of a grid connection with the capacity available to connect the Scheme in the timeframes indicated, with sufficient solar irradiation, and suitable land at the site.

7.6.10 Further, the development of a large-scale solar development connecting at Creyke Beck provides the potential to help decarbonise locally generated electricity to the benefit of consumers both locally and nationally.

7.6.11 The Applicant's grid connection at Creyke Beck is suitable and available for the Proposed Development to commission in the 2030s thereby permitting the Proposed Development to contribute to achieving the UK's Sixth Carbon Budget. Connection to the transmission system is of significant importance, enabling an unencumbered and efficient transfer of bulk power across the country, in order to provide electricity wherever it is needed.

7.6.12 The land included in the Proposed Development's proposals will support an optimisation of the available grid connection secured at Creyke Beck. The Proposed Development has been sized to optimise use of the grid connection

from the proposed layout and BESS configuration, while being sympathetic to planning issues and respecting identified constraints.

- 7.6.13 SAT is preferred at the Proposed Development because of its enhanced lifetime MWh generation potential at the proposed location, given appropriate layout parameters and local constraints, including the availability of suitable land. The illustrative layouts would deliver a commercially rational overplanting ratio, and the inclusion of DC-coupled co-located BESS as part of the Proposed Development will support the solar array during its operational period.
- 7.6.14 Any optimisation of layout at a detailed design stage would be unlikely to identify any useful areas of land because any such areas identified would be likely to be around the edges of field margins and disconnected from other useful areas and therefore would have little or no agricultural value.
- 7.6.15 Lastly, the electricity network local to the Proposed Development has sufficient capacity to accommodate the anticipated generation from the Proposed Development without constraint. By connecting between the B7a and B8 boundaries, the anticipated generation is not expected to exacerbate existing network constraints often associated with periods of high generation in northern wind farms.

8 The contribution of large scale solar to system security

8.1 Chapter summary

8.1.1 This chapter provides an overview of the system security benefits of large-scale solar in the UK.

8.1.2 Decarbonisation is just one of the three pillars of GB energy policy. Low carbon generation of all forms, solar, wind, and nuclear included, brings with it new challenges. Current and future energy policy and related actions must ensure that security of supply is maintained, and that electricity is affordable for all. This chapter demonstrates how solar has contributed, and will continue to contribute to security of supply in Great Britain. As set out in NPS EN-1:

“[The government] need[s] to ensure that there is sufficient electricity to always meet demand; with a margin to accommodate unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events” **[Ref. 1, Para 3.3.1]**.

“The larger the margin, the more resilient the system will be in dealing with unexpected events, and consequently the lower the risk of a supply interruption” **[Ref. 1, Para 3.3.2]**.

“We need a diverse mix of electricity infrastructure to come forward, so that we can deliver a secure, reliable, affordable and net zero consistent system during the transition to 2050 for a wide range of demand, decarbonisation, and technology sources” **[Ref. 1, Para 3.3.19]**.

“A secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar” **[Ref. 1, Para 3.3.20]**.

8.1.3 ‘Security of supply’ means, essentially, keeping the lights on in people’s homes, and has two main components:

- Ensuring that there is enough electricity generation capacity available and operational to meet demand (adequacy)
- Ensuring that the quality of electricity supplied to customers falls within a narrow ‘quality’ band during all reasonably foreseeable operational circumstances and is resilient during rare excursions from this band

- 8.1.4 This definition of adequacy includes not only the capacity of generation assets but also the availability of source fuel to those assets so that they are able to generate electricity.

8.2 Power system stability

- 8.2.1 Power systems connect supply (sources of power, largely generators) to assets which demand power (industrial, commercial, or domestic customers). Power systems are complex; yet they must be designed and operated safely, securely, and economically.
- 8.2.2 Governments define policy to ensure that adequacy requirements are met, i.e. that there is sufficient generating capacity (i.e. the maximum achievable level of power generation which may be connected to the NETS) available to meet maximum expected demand, with secure and economic supply chains for the fuel they use to generate electricity.
- 8.2.3 Key power quality characteristics (including frequency, voltage, and power shape) must also be controlled for the electricity system to operate without fault. NGESO define this topic area as system operability, specifically: “the ability to maintain system stability and all of the asset ratings and operational parameters within pre-defined limits safely, economically and sustainably” **[Ref. 85, p5]**.
- 8.2.4 Keeping an electricity system from entering fault conditions during operation or returning an electricity system to normal operational conditions post fault, is also important. All large-scale generators must be capable of maintaining their own synchronicity with the system to a high level of reliability.
- 8.2.5 NGESO also ensure that power demand, or load, and power supply, always remain balanced. Balancing requires the right generating assets to be connected and disconnected to/from the right power levels, and at the right time. This can sometimes be at short notice, in response to emergent (fault) conditions. NGESO call those services which support NETS stability and operability are called Ancillary Services, and examples have been listed previously in **Figure 6-7** and **Table 6-1**.
- 8.2.6 The NIC addressed the topic of system stability by stating that it is “Important that generators are responsible for costs and benefits they impose on the system, such as those related to where they situate” **[Ref. 86, p40]**.
- 8.2.7 It is well understood that the activities associated with integrating renewables into the GB electricity system will increase as the capacity of renewables grows. Energy balance must be managed at all times; and as renewable capacity increases, a greater volume and range of Ancillary Services may be required to maintain or regain supply / demand balance and retain system control,

particularly when demand is either very high or very low. Balancing actions may also increase.

- 8.2.8 Technological advances, in particular in the introduction of power electronics into generating assets, is increasing the ancillary services and system stability services available from users of the electricity system, for example, by improving an asset's response speed and capability to system faults, and their ability to withstand periods of system instability without disconnecting.
- 8.2.9 The installation of power electronics at low-carbon generation assets is an exciting development which will enable them to provide important system stability services as part of their normal daily operational routine. By reprogramming the digital power inverters attached to solar panels, services required by the ESO can be delivered from solar generation facilities. Some solar farms already operating have incorporated state-of-the-art power electronics into their designs, and are providing important stability services to the ESO.

8.3 Power system adequacy

- 8.3.1 Solar plays an important role in diversifying renewable generation sources to maintain adequacy and minimise curtailment.
- 8.3.2 The uncontrollable nature of the weather raises a potential challenge to the ability of solar generation to play a significant role in electricity supply. However, the variability of solar generation can be mitigated by:
- Developing larger generation capacities (to maximise output during periods of low irradiation, for example through overplanting)
 - Connecting assets to different parts of the NETS
 - Developing projects with generation profiles which are complementary to solar (for example wind: see **Section 8.5**)
- 8.3.3 'Integration technologies' may also be used to respond to the intermittency of renewable generation, including electricity storage, interconnection, hydrogen, and demand side response **[Ref. 1, Para 3.3.6]**. 'Integration technologies' will help balance supply and demand, improving the efficiency of the electricity system as a whole and potentially reducing the installed generation capacity required to meet peak demand.
- 8.3.4 National Grid state that security of supply "refers to meeting all electricity demand at any given time" and that "Traditionally, risks to meeting electricity security of supply, have been at times of high demand." However, "as we move to higher volumes of weather-dependent renewable energy, we will also face additional

challenges around both the oversupply and undersupply of renewable generation” **[Ref. 29(2024), p99]**.

- 8.3.5 The Capacity Market, which is one of the UK’s primary measures for delivering security of supply, applies a de-rating factor to contracts on a technology-by-technology basis. All technologies attract a de-rating factor, and all de-rating factors are below 1. This highlights that no single technology can be relied upon to deliver security of supply at all times (otherwise it would have a de-rating factor of precisely 1).
- 8.3.6 Critically, the de-rating factor for solar in the Capacity Market has nearly tripled for projects contracting capacity over the period 2021/22 to 2027/28 **[Ref. 87]** from 2.34% to 6.35%, demonstrating how quickly the market is moving away from traditional norms of supply risk at winter evening peak times only, and how important a multi-technology mix is to the achievement of security of supply for consumers at all times of the day and year.
- 8.3.7 The then government’s Energy White Paper describes that meeting a possible doubling of electricity demand by 2050 “would require a four-fold increase in clean electricity generation with the decarbonisation of electricity increasingly underpinning the delivery of our Net Zero target” **[Ref. 16, p42]**.
- 8.3.8 A significant increase in UK electricity generation capacity is required to meet growing demand and deliver security of supply under different weather conditions. Because the weather is uncontrollable, more capacity is needed to ensure that demand can be met even when renewable output is low. The implication is that when renewable output is high, there is a risk of oversupply. The laws of supply and demand in liquid markets such as electricity, imply that at times of oversupply, the price of the traded commodity – electricity – will decrease.
- 8.3.9 NGESO state that “There is day-to-day uncertainty due to weather but in general, solar generation is quite predictable over the course of a year and the position of the sun and its expected radiation levels over the year are well known. This means it can be a great asset for meeting annual demand levels, especially [and therefore by extension, not exclusively] when coupled with suitable storage” **[Ref. 29(2023), p132]**. **Figure 6-5** of this Statement provides further information on the growth of storage facilities in GB.
- 8.3.10 Solar generation, and its potential abundance at foreseeable times of the day and year, will provide regular market signals which support the growth in demand-side flexibility (shifting demand to times of abundant renewable generation) and storage. As well as providing essential support to the security of supply during daylight hours, growth in solar generation will also encourage a shift in demand

away from times of traditional peak needs, and/or store abundant energy which can then be dispatched when it is needed.

- 8.3.11 Co-locating BESS with the solar array allows the Proposed Development to support the transition to net zero by providing flexibility to a fully low-carbon electricity system.

8.4 Curtailment

- 8.4.1 National Grid's Future Energy Scenarios also describes and evaluates the potential for curtailment to occur in the UK's future electricity system.
- 8.4.2 It is important therefore to explain why curtailment currently occurs in the UK electricity system, and the level of the prices currently paid to generators for some curtailment actions.
- 8.4.3 Currently, the majority of curtailment in the UK occurs on the large-scale wind fleet and mainly due to transmission constraints. Transmission constraints occur when the electricity network linking the point of generation to the major points of consumption, does not have the capacity to transmit all of the generation at certain times, but in particular when generation output is high.
- 8.4.4 In the 12 months starting 1 July 2023 and ending 30 June 2024, National Grid data records that wind generated 67.1TWh of energy. Transmission constraints amounted to 5.6TWh (c.8% of net generation) and constraints due simply to there being 'too much wind energy on the system' totalled c.0.6TWh, or less than 1% of net generation.
- 8.4.5 Curtailment in the UK is therefore currently more to do with where electricity is generated, than how much electricity is generated, and curtailment in the UK is anticipated to be associated more with wind generation than with solar generation [Ref. 29(2024), Table ES1].
- 8.4.6 Curtailment for network constraints currently results in a compensation to the asset operator for the electricity which would have been generated and sold but for the fact that that energy was not accepted onto the transmission system.
- 8.4.7 An asset located on a transmission network which is well connected to demand centres, is unlikely to be curtailed for the same reasons as the majority of current curtailment in the UK, however, the possibility of curtailment for non-locational reasons remains.
- 8.4.8 In such circumstances, curtailment would occur because more energy was being generated than that which could be consumed or stored at that time. **Figure 10-**

1 of this Statement shows that an excess of supply reduces market price, incentivising price-sensitive demand to increase, or in extremis, incentivising supply to shut down so as to avoid having to pay (rather than be paid) to generate. Critically, neither of these outcomes results in a compensation payment from consumers to the asset operator for the electricity they have not generated.

