

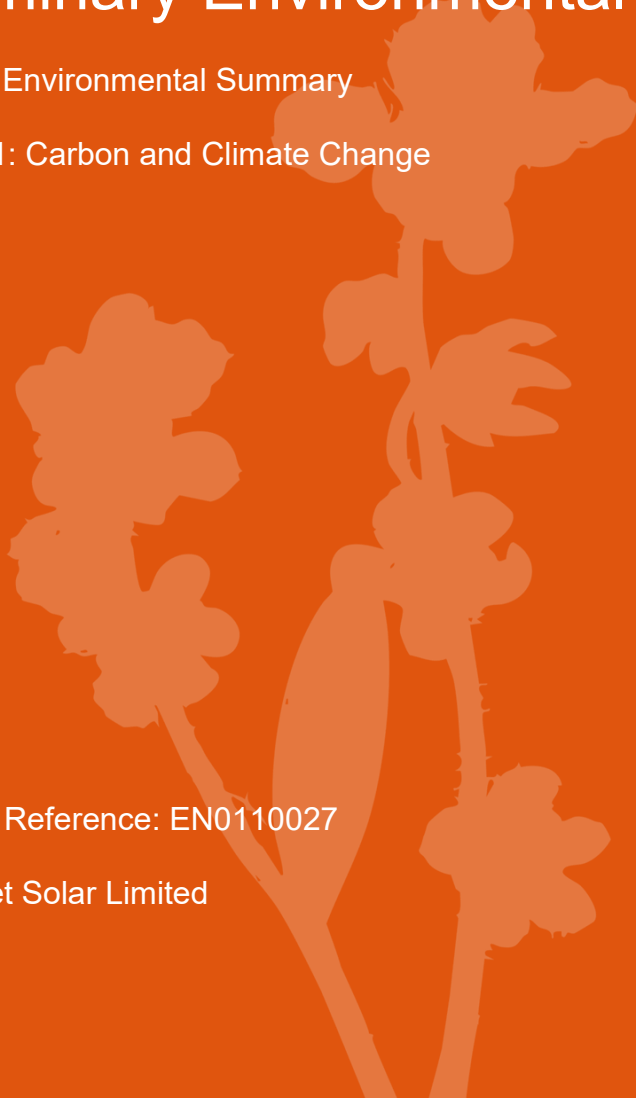
# South Brooks Solar Farm

## Preliminary Environmental Information

Volume 2: Environmental Summary

Chapter 11: Carbon and Climate Change

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# 11 Carbon and Climate Change

## 11.1 What is 'Climate Change'

### What is 'Climate Change'

- 11.1.1 The UK Met Office defines climate change as the “large-scale, long-term shift in the planet’s weather patterns and average temperatures” (Met Office, n.d.<sup>73</sup>). Climate change has long been influenced by natural causes. However, as recognised by the Intergovernmental Panel on Climate Change (IPCC, 2023<sup>74</sup>), human activity resulting in the release of greenhouse gas (GHG) emissions including the burning of fossil fuels, deforestation, and agricultural activities, has been driving climate change since the 1800s. Recent reports suggest that over the next 20 years, global temperature is expected to reach or exceed 1.5°C of warming above pre-industrial levels (UN, 2025<sup>75</sup>; Met Office, 2025<sup>76</sup>).
- 11.1.2 The climate is highly sensitive to the impacts of GHG emissions because gases like carbon dioxide and methane trap heat in the atmosphere, enhancing the natural greenhouse effect. Even relatively small increases in GHG concentrations can disrupt the Earth’s energy balance, leading to rising temperatures, shifting weather patterns, melting ice, and more frequent extreme climate events.
- 11.1.3 In 2015, almost every country in the world signed the Paris Agreement<sup>77</sup>, a legally binding international climate change treaty, promising to cut GHG emissions with the aim of limiting average global temperature rises to 2°C above pre-industrial temperatures. Many countries’ aims are to achieve a 1.5 °C limit (IPCC, 2023<sup>74</sup>).
- 11.1.4 To align with the Paris Agreement 2015<sup>77</sup>, the UK has made a legally binding commitment to achieve net zero GHG emissions by 2050. The UK has produced a

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<sup>73</sup> Met Office. (no date). Available at: <https://weather.metoffice.gov.uk/climate/climate-explained/what-is-climate> [Accessed 25 February 2026]

<sup>74</sup> IPCC. (2023). The Intergovernmental Panel on Climate Change Synthesis Report, Summary for Policymakers. Available at: [https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC\\_AR6\\_SYR\\_SPM.pdf](https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf) [Accessed 25 February 2026]

<sup>75</sup> United Nations News. (2025). Climate change: World likely to breach 1.5°C limit in next five years. Available at: <https://news.un.org/en/story/2025/05/1163751#:~:text=Breaching%20critical%20thresholds,region%20could%20see%20continued%20drought.> [Accessed 25 February 2026]

