

Cottam Solar Project

PEIR – Volume 2 Appendices to Chapter 6: Energy Need, Legislative Context and Energy Policy

Prepared by Lanpro Services
June 2022





6.1 Legislative Context and National Energy Policy

Cottam Solar Project

Preliminary Environmental Information Report Appendix 6.1 Legislative Context and National Energy Policy

Prepared by Lanpro
June 2022





Contents

1.1	INTRODUCTION	3
1.2	PRIMARY LEGISLATION	3
1.3	ENERGY POLICY	3

Issue Sheet

Report Prepared for: Cottam Solar Project Ltd.

Appendix 6 – Legislative Context and National Energy Policy

Prepared by:

Name: Stephen Flynn

Title: Planner

Approved by:

Name: Jane Crichton

Title: Associate Director

Date: June 2022

Revision: 3

1.1 Introduction

- 1.1.1 The ES will contain a chapter on Legislative Context and Energy Policy.
- 1.1.2 Regard will be had to the primary legislation and national energy policy, national planning policies and guidance, and local planning policies in establishing receptors, likely effects and potential mitigation.

1.2 Primary Legislation

- 1.2.1 The Planning Act 2008 (the Act) sets out the process for the consenting of major infrastructure projects and is the principal legislation governing an application for development consent for a Nationally Significant Infrastructure Project (NSIP). The Act therefore forms the basis for the decision to grant a development consent order (DCO).
- 1.2.2 Under the Act the Scheme constitutes an NSIP if:
- it consists of “the construction or extension of a generating station” (Section 14(1)(a) of the Act);
 - “it is in England” (Section 15(2)(a) of the Act); and
 - “its capacity is more than 50 megawatts” (Section 15(2)(c) of the Act).
- 1.2.3 If a national policy statement (NPS) has effect in relation to the type of development to which the DCO relates then the Secretary of State must decide the DCO application in accordance with the relevant NPS (unless an exception applies) (Section 104 of the Act). If the DCO application relates to a type of development where no NPS has effect then the Secretary of State must have regard to the local impact report and any other important and relevant matters (Section 105 of the Act).

1.3 Energy Policy

- 1.3.1 National Policy Statements (NPS) set out the policy basis for NSIPs. At present, there is no NPS which specifically deals with ground mounted solar developments, and therefore Section 105 of the Act applies. However, there are aspects of three Energy NPSs which are relevant to decision making and are important material considerations, in addition to other relevant and important national and local planning policies. The Secretary of State will therefore have regard to: -
- National Policy Statement for Energy (EN-1);
 - National Policy Statement for Renewable Energy Infrastructure (EN-3); and,
 - National Policy Statement for Electricity Networks (EN-5)

1.3.2 It should be noted that the Department for Business, Energy and Industrial Strategy is currently undertaking a review of the six NPSs for energy infrastructure and revised draft NPSs were consulted on (the consultation closed on 29 November 2021). As drafted the updated NPS EN3 on renewable energy has been expanded to provide policy on solar developments. Once the updated NPS EN3 has effect, the DCO application for the Scheme will be determined under s104 of the Act. Until the updated NPSs are designated, the existing NPSs remain the applicable national policy.

1.3.3 However, as confirmed in paragraph 1.6.3 of draft NPS EN-1, any emerging draft NPSs (or those designated but not having effect) are potentially capable of being important and relevant considerations in the decision-making process. The extent to which they are relevant is a matter for the Secretary of State to consider within the framework of the Planning Act and with regard to the specific circumstances of each development consent order application. The relevant provisions of the emerging draft of NPS EN-3 are set out below for information and the relevant provisions of draft EN-1 and EN-5 will be included in the ES.

[Adopted NPS EN-1: Energy](#)

1.3.4 The key points from each of the five sections for these applications are set out below.

Part 1

1.3.5 This section introduces the role of the NPS in the planning system in providing national policy for energy infrastructure development, setting out the scope and geographic extent of the policies' application. This section describes the relationship between the overarching policy set out in the rest of NPS EN-1 with the other five associated energy NPSs, and the way in which the Planning Inspectorate (PINS) will use the NPSs for decision making is set out.