- 8.4.9 NGESO's analysis shows that average solar curtailment in the years 2031 – 2040 is anticipated to be 1.5 – 4.2TWh [Ref. 29(2024) Table ES1], or 3.6 – 6.4% of generation. NGESO anticipate curtailment to get worse before it gets better, as network investment, more storage and higher demand reduce solar curtailment by approximately 50% over the period 2041 – 2050.
- 8.4.10 **Chapter 7** of this Statement describes that the Proposed Development proposes to connect to a well-connected section of the NETS which has available transmission capacity. As such, transmission constraints are unlikely to cause curtailment at the Proposed Development and during its operational life, the Proposed Development is unlikely to receive compensatory payments for curtailments which would ultimately be funded by consumers.
- 8.4.11 Further, with BESS co-located with the solar array, the Proposed Development will be able to provide its own operational flexibility to the electricity system without relying on flexibility provision from other electricity system users. Such flexibility could include storing solar energy in the co-located batteries during periods of abundant solar supply until it is needed.
- 8.4.12 More generally, a growth in the capacity of flexible assets (including demand-side response, storage, interconnection, and hydrogen) will help to minimise the curtailment of assets in the future UK electricity system arising from the build out of large capacities of renewable generation. But because renewable electricity is variable, the UK may not be able to meet demand at times of low renewable output without the build out of large capacities of renewable generation.
- 8.4.13 Having insufficient renewable generation capacity operational in the UK may cause one or more of the following to occur:
- Power cuts (contrary to the government's aim to ensure security of supply)
 - Price spikes (contrary to the government's aim to shield consumers from volatile energy markets)
 - Stand-by fossil fuel assets to generate (contrary to the government's aim to decarbonise the electricity system by 2035)
- 8.4.14 The alternative approach, which is the government's approach, is the build-out of large capacities of renewable generation. This approach meets the government's aims and provides opportunities for market approaches to manage curtailment through flexibility, by:

- Using curtailed energy to support security of supply when demand is high
- Keeping consumer costs down by capturing and storing energy when it is abundant (therefore cheap) and releasing it when it is needed
- Displacing stand-by fossil assets by using stored energy as a low-carbon “peaking” energy resource, further supporting the government’s ambition to deliver ‘Clean Power by 2030’

- 8.4.15 One such flexibility measure which has already gained traction in the UK and has been enabled by the introduction of smart meters into domestic homes, is the introduction of ‘time of use tariffs’ (ToUTs). ToUTs apply different prices to consumption metered at different times of the day or year. ToUTs provide customers with the opportunity to schedule their electricity consumption towards times of low prices and away from times of high prices. Consumers would benefit from their actions through their normal utility bills.
- 8.4.16 In summary, future curtailment, if/when it occurs, could be interpreted as a ‘good’ problem for the UK power sector to have when compared to the alternate of under-delivering on the UK’s current decarbonisation and energy security aims. This is because if curtailment occurs, it would be because large capacities of renewable generation have already been built out to deliver low-carbon supplies to meet demand, deliver security of supply, meet carbon reduction targets, and reduce wholesale costs of energy.
- 8.4.17 Further, the market signals associated with curtailment, will drive the development of consumer and/or supply side flexibility to make efficient use of abundant resources and drive further security of supply, decarbonisation, and affordability benefits for consumers across the whole energy system.
- 8.4.18 The Applicant notes that a key benefit of the Proposed Development being connected to the NETS, is that when operational, it will need to adhere to the Grid Code. This means that the operational asset will need to inform NESO of its expected generation output at all times, and be ready to respond to instructions from NESO to adjust its output in the Balancing Mechanism. These arrangements provide NESO with a degree of control and response over the asset which will help NESO balance supply with demand.
- 8.4.19 These arrangements do not cover smaller embedded generators, including rooftop schemes, which are therefore significantly less controllable and potentially harder to manage within the UK’s electricity system.

8.5 The system adequacy of solar generation

- 8.5.1 System adequacy is primarily managed through the GB Capacity Market. On an asset-by-asset basis, intermittent generation capacity, such as wind or solar, can be variable, which means that individual assets are de-rated in the Capacity Market. However, the output from portfolios of intermittent capacity, especially those that consist of different technologies, can be relied upon more fully and are easier to forecast more accurately. This supports the efficient provision of system adequacy and security of supply.
- 8.5.2 The following analysis demonstrates this by showing that the average aggregate monthly output per unit installed capacity of a multi-technology portfolio of wind and solar assets is less variable than the average monthly output per unit installed capacity of each of the single technology portions of that portfolio.
- 8.5.3 The data for **Figure 9-1** is sourced from National Grid’s Demand Data and Actual Metered Generation data. These are operational data files, available to download from National Grid’s data portal, and are updated on a regular basis. These files are large and as such have not been submitted as a reference to this document, but extracts can be provided to the Examining Authority if required or requested.
- 8.5.4 The Demand Data files include National Grid’s estimated output, and capacity, for unmetered wind and unmetered solar generation.
- 8.5.5 The Actual Generation file includes metered wind generation (but not installed capacity). The workbooks accompanying regular FES publications also include historic installed wind capacity by type (onshore and offshore), connection type (distribution and transmission) and year [**Ref. 29(2024)**].
- 8.5.6 Data from 1 January 2022 to 31 December 2023 has been used by the author to derive a series of historical metered wind capacity of onshore and offshore wind.
- 8.5.7 Using two recent years of data provides a credible representation of national generation and capacity including all micro wind, onshore wind, and offshore wind as well as rooftop, commercial and larger scale ground mounted solar to a total combined portfolio of approximately 30 GW of wind and 15 GW of solar (estimated at year end 2023). The solar and wind generation facilities included in this portfolio are located throughout the UK.
- 8.5.8 **Figure 9-1** displays the resulting output per unit of installed capacity at a monthly level for GB wind (green columns) and solar generation (yellow columns). It shows the seasonality of wind load in GB: low in the summer months but higher in the Autumn through Spring. It also shows the seasonality of solar generation in GB: high in the spring and summer months and lower in autumn and winter. The output associated with an illustrative combined portfolio is shown by the red line.

- 8.5.9 The red line in **Figure 9-1** is the weighted average load factor for the combined national portfolio of wind and solar i.e., (wind generation + solar generation) / (wind capacity + solar capacity). The red line always lies between the extent of the green and yellow columns and is flatter across the timeframe analysed than either of the columns, showing a lower variation from month-to-month through the year.
- 8.5.10 Taking a multi-technology approach to electricity supply can reduce the effects of weather variability on output. By combining two generation portfolios which are largely independent of each other (meaning, the level of solar generation in the UK at any time is not mathematically dependent on the level of wind generation in the UK at that time, and vice-versa), the variation of the combined portfolio of (solar + wind), when averaged over a period of time, is lower than the variation of each of the portfolios separately.
- 8.5.11 Clearly, the identification of a general trend does not imply conformance to that trend on all days and at all times. Future ‘actuals’ will be dependent on prevailing weather conditions as well as levels of installed wind and solar generation capacity at delivery.

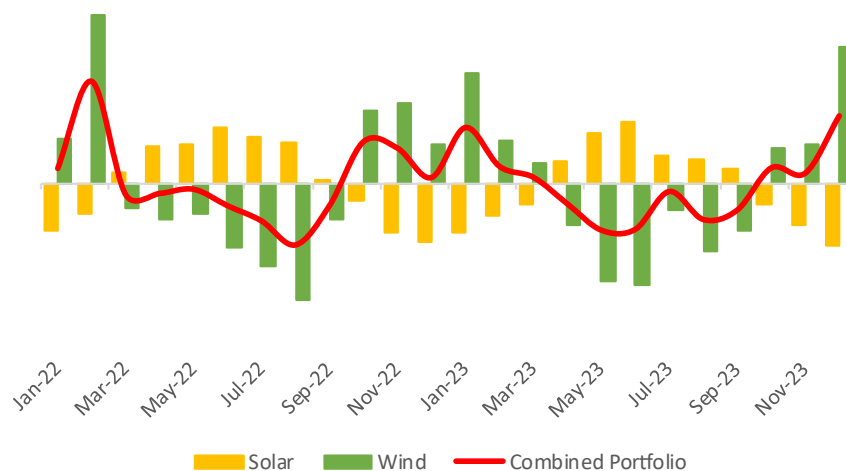


Figure 9-1: Combining solar and wind delivers Generation Dependability
[Author analysis, Ref. 88, Ref. 29(2024)]

- 8.5.12 Running the analysis over different time periods by using a different range of historical data derives similar results. The level of certainty which may be ascribed to the general conclusions of the analysis is therefore high, based on historical information. Insofar as solar and wind capacity both increase in the future in broadly similar proportion to each other, as has been experienced historically, then it is reasonable to assume that the conclusions reached will remain valid in the future.

- 8.5.13 Forecastable and stable generation output per unit of installed capacity is important because it relates to the reliability of, and therefore NGESO's ability to depend on forward forecasts of generation outturn. At the macro level, a greater reliability of generation outturn allows for a more efficient and targeted asset development program to be developed; and a lower requirement for (currently fossil fuelled) backup plant, without creating an excess of generation capacity.
- 8.5.14 A growing portfolio of solar generation would therefore complement the existing and growing GB wind portfolio to deliver a combination of low-carbon generation with improved reliability and predictability than associated with the separate technologies.
- 8.5.15 A second analytical model has been developed to illustrate the collective capability of solar and wind generation in meeting seasonal demand for electricity in the UK.
- 8.5.16 The model evaluates the contribution made by different generation classes to overall national demand throughout a year on a month average basis, but does not take into account the requirement to balance supply and demand on a short-term basis.
- 8.5.17 The data sets model underlying demand, heat demand, transport demand, and different sources of low-carbon supply including solar generation and wind generation, and how each of these change through the year.
- 8.5.18 The analysis is based on the average within-year shape of demand from 2015 to 2019.
- 8.5.19 Each data set therefore comprises a month-to-month shape and a future level. The methodology used to derive the shape for each series is as follows:
- 2015 – 2019 national demand data is used to derive a month-average demand expressed as a ratio of annual average demand. The data therefore avoids any one-off within-year impacts associated with outlier weather patterns (because the base data covers multiple years) or due to the COVID-19 pandemic and subsequent cost of living crisis (because data including and after 2020 has not been used)
 - The heating demand shape has been derived from the industry rule of thumb that in the UK, gas demand in the winter is up to five times higher than in the summer, and therefore electricity demand for heating (when it displaces gas heating) will follow a similar shape
 - The transport demand shape has been estimated as flat through the year