<sup>76</sup> Met Office. (2025). Global climate predictions show temperatures expected to remain at or near record levels in coming five years. Available at: [https://www.metoffice.gov.uk/about-us/news-and-media/media-centre/weather-and-climate-news/2025/global-temperatures-expected-to-remain-at-or-near-record-levels#:~:text=It%20is%20likely%20\(86%25%20chance.remains%20below%201.5%C2%B0C.](https://www.metoffice.gov.uk/about-us/news-and-media/media-centre/weather-and-climate-news/2025/global-temperatures-expected-to-remain-at-or-near-record-levels#:~:text=It%20is%20likely%20(86%25%20chance.remains%20below%201.5%C2%B0C.) [Accessed 25 February 2026]

<sup>77</sup> The Paris Agreement. (2015). Available online: <https://unfccc.int/process-and-meetings/the-paris-agreement.> [Accessed 25 February 2026]

set of carbon budgets<sup>78798081</sup> to ensure the country delivers its net-zero target. The Climate Change Committee is an independent statutory body established under the Climate Change Act 2008 (2050 Target Amendment) Order 2019<sup>82</sup> to advise the UK Government and Devolved Administrations on reducing GHG emissions and preparing for climate change. The Climate Change Committee undertakes an annual assessment of GHG emissions to determine whether the UK is on course to meet its target carbon budget. These budgets are presently set in Table 11-1.

**Table 11-1: UK Carbon Budgets**

Carbon budget	Carbon budget level (MtCO <sub>2e</sub> )	% reduction below 1990 base year
1st (2008 – 12)	3,018	23
2nd (2013 – 17)	2,782	29
3rd (2018 – 22)	2,544	35
4th (2023 – 27)	1,950	50
5th (2028 – 32)	1,725 (1,765 including international shipping)	57
6th (2033 – 37)	965 (including international aviation and shipping)	78
7th (2038 – 42)	535 (including international aviation and shipping)	87

11.1.5 In its most recent budget report (released in February 2025<sup>83</sup>), the Climate Change Committee recommended that the UK set a Seventh Carbon Budget which requires a reduction in emissions of 87% by 2040, relative to 1990 levels. This represents a world-leading commitment which is consistent with the over-arching objectives of the Paris Agreement 2015<sup>77</sup>.

<sup>78</sup> The Carbon Budget Order. (2009). Available at:

<https://www.legislation.gov.uk/uksi/2009/1259/introduction/made>

<sup>79</sup> The Carbon Budget Order. (2011). Available at: <https://www.legislation.gov.uk/uksi/2011/1603/made>

<sup>80</sup> The Carbon Budget Order. (2016). Available at: <https://www.legislation.gov.uk/uksi/2016/785/made>

<sup>81</sup> The Carbon Budget Order. (2021). Available at:

<https://www.legislation.gov.uk/uksi/2021/750/contents/made>

<sup>82</sup> Climate Change Act 2008 (amended 2019). Available at:

<https://www.legislation.gov.uk/ukpga/2008/27/contents> [Accessed 26 February 2026]

<sup>83</sup> Climate Change Committee (2025), Available at: <https://www.theccc.org.uk/wp-content/uploads/2025/02/The-Seventh-Carbon-Budget.pdf> [Accessed 26 February 2026]

- 11.1.6 The Overarching National Policy Statement for Energy (EN-1)<sup>84</sup> identifies an urgent need for new low-carbon electricity infrastructure to support the Clean Power 2030 Action Plan and achieve net zero by 2050. The Project would make a direct contribution to meeting this need through the delivery of large-scale solar generation, increasing the supply of domestically produced renewable energy and reducing reliance on fossil fuels. In doing so, it would enhance energy security and affordability, while supporting a diverse and resilient energy mix. Where combined with storage or flexibility measures, the Project would also assist in managing intermittency and reducing network constraints, in line with the objectives of EN-1. The substantial weight afforded to this identified urgent need is a key consideration that strongly supports the Project.
- 11.1.7 In accordance with Section 5.3 of EN-1, the Applicant will submit a comprehensive whole-life greenhouse gas assessment as part of the ES, covering construction, operation and decommissioning. This will include all assessment criteria as detailed in section 5.3.4 of EN-1 and demonstrate that the Project delivers significant net carbon savings over its lifetime, with design and procurement measures embedded to minimise emissions at each stage. Any residual emissions will be transparently assessed against national carbon budgets.
- 11.1.8 UK Climate Projections 2018 (UKCP18<sup>85</sup>) are the latest set of climate projections for the UK, providing detailed information on how the UK's climate might change up to the year 2100, based upon scenarios of projected global GHG emissions. It includes data on temperature, rainfall, sea-level rise, and extreme weather events to support climate risk assessments and adaptation planning.
- 11.1.9 Future climate change across the UK is expected to comprise warmer, wetter winters and hotter, drier summers, with more frequent and intense weather extremes. Hot spells across the UK are expected to become more frequent and intense, and with longer duration. Further information on projected climate change in the UK and the Project can be found in the **Appendix 11.1: Climate Resilience Existing Baseline**.