Part 2

1.3.6 This confirms the Government's commitments to meeting legally binding targets to reduce greenhouse gas emissions; acknowledges the need to transition to a low carbon economy; and emphasises the importance of maintaining a secure and reliable energy supply in that transition to a low carbon economy.

Part 3

1.3.7 The need for energy infrastructure is set out, confirming that the UK needs all the types of energy infrastructure covered in this NPS in order to achieve energy security at the same time as significantly reducing greenhouse gas emissions. The need is described as urgent.

- 1.3.8 The NPS is clear that NSIP applications should therefore be assessed on the basis that the Government has already demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described in NPS EN-1.
- 1.3.9 In considering the importance of the need for these projects the NPS is clear that the determining authority should give substantial weight to the contribution which projects would make towards satisfying this need for energy infrastructure when considering applications for development consent under the Planning Act 2008.
- 1.3.10 Part 3.4 of EN-1 covers renewable energy, including its importance in tackling climate change, reducing carbon dioxide emissions and job creation.

Part 4

- 1.3.11 Part 4 covers the provisions to be covered in making an assessment of energy applications. Importantly, this includes:
- 1.3.12 The determining authority should start with a presumption in favour of granting consent to applications for energy NSIPs. That presumption applies unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused.
- 1.3.13 In making a judgement, the determining authority should consider the development's potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.
- 1.3.14 Development Consent Obligations should be relevant to planning, necessary to make the proposed development acceptable in planning terms, directly relates to the proposed development, fairly and reasonably related in scale and kind to the proposed development, and reasonable in all other respects.
- 1.3.15 Whilst applicants are required to consider alternatives through the EIA process, the NPS does not require this, and it states that there is no requirement to establish whether the proposed project represents the best option.
- 1.3.16 Part 4 also covers design and capacity considerations, which are summarised below:
- 1.3.17 Design: Applying "good design" to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of the area.

- 1.3.18 Capacity: The connection of a proposed electricity generation plant to the electricity network is an important consideration for applicants wanting to construct or extend generation plant. In the market system, it is for the applicant to ensure that there will be necessary infrastructure and capacity within an existing or planned transmission or distribution network to accommodate the electricity generated.
- 1.3.19 Land Use: Justification should be provided for locating sites on best and most versatile (BMV) agricultural land and impacts on BMV agricultural land must be mitigated where it is affected.
- 1.3.20 Landscape and Visual: Projects need to be designed carefully, 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.
- 1.3.21 Biodiversity and Geological Conservation: Development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. Where significant harm cannot be avoided, then appropriate compensation measures should be sought.
- 1.3.22 Historic Environment: As part of the ES the applicant should provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage asset and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. In considering the impact of the proposed development on any heritage asset, the determining authority should take into account the particular nature of the significance of the heritage assets and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between conservation of that significance and proposals for development.
- 1.3.23 Dust, Odour and Artificial Lighting: Some impacts on amenity for local communities is likely to be unavoidable. The aim should be to keep impacts to a minimum, and at a level that is acceptable.
- 1.3.24 Flood Risk: Projects should not increase the volume or flow rate of surface water leaving the site.
- 1.3.25 Air Quality and Emissions: 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 Environmental Statement. This should cover emissions at different stages of the projects, including construction. Environmental impacts need to also be considered, including eutrophication.

- 1.3.26 Socio Economic: Impacts should be considered through the ES. These should include services, infrastructure, tourism, phasing, population change and social cohesion and cumulative effects.
- 1.3.27 Traffic and Transport: If the project is likely to have significant transport implications, the Environmental Statement should include a transport assessment. Impacts should be mitigated where possible.
- 1.3.28 Water Quality: 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 as part of the ES or equivalent.
- 1.3.29 Waste Management: To transport and dispose of waste produced over the timeline of the project; a Waste Management Plan should be developed for the Environmental Statement.
- 1.3.30 Noise and Vibration: Impacts should be considered through the ES and include a noise and vibration assessment.