- Demand for electrolysis of water to produce hydrogen has been included in monthly demand estimates for completeness but at only small capacities in the 2030 timeframe, in line with National Grid's projections
- 8.5.20 Total demand is the sum of underlying demand, heat demand, transport demand, and electrolysis demand.
- 8.5.21 Supply has been modelled with only zero-carbon technology types, consistent with NGESO's FES (2024) Electric Engagement (EE) pathway. However, it should be noted that this pathway does not meet the government's ambition to deliver 'Clean Power by 2030'. The results are shown in **Figure 9-2**. The technology types are: zero carbon baseload (grey), onshore wind (green), offshore wind (blue), and solar (yellow).
- 8.5.22 The methodology used to derive the shape for each series is set out below.
- Zero carbon baseload generation represents nuclear energy from the remaining existing UK nuclear fleet (Hinkley Point C is not assumed to have been commissioned by 2030 in the EE pathway), alongside existing biomass, energy from waste and hydro generation. All assets are assumed to have an Unplanned Capability Loss Factor (breakdown rate) of 10% and planned outages are assumed to take place on the nuclear plant in rather than winters, leading to a summer baseload low carbon technology monthly availability of 50.6% and a winter month availability rate of 54.1%
 - The average monthly load factor for onshore and offshore wind and solar generation has been derived from National Grid market data for the entire UK operational wind and solar portfolio for the period 2016 to 2023. The data sources are the same as those used to derive **Figure 9-1** but over a wider historical dataset. Historically, both onshore and offshore wind generation in winter months (October through March) has been just below twice the level seen in the low months of the year (June and July), which is almost the inverse solar generation levels
 - The data derives a within-year shape (at monthly granularity) which is consistent with National Grid Operational Data for the entire UK operational solar estate over the period 2016 – 2020
- 8.5.23 **Table 9-1** below shows the load factors assumed in the analysis alongside National Grid assumptions [**Ref. 29(2024)**, **Data worksheet ES1**], and other relevant sources, such as Department for Energy Security and Net Zero (DESNZ) Regional Renewable Electricity Report [**Ref. 13(2023)**] and DESNZ Electricity Generation Cost Report [**Ref. 74(2023)**].

- 8.5.24 New offshore wind farms have significantly higher load factors than early farms, and the technology is projected to see significant growth from today through to 2030 and beyond. This is predominantly due to:
- Developments being located in areas with higher average wind resource, and larger more efficient turbines now being available on the market. The model assumption (derived from author analysis) matches the FES 2024 assumption
 - New onshore wind farms are likely to be more constrained in location and turbine size than new offshore wind farms and growth in load factor is less certain. The model assumption therefore adopts a lower load factor, also derived from Author Analysis, for onshore wind than for offshore wind which also matches the FES 2024 assumptions

Table 9-1: Comparison of assumed load factors with independent data sources
[Ref. 29(2024), Table ES1, Ref. 13(2023), Ref. 74(2023)]

Load Factor (%)	Model Assumption	FES Average	DESN Regional Data	DESNZ Cost Assumption
Offshore Wind	45%	45%	37%	65%
Onshore Wind	29%	29%	27%	41%
Solar	10%	12%	10%	11%

- 8.5.25 The FES [Ref. 29(2024), Table ED1] provides projections for the average levels of demand associated with underlying electricity use, heat, transport, and electrolysis capacities of each technology which may be in operation in 2030.
- 8.5.26 The analysis assumes annual average load levels for underlying demand of 29.4 GW, for heat demand of 3.5 GW, for transport demand of 3.1 GW, and for Electrolysis of 1.9W.
- 8.5.27 The model assumes future levels of supply capacity which are consistent with the FES Electric Evolution net zero pathway and are listed in **Table 9-2**, alongside the projections of capacity in FES 2024 (average; minimum and maximum installed capacity in 2030 for each technology in the three net zero compliant scenarios.
- 8.5.28 The model is an illustration based on projections of capacity roll out, electrification of demand, and efficiency / load factor. **Figure 9-2** shows the output of just one projection of a multitude of possible projections. Other outcomes are therefore possible, including those associated with rapid expansions of other zero-carbon generation technologies, should they materialise.

**Table 9-2: Comparison of installed capacity assumptions vs. FES 2024
[Ref. 29(2024), Table ES1, Author Analysis]**

Assumed Capacity (GW)	Model Assumption	FES 2024 Average	FES 2024 Min	FES 2024 Max
Offshore Wind	46	43	29	54
Onshore Wind	26	24	20	27
Solar	34	31	22	40
Zero-carbon baseload	13	14	13	15

8.5.29 However, considering the contribution only of proven low-carbon generation technologies to meeting future demand is a prudent approach because:

- **Section 2.11** of this Statement describes the urgency for action to reduce carbon emissions from the UK's electricity system in the critical 2020s, and **Section 5.6** to **Section 5.9** of this report describe that there are as yet no fully funded and consented CCUS, nuclear or hydrogen projects set to deliver in the 2020s beyond the projections already included in the analysis
- **Section 3.2** articulates the prudent view that infrastructure development should be planned on a conservative basis, without over-relying on yet-to-be-proven technologies, technologies with long development lead-times, or technologies which have historically experienced funding difficulties

8.5.30 **Figure 9-2** should not be inferred to advocate either for a specific renewable mix, nor for a system without adequate backup or flexible generation, both of which may be required to support decarbonisation of the NETS by managing day-to-day swings in both demand and supply.

8.5.31 The government's mission is to deliver 'Clean Power by 2030' by rapidly expanding the capacity of renewable generation installed in the UK. **Chapter 5** of this report describes that although the current pipelines for low-carbon generation are full, it cannot be relied upon that the delivery of those pipelines will be achieved, or that achieving any one of the targets set by the government (to triple solar capacity by 2030, alongside doubling onshore wind and quadrupling offshore wind), will also be achieved.

8.5.32 However, **Figure 9-2** shows that a portfolio of low-carbon generation which includes solar, onshore and offshore wind and a low-carbon base, if delivered, is capable of closely matching a future projection of national electricity demand on a month-average level.

8.5.33 **Figure 9-2** uses average load factor data and therefore, for renewable technologies, generation in some months may be higher than the data presented, and in other months generation may be lower.

- 8.5.34 **Figure 9-2** shows that if the capacity projections included in the FES Electric Engagement pathway are delivered across offshore wind, onshore wind, and low-carbon baseload technologies, it would be likely that sufficient energy would be generated to meet estimated demand in some winter (October to March) months. The tops of the blue stacked columns (total generation) are near to the red line (total demand) in October, November, and December and are within reach of the red line in January, February, and March.
- 8.5.35 However, because of the seasonality of wind generation in UK territory, the projected capacities of low-carbon generation would likely be insufficient to meet summer (April to September) demand. The top of the blue stacked column is below the red line in the majority of these months.
- 8.5.36 Approximately 34 GW of solar (an increase of 17 GW on mid-2024 levels, consistent with the Electric Engagement pathway) would provide additional low-carbon energy to help meet the UK's electricity needs throughout the year, and specifically in the summer months when wind energy yields are lower.

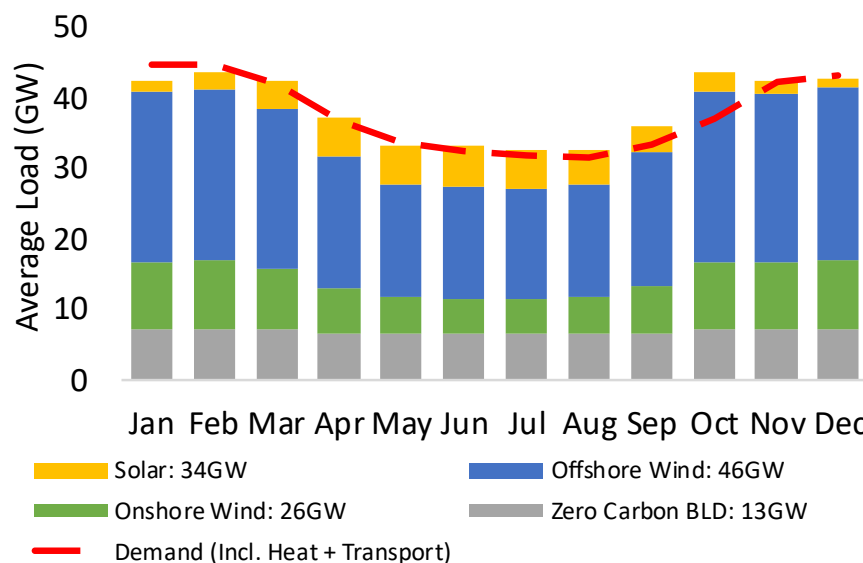


Figure 9-2: Meeting future seasonal demand with a mix of renewables
[Ref. 29(2024), Tables ES1 & ED1, Author analysis]

- 8.5.37 The EE pathway does not meet the government's ambition to triple solar capacity by 2030. However, demand must be met under a wide range of supply scenarios, including when renewable supplies are low. This analysis should not therefore draw the reader to the conclusion that the government has over-estimated the level of future capacities needed to achieve their aims of delivering 'Clean Power by 2030'.
- 8.5.38 To meet 2030 summer levels with a similar level of reliability as shown in the EE pathway without solar generation, a further c.14 GW of offshore wind generation

(i.e. a total installed capacity of ~60 GW), or an additional c.10 GW of low-carbon baseload generation (two new Hinkley Point C equivalent power plants), would be required to be built in the next 10 years.

- 8.5.39 However, by building out either additional low-carbon baseload or offshore wind generation capacity of the levels indicated to meet summer demand levels without solar, there would be significant over-generation of power in the winter periods of between 7% and 12%. Over-generation may be curtailed (either at a cost to the consumer or by reducing available revenues to asset operators) or stored. If revenues are reduced for asset operators, in some cases assets may not be commercially attractive and therefore may not get built out.
- 8.5.40 The model supports the conclusion that the deployment of large-scale solar alongside offshore wind, onshore wind, and low-carbon baseload assets provides the opportunity for a lower capital, lower curtailment (therefore lower cost) energy system through diversity of asset type than that provided by scenarios which do not include solar generation.
- 8.5.41 A high degree of certainty may be attached to this conclusion because of the horizon of data used to inform variable inputs to the model, and consistency of these and other assumptions with those made in National Grid ESO's FES 2024 pathways.
- 8.5.42 As the technical and economic viability of inter-seasonal storage advances, more options will become available for optimising GB's generation mix in relation to balancing capital deployment, development risk, the availability of suitable locations, and ongoing system operations (e.g. curtailment). However, based on current assessments, it is clear that the deployment of large-scale solar alongside that of offshore wind, onshore wind, and low-carbon baseload assets, provides the opportunity for a lower capital, lower curtailment (therefore lower cost) energy system through diversity of asset type than that provided by scenarios which do not include solar generation.