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<sup>84</sup> National Policy Statements for energy infrastructure (2026)

<https://www.gov.uk/government/collections/national-policy-statements-for-energy-infrastructure>

<sup>85</sup> Met Office. (2018). UK Climate Projections (UKCP18) guidance and reports. Available at: <https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/using-ukcp/guidance> [Accessed 26 February 2026]

## 11.2 Key Terms

**Table 11-2: Key Terms**

Term	Definition
Greenhouse gas (GHG)	A gas in the Earth’s atmosphere that absorbs and re-emits heat (infrared radiation), trapping warmth and helping regulate the planet’s temperature through the natural greenhouse effect. Common greenhouse gases include carbon dioxide (CO <sub>2</sub> ), methane (CH <sub>4</sub> ), nitrous oxide (N <sub>2</sub> O), water vapour, and synthetic gases like fluorinated gases.
Net zero	The total amount of GHGs a country emits is balanced by the amount it removes from the atmosphere - so the “net” contribution to climate change is zero. The UK Government amended the Climate Change Act 2008 in 2019 <sup>82</sup> to commit the UK to reaching net zero GHG emissions by 2050.
tCO <sub>2</sub> e	Metric tonnes of carbon dioxide (CO <sub>2</sub> ) equivalence, or tCO <sub>2</sub> e, where equivalence means having the same warming effect (‘global warming potential’) as CO <sub>2</sub> , typically measured over 100 years (The Greenhouse Gas Protocol, 2004 <sup>86</sup> ).
UK Climate Projections (UKCP18 <sup>85</sup> )	UK Climate Projections 2018 are the latest set of climate projections for the UK, providing detailed information on how the UK’s climate might change up to the year 2100. It includes data on temperature, rainfall, sea-level rise, and extreme weather events to support climate risk assessments and adaptation planning.

## 11.3 Summary of Points Raised in EIA Scoping Opinion and Project Response

11.3.1 Responses provided by the Planning Inspectorate (PINS) in the Scoping Opinion relating to receptors/matters to be considered in the Climate assessment to be presented in the ES are summarised in Table 11-3 below.

**Table 11-3: PINS Scoping Opinion on Climate**

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
Assessing climate change risk during all phases: The current flood-breach	Discussions are ongoing between the Applicant and the Environment	As consultation regarding flood risk is active and these

<sup>86</sup> The Greenhouse Gas Protocol. (2004). Available at: <https://ghgprotocol.org/sites/default/files/standards/ghg-protocol-revised.pdf> [Accessed 25 February 2026]

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
<p>modelling is based on outdated UKCP09 data, the suitability of the proposed freeboard is uncertain, there is insufficient detail on the location of electrical infrastructure with regards to flood risk areas and no explanation of how infrastructure and construction activities are resilient to extreme events. There is no evidence of clear agreement with relevant consultation bodies that climate change risk during all phases can be scoped out of the assessment. The ES should provide an assessment of likely significant effects of climate change during all phases or appropriate evidence, such as agreement with relevant consulting bodies, to support that there would be no likely significant effects.</p>	<p>Agency, Romney Marsh Internal Drainage Board and Lead Local Flood Authority to agree flood risk parameters, including climate change allowances and any need for hydraulic modelling. The setting of parameters for assessing flood risk and mitigating impacts will be finalised at the ES stage. Flood risk will be comprehensively assessed in the Flood Risk Assessment as part of the DCO application. The Project's resilience to extreme events is addressed through existing commitments and measures outlined in the Scoping Report at Chapter 13 (Climate Change), and will be set out in the outline Construction Environmental Management Plan (oCEMP) and associated plans submitted in support of the DCO application (which early draft of the oCEMP being published as part of Phase Two Consultation) covering emergency response, weather monitoring, plant maintenance and waste management across all phases.</p>	<p>measures will be fully reflected in the ES, it is considered that the PINS requirements regarding flood risk will be met at the ES stage. <b>Appendix 11.1: Climate Resilience Existing Baseline</b> accompanying this PEI further demonstrates the absence of any likely significant effects regarding the impact of extreme events on the Project and construction workers.</p>
<p>In-combination impact assessment during all</p>	<p>Future climate change impacts will be shared</p>	<p>Further assessment will be completed</p>

Summary of PINS Scoping Opinion	Discipline Feedback	Next Steps
<p>phases should not be scoped out. The resilience of all receptors does not mean there will be no likely significant effects. The ES should provide an assessment of likely significant effects from climate change in combination with the effects from the Project or appropriate evidence to support there would be no potential for likely significant effects, such as agreement with relevant consulting bodies.</p>	<p>with the Applicants environmental team for the relevant disciplines to incorporate within their future baseline and impact assessments of the ES. The Climate team will liaise with the relevant disciplines to ensure any in-combination likely significant effects from both the Project and climate change are detailed.</p>	<p>within the Climate chapter of the ES, which will be submitted in support of the DCO application.</p>
<p>The study area should include all elements of the Project including interconnecting cables and cable route corridor.</p>	<p>The study area for the ES will include all elements of the Project which is the subject of the DCO application.</p>	<p>Further assessment will be completed within the Climate chapter of the ES, which will be submitted in support of the DCO application.</p>

11.3.2 **Appendix 1-2: Key Policy and Legislation** provides details on the legislation, policy and guidance that has informed the approach to the Climate assessment.

