Written evidence submitted by Island Green Power (POW0074)

Island Green Power is a developer of solar farms and battery storage facilities, with a focus upon utility scale developments. The founders have been operating for over 25 years in the energy industry with approximately a decade operating in solar photovoltaics (PV). IGP have developed or are in the process of developing projects the UK, as well as Ireland, Spain, Italy, New Zealand and Australia.

Island Green Power's mission is to help countries across the world to increase their solar energy usage, making more renewable energy possible, saving thousands of tonnes of CO2, and helping the UK on the journey to net zero by 2050. IGP's development pipeline is currently targeted to provide 8.4GW of solar energy, which is 12% of the Government's overall target of 70GW by 2035, alongside significant Battery Energy Storage Systems (BESS), which will contribute 8.0GW of energy to the UK.

We are committed to responsible land use and firmly believe that the development and commercial delivery of large-scale solar farms can be achieved in harmony with their surroundings. Therefore, we will always seek to use brownfield sites, non-agricultural land or, where the use of agricultural land is necessary, we will always try to use poorer quality farmland. Typically, we successfully find ways to allow ongoing agricultural use such as sheep grazing and or co-locate with storage to maximise the efficiency of the land use.

Our work involves finding, assessing and preparing land around the world for the construction of highly-productive solar farms. We have a proven track record in the development of solar projects and our work involves all aspects of PV project development: site appraisal, obtaining all the required authorisations, permits and consents, grid connection and financing our pipeline.

Island Green Power welcomes the inquiries by the Energy Security and Net Zero Committee and the opportunity to respond to some of the greatest challenges facing the energy sector at present.

We have responded to questions for which we have the necessary expertise and would be more than happy to provide further detail, if helpful.

<u>Keeping the power on: our future energy technology mix – Island Green Power's Inquiry Response</u>

2. Does the Government sufficiently support development of innovative energy infrastructure?

We acknowledge the importance of Government support for innovative energy infrastructure and enabling new technologies to develop, such as investment in nuclear and hydrogen.

Nevertheless, the Government places too much focus on the development of innovative energy infrastructure and technologies, with not enough emphasis placed on renewable energies that are ready to be deployed at scale now, for example wind and solar.

Indeed, the Climate Change Committee 2023 report to Parliament stated that: 'The Government's current strategy has considerable delivery risks due to its over-reliance on specific technological solutions, some of which have not yet been deployed at scale.'[1]. The Government has introduced policies such as pursuing solar panels in space[2], while there are solar farms waiting 13 years to connect to the grid because of capacity constraints, and several years for planning permission.

[1] Climate Change Committee, 'Progress in reducing UK emissions - 2023 Report to Parliament'. June 2023.

[2] Department for Energy Security and Net Zero, 'Space Based Solar Power Innovation Competition'. June 2023.

There are scalable and affordable energy solutions that can be better supported, with prime examples being the deployment of solar farms and the lifting of the moratorium on onshore wind.

4. What current technologies could usefully be deployed at scale to deliver better energy security in the UK?

We strongly believe that solar could usefully be deployed at scale to deliver better energy security in the UK.

We acknowledge that all technologies will be part of the energy mix of the future, from solar and wind, to hydrogen and nuclear. However, solar is unique in being one of the cheapest renewable technologies and being ready to be deployed at scale and deployed most rapidly. In addition, the twin uses of solar, both on rooftop and ground-mounted, makes solar a highly diverse technology that can be used both to achieve national targets, as well as provide individual benefits, for example through the reduction of energy bills by solar panels installed on homes.

Despite global increases in investment costs, utility-scale solar PV is the least costly option for new electricity generation in a significant majority of countries worldwide[3]. Alongside this, distributed solar PV, such as rooftop solar on buildings, is also set for fast growth due to higher energy retail prices[4].

The significant benefits associated with solar technologies are unlikely to change or be surpassed in the near future. For example, nuclear plants take decades of building and development before they are ready to supply energy, while hydrogen as a technology is still being understood. Solar must therefore be at the heart of the energy mix because, simply put, it is the easiest technology to deploy at scale.

It is therefore evident that solar has several clear benefits, and it should not be forgotten as a key technology in the UK's journey towards net zero and energy security. The targets set by the Government are still very ambitious. The target of 70GW by 2035 requires the trebling of solar capacity. Indeed, the Labour Party's target is even more ambitious, with the Party stating that in Government they would aim to quadruple solar power by 2030. Clearly, these are not insignificant targets. Indeed, the IEA is clear that achieving the solar targets set by Government will require 'continuous policy ambition and effort from both public and private stakeholders, especially in the areas of grid integration and in addressing policy, regulation and financing challenges.'[5].

We acknowledge that there are natural changes in the supply of solar which are linked to the four seasons. However, this does not significantly impact solar energy's contribution to energy security, especially when solar is taken in combination with wind energy and the utilisation of Battery Energy Storage Systems (BESS). Moreover, it is also possible to predict generation from renewables, for example solar generation will be high in the spring and summer months and lower in the autumn and winter. In contrast, wind power will be lower in the summer months but higher in the autumn through to spring. Therefore, a growing portfolio of solar generation complements the existing and growing wind portfolio in the UK. The energy system is typically better off with intermittent capacity than without it and wind farms, for example, can contribute to overall security of supply[6].

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[3] International Energy Association (IEA), 'Solar PV: Overview and Tracking'. https://www.iea.org/energy-system/renewables/solar-pv

[4] IEA, 'Solar PV: Overview and Tracking'.

