Written evidence submitted by Solar Energy (NPS0003)

Review of Energy National Policy Statements

Solar Energy UK Response to BEIS Committee

The solar industry very much welcomes the addition of guidance on solar PV to the National Policy Statement for renewable energy infrastructure (EN-3). However, there are several areas which could be strengthened, which we have outlined below.

EN-3 states the Government has committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions, and that solar is a key part of the government's strategy for low-cost decarbonisation of the energy sector. The Government's Net Zero Strategy (NZS) also recognises the centrality of solar to delivering net zero at the lowest cost to consumers.

However, unlike offshore wind, nowhere in EN-3 or the NZS has the Government set a generation target for solar. The Committee for Climate Change (CCC) has identified a need to deploy 54GW of solar by 2035 to keep on track to deliver net zero by 2050. This equates to roughly 40GW of solar by 2030, and the solar industry body, Solar Energy UK, has demonstrated in our 2021 report "Lighting the Way" that this target is possible.[1] We recommend that a target for solar generation should be included in the NPS. This would help demonstrate the scale of the need for the technology (alongside others) and increase investor confidence in solar development.

We would also suggest that given the minimal impact of solar developments, and in many instances the significant positive impacts to natural capital and biodiversity net gain, the 50MW threshold may no longer be an appropriate cut off for determining the right planning route. We are aware that there are many elements of the planning process currently under review and urge the Government to prioritise accelerating and minimising the cost burden of the DCO process in the first instance to improve the viability of this route for projects over 50MW. Pending the outcomes of the review processes currently underway, it may be necessary to launch a further review of the appropriate NSIP threshold for solar PV projects to ensure the planning process for this technology is proportionate and does not discourage the development of larger scale projects which could make valuable contributions to achieving net zero.

2.48 Solar photovoltaic generation: factors influencing site selection by applicant

We welcome the clarification in EN-3 that alternating current (AC) is the correct metric of installed capacity of solar projects. Developers are consistently pushed to limit export capacity from solar generating stations, and the policy statement confirming this is inappropriate is welcomed and essential to support the delivery of net zero by allowing installations to maximise installed capacity and account for improving technology.

2.48.7 – However, members have expressed concerns with some of the wording in paragraph 2.48.7. First is the fact that this paragraph specifies that sites will only be

[1] https://solarenergyuk.org/resource/lighting-the-way-making-net-zero-a-reality-with-solar-energy/

assessed on this basis from the date of designation of this NPS. The technically correct definition of installed capacity for solar has never changed. EN-3 should be strengthened to clarify that AC has always been the correct technical definition of installed capacity to support future reviews of planning approvals for existing sites.

It is incorrect to suggest solar has until now been assessed on DC capacity. The PINS advice issued in April 2016 concluding the correct approach to assess capacity in terms of Direct Current (DC) capacity as the 'gross output' of a scheme contained several technical inaccuracies and inconsistencies and was not legally binding. We recognise that the NPS does not have the authority to cut across existing planning regimes and therefore have allowed for the retrospective change where capacity has been explicitly stated as being DC by local authorities.

Second, members have also raised concerns that the wording in this paragraph *"the combined capacity of the installed inverters (measured in AC)"* is unnecessarily prescriptive and could have unintentional impacts on the ability of sites to meet all connection requirements in line with G99 Regulations. For example, sites must meet strict reactive power requirements, which requires over-install of inverter capacity to allow for sites to use their agreed export capacity. Capping sites at 50MW of installed inverter capacity would result in a Registered Capacity of ~40MW, with 50MW of inverters required to fulfil stringent reactive power requirements. This paragraph could be strengthened to avoid unintentional impacts on sites meeting connection requirements by amending the text above to say, *"the AC capacity as measured at the point of connection".*

2.48.8 – This paragraph could be improved by clarifying that light induced degradation can be as low as 0.2% annually. This directly relates to our comments below on section 2.49.9 and is one of the reasons why we are regularly seeing applications which build in a 40-year asset life, as the tested rate for panel degradation is proving to be lower than the 1% figure cited in the NPS in many instances.