## 11.4 Ongoing Climate Work

11.4.1 A full climate resilience assessment has not been undertaken as part of this PEI. Relevant information has been circulated for relevant disciplines, including Noise, Air Quality, Hydrology, Human Health and Socioeconomics, to consider within their own preliminary assessments and assess the in-combination impact of climate change and the Project. The data circulated comprised current and future predicted climatic conditions (temperature, precipitation, flood risk) regionally, sourced from the UK Climate Projections 2018 (UKCP18) data developed by the UK Climate Impacts Programme. However, **Appendix 11.1: Climate Resilience Existing Baseline** accompanies this PEI detailing the expected climate change impacts, with further text in this section of the PEI explaining why no likely significant effects are expected.

## Study Area

11.4.2 The scope of the GHG emissions assessment includes the addition of GHG emissions directly from construction, operational and decommissioning activities undertaken within the Site boundary, including fuel consumption (during construction, operation and decommissioning). It also extends to include emissions which would occur outside the Site boundary, but related to the activities of the Project, including those from:

- The extraction, manufacture, and transportation of materials to the construction Site (during construction and operation);
- The transportation of workers to Site (during construction and operation); and
- Off-site transport and disposal of waste materials (during construction, operation and decommissioning).

## Collection of Climate Data

11.4.3 This GHG assessment quantifies the Kyoto Protocol greenhouse gases, as applicable, which are measured in terms of tonnes carbon dioxide (CO<sub>2</sub>) equivalence, or tCO<sub>2</sub>e, where equivalence means having the same warming effect ('global warming potential') as CO<sub>2</sub>, typically measured over 100 years. The six original Kyoto Protocol gas groups are CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF<sub>6</sub>) and perfluorocarbons (PFCs). Nitrogen trifluoride (NF<sub>3</sub>), a chemical released in certain high-tech industries, was added in 2013.

11.4.4 GHG emissions associated with the Project have been reported using the modular structure as outlined in Royal Institution of Chartered Surveyors' (2023)<sup>87</sup> guidance. The reporting modules are defined as follows:

- **A1-3 product stage** – this category includes the embodied emissions of materials used to construct the Project. It includes the emissions associated with raw material extraction, transport to the manufacturing site and manufacturing emissions;
- **A4 transport** – this comprises the emissions associated with the transport of materials from the manufacturing site to the construction site;
- **A5 construction and installation** – this source includes four sub-categories which include emissions from pre-construction demolition (if applicable),

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<sup>87</sup> Royal Institution of Chartered Surveyors (2024) Whole Life Carbon Assessment for the Built Environment. Available online: [Whole life carbon assessment PS Sept23.pdf](#) [Accessed 26 February 2026]

construction activities (such as equipment fuel use), material wastage and construction worker transport;

- **B1 in-use emissions** – emissions associated with refrigerant gas leaks (if applicable) and emission release from products or reabsorption into products (such as sequestration from timber);
- **B2-5 maintenance, repair, replacement, and refurbishment** – this includes emissions associated with routine maintenance (B2), repair (B3), replacement of materials (B4) and any planned refurbishment (B5). To note, replacement emissions consider whole component replacement at the end of service life, and emission associated with general parts repair in line with RICS (2023) guidance<sup>88</sup>;
- **B6 operational energy** – energy used during the operation of the asset;
- **B7 operational water** – water used during the operation of the asset;
- **B8 user activities not covered in B1-7** – emissions may include transport of persons to and from the asset during operation, for example; and
- **C1-4 end of life** – this category includes deconstruction and demolition emissions (C1), transport of waste materials from the Site to disposal sites (C2), waste processing for recycling (C3) and disposal emissions from landfill (C4).

### Current GHG Conditions

- 11.4.5 The Site currently comprises mainly agricultural land, which, although containing vegetation that will sequester carbon, is expected be a net emitter of GHG emissions through agricultural processes such as farm machinery, use of fertilisers and other products and soil erosion. In line with IEMA’s Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022)<sup>89</sup>, baseline GHG emissions associated with “agricultural fields may be harder to estimate”, due to high spatial and temporal variability, changing land management practices, and the lack of reliable site-specific data. The baseline can therefore be considered to have zero GHG emissions at a site level, to ensure a reasonable worst-case approach to establishing the net GHG effect.