[Adopted NPS EN-3: Renewable Energy Infrastructure](#)

- 1.3.31 EN-3 applies to renewable energy projects but does not cover ground mounted solar projects and therefore is not considered to be relevant to the Scheme as currently adopted.

[Adopted NPS EN-5: Electricity Networks](#)

- 1.3.32 EN-5 should be applied where an application includes an electricity generating station and any associated underground cables and substations therefore constitute associated development. Part 2 of the Statement outlines technical and assessment criteria, as well as outlining the technical relationship between existing electrical infrastructure and the location of new generating developments. In the final ES, further detail will be provided regarding the substation's design and location.

[Draft revised National Policy Statement EN-3 'Renewable Energy Infrastructure'](#)

- 1.3.33 Draft NPS EN-3 sets out additional policies for renewable energy infrastructure, including policies specific to the development of solar NSIPs. These include matters that applicants should consider in selecting a site, how assessments should be undertaken and how mitigation should be provided. Draft NPS EN-3 should be read in addition to the overarching policies set out in Draft NPS EN-1.

Description of Development and Flexibility

- 1.3.34 Draft EN3 outlines the key considerations which should be had in relation to flexibility. The draft (p.85, paragraphs 2.49.14-2.49.17) outlines:

'Many different makes and models of solar panel arrays are available, each with differing size, mounting, and generating capacity. Associated infrastructure (such as inverters or transformers) may also vary depending on the model of the panels.'

- 1.3.35 As set out in Chapter 4 of EN-1, at the time of application, solar farm operators may have multiple commercial agreements under consideration and may not know precisely which panels will be procured for the site until sometime after any consent has been granted. If panel details, or any other relevant information, are not available, then the applicant should assess the worst-case effects that the project could have (as set out in EN-1 paragraph 4.2.6) to ensure that the project as it may be constructed has been properly assessed. In this respect some flexibility should be provided in the consent.

- 1.3.36 In the case of solar farms, it is likely that this flexibility will be needed in relation to the dimensions of the panels and their layout and spacing. It may also be the case that applicants seek flexibility for the installation of energy storage, with the option to install further panels as a substitute. When this is the case, applications may include a range of options based on different panel numbers, types, and layout, with and without storage. The maximum impact case scenario will be assessed, and the Secretary of State will consider the maximum adverse effects in its consideration of the application and consent.

- 1.3.37 Where other specific details of the design of the site are uncertain at the time of application, this should be made clear by the applicant with the reasons for the uncertainty given. Where elements of the design of the scheme are unknown, the maximum impact case scenario should be assessed, and the Secretary of State should consider the maximum adverse effects in its consideration of the application and consent'.

Temporary nature of solar farms

- 1.3.38 Draft EN3 outlines the key considerations which should be had in relation to the temporary nature of solar farms, and their decommissioning. The draft (pp.84-85, paragraphs 2.49.9-2.49.13) outlines:

'Solar panels typically have a design life of between 25 and 30 years, although this can sometimes be longer, and can be decommissioned relatively easily and cheaply. Solar panel efficiency deteriorates over time and applicants may elect to replace panels during the lifetime of the site. Applicants may apply for consent for a specified period, based on the design life of the panels. Such 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.