8.6 Conclusions on security of supply

- 8.6.1 This Statement of Need provides evidence which supports the urgent need for low carbon sources of electricity in the UK. The British Energy Security Strategy provides additional focus on both the scale and the urgency to deliver new low carbon generation capacity, and the Proposed Development is ideally suited to play an essential role in meeting that urgent need.
- 8.6.2 Although individual renewable assets are variable generators, aggregated generation output from portfolios which consist of different renewable technologies is more stable. The generation profiles of diverse ranges of low-carbon generators combine to meet seasonal average demand levels without requiring significant and unproductive capital investment, seasonal excess generation, or inefficient network / system operating costs.
- 8.6.3 Many integration measures are already available, or are already in development, which, over short periods, help balance electricity generation from variable generators to meet demand, and to ensure that the best use is made of low-carbon electricity when it is being generated in oversupply. For example, BESS, pumped hydro or interconnectors (**Section 5.11**).
- 8.6.4 The contribution made by flexible assets to the short-term balancing of supply and demand are described in **Section 6.9** and **Chapter 7**. However, until inter-seasonal storage is brought forwards at scale and at grid parity costs, the most efficient measures for seasonal balancing of renewable generation include increasing the capacity and geographic diversity of renewable generators, including portfolios of assets with complementary seasonal generation profiles and managing shorter term intermittency through storage or other measures.
- 8.6.5 Solar is an asset class which is needed to support a high level of generation adequacy and generation dependability within the GB electricity system.
- 8.6.6 The Proposed Development, if consented as a leading large-scale solar scheme in Yorkshire, represents c. 2% of the new solar generation capacity required in the FES net zero pathways to 2040, **[Ref. 29(2024)]**. In this context, the Proposed Development and many others like it are essential to move the UK towards the future of efficient decarbonisation through the deployment of large-scale, technologically and geographically diverse low-carbon generation assets.
- 8.6.7 Global expertise in the operation of electricity systems with high proportions of RES is growing. Technologies which help the integration of renewable assets to the grid are already in operation in the UK. However, solar assets are increasingly able to provide important system services themselves, and flexible integration assets are being deployed on a stand-alone and co-located basis to do the same, as well as to manage short-term supply / demand volatility.

- 8.6.8 Growth in solar capacity, alongside other renewable technologies, is expected to improve the dependability of those assets as a combined portfolio, and this is expected to reduce further any integration costs associated with such growth.
- 8.6.9 The Proposed Development, if approved, would contribute to an adequate and dependable GB generation mix, through enabling the generation of more low-carbon power from indigenous and renewable resources. Therefore, the approval, construction and operation of the Proposed Development will make a significant contribution to GB's energy security needs, and the decarbonisation needs of the UK.

9 The contribution of large scale solar to the affordability of electricity

9.1 Chapter summary

- 9.1.1 This chapter provides an overview of the affordability benefits of large-scale solar in the UK.

“Analysis [commissioned by the NIC] suggests that there is no material cost impact, either over the short or long term, of deploying renewables faster. Renewables are now the cheapest form of electricity generation due to dramatic cost reductions in recent years. Cost reductions have been greater than was predicted in 2018 when the Commission made its recommendation on what level of renewable generation the government should be targeting” [Ref. 70, p9].

9.2 Pricing in the GB electricity market

- 9.2.1 In the GB power market, generators schedule themselves to generate in response to whether a market price signal for a specific period is above or below their marginal cost of generation. Marginal cost of generation is defined as the cost of generating an additional 1 MWh, usually including variable fuel, carbon emissions, and transmission costs.
- 9.2.2 Each day is subdivided into 48 half-hour Settlement Periods (SPs) and power is traded ahead of delivery for these periods, or continuous groups thereof, from just 90 minutes ahead, up to months or even seasons ahead.
- 9.2.3 Solar generation has very low or zero marginal costs and therefore solar assets generate as much power as they are able to, when they are available (i.e. whenever there is light) and whenever power prices are positive. Because of the variable, but forecastable nature of solar irradiation, they also tend to trade on near-term power markets, therefore much of the impact of sunny (or overcast) weather on power price is felt in the few days close to delivery.
- 9.2.4 Thermal and hydro plants have higher marginal costs, relating to the cost of the fuel they are converting into that additional MWh, and any emissions costs associated with the use of that fuel. Thermal and hydro plants will therefore only generate when the market is providing a higher price signal, i.e. when demand is expected to be higher than the supply of low-marginal cost supplies at the time of dispatch. Thermal and hydro plants may also trade power, fuel, and carbon emissions costs into the future to fix their income.

- 9.2.5 Increases in the cost of source fuels and emissions increase the cost of generation from these assets. Therefore, when they are required to generate electricity, they will do so at a cost which increases the price of electricity for all market consumers for that period.
- 9.2.6 All generators produce active power (MWs), and at all times, the total national active power generated must meet the total national system load. If solar farms are generating electricity during a settlement period, then less electricity is required from plants with more expensive marginal costs, therefore, the price of electricity for that settlement period reduces.
- 9.2.7 Emissions pricing ensures that carbon-emitting generation is more expensive to dispatch than zero-carbon generation. Therefore, by undercutting carbon emitting assets on marginal cost, zero-carbon assets will displace carbon intensive assets, providing both a carbon emission saving and a cost benefit to consumers.
- 9.2.8 This market mechanism is illustrated in **Figure 10-1**. The blue line, increasing from left to right along the x-axis, represents the marginal cost of generation in GB at each level of demand. As demand increases, more expensive supply must be scheduled into the market to meet that demand.
- 9.2.9 The three red vertical lines represent different levels of demand. At a mid-level of demand, the solid vertical red line crosses the blue line (in this illustration: at about £45/MWh), and is the price of electricity for that period.
- 9.2.10 If demand reduces (e.g. to the left-hand dashed vertical red line), a lower capacity of assets is required to run to meet demand. Therefore, the marginal cost of the most expensive asset required to run to meet demand will be lower than it would otherwise have been, and the price of electricity for that period would also reduce.
- 9.2.11 Conversely, if demand increases, (e.g. to the right-hand dashed vertical red line), assets with higher marginal costs of production are required to run, and they set a higher price of power.
- 9.2.12 The blue line in **Figure 10-1** will be different for each half hour settlement period because generators may become available or unavailable through the day due to outages or breakdowns. The level of renewable generation will also change through the day. More renewable generation will stretch the blue line within the red ellipse (around a zero marginal cost of power), lowering the price of electricity for that period (the point of intersection between a vertical red line point with any fixed red line), and as a result, the blue line slides to the right for all higher levels of demand.
- 9.2.13 The marginal cost of production to meet demand over these periods will therefore be lower, and as a result, the traded price of power will also be lower.

- 9.2.14 By running this type of analysis over every settlement period over the future trading horizon, it is possible to derive a view of the price of power for the next week, month, quarter, or season.
- 9.2.15 The conclusion remains the same, namely that increasing the capacity of renewable assets in GB reduces the traded price of power.
- 9.2.16 The GB power pricing mechanism also provides the explanation as to why the British Energy Security Strategy increases the UK's ambition for renewable generation to reduce our dependency on volatile international energy markets.

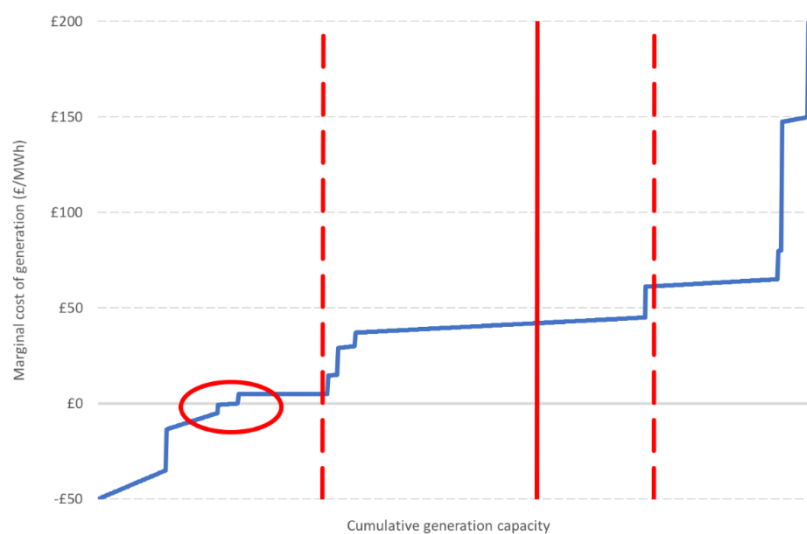


Figure 10-1: Representative marginal cost stack for the GB electricity system
[Author analysis]

9.3 Levelised cost of solar generation

“The International Renewable Energy Agency (IRENA) found that between 2010 and 2019, the cost of solar PV globally dropped by 82% ... In 2019 alone, the cost of electricity from solar fell by 13% to just over five pence per kilowatt-hour. This means that by ... [2020] globally, there will be up to 1,200 GW of existing coal capacity that will cost more to operate than it would to install new solar PV capacity.” [Ref. 89].

- 9.3.1 The market mechanisms described in **Section 9.2** only reduce the price of power if solar projects come to market, or if developers believe they are able to make reasonable returns on their investments. The cost of solar generation is an important enabler of its development. Solar panels and electrical infrastructure have become larger and more efficient, as described in **Section 6.8**, meaning that more electricity can be generated from the same area of land as was

previously possible. As a consequence, solar is now a leading low-cost generation technology (see **Figure 10-2**).

- 9.3.2 Levelised Cost of Energy (LCOE) is an important metric allowing all forms of generation to be compared with each other on a consistent basis. LCOE is calculated using a discounting methodology and is a measure of the lifetime unit cost of generation from an asset, including capital and operating costs. In-life cap capital and operating expenses, for example the re-powering of sites to manage anticipated degradation, are also anticipated.
- 9.3.3 **Figure 10-2** shows the results of an analysis of the government's Electricity Generation Costs report [**Ref. 74(2023)**] with the range of values representative of different complexities of technical solution.
- 9.3.4 **Figure 10-2** shows a 'triple' of columns for each of five generation technologies. Each column within each triple shows the technology's anticipated LCOE for assets commissioning in 2025 (left hand column), 2030 (middle column), and 2035 (right hand column).

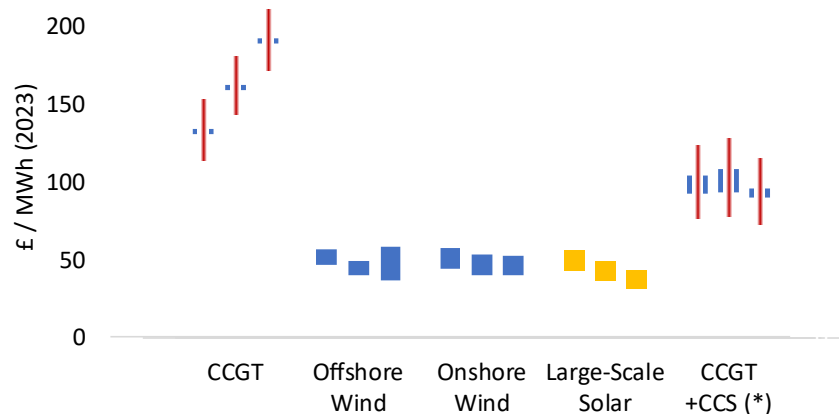


Figure 10-2: Levelised cost of energy comparison
[Ref. 74]

- 9.3.5 Governmental modelling anticipates different projected operational lifetime, load factors (a measure of the output of the plant per year versus its theoretical maximum if availability is unconstrained), capital and operational costs, and development duration to derive a range of cost projections. The blue bars show that range while the red columns represent the LCOE range under different projections for input fuel costs for those technologies which require a non-zero cost input fuel.
- 9.3.6 The levelised cost ranges of large-scale solar (governmental analysis assumes a capacity of 16 MW) are highlighted in yellow. **Figure 10-2** shows that renewable generation technologies hold a significant levelised cost benefit when compared

to technologies which are reliant on fossil fuels, even when fuel input costs are included at a low level.