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<sup>88</sup> Royal Institution of Chartered Surveyors (2024) Whole Life Carbon Assessment for the Built Environment. Available online: [Whole life carbon assessment PS Sept23.pdf](#) [Accessed 26 February 2026]

<sup>89</sup> Institute of Environmental Management and Assessment (2022) Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available online: [eia-guide\\_ghg-assessment-and-significance\\_iema\\_16may17.pdf](#) [Accessed 26 February 2026]

## Future GHG Conditions

### *Site level*

- 11.4.6 No change is expected for the future baseline when compared to the current baseline, with regards to GHG emissions. In the absence of the Project, the land would continue under the same (predominantly) agricultural use and therefore produce the same level of GHG emissions as the current baseline. It is unlikely that under a future 'business-as-usual' scenario, there would be any significant changes to the amount of GHG emissions from the Site, either positive or negative.

### *National level*

- 11.4.7 It is important to note that the UK's National Grid is expected to decarbonise as a result of projected renewable energy developments, such as the Project. The future baseline assumes continued decarbonisation of the UK grid over the operational lifetime of the Project in its absence.

## 11.5 Important Receptors Identified

- 11.5.1 The sensitive receptor for GHG emissions is the global atmosphere, which is considered highly sensitive to GHG emissions fluctuations. By proxy, this can also be extended to the UK commitments under the UK Climate Change Act 2008 (2050 Target Amendment) Order 2019<sup>90</sup>, which is aligned with the goals of the Paris Agreement 2015<sup>77</sup>, to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C.

### **Considering Climate in Design**

- 11.5.2 This preliminary assessment has been based on the principle that certain mitigation measures have been 'embedded' into the design of the Project to minimise likely significant effects as far as reasonably practicable at this stage of the design process, for example by the considered placement of infrastructure. Outline management plans submitted in support of the DCO application will include measures and procedures to decrease GHG emissions, such as the procurement of low-carbon materials wherever possible. Embedded (primary) environmental mitigation measures relevant to this preliminary climate assessment are presented in Table 11-4.

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<sup>90</sup> Climate Change Act 2008 (amended 2019). Available at: <https://www.legislation.gov.uk/ukpga/2008/27/contents> [Accessed 26 February 2026]

**Table 11-4: Embedded Mitigation in Climate Design**

Scope of work	Embedded Mitigation	Securing mechanism
GHG emissions	The use of concrete will be minimised where possible.	outline Construction Environmental Management Plan (oCEMP)
	Any vegetation cleared for the Project may be compensated by a planting scheme that equals or exceeds the current levels of vegetation.	outline Landscape and Ecological Management Plan (oLEMP)
	Implementing measures to decrease fuel use by maximising energy efficiencies, for example to ensure all vehicles switch off engines when stationary and ensure construction vehicles are well maintained and conform to current emissions standards; Promoting the use of sustainable fuels in construction vehicles, and where possible, making use of electric vehicles to reduce fuel consumption; Liaising with construction staff to minimise GHG emissions associated with commute to site, and promoting of lower carbon modes of travel such as car sharing options and use of public transport where feasible; and Using of locally sourced and/or produced materials where appropriate. The use of recycled aggregates, where appropriate, for foundations, subbases, hard-standings and pavement materials.	oCEMP and Outline Construction Traffic Management Plan (oCTMP)
Climate risk	The Project design considers climate change and the likelihood of extreme events (e.g., heat waves, high rainfall events) and sea level rise.	oCEMP

Scope of work	Embedded Mitigation	Securing mechanism
	<p>Specific measures within the oCEMP would include:  Weather forecasts to be monitored on a daily basis. Forecasts would be used to inform the sequencing of activities and the use of appropriate personal protective equipment (PPE);  Provision of welfare facilities including breaks, shade, and hydration facilities, as well as first aid amenities;  Requiring the provision of an Emergency Response Plan, to include on-site fire prevention, suppression, and evacuation procedures;  Requiring the provision of an Incident Response Plan that identifies flooding as a key site risk and identifies the correct policies and procedures to follow in such an event;  Monitoring and maintenance of plant and equipment to ensure compliance of machinery with design specifications and flexibility in the construction activities programme to account for climatic variation; and  Appropriate on-site storage of plant and equipment.</p>	
	<p>Electrical infrastructure would be sited in locations at lower risk of flooding and/or set at the necessary minimum ground levels where possible.</p>	<p>Works Plans</p>
	<p>The condition and integrity of assets would be regularly assessed, and maintenance undertaken as early as required, giving consideration to materials with enhanced tolerance to</p>	<p>oCEMP outline Operational Environmental Management Plan (oOEMP)</p>

Scope of work	Embedded Mitigation	Securing mechanism
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fluctuating temperatures and exposure to rainfall.