- 1.3.39 The nature and extent of decommissioning of a site can vary. Generally, the panel arrays and mounting structures will always be decommissioned with any underground cabling dug out to ensure that prior use of the site can continue.
- 1.3.40 Applications should set out what would be decommissioned and removed from the site at the end of the operational life of the generating station. There may be some instances where it may be less harmful for the ecology of the site to keep or retain certain types of infrastructure. Furthermore, 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.
- 1.3.41 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. 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. A limit of 25 years is typical, although applicants may seek consent for differing time-periods for operation.
- 1.3.42 The time-limited nature of solar farms, where a time-limit is sought by an applicant as a condition of consent, is likely to be an important consideration for the Secretary of State when assessing impacts such as landscape and visual effects and potential effects on the settings of heritage assets. Such judgements should include consideration of the period of time sought by the applicants for the generating station to operate. The extent to which the site will return to its original state may also be a relevant consideration’.

Site Selection

- 1.3.43 The Draft National Policy Statement for Renewable Energy Infrastructure outlines what the Government consider to be the ‘*key considerations involved in the siting of a solar farm*’ (p.79, paragraph 2.48.1). They are generally representative of how the industry undertakes site selection:

Consideration 1: Irradiance

- 1.3.44 Draft EN3 (pp.79-80, paragraph 2.48.2-2.483) outlines:

‘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.

- 1.3.45 In order to maximise irradiance, applicants may choose a site and design its layout with variable and diverse panel aspects, and panel arrays may also follow the movement of the sun in order to further maximise the solar resource.'

Consideration 2: Capacity of a site

- 1.3.46 Draft EN3 (pp.80-81, paragraphs 2.48.5-2.48.9) outlines:

'In order for a solar farm to generate electricity efficiently, site layout must be designed so as to maximise irradiance levels, and the panel array spacing should also 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. However, this is a matter for the applicant.'

- 1.3.47 Solar panels generate electricity in direct current (DC) form. A number of panels feed an external inverter, which is used to convert the electricity to alternating current (AC). After inversion a transformer will step-up the voltage for export to the grid. 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 combined capacity of installed inverters (measured in AC).

- 1.3.48 For the purposes of determining the capacity thresholds in Section 15 of the 2008 Act, all forms of generation other than solar are currently assessed on an AC basis, while solar farms are assessed on their DC capacity. Having reviewed this matter, the Secretary of State is now content that this disparity should end, particularly as electricity from some other forms of generation is switched between DC and AC within a generator before it is measured. Therefore, from the date of designation of this NPS, for the purposes of Section 15, the combined capacity of the installed inverters (measured in AC) should be used for the purposes of determining solar site capacity. The capacity threshold is 50MW (AC) in England and 350MW (AC) in Wales.

- 1.3.49 It should also be noted that the DC installed generating capacity of a solar farm will decline over time in correlation with the reduction in panel array efficiency. Light induced degradation affects most solar panels and on average panels degrade at a rate of up to 1% each year. Applicants may account for this by overplanting solar panel arrays. Therefore, AC installed export capacity should not be seen as an appropriate tool to constrain the impacts of a solar farm. Other measurements, such as panel size, total area and percentage of ground cover should be used to set the maximum extent of development when determining the planning impacts of an application.

- 1.3.50 Nothing in this section should be taken to change any development consent or other planning permission granted prior to the designation of this NPS. Any such permission should be interpreted on the basis upon which it was examined and granted. In particular, any permissions granted on the basis of a DC installed generating capacity should be built on that basis, unless an amendment is made to that permission and the difference in impacts is considered.'

Consideration 3: Proximity of a site to dwellings

- 1.3.51 Draft EN3 (p.80, paragraph 2.48.4) outlines:

'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 (Section 2.51) and Glint and Glare (Section 2.52) impact sections below.'

Consideration 4: Grid connection

- 1.3.52 Draft EN3 (p.81, paragraphs 2.48.10-2.48.12) outlines:

'The connection of the proposed solar farm into the relevant electricity network will be an important consideration for applicants of solar. The grid connection text at Section 4.10 in EN-1 sets out the important issues.'

- 1.3.53 Most 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 feasibility of a development and as such some larger developments may seek connection to the transmission network if there is available network capacity and/or supportive infrastructure. 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.