- 9.3.7 The analysis illustrates that the LCOE of solar delivered in 2025 is lower than the LCOE of offshore wind delivered at a similar timeframe, and is comparable to the LCOE of onshore wind. However, predictions are that solar generation delivered in future years is likely to be cheaper than both onshore and offshore wind on an LCOE basis.
- 9.3.8 A project with a lower LCOE would allow consumers to benefit through market mechanisms. For example, a project with a lower LCOE would be able to be bid into a future CfD Allocation Round at a lower strike price than a project with a higher LCOE. If such a project secured an agreement, consumers would also benefit versus the case that it did not.
- 9.3.9 The government's Cost of Electricity Generation report series [Ref. 74] also shows that solar LCOE has reduced significantly in the last decade. Solar, already being highly competitive against current conventional and renewable generation costs, is predicted to retain a cost advantage for the decades ahead.

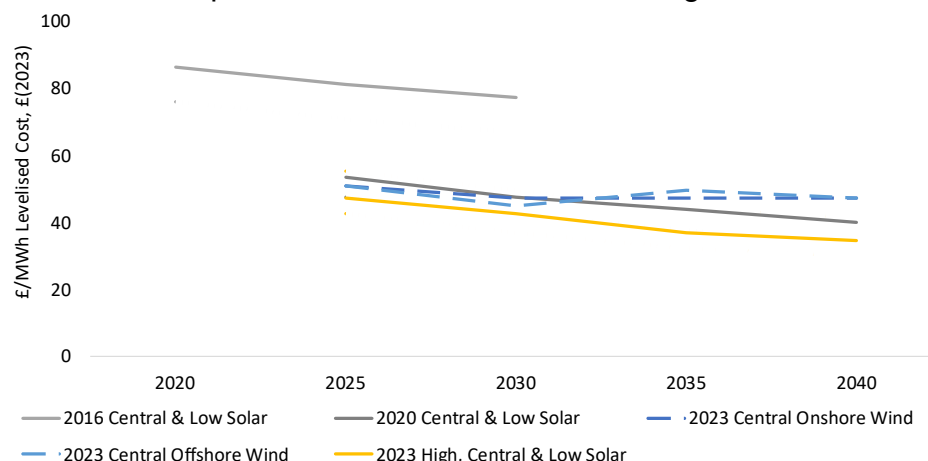


Figure 10-3: Cost of Electricity Generation. An evolution of Levelised Cost forecasts
[Ref. 74, Author analysis]

- 9.3.10 Solar costs have been driven down through the realisation of efficiencies in capital infrastructure, development and integration costs, and lifetime O&M. This includes working to reduce the effects of degradation of solar panels and inverters. Improvements in lifetime cost are likely to continue to be delivered.
- 9.3.11 Technological advances have also increased the efficiency of solar panels (see **Section 6.8** of this Statement) and extended their useable lifetimes. At the same time, economies of scale through the global supply chain have reduced the cost

of panels. Development costs have also reduced as efficiencies in the build process have been captured through prior experience.

- 9.3.12 **Figure 10-3** shows the results of previous and current governmental analyses. The mid grey lines show the government's 2016 projections of the LCOE of solar commissioning in 2020, 2025, and 2030. The solid line shows the central case projection, and the dotted line shows the low case projection.
- 9.3.13 The 2013 projections (not shown in **Figure 10-3**) were approximately 70% higher on a consistent 2023 real price basis. Just four years later, the 2020 solar LCOE projection (shown in dark grey) was over 30% lower for sites commissioning in 2025 and 2030.
- 9.3.14 Their projections made in 2023 are shown by the yellow solid line (central cost) and are bounded by the high and low cases shown by the dotted lines. The 2023 solar LCOE estimate is a further 10% lower than the 2020 estimate on a consistent 2023 real price basis.
- 9.3.15 Industry-sourced data and opinion concurs with the direction of this analysis. For example, a CCC illustration of data from IRENA analysis (2020) shows similar cost reductions in renewable generation technologies, and the competitiveness of those technologies against fossil fuel generation [**Ref. 11(2020), Figure 2.2**].
- 9.3.16 **Figure 10-3** should not however be taken as a justification for delaying the development of renewable projects, in order to capture a lower future installed price. **Section 2.2** explains the rationale for urgent action to develop significant capacities of low-carbon generation. Time is a precious commodity.
- 9.3.17 Further, it is the continuous development of projects which allows learnings to be implemented, technology to advance through practical application, and markets and supply chains to evolve and improve efficiency, to achieve the future cost reductions which have been forecast by previous governments and others.
- 9.3.18 Solar was included in the 2021/22 CfD Allocation Round (AR4) to help "deliver a diverse generation mix at low cost" and to realise "the rate and scale of new projects needed in the near-term to support decarbonisation of the power sector and meet the net zero commitment" while providing other benefits such as diversity of supply through different resource requirements and a geographical separation from other significant renewable energy sources [**Ref. 90, pp16, Ref. 29**].
- 9.3.19 Many solar projects were successful in CfD AR4, AR5, and AR6 (2024). Auction results indicate that solar is an important technology within the evolving GB electricity system its costs are competitive [**Ref. 91**].

- In AR4, over 2.2 GW of solar capacity across 66 projects (commencing in 2023/24 or 2024/25) secured CfDs at an initial strike price of £45.99 (2012 indexation, estimated to be equivalent to £64.18 in 2024 money)
- In AR5, over 1.9 GW of solar capacity across 56 projects (commencing between 2025 and 2028) secured CfDs at an initial strike price of £47.00 (2012 indexation, estimated to be equivalent to £65.58 in 2024 money)
- In AR6, nearly 3.3 GW of solar capacity across 93 projects (commencing in 2026/27 or 2027/28) secured CfDs at an initial strike price of £50.07 (2012 indexation, estimated to be equivalent to £69.87 in 2024 money)

9.4 Whole system costs

- 9.4.1 The NIC's current view is that RES represent a most likely low-cost solution for GB electricity generation, over large-scale conventional investments:

“More renewables do lead to more money being spent to match supply and demand: a system with 90 per cent renewables is estimated to cost up to £4.5 billion more per year to balance. But cheaper capital costs are estimated to offset this within the costs for the overall system” [Ref. 86, p39].

- 9.4.2 Both **Figure 9-1** and **Figure 9-2** provide evidence that the deployment at scale of more than one renewable generation technology will help reduce the capacity of integration technologies needed to manage generation variability across many timeframes, including potentially the long-term storage of excess generation, although it is unlikely to fully remove the need.
- 9.4.3 An Imperial College expert economic analysis of whole system costs of renewables agrees; they show that the integration costs of RES fall on an absolute basis, as capacity increases from 10 GW up to 50 GW [Ref. 92].
- 9.4.4 The NIC published the results of a whole system cost analysis in 2020. NIC's analysis complements that of the Imperial College team, suggesting that “there is no material cost impact, either over the short or long term, of deploying renewables faster. Renewables are now the cheapest form of electricity generation due to dramatic cost reductions in recent years.” [Ref. 70].
- 9.4.5 With the development of new schemes, solar technology is proven to be commercially rational over a growing geography. Developing technology, construction risk mitigation, efficient grid connection, and efficient financing have all helped apply downward pressure on solar project costs. As a consequence, utility-scale project costs projected to fall. The global solar market is growing, and the GB solar market is growing as well.

9.5 Conclusions on affordability

- 9.5.1 Large-scale solar power decarbonises the electricity system and lowers the market price of electricity by generating power so that expensive and more carbon intensive forms of generation do not need to generate as much.
- 9.5.2 In doing so, solar power delivers national decarbonisation benefits and supports consumer affordability aims, to the benefit of electricity consumers.
- 9.5.3 Due to technological advances, solar facilities are already among the cheapest form of electricity generation in the UK and forecasts produced by the government indicate that costs will continue to reduce in the future.
- 9.5.4 Scale remains important, and maximising the generating capacity of schemes improves their economic efficiency, and so brings electricity generation to the market at the lowest cost possible.
- 9.5.5 Larger solar schemes deliver more quickly and at a lower unit cost than multiple independent schemes which make up the same total capacity, bringing forward carbon reduction and energy security benefits as well as helping to keep consumer costs in check, in line with government policy (including that of the previous government).
- 9.5.6 The Proposed Development will be a substantial infrastructure asset, which if consented will deliver large amounts of cheap, secure, and low-carbon electricity which will help the UK achieve its Sixth Carbon Budget commitments and stay on track to achieve net zero by 2050. Maximising the capacity of generation in the proposed location for the Proposed Development represents a significant and commercially rational step forward in the fight against the global climate emergency.

10 Overall conclusions

- 10.1.1 Decarbonisation is a UK legal requirement and is of global significance. It cannot be allowed to fail, and urgent actions are required in the UK and abroad, to keep decarbonisation on track to limit global warming.
- 10.1.2 The NPSs establish a CNP for the provision of nationally significant low-carbon infrastructure, which includes large-scale solar farms, because a combination of many or all types of such infrastructure is urgently required for both energy security and Net Zero.
- 10.1.3 NPS EN-1 states that “For projects which qualify as CNP Infrastructure, it is likely that the need case will outweigh the residual effects in all but the most exceptional cases” **[Ref. 1, Para 4.1.7]**. The Proposed Development is CNP Infrastructure therefore it follows that the urgent need for the Proposed Development to achieving the UK’s energy objectives, together with the national security, economic, commercial, and net zero benefits, will outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy **[Ref. 1, Para 3.3.63]**.
- 10.1.4 Government’s Clean Power 2030 Action Plan **[Ref. 3]** reinforces the urgent need for low carbon generation schemes to come forwards to pave the way to decarbonising the wider economy by 2050 as the UK pursues the electrification of heat in buildings, in transport, and in industry. It also provides a framework for the prioritisation of connection offers for projects which align with NESO’s advice which are deliverable by 2030, and which can demonstrate that they have the means to deliver to those timeframes
- 10.1.5 The Proposed Development is required to ensure that the UK remains on track to meet its legally binding carbon emissions reduction targets, including the Sixth Carbon Budget, while enhancing national security of supply, and at a cost which, in relation to other electricity generation infrastructure developments, provides value for money for end-use consumers.
- 10.1.6 This Statement has shown that large-scale solar generation is economically and technically viable in the UK, and that it is an economically and technically preferable source of low-carbon energy for the GB electricity consumer.
- 10.1.7 The UK has substantial renewable energy resources, including solar, and large areas of the country receive high levels of solar irradiation. These resources must be harnessed to decarbonise our economy.
- 10.1.8 The UK policy view is that a low-cost, net zero consistent system is likely to be composed predominantly of wind and solar **[Ref. 16, p43]**. Flexible assets are

also needed to balance supply with demand. National policy is supportive of solar that is co-located with storage to maximise the efficiency of land use.