## 11.6 Preliminary Assessment of Likely Significant Effects

### Climate Resilience

- 11.6.1 The Project has been designed to account for, and remain resilient to, projected future climatic conditions. No significant effects are expected as a result.
- 11.6.2 UK Climate Projections (2018) (UKCP18)<sup>85</sup> suggest that climate change will lead to hotter drier summers, warmer wetter winters, increased likelihood of extreme weather events (e.g., heat waves, high rainfall events) and sea-level rise. More information on this is detailed in **Appendix 11.1: Climate Resilience Existing Baseline**.
- 11.6.3 Embedded environmental measures have been incorporated into the design and are taken into account when evaluating the likely significant effects. These measures are described in Table 4.4 and include, for example, the siting of infrastructure in areas assessed as being at lower risk of flooding, and the use of minimum finished ground levels to be identified through the Flood Risk Assessment and agreed with prescribed consultees.
- 11.6.4 Due to the inherent design resilience of the primary components within a solar renewable development (solar PV modules, substations, inverters, transformers, battery energy storage systems (BESS), switchgears etc.) to high heat, extreme rain, and wind speeds, these factors are not expected to significantly impact on the construction, operation and maintenance or decommissioning of the Project.
- 11.6.5 Electrical infrastructure (solar PV modules, substations, inverters, transformers, BESS and switchgear) is anticipated to be sited in locations at lower risk of flooding and/or set at the necessary minimum ground levels determined by the Flood Risk Assessment and in agreement with the relevant key consultees.
- 11.6.6 The vulnerability of the Project to sea level rise, flooding, and its potential to exacerbate flooding will be covered in more technical detail in the stand-alone Flood Risk Assessment, which will be submitted in support of the DCO application. See **PEI Volume 2 Chapter 6: Hydrology** for more detail.
- 11.6.7 By integrating these design features from the outset, the Project demonstrates an inherent response to climate resilience, and it is not anticipated that climate change will present a significant risk to the Project.

### Impact on the climate

- 11.6.8 Impact assessments normally assess to what degree a development will affect the baseline environment of the study area. In the case of GHG emissions, any emissions will have a long-term, irreversible negative effect on the global atmosphere, which is considered to be highly receptive to any emissions of GHGs. A specific source of GHG emissions cannot be linked to impacts at a specific location but would have impacts globally.
- 11.6.9 This GHG assessment therefore evaluates the significance of emissions based upon guidance from IEMA’s Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022<sup>91</sup>), which provides a framework for determining significance against the goals of the Paris Agreement 2015<sup>77</sup> (i.e., against a science-based 1.5°C trajectory). See Table 11-5 below for further detail.
- 11.6.10 The IEMA Guide acknowledges that some projects may replace existing development or baseline activity with a higher GHG profile and thus the significance of a project’s emissions should be based on its net impact over its lifetime which may be positive, negative or negligible. It states that significance should not be determined purely on the magnitude of GHG emissions, but whether a project contributes to reducing GHG emissions consistent with a trajectory towards net zero by 2050.
- 11.6.11 If GHG emissions cannot be avoided, a goal of the EIA process should be to identify mitigation options to reduce a project’s residual emissions at all stages. If GHG emissions remain significant but cannot be further reduced, approaches to compensate a project’s remaining emissions should be considered.

**Table 11-5: Framework for assessment of significant GHG effects**

Significance	Level	Criteria
<b>Significant</b>	Major adverse	Project adopts a business-as-usual approach, not compatible with the national Net Zero trajectory, or aligned with the goals of the Paris Agreement 2015 (i.e., a science-based 1.5°C trajectory). GHG impacts are not mitigated or reduced in line with local or national policy for projects of this type.
<b>Significant</b>	Moderate adverse	Project’s GHG impacts are partially mitigated and may partially meet up-to-date policy;

<sup>91</sup> Institute of Environmental Management & Assessment (IEMA). (2022). Environmental Impact Assessment Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: <https://www.iema.net/resources/ghg-emissions-assessment-guide> [Accessed 11 February 2026]

Significance	Level	Criteria
		however, emissions are still not compatible with the national Net Zero trajectory, or aligned with the goals of the Paris Agreement 2015.
<b>Not significant</b>	Minor adverse	Project may have residual emissions, but the project is compatible with the goals of the Paris Agreement 2015, complying with up-to-date policy and good practice.
<b>Not significant</b>	Negligible	Project has minimal residual emissions and goes substantially beyond the goals of the Paris Agreement 2015, complying with up-to-date policy and best practice.
<b>Significant</b>	Beneficial	Project causes GHG emissions to be avoided or removed from the atmosphere, substantially exceeding the goals of the Paris Agreement 2015 with a positive climate impact.

11.6.12 IEMA’s Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022)<sup>91</sup> states “*activities that do not significantly change the result of the assessment can be excluded where expected emissions are less than 1% of total emissions, and where all such exclusions total a maximum of 5% of total emissions; all exclusions should be clearly stated*”. The expected emissions of the change in land use following decommissioning are expected to be less than 1% of total emissions and therefore are not considered further.