[5] IEA, 'Solar PV: Overview and Tracking'.

[6] Dieter Helm, 'Cost of energy: independent review'. August 2017.

Despite the overall positives of solar as a renewable energy technology that can contribute significantly to energy security in the UK, there are a number of issues that are holding the solar industry back from deployment at the scale possible.

In summary, the key challenges are:

- Delays in planning permission.
- Constraints on grid connections.
- Contested public opinion towards solar and solar farms.

Further detail on these challenges is provided below:

Delays in planning permission

There are a number of challenges in the planning system which we have outlined in detail in another ESNZ Committee inquiry: 'A flexible grid for the future', but which are worth covering briefly here.

The under-resourcing of the Planning Inspectorate leads to significant delays on NSIP projects. We believe that a levy on developers which is used to fund PINS could go some way to help with this issue.

Furthermore, the NSIP process is long and complicated, and is exactly the same for all projects. For example, the length of time for a consultation would be the same for a nuclear power generator, a motorway junction, and indeed, any solar development over 50MW. The Government has been clear that they do not intend to change the point at which solar development is considered an NSIP, at 50MW. In order to achieve the 70GW solar target set by government, many more NSIP solar projects will need to be approved[7]. Therefore, the current time taken for NSIP approval is holding back solar deployment. We believe the NSIP process could be expedited to be more efficient and enable decisions to be made quicker on less controversial issues. These constraints within the planning system are currently inhibiting the deployment of solar energy.

Constraints on grid connections and infrastructure building

Infrastructure and grid connections are a significant constraint on deployment of solar power. This is not an issue singular to solar power, but also wind and other forms of energy infrastructure, such as transmission networks.

Accelerating the domestic supply of clean and affordable electricity also requires accelerating the connecting network infrastructure to support it. It is widely acknowledged that grid capacity is holding back renewable energy deployment, and we have covered this in another Energy Security and Net Zero Committee inquiry[8]. We strongly believe that the reforms and recommendations outlined in Nick Winser's Review of Electricity Transmission should accepted and pursued.

Contested public opinion towards solar farms

The Government target for solar generation, 70GW by 2035, will require NSIP developments and utility-scale solar farms. The political debate, however, on solar farm developments is largely negative, with debates taking place in Parliament that strongly criticise any solar farm developments[9]
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[7] Gareth Phillips and Richard Griffiths, 'Large scale solar power generation backed in revised UK planning policy'. March 2023. https://www.pinsentmasons.com/out-law/analysis/solar-power-generation-uk-planning-policy

[8] Energy Security and Net Zero Select Committee Inquiry: 'A flexible grid for the future'.

Whilst there is some evidence around negative public opinion towards solar farms, including a recent Times article that flagged public concern around the impacts of solar farms on green spaces and house prices, other research suggests positive opinion towards solar farms[10]. For example, polling conducted by Copper Consultancy, in collaboration with Solar Energy UK, found that that more than 42% of people living near existing or under-construction farms strongly support solar, with less than 1% strongly opposing[11]. Indeed, support for solar farms is at its highest once the site is fully operational, while the development phase leads to more hesitancy to support solar developments[12]. This demonstrates the importance of ensuring a smooth and quick development process while counteracting the popular assumption that solar farms are deeply unpopular.

There is also a great number of myths surrounding solar, such as a belief that developments will destroy biodiversity and negatively impact farming and food security. Indeed, this was one of the most commonly identified 'negative' impacts of solar farms[13]. However, it is possible for solar farms to co-exist with the natural environment and agricultural practices. Studies conducted by Green Alliance, Lancaster University and Wychwood Biodiversity, demonstrate that well-designed solar farms can in fact positively counter habitat loss. The study found dozens of red-listed bird species and numerous types of insects benefiting from the nectar-rich environments found on solar farms and the sites were also noted in their ability to diversify and rewild the UK countryside.

There is absolute need to build better public and political support around utility scale solar, and to combat myths around loss of biodiversity, impacts on the landscape, and loss of food security. A better understanding of the benefits, and necessity, for solar development in the UK will allow a more efficient deployment of the technology and contribute to the energy security of the UK.

7. Are the energy solutions universal across the UK or are there regional and local approaches on fuel and energy?

There is clearly a natural bias as to where energy solutions should be placed across the UK, which perhaps encourages a more regional and local approach.

For example, solar farms are naturally best placed in the south and east of England where there is generally more sun than, for example, the north of Scotland. Equally, onshore wind is best placed around the country, generally in coastal areas or highland areas where wind is the strongest.

Despite this natural bias in where energy developments should be placed, it is generally grid connections that drive where infrastructure is currently placed. This can be seen in the energy developments in Lincolnshire and Nottinghamshire area, where there are excellent grid connections due to the old power stations. The existing grid infrastructure and cost of connection places restraints on the extent to which regional and local approaches can be taken towards renewable energy developments.

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[9] Various Westminster Hall debates such as 'Planning and Solar Farms' tabled by Dr Caroline Johnson MP and held 19th July 2023 and 'Large Solar Farms' tabled by Nigel Adams MP and held 21st March 2023.
[10] The Times, 'Would you live next to a large solar farm?'
[11] Copper Consultancy, '2023 – a transformative year for Solar: A study of public attitudes to solar development'. August 2023.
[12] Copper Consultancy, '2023 – a transformative year for Solar'.
[13] Copper Consultancy, '2023 – a transformative year for Solar'.