- 10.1.9 The Proposed Development will, if consented, bring forwards large-scale ground-mount solar with co-located storage facilities. The Proposed Development therefore goes towards meeting the government's aims.
- 10.1.10 **Chapter 5** of this report describes the government's aims for many renewable technologies and describes the opportunities and risks associated with their delivery. If solar generation does not meet the decarbonisation and energy security contributions ascribed to it, the challenge faced by the UK in meeting its decarbonisation targets from other technologies will be significantly harder.
- 10.1.11 Conversely, the continued development of proven low-carbon technologies like large-scale solar is important to protect against the possibility that technologies which are currently in 'prototype' stage do not deliver operational capacity at the pace or scale required.
- 10.1.12 Other conventional low-carbon generation (e.g. nuclear or conventional generation with CCUS) and new low-carbon dispatchable generation (e.g. hydrogen) will be important contributors to achieving the 2050 net zero obligation, but their contributions in the timeframe in which the Proposed Development will deliver are uncertain.
- 10.1.13 The Proposed Development would generate power ahead of other potential technologies (which may have longer construction timeframes or have potentially not yet been proven at scale) which will support decarbonisation only in future years and only if they are brought forwards.
- 10.1.14 The need for solar is especially important given the context of the CCC's identification of the need for urgent action to increase the pace of decarbonisation in the GB electricity sector, and the then government's adoption of their recommendations for the Sixth Carbon Budget (2033 – 2037).
- 10.1.15 The Proposed Development will, if consented, be capable of supporting the delivery of the Sixth Carbon Budget. Large-scale solar is needed alongside rooftop solar because without increasing capacities of both types of solar generation, the UK will likely fall short of its solar capacity aims and therefore its climate change targets.
- 10.1.16 Large-scale solar delivery beyond 2030 remains important not only to reduce power-related carbon emissions, but also to provide a timely next step contribution to a future generation portfolio which will support the electrification and therefore decarbonisation of transport, heat and industrial demand.

- 10.1.17 As part of a diverse generation mix, solar generation improves the stability of capacity utilisations which in turn improves generation dependability. When developed alongside other renewable technologies, large-scale solar will help smooth out seasonal variations in total GB renewable electricity generation, more closely matching anticipated seasonal average levels of demand.
- 10.1.18 Co-locating BESS with the solar array will help the Proposed Development operate flexibly as an essential part of a zero-carbon electricity and energy system.
- 10.1.19 The Proposed Development would connect to an existing grid connection point on an existing part of the NETS, efficiently optimising the use of an already existing national infrastructure asset.
- 10.1.20 By being connected to the transmission system, large-scale solar generation can and will play an important role in the resilience of the GB electricity system from an adequacy and system operation perspective. This is because the transmission system is able efficiently to transfer bulk power from where it is in abundance to where it is needed. This connection means that it will be required to play its part in helping NGESO manage the national electricity system.
- 10.1.21 Large-scale solar generation also supports security of supply by helping reduce the national dependency on imported hydrocarbon source fuels. The Proposed Development will therefore also help reduce the UK's exposure to volatile international energy prices.
- 10.1.22 The low marginal cost and low marginal carbon emissions energy generated at the Proposed Development can be confidently forecast and priced into future contracts for power delivery by all market participants, thus allowing all consumers to benefit from the market price reducing effect of solar generation.
- 10.1.23 The cost of solar generation is already highly competitive against the cost of other forms of conventional and low-carbon generation, both in GB and more widely.
- 10.1.24 Internationally, and importantly for GB in this regard, there is the ongoing trend of solar generation assets becoming larger and more affordable, each subsequent project providing a real-life demonstration that solar schemes of similar size and scale as the Proposed Development can and should be developed in GB. The development of such schemes will provide decarbonisation, energy security and commercial benefits to consumers.
- 10.1.25 If consented, the Scheme, along with other solar schemes, will make a critical contribution towards net zero. The government aims to triple solar capacity by 2030 and NGESO FES net zero pathways include 28 – 40 GW of operational solar capacity in GB by 2030, alongside significant increases in the capacity of

other technologies, representing an increase of between 12 and 24 GW over the next 5 years.

- 10.1.26 However, the need for new clean power does not stop at 2030. The continued delivery of low-carbon generation facilities beyond 2030 is necessary to meet future electricity demand growth and achieve essential wider societal carbon savings. It is also important to continue to bring forward schemes in the event that 'Clean Power by 2030' is not achieved.
- 10.1.27 The meaningful and timely contributions offered by the Proposed Development to UK decarbonisation and security of supply, while helping lower bills for consumers throughout its operational life, will be critical on the path to net zero beyond delivery of the government's 'Clean Power by 2030' mission.
- 10.1.28 Without the Proposed Development, a significant and vital opportunity to develop a large-scale low-carbon generation scheme will have been passed over, increasing materially the risk that future Carbon Budgets and net zero 2050 will not be achieved.
- 10.1.29 The Proposed Development is a leading GB large-scale solar plus storage scheme. If consented, it would be an essential component of the UK's plan to deliver a future of efficient decarbonisation through the deployment of large-scale, technologically and geographically diverse low-carbon generation schemes and would also deliver flexibility to the UK electricity market.
- 10.1.30 The Proposed Development addresses all important and relevant aspects of existing and emerging government policy.

11 Author's Qualifications and Experience

- 11.1.1 This Statement of Need has been authored by Si Gillett, Director at Humbeat Ltd, an independent electricity consultancy, established in 2016, to support participants in the UK's transition to a low-carbon electricity and energy system. The consultancy supports and advises private individuals and organisations with pre- and post-construction electricity developments by providing commercial and strategic advice in relation to those developments.
- 11.1.2 Humbeat specialises in assessing, describing, and quantifying the benefits specific technologies and individual developments bring to the overarching and urgent need for decarbonisation in the UK. Humbeat has been commissioned to provide electricity market expertise to over 12,000 MW of development-phase renewable generation developments across the UK, including over 3,000 MW of ground mount solar, ranging from 10 MW sites to large-scale developments.
- 11.1.3 Mr Gillett authored Statements of Need for seven NSIP solar schemes which received Development Consent between 2020 and 2024 including Cleve Hill Solar Park (May 2020), Longfield Solar Farm (June 2023), Sunnica Energy Farm (July 2024), Mallard Pass Solar Project (July 2024), Gate Burton Energy Park (July 2024), Cottam Solar Project (August 2024) and West Burton Solar Project (January 2025).
- 11.1.4 Mr Gillett also developed evidence to support IROPI (Imperative Reasons of Overriding Public Interest) justifications for Hornsea 3 and Hornsea 4 Offshore Wind Farms. DCOs were granted in December 2020 and July 2023 respectively.
- 11.1.5 Humbeat is currently supporting approximately ten other nationally significant electricity generation infrastructure developments by providing electricity market and low-carbon transition expertise to their development teams, as well as multiple engagements on TCPA planning applications for solar and solar + storage developments.
- 11.1.6 Mr Gillett holds Masters degrees in mathematics and nuclear regulation and has 20 years of experience in energy sectors including petroleum and natural gas liquids, and conventional, nuclear, and renewable electricity – on both the generation and sale side. A wide range of energy experience provides a robust basis for a balanced assessment and analysis of the UK energy sector as a whole. This is especially important as the journey to net zero involves more integrated and system-level thinking than has ever previously been required in the electricity sector.

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Peartree Hill Solar Farm

Appendix 4: Minerals Safeguarding Assessment

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Acronyms

Acronym	Description
BESS	Battery Energy Storage System
CNP	Critical national priority
DC	Direct current
DCO	Development Consent Order
Draft DCO	Draft Development Consent Order
DNO	Distribution Network Operator
EIA	Environmental Impact Assessment
ERLP	East Riding Local Plan
ES	Environmental Statement
ERYC	East Riding of Yorkshire Council
HGV	Heavy goods vehicle
kV	Kilovolts
LPA	Local Planning Authority
MSA	Minerals Safeguarding Area
MW	Megawatts
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
PA 2008	Planning Act 2008
PPG	Planning Practice Guidance
PV	Photo voltaic
SoS	Secretary of State for the Department for Energy Security and Net Zero

Glossary

Term or Abbreviation	Definition
The Applicant	RWE Renewables UK Solar & Storage Ltd.
DCO Application	Development Consent Order application.
East Riding of Yorkshire Council	Host authority for the Proposed Development.
Battery Energy Storage System (BESS)	Batteries with associated infrastructure to store, import and export electricity to the National Grid. The system includes batteries and associated inverters, transformers, switchgear, enclosures, monitoring systems, air conditioning, electrical cables and fire safety infrastructure.
Development Consent Order (DCO)	An order granted by the Secretary of State permitting the development of a Nationally Significant Infrastructure Project. DCO applications are made to the Secretary of State via the Planning Inspectorate.
Environmental Impact Assessment (EIA)	A statutory process by which information about environmental effects of a proposed development is collected, assessed and used to inform decision making. The EIA for the Proposed Development has been undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the 'EIA Regulations').
EIA Regulations	The EIA Regulations relevant to the Proposed Development are the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended). The EIA Regulations specify which developments are required to undergo EIA.
Environmental Statement (ES)	A report forming part of the DCO application, it will report the process and final outcomes of the EIA and explain the likely significant effects of the Proposed Development on the environment once mitigation measures have been taken into account.
Hectares (ha)	A metric unit of square measure.
Kilometre (km)	A metric unit of length equal to 1,000 metres.
Land Area	A site within the red line boundary that is proposed for solar panels, and associated infrastructure.
Local Planning Authority (LPA)	Local government body and consultee for the Proposed Development.

Mitigation	Measures including any process, activity, or design to avoid, prevent, reduce, or, if possible, offset any identified significant adverse effects on the environment.
Megawatt (MW)	Unit of power equal to one million watts.
National Policy Statements (NPS)	The government's policy for the delivery of energy infrastructure. NPS EN-1 sets out the overarching policy statement for energy. NPS EN-3 sets out the policies for renewable energy infrastructure.
Nationally Significant Infrastructure Projects (NSIP)	NSIPs are large scale developments such as certain new harbours, power generating stations (including solar farms), highways developments and electricity transmission lines, which require a development consent under procedures governed by the Planning Act 2008.
Order Limits/'Indicative' Order Limits	Land shown on the Works Plans within which the Proposed Development can be constructed and operated. Presented as 'indicative' during pre-application stage.
Permissive Paths	A route which can be used by the public during the lifetime of the Proposed Development but will not become a permanent right of way.
Planning Act 2008 (PA 2008)	Primary legislation outlining the consent regime for major infrastructure projects in the fields of energy, transport, water, wastewater, and waste.
Secretary of State (SoS)	Secretary of State for Energy Security and Net Zero.