11.6.13 Renewable energy developments (such as the Project) 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 Project, 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.

11.6.14 To understand the magnitude of the net effect, a preliminary quantitative assessment of GHG emissions generated in the lifecycle of the Project has been undertaken, based upon high level data and preliminary design (see section below).

### Preliminary Assessment

11.6.15 This GHG assessment provides a preliminary quantification of emissions from the construction, operation and decommissioning phases of the Project. Those emissions from the product stage typically make up a large proportion of overall emissions, and these are detailed in Table 11-6. The full lifecycle emissions are

displayed in Table 11-7. An explanation of the RICS reporting modules used to categorise the separate project phases is presented in paragraph 11.4.4.

**Table 11-6: Product phase GHG emissions**

Product Stage (A1-3)	Emissions (tCO <sub>2</sub> e)	Proportion of emissions (%)
<b>Battery storage (BESS)</b>	418,894	55%
<b>BESS containers</b>	2,502	<1%
<b>Solar PV Modules</b>	295,849	39%
<b>Central Inverters</b>	3,789	<1%
<b>PV framework</b>	21,900	3%
<b>PV foundations</b>	6,670	1%
<b>Main Transformers</b>	2,520	<1%
<b>BESS Transformers</b>	3,698	<1%
<b>Inverter Transformer Stations</b>	791	<1%
<b>Other materials</b>	10,733	1%
<b>Total</b>	<b>767,347</b>	<b>100%</b>

**Table 11-7: Lifecycle GHG emissions from the Project**

Description	Emissions (tCO <sub>2</sub> e)	Proportion of emissions (%)
<b>Construction</b>		
<b>Product Stage (A1-3)</b>	767,347	93%
<b>Construction and installation (A4 - A5)</b>	58,251	7%
<b>Total</b>	<b>825,599</b>	<b>100%</b>
<b>Operational</b>		
<b>Operational Maintenance (B2)</b>	9,459	1%
<b>Operational Repair and Replacement (B3)</b>	72,596	4%

Description	Emissions (tCO <sub>2</sub> e)	Proportion of emissions (%)
<b>Operational Replacement (B4)</b>	1,666,182	95%
<b>Total</b>	1,748,236	100%
<b>Decommissioning</b>		
<b>End of life (C1-4)</b>	260,643	100%
<b>Total</b>	260,643	100%
<b>Total (not including GHG savings from operation)</b>	2,834,477	100%

11.6.16 At this preliminary stage, the Project is estimated to generate 2,834,477 tCO<sub>2</sub>e GHG emissions over its construction, operation and decommissioning. These emissions are compared against national carbon budgets in Table 11-8 to provide context. The most recent budget report (released in February 2025<sup>92</sup>) from the Climate Change Committee recommended that the UK set a Seventh Carbon Budget which requires a reduction in emissions of 87% by 2040, relative to 1990 levels. As such, Table 4-8 displays all future national carbon budgets that have so far been established, as well as the corresponding emissions from the Project for each budget. Since there are no national carbon budgets which extend beyond 2042, it is not possible to apportion the Project emissions for the remainder of the operational and decommissioning phases beyond what is displayed in the Table 11-8.

**Table 11-8: Estimated emissions from the Project compared against national carbon budgets**

Carbon budget	Carbon budget level (MtCO <sub>2</sub> e)	Phase of Project	Project emissions (tCO <sub>2</sub> e)	Proportion of national carbon budget
<b>5th (2028 – 32)</b>	1,765	Construction + one year operation	854,736	0.048%
<b>6th (2033 – 37)</b>	965	5 years operation*	145,686	0.015%

<sup>92</sup> Climate Change Committee (2025), Available at: <https://www.theccc.org.uk/wp-content/uploads/2025/02/The-Seventh-Carbon-Budget.pdf> [Accessed 26 February 2026]

Carbon budget	Carbon budget level (MtCO <sub>2e</sub> )	Phase of Project	Project emissions (tCO <sub>2e</sub> )	Proportion of national carbon budget
7th (2038 – 42)	535	5 years operation*	145,686	0.027%