- 1.3.54 The applicant may choose a site based on nearby available grid export capacity. Locating solar farms at places with grid connection capacity enables the applicant to maximise existing grid infrastructure, minimise disruption to local community infrastructure or biodiversity and reduce overall costs. Where this is the case, consideration should be given to the cumulative impacts of situating a solar farm in proximity to other energy generating stations and infrastructure'.

Consideration 5: Agriculture land classification and land type

- 1.3.55 Draft EN3 (p.82, paragraphs 2.48.13-2.48.15) outlines:

'Solar is a highly flexible technology and as such can be deployed on a wide variety of land types. Where possible, ground mounted Solar PV projects should utilise previously developed land, brownfield land, contaminated land, industrial land, or agricultural land preferably of classification 3b, 4, and 5 (avoiding the use of "Best and Most Versatile" cropland where possible). However, land type should not be a predominating factor in determining the suitability of the site location.'

- 1.3.56 The Agricultural Land Classification (ALC) is the only approved system for grading agricultural quality in England and Wales and should be used to establish the ALC and identify the soil types to inform soil management at the construction, operation and decommissioning phases. This should be extended to the underground cabling and access routes. The soil survey may also inform the suitable beneficial use of the land during the operational phase. Criteria for grading the quality of agricultural land using the Agricultural Land Classification (ALC) of England and Wales is decided by Natural England and considerations relating to land classification are expected to be made with reference to this guidance, or any successor to it.
- 1.3.57 Whilst the development of ground mounted solar arrays is not prohibited on sites of agricultural land classified 1, 2 and 3a, or 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 2.50 and 2.53. It is recognised that at this scale, it is likely that applicants' developments may use some agricultural land, however applicants should explain their choice of site, noting the preference for development to be on brownfield and non-agricultural land'.

Consideration 6: Accessibility

- 1.3.58 Draft EN3 (p.82, paragraph 2.48.16) outlines:

'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. Section 5.14 of EN-1 advises on generic traffic and transport impacts while those which are specific to solar farms are considered under Section 2.54 of this NPS. 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.'

Site Layout, Design and Appearance

- 1.3.59 Draft EN3 (pp.83-84, paragraphs 2.49.3-2.49.8) outlines:

'Developers will consider several factors when considering the location and layout of sites including levels of solar irradiance, proximity to available grid capacity to accommodate the scale of generation, predominance of open land, topography (a

flat topography is often favoured), previous land use and ability to mitigate environmental impacts and any flood risk'.

- 1.3.60 In terms of design and layout, developers 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.
- 1.3.61 Considering the likely extent of solar sites, it is possible that proposed developments may affect the provision of local footpath networks and public rights of way. Public rights of way may need to be temporarily stopped up to enable construction; however, it should be the applicant's intention, where practicable and safe, to keep all public rights of way that cross the proposed development site open during construction and to protect users where a public right of way borders or crosses the site. Developers 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, but in particular across the operation of the site, and to minimise as much as possible the visual outlook from existing footpaths. It should be noted that sites may provide the opportunity to facilitate enhancements to the local footpath network and the adoption of new public rights of way through site layout and design of access.
- 1.3.62 It is anticipated that detail on how public rights of way would be managed to ensure they are safe to use is detailed in an outline Public Rights of Way Management Plan.
- 1.3.63 It is likely that extensive underground cabling will be required to connect the electrical assets of the site, such as from the substation to the panel arrays or storage facilities. In the case of underground cabling, developers are expected to provide a method statement describing cable trench design, installation methodology, as well as details of the operation and maintenance regime.

Security and lighting

- 1.3.64 Draft EN3 (p.84, paragraph 2.49.8) outlines:

'Security of the site is likely to be a key consideration for developers. When considering sites, developers may wish to consider the availability of natural defences such as steep gradients, hedging and rivers. Perimeter security measures such as fencing, electronic security, CCTV and lighting may also be needed, with the measures chosen considered on a site-specific basis. 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, should be assessed'.