2.48.11 - When it comes to NSIP scale solar projects, there is much more likelihood that these will connect to the transmission network, and this section should include this clarification.

2.48.13 - We strongly support the assertion in this paragraph that land type should not be a predominating factor in determining the suitability of the site location. The size of utility scale solar projects means that identifying land which does not have any area classified as Best and Most Versatile (BMV) is very difficult, and this is an important qualification. Land type should be considered on a case-by-case basis and weighed against the ability of a proposed development to provide mitigation and enhancement; for example, a development on Best and Most Versatile cropland may have greater potential to deliver biodiversity net gain.

2.48.14 – Agricultural Land Classification (ALC) should not be extended to underground cabling and access routes. This is an incredibly excessive requirement, especially in the case of access routes which could also apply to cabling routes back to the point of grid connection, which can often be several km. It is unclear whether this paragraph is referring to a requirement to undertake a desktop survey or whether there is a requirement to undertake soil survey work. If it is the later, the requirement to undertake ALC surveys over this land is very onerous. This is particularly the case given the significant issues in obtaining consent from the Secretary of State to achieve access pursuant to section 53 of the PA 2008, cable routes commonly being comprised of long linear runs across many land interests.

Further, it is unnecessary to require developers to consider ALC in the site selection of underground cabling because:

- the cable route is heavily influenced by the availability of land between the generating station and point of connection; the avoidance of other constraints, e.g. archaeology, protected habitats, watercourses; and the landowner's/tenant's (often the farmer) desire for the cable route to not disturb agricultural practices on the land in question; and
- having laid the cable, developers restore the land above to its pre-development condition (or better) meaning the land can continue to be farmed and productive once the cable is installed.

This section should also include clarification of the presumption of ALC improving for land under solar management, as the removal of land from intensive agricultural use has been shown to result in dramatic improvements to soil quality, natural capital, and biodiversity.

2.49 Solar photovoltaic generation: technical considerations for the secretary of state

We welcome the language in this section with regards to flexibility around panel placement, site design, and orientation. This should be further strengthened to specify that there should not be a MW limit on project size included when granting consent as this may fluctuate for several reasons, particularly, as the NPS notes, with the potential optionality for storage. Further, because of the rapidly improving energy density of solar panels, land area required per MW of generation capacity is constantly shrinking and could potentially further reduce even over the length of the planning approval process.

2.49.9 – There has been rapid innovation and improvement of solar panel technology and asset management practices across the industry, such that the design life of new solar installations is commonly more than 40 years. For example, see the Cleve Hill Solar Park DCO – which has a minimum design life of 40 years. This paragraph should be clarified to confirm that design life may be up to or exceeding 40 years.

Further, it may not be necessary to time limit consent for a solar NSIP (this will turn on the technology and parameters of EIA for the project in question). As drafted, the NPS could unnecessarily restrict the contribution solar NSIPs can make to energy generation by setting expectations that all solar NSIPs will be time limited to 25-30 years. Some members have further suggested that this limitation could make certain sites unviable.

This section could also be improved by clarifying how the EIA and design life of plants pertains to repowering, which is the replacement of panels and other plant with more efficient versions of the same, to improve the generating capacity and efficiency of the solar NSIP. Given the rapid enhancement of solar PV technology it would be remiss to not make provision for this in policy and DCO for solar NSIPs, particularly as in most cases repowering is unlikely to have significant environmental effects.

Further, the suggestion that there may be a need to reassess environmental impact is excessive particularly for panel replacement. The language should at minimum clarify that site should be able to replace equipment, especially solar panels, within the original consent parameters.

2.49.12 – Here again, this paragraph should be changed to confirm that design life for PV installations may be up to or exceeding 40 years.