\* total operational emissions annualised by 60 year service life

### GHG Savings

- 11.6.17 GHG savings arising as part of the operation of the Project and the displacement of fossil-fuel derived electricity within the national electricity network are expected to be considerable.
- 11.6.18 The Project is anticipated to generate 680,000 MWh in the first year based on the current masterplan. This may be reduced for the design taken to DCO submission, which will be accounted for in the calculations presented in the ES. A degradation factor of 0.35% has been applied each year to account for year-on-year reduction in yield. Over the 60-year anticipated service life, the total lifecycle generation is expected to be 36,585,775 MWh. Dividing the lifetime emissions of the Project (2,834,477 tCO<sub>2e</sub>) by the lifetime energy generation (36,858,775 MWh) gives a total lifecycle carbon intensity value of 77 gCO<sub>2e</sub>/kWh.
- 11.6.19 For comparison, the UK Government publishes annual emissions factors for electricity supplied to the grid<sup>93</sup>. In 2025, this was 222.9 gCO<sub>2e</sub>/kWh. This includes the direct fossil fuel emissions (177.0 gCO<sub>2e</sub>/kWh) and those associated with the extraction, refining and transportation of primary fuels before their use in the generation of electricity (45.9 gCO<sub>2e</sub>/kWh). However, there are difficulties in directly comparing the total lifecycle carbon intensity value with the UK grid carbon intensity. The published UK grid carbon intensity comprises operational emissions only, and does not include those emissions from construction, decommissioning or those emissions related to replacement and maintenance activities. When calculating UK grid carbon intensity value based upon the fuel mix, renewable energy, such as that from solar farms, is assumed to emit 0g/kWh.
- 11.6.20 Therefore, when comparing against the UK Government published grid carbon intensity, it is more appropriate to compare only the operational emissions of the Project (1,748,236 tCO<sub>2e</sub>). Using this method, the carbon intensity value of the

<sup>93</sup> Department for Energy Security and Net Zero (2025). UK Government GHG Conversion Factors for Company Reporting. Available at: ghg-conversion-factors-2025-full-set.xlsx [Accessed 25 February 2026]

Project is 47.4 gCO<sub>2e</sub>/kWh and is therefore predicted to produce electricity at 21% of the current UK grid emissions per kWh, representing savings of 79%.

- 11.6.21 The Project would provide electricity to the National Grid that may otherwise be generated by processes with higher carbon intensities. Therefore, to assess the GHG savings, operational emissions from a Combined Cycle Gas Turbine have been used as an additional comparison, as it is currently the most carbon-efficient fossil-fuelled technology available.
- 11.6.22 The carbon intensity of a Combined Cycle Gas Turbine is 354gCO<sub>2e</sub>/kWh, and so the operation of the Project would emit 307 g fewer CO<sub>2e</sub> per kWh than if the same electricity were generated by a gas fired Combined Cycle Gas Turbine, representing savings of 87%.
- 11.6.23 Considering the lifecycle of the Project over the proposed 60-year lifetime, the Project results in GHG savings of 5.4 million tCO<sub>2e</sub> when comparing to the UK Grid emissions per kWh and 10.2 million tCO<sub>2e</sub> when compared to Combined Cycle Gas Turbine-generated electricity.
- 11.6.24 The Project will have 'paid back' the estimated lifetime GHG emissions from the construction phase upon 7 years of operation when comparing to the UK Grid emissions per kWh, and 4 years when comparing against a purely fossil fuel-based energy source (Combined Cycle Gas Turbine).
- 11.6.25 Under either scenario, the likely significant effects of the Project's GHG emissions on the climate are therefore significant and beneficial.

### **Cumulative Effects**

- 11.6.26 GHG emissions are inherently cumulative, as all emissions have the same per-unit impact on the same ultimate receptor. The impact is climate change, or global warming, caused by the radiative forcing effects of GHGs in the atmosphere, and the affected receptor is the global climate and all the ecosystems and biomes that depend on it.
- 11.6.27 The Project will achieve emissions savings by reducing the consumption of fossil fuel generated mains electricity. These savings will outweigh the necessary GHG emissions resulting from manufacturing, constructing, and decommissioning of the Project. Once emissions from these sources are offset by the Project, then each subsequent unit of solar generated electricity would displace a unit of conventionally generated electricity, thereby contributing to the overall reduction in emissions into the atmosphere.

11.6.28 In accordance with the IEMA Guide<sup>94</sup>, “All global cumulative GHG sources are relevant to the effect on climate change, and this should be taken into account in defining the receptor (the atmospheric concentration of GHGs) as being of ‘high’ sensitivity to further emissions. Effects of GHG emissions from specific cumulative projects therefore in general should not be individually assessed, as there is no basis for selecting any particular (or more than one) cumulative project that has GHG emissions for assessment over any other.” Therefore, a detailed cumulative assessment has not been undertaken. However, generally the cumulative effect of the solar farm, and other renewable energy projects in England as a whole, would have an overall beneficial cumulative effect on the climate and England’s ability to reach its Net Zero targets.

### **Next Steps and Preparation of the Environmental Statement**

A preliminary quantitative GHG assessment has been completed based upon high level data and preliminary design. The design taken to DCO submission will include an assessment with more detailed calculations based upon more robust project data and an updated GHG assessment will be presented in the ES. At the time of writing, there are no plans for any further engagement with Kent County Council and East Sussex County Council, though this will be continuously reviewed.

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<sup>94</sup> Institute of Environmental Management and Assessment (2022). Assessing Greenhouse Gas Emissions and Evaluating their Significance (2nd Edition). Available at: IEMA\_Greenhouse\_Gas\_Guidance-1.pdf [Accessed 7 April 2026].



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