Landscape and Arboriculture

1.3.65 Draft EN-3 section 2.51 outlines:

'Generic landscape and visual impacts are covered in Section 5.10 of EN-1. In addition, there are specific considerations which apply to solar panels, which are set out in the following paragraphs'

1.3.66 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. 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 zero.

Applicant's assessment

1.3.67 The applicant 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.

1.3.68 Applicants should follow the criteria for good design set out in Section 4.6 of EN-1 when developing projects and will be expected to direct considerable effort towards minimising the landscape/visual impact of solar PV arrays. 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.

1.3.69 The applicant should have regard in both the design layout of the solar farm, and future maintenance plans, to the retention of growth of vegetation on boundaries, including the opportunity for individual trees within the boundaries to grow on to maturity. The landscape and visual impact should be considered carefully at the pre-application stage. Existing hedges and established vegetation, including mature trees, should be retained wherever possible. Trees and hedges should be protected during construction. The impact of the proposed development on established trees and hedges should be informed by a tree survey or a hedge assessment as appropriate.

Mitigation

1.3.70 Applicants should consider the potential to mitigate landscape and visual impacts through, for example, screening with native hedges. Efforts should be made to

minimise the use and height of security fencing. Where possible projects should utilise existing features, such as hedges or landscaping, to screen security fencing and use natural features, such as vegetation planting, to assist in site security. Projects 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.

Secretary of State decision making

- 1.3.71 The Secretary of State will consider 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’.

Ecology and Biodiversity

- 1.3.72 Draft EN3 section 2.50 outlines:

‘Generic biodiversity, ecology and geological impacts are covered in Section 5.4 of EN-1. In addition, there are specific considerations which apply to solar farms as set out below.’

Applicant’s Assessment

- 1.3.73 The applicant’s ecological assessments should identify any ecological risk from developing on the proposed site. Issues that may need assessment include habitats, ground nesting birds, wintering birds, bats, dormice, reptiles, great crested newts, water voles and badgers. The use of an advising ecologist during the design process can ensure that adverse impacts are mitigated, and biodiversity enhancements are maximised, although this is a decision for the individual applicant. 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.
- 1.3.74 The assessment should consider earthworks associated with construction compounds, access roads and cable trenching. Where such soil stripping occurs topsoil and subsoil should be stripped, stored, and replaced separately in order to minimise soil damage and to provide optimal conditions for site restoration. Soil handling may be informed through a soil and Agricultural Land Classification (ALC) survey, with detailed guidance available in Defra’s guidance on Construction Code of Practice for the Sustainable Use of Soils on Construction Sites⁴⁶ or any subsequent updates.
- 1.3.75 The assessment 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 in order to minimise impact. If lighting is necessary, it should be minimised and directed away from areas of likely habitat.

- 1.3.76 The assessment 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.
- 1.3.77 The assessment should consider the impacts of mobile arrays or trackers (if proposed) to avoid animals becoming trapped in moving parts....
- 1.3.78 The assessment should consider enhancement, management, and monitoring of biodiversity. Solar farms have the potential to increase the biodiversity value of a site, especially if the land was previously intensively managed. In some instances, the increase in biodiversity caused by the repurposing of previously developed or intensively managed land for solar generation may equate to a net positive impact....

Mitigation

- 1.3.79 Proposed enhancements should take account of the above factors and as set out in Section 5.4 of EN1 and aim to achieve environmental and biodiversity net gain in line with the ambition set out in the 25 Year Environment Plan. This might include maintaining or extending existing habitats and potentially creating new important habitats, for example by instating: cultivated strips/plots for rare arable plants, rough grassland margins, bumble bee plant mixes, and wild bird seed mixes. It is advised that an ecological monitoring programme is developed to monitor impacts upon the flora of the site and upon any particular ecological receptors (e.g., 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.