2.50 Solar photovoltaic generation impacts: biodiversity and nature conservation

2.50.2 – The solar industry is not only in the business of renewable energy generation but is committed to the ecological enhancement of land under management, as is reflected by the case studies in the Solar Energy UK report on the *Natural Capital Value of Solar*. It is common practice for all projects going through the planning process to consult ecologists from the start, and projects of NSIP scale will always have advising ecologists. The language in this section should reflect this.

2.50.6 – We are not aware of any evidence to suggest that tracking technology presents any risks to wildlife and would recommend removing this paragraph.

2.50.7 – This paragraph should be strengthened to provide clearer direction for the approval of solar sites for Secretary of State decision making where the impact to existing water courses is minimal.

2.52 Solar photovoltaic generation impacts: glint and glare

2.52.2 – We appreciate that there may in some instances be a need for glint and glare assessments as part of the application process. However, developers are frequently being required to undertake glint and glare assessments even in cases where there are no nearby dwellings or other receptors. This paragraph should specify that any requirements for glint and glare assessments be proportional to the reality of the irradiance absorption design of solar panels and the specific site context. Further, to require glint and glare assessments to include all the materials used in the construction of a solar farm is excessive and unnecessary.

Case Study – Crookedstone Land Solar Farm: This site is located 600m from the eastern runway of Belfast International Airport. The site was carefully selected to account for topography, adjacent properties, and numerous other factors. An independent glint and glare assessment was conducted, which assumed that the entire proposed site boundary was installed with panels, whereas this is not the case with the final installation. The assessment found that glint was not expected to cause a hazard or nuisance to any of the adjacent properties, including road and air traffic. The assessment found that solar panels have significantly less reflectivity than many other common construction materials and posed no risk to aviation.

This is because, based on the conclusions of the independent assessment:

- Panels are made of specialist glass which has much lower reflectivity than conventional glass, absorbing light instead of reflecting it.
- Due to the fixed orientation, reflections can only be directed to one point at one time.
- The sun is a much stronger source of intense brightness which is longer in duration than any reflection from solar panels.
- Large scale ground mounted solar arrays have been installed at and near to many airports in the UK and worldwide, and no significant adverse effects on aircraft operating in the vicinity of these installations have been noted.

2.52.3 – The language in this paragraph, especially with regards to the Secretary of State requiring the use of anti-reflective panels or the application of anti-reflective coatings, is superfluous and unnecessary. Solar panels are at their core designed to absorb as much

light as possible, as this is the very nature of the electrochemical reaction through which solar panels generate photovoltaic electricity. Panel manufacturers spend millions in research and development to create high efficiency anti-reflective coatings to improve the performance of their products which are standard on all commercially available panels.

2.53 Solar photovoltaic generation impacts: cultural heritage

2.53.4 – We welcome the recognition in this paragraph that the extent of any investigative work, especially trial trenching, should be proportionate to the sensitivity of the site area and the extent of proposed cabling. There is a need for greater clarity on what is considered proportionate when investigative archaeological work is required. We are aware of several sites where pre-approval trial trenching has been required over significant percentages of site area, resulting in far more disturbance than the process of undergrounding cabling would have required. Developers are also increasingly being required to conduct geophysical assessments across entire sites, which is often disproportionate to the level of possible ground disturbance and likelihood of significant buried archaeology being present.

It should be further noted here that there are several options for to mitigate the need for sub-surface works should there be any archaeological discovery. Alternative cabling options are available, and panels do not always require sinking mounting supports and can be mounted with ballast for example. Geophysical assessments should be prioritised before resorting to trial trenching, and where necessary trial trenching should not be required pre-determination. Given the amount of flexibility and mitigation options available, approval could be conditional on the need to mitigate archaeological impacts if anything is discovered for example.

Ultimately, the delays to project approval that this causes is a major concern, particularly in the context of the Government's net zero commitments. Surveying delays can knock projects back a year or more especially where multiple seasonal surveys are required. This can have serious knock-on impacts such as resulting in projects failing to meet grid connection milestones. Landowners also often express concerns that this is disruptive to the productivity of agricultural land where surveys are required over multiple seasons.

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