1 Introduction

1.1 Background to the Proposed Development

- 1.1.1 This Minerals Safeguarding Assessment has been prepared on behalf of RWE Renewables UK Solar and Storage Ltd (the ‘Applicant’) in support of an application for a Development Consent Order (the ‘DCO Application’) to be made to the Secretary of State for the Department of Energy, Security and Net Zero (the ‘SoS’), pursuant to the Planning Act 2008 (PA 2008) [Ref. 1].
- 1.1.2 The Order Limits for the Proposed Development, shown on the **Location and Land Area Plan [EN010157/APP/2.1]**, is approximately ~~891~~ 893 hectares of land within the administrative area of East Riding of Yorkshire Council (ERYC) (the ‘Host Authority’).
- 1.1.3 The DCO Application is a Nationally Significant Infrastructure Project (NSIP) for the construction, operation (including maintenance), and decommissioning of a solar photovoltaic (PV) array electricity generating facility, Battery Energy Storage System (BESS) and associated infrastructure (the ‘Proposed Development’) which would allow for the generation and export of electricity.
- 1.1.4 The main elements of the Proposed Development include:
- Solar PV modules and associated mounting structures (groupings of solar PV modules are referred to as ‘arrays’);
 - On-site supporting equipment including inverters, transformers, direct current (DC)-DC converters and switchgear;
 - BESS including batteries and associated enclosures, monitoring systems, air conditioning, electrical cables and fire safety infrastructure;
 - Two on-site 132 kV substations, including transformers, switchgear, circuit breakers, control equipment buildings, control functions, material storage, parking, as well as wider monitoring and maintenance equipment;
 - Low voltage and 33 kV interconnecting cabling within the Land Areas to connect the solar PV modules together and to transmit electricity from the solar PV modules and BESS to one of the two on-site 132 kV substations;
 - 132 kV underground cables (two 132 kV export cables) connecting the on-site substations to the National Grid Creyke Beck Substation;
 - Works at the National Grid Creyke Beck Substation to facilitate the connection of the 132 kV underground cabling into the substation;

- Associated infrastructure including access tracks, parking, security measures, gates and fencing, lighting, drainage infrastructure, storage containers, earthworks, surface water management, maintenance and welfare facilities, security cabins and any other works identified as necessary to enable the development;
 - Highways works to facilitate access for construction vehicles, comprising passing places where necessary to ensure that heavy goods vehicles (HGVs) can be safely accommodated amongst existing traffic, new or improved site accesses and visibility splays;
 - A series of new permissive paths connecting to the existing public right of way network;
 - Environmental mitigation and enhancement measures, including landscaping, habitat management, biodiversity enhancement and amenity improvements; and,
 - Temporary development during the construction phase of the Proposed Development including construction compounds, parking and laydown areas.
- 1.1.5 This Mineral Safeguarding Assessment has been prepared with regard to the Overarching National Policy Statement for Energy (NPS EN-1) (2023) (designated in January 2024) [Ref. 2], the NPS for Renewable Energy Infrastructure (NPS EN-3) (2023) (designated in January 2024) [Ref. 3] and the NPS for Electricity Networks Infrastructure (NPS EN-5) (2023) (designated in January 2024) [Ref. 4] alongside important and relevant considerations such as the East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 (adopted November 2019) [Ref 5].

1.2 Minerals Context

- 1.2.1 Part of the Site falls within the East Riding of Yorkshire's Minerals Safeguarding Area (MSA) as shown on **Appendix 1 – Proposed Development location within Mineral Safeguarding Area**. Development within the MSA is subject to the requirements of relevant minerals policies, in this case within the NPS EN-1, discussed further in section 2 of this document. This includes a requirement to prepare a Minerals Assessment.
- 1.2.2 Engagement has been carried out with ERYC regarding the Applicant's approach to assessing the mineral resources within the DCO Application. ERYC confirmed via email on 29 October 2024 that it was content with the approach set out by the Applicant. More information on this engagement is detailed within **ES Volume 2, Chapter 10: Land, Soil and Groundwater [EN010157/APP/6.2]**.

1.3 Purpose of the Report

- 1.3.1 The purpose of this Minerals Safeguarding Assessment is to address the requirement of national and local policies relating to minerals and provides an assessment of the impact of the Proposed Development on the safeguarded minerals resource.
- 1.3.2 This report is structured as follows:
- **Section 2** provides a review of relevant national and local minerals policies;
 - **Section 3** provides an assessment of impact of the Proposed Development on minerals resource; and
 - **Section 4** presents the conclusions of the assessment.

2 Minerals Policy Review

2.1 Relevant Policy

- 2.1.1 The Proposed Development constitutes a NSIP development in accordance with the PA 2008 **[Ref. 1]**, as it comprises:

‘The construction or extension of a generating station (Part 3, Section 14(1)(a) of the PA 2008) with a generating capacity of more than 50MW (Part 3, Section 15(2)(c)).’

- 2.1.2 The Proposed Development will be determined pursuant to Section 104 of PA 2008. On 17 January 2024, revised versions of NPS EN-1, NPS EN-3, and NPS EN-5 came into force. These NPSs are the relevant National Policy Statements that affect the DCO Application for the Proposed Development.

- 2.1.3 While the relevant NPSs are the primary basis for decisions on applications for development consent, the SoS may consider other matters important and relevant to decision-making, such as the development plan policies of the Host Authority.

- 2.1.4 The relevant mineral safeguarding policies are contained within the East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 **[Ref. 5]** and the East Riding Local Plan 2012-2029 Strategy Document **[Ref. 6]**.

2.2 National Policy Statements

Overarching National Policy Statement for Energy

- 2.2.1 NPS EN-1 **[Ref. 2]**, sets out the current national policy for delivering NSIP energy infrastructure in England and Wales.
- 2.2.2 NPS EN-1 paragraph 5.11.19 states: ‘Applicants should safeguard any mineral resources on the proposed site as far as possible, taking into account the long-term potential of the land use after any future decommissioning has taken place.’
- 2.2.3 Paragraph 5.11.28 goes on to state: ‘Where a proposed development has an impact upon a Mineral Safeguarding Area (MSA), the Secretary of State should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources.’

National Policy Statement for Renewable Energy Infrastructure

- 2.2.4 NPS EN-3 **[Ref. 3]**, section 2.10 recognises that Solar Farms are one of the most established renewable electricity technologies in the UK and the cheapest form of electricity generation worldwide. There are no specific references to mineral safeguarding in NPS EN-3.

2.3 National Planning Policy Framework (NPPF) [Ref. 15]

- 2.3.1 Paragraph 222 of the NPPF **[Ref. 7]** highlights that ‘it is essential that there is a sufficient supply of minerals to provide the infrastructure, buildings, energy and goods that the country needs. Since minerals are a finite natural resource, and can only be worked where they are found, best use needs to be made of them to secure their long-term conservation.’
- 2.3.2 To meet this objective, paragraph 223 of the NPPF sets out that planning policies should safeguard mineral resources by defining MSAs. They should also adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development, where this should be avoided (whilst not creating a presumption that the resources defined will be worked). In addition, policies should be set out to encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place; and should safeguard existing, planned and potential sites for: ‘the bulk transport, handling and processing of minerals; the manufacture of concrete and concrete products; and the handling, processing and distribution of substitute, recycled and secondary aggregate material’ (paragraph 223(e) NPPF 2024).

2.4 National Planning Practice Guidance (PPG)

Minerals PPG (2014)

- 2.4.1 The Minerals PPG (2014) **[Ref. 8]** confirms that minerals ‘make an essential contribution to the Country’s prosperity and quality of life’. Paragraph 007 of the Minerals PPG states that: “Mineral planning authorities are encouraged to plan for minerals extraction using Ordnance Survey-based proposals maps and relevant evidence provided by the minerals industry and other appropriate bodies. This approach will allow mineral planning authorities to highlight areas where mineral extraction is expected to take place, as well as managing potentially conflicting objective for use of land.”

2.5 Local Policy

East Riding Local Plan Strategy Document (2016)

- 2.5.1 The East Riding Local Plan Strategy Document policy EC6: Protecting mineral resources, sets out that development, within or adjacent to Mineral Safeguarding areas, which would adversely affect the viability of exploiting the deposit in the future will only be supported where it can be demonstrated that:
1. Underlying or adjacent mineral is of limited economic value;
 2. Need for the development outweighs the need to safeguard the mineral deposit;
 3. Non-mineral development can take place without preventing the mineral resource from being extracted in the future;
 4. Non-mineral development is temporary in nature; or
 5. Underlying or adjacent mineral deposit can be extracted prior to the non-mineral development proceeding, or prior extraction of the deposit is not possible.
- 2.5.2 The East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 and the East Riding Local Plan Update 2020-2039 includes Policy EC6 as worded in the Local Plan Strategy.

2.6 Industry Guidance

- 2.6.1 The Planning Practice Guidance (Paragraph: 003 Reference ID: 27-003-20140306) **[Ref. 8]** makes reference to the Mineral Safeguarding in England: Good Practice Advice **[Ref. 9]** for details advice on mineral safeguarding.
- 2.6.2 The Good Practice Advice guidance states that an MSA neither precludes other forms of development permitted nor conveys any presumption that the mineral will be works. MSAs simply provide a policy tool which will be alert to the fact that minerals may be sterilised by the proposed non-mineral development and that this should be taken into account in the planning process.

3 Assessment of the Impact of the Proposed Development on Mineral Resources

- 3.1.1 This section identifies the mineral-related policy allocations relevant to the Order Limits. It considers the potential for the Proposed Development to impact on the supply of mineral reserves following a review of the local policy on landbanks. It then considers the potential impact of the Proposed Development on safeguarded minerals in line with policy requirements protecting MSAs.
- 3.1.2 The National Planning Policy Framework requires local authorities to define MSAs to protect the known locations of specific minerals from sterilisation. The local authority must also define mineral consultation areas based on the safeguarding areas. In this case, ERYC has identified that the Proposed Development is within an MSA and an area of search for sand and gravel. They advise that the potential sterilisation of mineral resources should therefore be addressed through a minerals assessment.