Secretary of State decision making

- 1.3.80 In addition to Section 5.4 of EN-1 there are specific considerations which should inform Secretary of State decision-making where developments are proposed on peat. In these cases, the Secretary of State should be satisfied that the solar farm layout and construction methods have been designed to minimise soil disturbance when building and maintaining roads and tracks and other infrastructure. This is to ensure the development will result in minimal disruption to the ecology, or release of CO₂ and that the carbon balance savings of the scheme are maximised'.

Built Heritage and Archaeology

1.3.81 Draft EN3 section 2.53 outlines:

'Historic environment impacts are covered in Section 5.9 of EN-1. However, with respect to solar farms, the following considerations also apply.'

1.3.82 The impacts of solar PV developments on the historic environment will require expert assessment in most cases. Solar PV developments may affect heritage assets (sites, monuments, buildings, and landscape) both above and below ground. Above ground impacts may include the effects of applications on the setting of Listed Buildings and other designated heritage assets as well as on Historic Landscape Character. Below ground impacts may include direct impacts on archaeological deposits through ground disturbance associated with trenching, cabling, foundations, fencing, temporary haul routes etc. Equally archaeological finds may be protected by a solar PV farm as the site is removed from regular ploughing and shoes or low-level piling is stipulated.

Applicant's assessment

1.3.83 It is anticipated that the applicant's assessment will be informed by a consultation with the Historic Environment Record (HER). Alternatively, the applicant may contact the local authority for this information. 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 are expected to 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.

1.3.84 In some instances, field studies may include investigative work such as trial trenching beyond the boundary of the proposed site to assess the impacts of any underground cabling on archaeological assets. The extent of investigative work should be proportionate to the sensitivity of, and extent of proposed cabling in, the associated study area.

1.3.85 Applications should take account of the results of historic environment assessments in their design, for instance through the sensitive planning of installations. The applicant 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. 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 on such assets. Depending on their scale, design and prominence, a large-scale solar farm within the setting of a heritage asset may cause substantial harm to the significance

of the asset. Visualisations may be required to demonstrate the effects of a proposed solar farm on the setting of heritage assets.

Mitigation

- 1.3.86 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. Therefore, where requested by the applicant, the Secretary of State should consider granting consents which allow for the micro siting within a specified tolerance of elements of the permitted infrastructure so that precise locations can be amended during the construction phase in the event that unforeseen circumstances, such as the discovery of previously unknown archaeology, arise.

Secretary of State decision making

- 1.3.87 Consistent with the generic policy on historic environmental impacts in EN1 (Section 5.9) the Secretary of State should be satisfied that solar farms and associated infrastructure have been designed sensitively taking into account known heritage assets and their status.
- 1.3.88 Solar farms are generally consented on the basis that they will be time-limited in operation. The Secretary of 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'.

Flood Risk and Drainage

- 1.3.89 Draft EN3 section 2.50 outlines:

'The applicant's assessment may be accompanied by a Flood Risk Assessment. 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. 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. Given the temporary nature of solar PV farms, sites should be configured or selected to avoid the need to impact on existing drainage systems and watercourses. Culverting existing watercourses/drainage ditches should be avoided. Where culverting for access is unavoidable, it should be demonstrated that no reasonable alternatives exist and where necessary it will only be in place temporarily for the construction period...'

- 1.3.90 The applicant 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...

Secretary of State decision making

- 1.3.91 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 can deliver significant ecosystem services value in the form of drainage, flood attenuation, natural wetland habitat, and water quality management. The maximum impact case scenario will be assessed, and the Secretary of State will consider the maximum adverse effects in its consideration of the application and consent’.

Highways and Access

- 1.3.92 Draft EN3 (p.83, paragraph 2.49.2) outlines:

‘Applicants will sometimes need to construct access tracks to connect solar farms to the public road network. Applications should include the full extent of the access tracks necessary and an assessment of their effects. Developers will usually need to construct on-site access routes for operation and maintenance activities, such as footpaths, earthworks or landscaping. Applications should include the full extent of the access routes for operation and maintenance and their effects’.

- 1.3.93 Draft EN3 section 2.54 outlines:

‘Generic traffic and transport impacts are covered in EN-1, Section 5.14. In addition, there are specific considerations which apply to solar farms as set out below. Public perception of the construction phase of solar farm will derive mainly from the effects of traffic movements’.

- 1.3.94 Many solar farms will be sited in areas served by a minor road network. Modern solar farms are large sites that are mainly comprised of small structures that can be transported separately and constructed on-site. It is likely that applicants will designate a construction compound on-site for the delivery and assemblage of the necessary components. Traffic is likely to involve smaller vehicles than typical onshore energy infrastructure but may be more voluminous. It is important that all sections of roads and bridges on the proposed delivery route can accommodate the weight and volume of the loads.

Applicant’s assessment

- 1.3.95 The applicant should have assessed 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 selected the route that is the most appropriate. It is possible that the exact location of the source of construction materials, such as crushed stone or concrete will not be known at the time of the application to the

Secretary of State. In these circumstances, the impact of additional vehicles on the likely potential routes should have been assessed.

- 1.3.96 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 site. It is unlikely that sections of the route will require modification to allow for the transportation of components to the site, given the nature of solar developments, but any potential modifications should be identified, and potential effects assessed as part of the ES.
- 1.3.97 There may be several other energy infrastructure developments proposed that use a common port and/or access route and pass through the same towns. It is common for solar farms to locate where there is existing or surplus grid capacity, for instance. Where a cumulative impact is likely then a cumulative transport assessment should form part of the ES to consider the impacts of abnormal traffic movements relating to the project in question in combination with those from any other relevant development. Consultation with the relevant local highways authorities is likely to be necessary.

Mitigation

- 1.3.98 In some cases, the local highways 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 routing of such movements particularly by heavy vehicles. Where the Secretary of State agrees that this is necessary considering all representations, this could be achieved by imposing suitable requirements on development consent.
- 1.3.99 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 local residents and other highway users is reasonably minimised. 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.
- 1.3.100 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. It may be necessary for an applicant to agree a planning obligation to secure appropriate measures, including restoration of roads and verges. 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.

Secretary of State decision making

- 1.3.101 Consistent with the generic policy set out in EN-1, the Secretary of State should be satisfied, taking into account the views of the relevant local highway authorities, that if there are abnormal loads proposed, they can be safely transported in a way that minimises inconvenience to other road users and that the environmental effects of this and other construction traffic, after mitigation, are acceptable.
- 1.3.102 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. Therefore, it is very unlikely that traffic or transport impacts from the operational phase of a project would prevent it from being approved by the Secretary of State’.

Glint and Glare

- 1.3.103 Draft EN3 section 2.52 outlines:

‘Solar panels may reflect the sun’s rays, causing glint and glare. Glint is defined 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’.

Applicant’s assessment

- 1.3.104 In some instances, it may be necessary to seek a glint and glare assessment as part of the application. This may need to account for ‘tracking’ panels if they are proposed as these may cause differential diurnal and/or 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.

Mitigation

- 1.3.105 Applicants should consider using, and in some cases the Secretary of State may require, solar panels to be of a non-glare/ non-reflective type and the front face of the panels to comprise of (or be covered) with a non-reflective coating for the lifetime of the permission.

Secretary of State decision making

- 1.3.106 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 and motorists.
- 1.3.107 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. Therefore, the Secretary of State is unlikely to have to give any weight to claims of aviation interference as a result of glint and glare from solar

[Draft National Policy Statement for Electricity Networks Infrastructure \(EN-5\)](#)

- 1.3.108 Draft NPS EN-5 transmission and distribution infrastructure that covers long distances and is at a high voltage. It sets out at paragraph 1.6.2 that it also covers relevant associated development to generation NSIPs. It is likely that Draft NPS EN-5 will be considered important and relevant in respect of the electrical infrastructure that form part of the Scheme.