3.2 Minerals allocations relevant to the Order Limits

- 3.2.1 The relevant policies are included within the East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan 2016-2033 [Ref. 5] and the East Riding Local Plan [Ref. 6]. The East Riding of Yorkshire and Kingston upon Hull Joint Minerals Local Plan Policies Map (November 2019) show the extent of the MSA in the area. It should be noted that the mapping in the Policies Map is provided at a relatively low resolution. As such, the accuracy of the boundaries for the MSAs shown in **Appendix 1 – Proposed Development location within Mineral Safeguarding Area** may be affected.
- 3.2.2 Appendix 1 of the East Riding of Yorkshire and Kingston upon Hill Joint Minerals Local Plan identifies existing operational mineral extraction sites. This identifies eight existing extraction sites for sand and gravel, none of which are located within the Order Limits.
- 3.2.3 Parts of the Site are located within mineral safeguarding areas, along with areas of search for minerals, as identified in the East Riding of Yorkshire and Kingston upon Hill Joint Minerals Local Plan. These areas are shown at **Appendix 1 – Proposed Development location within Mineral Safeguarding Area** and are as follows:
- MSA relating to glaciofluvial deposits (sand and gravel):

- within the northern section of Field B4;
 - Present across a large section of Land Areas D and E, including Fields D9, D10, D11, D12, D17, E1, E3, E4 and E8;
 - Along significant portions of the grid connection cable route; and
 - Area of Search for sand and gravel: this area is referenced within the Joint Minerals Local Plan within policy AGG2 (site allocations for sand and gravel extraction):
 - Located in the area of Fields B1, B2, B3, B4, B5 and B6.
- 3.2.4 As set out at paragraph 3.12 of the East Riding of Yorkshire and Kingston upon Hill Joint Minerals Local Plan, 'it is important to note that the safeguarding of mineral resources is not an indication that the resource will necessarily be worked at some point in the future. The safeguarding process is very much distinct from the identification of new locations for mineral working'.

3.3 Impact on the Supply of Minerals

- 3.3.1 Consideration is given to the availability of permitted reserves of minerals in East Riding of Yorkshire in order to assess whether the Proposed Development may prevent a sufficient supply of minerals from coming forward.
- 3.3.2 A landbank is a stock of planning permissions for mineral extraction. The government requires MPAs to have landbanks for aggregates and raw industrial minerals such as limestone and clay for cement manufacture.
- 3.3.3 Landbanks are principally a monitoring tool to provide an early indication of possible disruption to the provision of an adequate and steady supply of minerals in the county and indicate when new permissions are likely to be needed. Government policy recommends the landbank period for sand and gravel required to be at least 7 years.

Yorkshire and the Humber Landbank

- 3.3.4 The Yorkshire and Humber Aggregate Working Party Annual Monitoring Report (December 2023) [Ref. 10] reported that the overall landbank for Sand and Gravel in Yorkshire and the Humber is 9.25 years. This is in excess of the recommended 7 years set out above. The document does state that the sand and gravel landbank for East Riding specifically is below 7 years, at 3.85 years, but that the other Yorkshire and Humber sub-regions are above the minimum sand and gravel landbank.

3.4 Impact on Safeguarding Resource

- 3.4.1 As explained above, part of the Site is located within MSAs. Paragraph 223 of the NPPF sets out that development must not permanently sterilise mineral resource in MSAs. Policy EC6 of the East Riding Local Plan Strategy Document echoes this but further sets out that non-mineral development, which would adversely affect the viability of exploiting the underlying or adjacent deposit in the future, would only be supported in certain circumstances, including where the need for the development outweighs the need to safeguard the mineral deposit, and where the non-mineral development is temporary in nature.
- 3.4.2 The Proposed Development is of a temporary nature and will be decommissioned after 40 years. Therefore, the vast majority of the Order Limits would be restored to their current condition, allowing the ability to extract the minerals if needed after the Proposed Development has been decommissioned.

Sterilisation of Minerals Resource

- 3.4.3 This section outlines in detail how the Proposed Development will safeguard the vast majority of the minerals deposit within Order Limits.
- 3.4.4 The Proposed Development is predominantly reversible and will not permanently sterilise the vast majority of resources or hinder future extraction within Order Limits, as the Solar PV development can be removed and the land restored to its former use following its operational life.
- 3.4.5 The Proposed Development is expected to be operational for at least 40 years. Following this period, it will require decommissioning. The process of decommissioning would involve the removal of all solar infrastructure, including the solar PV modules and on-site supporting equipment, to be recycled or disposed of in accordance with industry best practices at that time. It is anticipated at this stage that underground cabling would be left in-situ to avoid unnecessary ground disturbance. Any proposals to leave certain infrastructure, for example access tracks, would be discussed and agreed with landowners as part of the decommissioning process. It is assumed that two on-site substations would be permanently retained, subject to discussions with the Distribution Network Operator (DNO) and landowners. The decommissioning of the Proposed Development will be managed through the **Outline Decommissioning Environmental Management Plan [EN010157/APP/7.4]** which would be secured pursuant to the DCO as a requirement.
- 3.4.6 The Project Substation West (as shown at **Environmental Statement (ES) Volume 3, Figure 3.1: Indicative Operational Layout Plan [EN010157/APP/6.3]**) is located within the MSA and therefore, should it be

retained permanently, has the potential to result in a small parcel (up to a maximum of 60m x 110m) of sterilisation of the minerals resource. This represents approximately 0.29% of the total MSA within the Order Limits, of which the MSA itself makes up approximately 25%.

- 3.4.7 Paragraphs 5.11.28 and 5.11.29 of NPS EN-1 deal with the matter of minerals safeguarding and sterilisation. NPS EN-1 paragraph 5.11.28 goes on to advise that where *“a proposed development has an impact upon a Minerals Safeguarding Area (MSA), the Secretary of State should ensure that appropriate mitigation measures have been put in place to safeguard mineral resources”*. In this regard the Proposed Development has been developed in a way that seeks to minimise impacts on sensitive receptors, as set out in **ES Volume 1, Chapter 4: Alternatives and Design Iteration [EN010157/APP/6.1]** and the **Site Selection Assessment** at Appendix 2 to the Planning Statement **[EN010157/APP/5.5]**. In some instances, it has not been possible to avoid, reduce or mitigate all impacts and therefore a balancing of potential effects is required. In relation to the location of the Project Substation West, there is no more suitable location which is technically feasible within the Order Limits than that proposed.
- 3.4.8 Paragraph 5.11.29 of NPS EN-1 advises that where a project has a sterilising effect there may be scope for it to be mitigated through other design responses (e.g. incorporating land use for other purposes). As set out in the previous paragraph, this is not possible in terms of the Project Substation West. The Applicant considers that it is compliant with NPS EN-1 in this regard.
- 3.4.9 At local policy level, the general principle of NPS EN-1 is reflected, i.e. that development should seek to avoid areas of mineral safeguarding. Policy EC6 of the East Riding Local Plan Strategy Document, sets out that development, within or adjacent to MSAs, which would adversely affect the viability of exploiting the deposit in the future will only be supported subject to certain caveats, one of which ((2) within the policy wording) is that the need for the development outweighs the need to safeguard the mineral deposit. The **Statement of Need** at Appendix 3 to the Planning Statement **[EN010157/APP/5.5]** sets out the critical requirement for low carbon energy generating infrastructure to be developed and the benefits that would be delivered. Indeed paragraph 3.2.7 of NPS EN-1 advises that substantial weight should be given to the need for such infrastructure. Further, as a development of Critical National Priority (CNP), providing the mitigation hierarchy has been appropriately applied, any residual impacts (such as the sterilisation of a small portion of a minerals deposit in this case) is unlikely to justify the refusal of consent (see paragraph 4.2.15 of NPS EN-1).
- 3.4.10 Given the demonstrable and overwhelming need for the Proposed Development, it's subsequent impact and the negligible nature of the sterilisation of the deposit,

the Applicant considers that it is compliant with the relevant national and local level policy requirements.

Need for the Development and Site Selection

- 3.4.11 The **Statement of Need** at Appendix 3 to the Planning Statement [EN010157/APP/5.5] accompanying the DCO Application sets out a detailed case for why the Proposed Development is urgently required, concluding that it will be a critical part of the UK's portfolio of renewable energy generation, and required to decarbonise its energy supply quickly and provide secure and affordable energy supplies.
- 3.4.12 The **Site Selection Assessment** at Appendix 2 to the Planning Statement [EN010157/APP/5.5] provides an overview of the site selection process undertaken to identify the Order Limits and presents the reasons why the Proposed Development and Order Limits are located in this particular location. The **Site Selection Assessment** also gives an overview of the principles and the technical and environmental requirements of a large-scale solar farm development project that have guided the site selection. Both demonstrate that there are limitations and external factors influencing the siting of the Proposed Development including the availability of a suitable grid connection with sufficient capacity, suitable topography of the land and a generally sparse settlement patterns once those criteria are met, meaning that there is opportunity to develop this Site to a sufficient scale to deliver meaningful contributions towards meeting net-zero.

3.5 Summary of the Impact on Safeguarded Resource

- 3.5.1 As outlined above, the Proposed Development will be decommissioned after 40 years, and any impacts caused by the Proposed Development related to land use are considered reversible and temporary. There is the potential for only a very small percentage of minerals within the Order Limits to be permanently sterilised due to the possibility of the Project Substation West remaining in situ and, other than this, post-decommissioning the land could be worked for minerals.
- 3.5.2 The DCO Application demonstrates an overwhelming need for this Proposed Development and that the development could not reasonably be sited elsewhere, in line with paragraph 5.11.19 of NPS EN-1, the requirements of Policy EC6 of the East Riding Local Plan Strategy Document.
- 3.5.3 In light of the above, it is considered that the Proposed Development is in accordance with the NPS, NPPF and Local Mineral planning policies.

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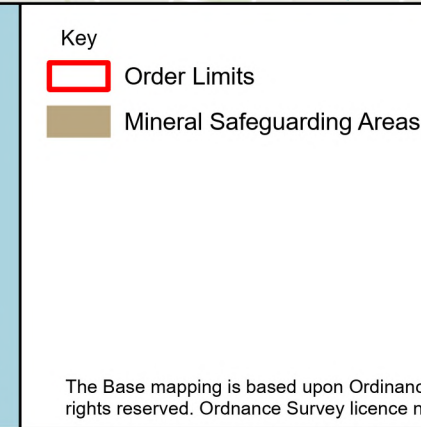
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Ref. 9: Mineral Safeguarding in England: Good Practice Advice, British Geological Survey
Open Report OR/11/046 (2011)

Ref. 10: Yorkshire and the Humber Aggregates Working Party. Annual Report 2023. Available
online: https://assets.publishing.service.gov.uk/media/65c10891c4319100141a45ad/2022_-_YHAWP_Report.pdf

Appendix 1 - Proposed Development location within Minerals Safeguarding Area



Notes:

MSA data has been digitised by RSK using georeferenced PDFs of East Riding of Yorkshire Council's 'Joint Minerals Local Plan - Adopted Policies Map'.

P1	29/11/2024	RSK	MM	BT	CJ
Rev	Date	By	Chkd	Appd	Authd

Client

RWE

Designer

RSK

Project Name
Peartree Hill Solar Farm

Drawing Title

Appendix 1: Proposed Development
Location Within Mineral Safeguarding Zone

SHEET 1 OF 1

Scale at A1	Coordinate System:
1:20,000	British National Grid
Status	
DCO Application	
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, APFV Regulations: 5(2)(a)	
PINS Number	Rev
EN010157/APFV.2	P1
Drawing Name	
P663880_app1_MineralSafeguarding_A3L	

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