

National Planning Framework 4

Response on behalf of the Solar Trade Association

About us

Since 1978, the Solar Trade Association (STA) has worked to promote the benefits of solar energy and to make its adoption easy and profitable for domestic and commercial users.

A not-for-profit association, we are funded entirely by our membership, which includes installers, manufacturers, distributors, large scale developers, investors and law firms.

Our mission is to empower the UK solar and storage transformation. We are paving the way for solar to deliver the maximum possible share of UK energy by enabling a bigger and better solar industry.

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Would you like this response to remain confidential?	No

Introduction

We welcome the opportunity to provide our thoughts on the National Planning Framework 4 (NPF4). Within this position document we have highlighted the current policy barriers that are significantly affecting the rate of deployment of solar and storage within Scotland. The Government must recognise the key role which solar has to play in order to achieve the ambitious climate targets and net zero by 2045.

We commend Scotland's ambitious targets to enhance building standards to deliver zero carbon homes. The implementation of new standards focusing on reducing energy demand and carbon emissions within new buildings by 2021 is a crucial step. We strongly support the Government's requirement to power new build homes with renewable or low carbon heating from 2024. To ensure Scotland achieves net zero by 2045, the Government must recognise the importance of introducing such measures as quickly as possible, setting 2024 as the maximum deadline.

In 2019, 50% of the energy for Scotland's heat, transport and electricity consumption was supplied by renewable energy however only 6% of heat in Scotland comes from renewable sources.¹ The Government must act on this by supporting renewable energy to reduce emissions from heat generation. Technologies such as solar thermal have significant potential for growth and will be essential if Scotland is to meet its net zero target.

More generally, the Government must provide clarification around local and national policy in response to the climate emergency. The NPF4 document provides a clear and achievable vision for how Scotland is set to evolve over the next 20-30 years, however would be beneficial for the Government to focus on targeted policy interventions over a shorter time period of 10 years. By doing so, this allows a stronger focus on renewable energy to deliver the Government's sustainability goals and reach the climate change ambitions by 2030.

¹ <https://www.gov.scot/publications/annual-energy-statement-2019/pages/3/>

We encourage the Government to look at NPF4 as an opportunity to increase the amount of solar and storage opportunities matching the heightened ambition for solar deployment in Scotland. We advise the Government to address the planning and policy barriers set out within this consultation response, which at current are significantly reducing the level of solar deployment.

Q.1- What Development will we need to address climate change?

Scotland has a critical role to play in contributing to the 40GW of solar capacity needed across the UK by 2030 in order to keep on track with Britain's carbon budgets. In pursuit of such a target we believe that Scotland could comfortably achieve 6.6GW of solar and 170MWh for solar thermal by 2030. By doing so, the Government would be achieving approximately 50% of Scotland's renewable energy targets. As a result, this will create 10,000 jobs per annum, an industry worth £1.5 billion and a significant reduction in carbon emissions. In order to achieve these targets, the Scottish government must recognise the current policy barriers which are significantly affecting the rate of deployment within Scotland.²

As stated previously, we believe a minimum deployment of 6GW of solar PV capacity will be required for the Government to achieve net zero by 2030. If the Government were to capitalise on this opportunity it would provide long term employment opportunities and drive local economic growth. When looking comparatively against other renewable technologies, solar PV requires the highest labour intensity. Therefore, it is not surprising that the solar industry represents a third of the total renewable workforce globally. In addition, one widely cited study published in the US found that a "\$1 million job investment in new energy development created 17 jobs in clean energy, compared to 5 jobs for fossil fuels. Furthermore, The World Bank conducted an analysis concluding that every \$1 million spent creates 13.5 jobs in wind and solar and 5.2 jobs in oil and gas.³

Embracing solar delivers a host of benefits right across society. The unique financial advantage Councils enjoy means they are well positioned to deliver many types of solar schemes today, without the need for additional government subsidy. Prime projects can generate revenue and cost savings immediately, and profits generally within ten years.⁴ Many local authorities have invested in business parks, urban offices, warehouses and market spaces as a valuable source of future council income. Business parks and offices often provide an ideal site for retrofitting with solar, either on-roof or, even more cost-effectively, through private wire connection to a nearby site for ground-mounted solar. By retrofitting solar to supply power to offices, the council can also earn revenue on competitively priced electricity provision to occupants, as well as enhancing credentials for new tenants".⁵ Revenue created by such projects can then be spent on local services within the area.

We would encourage the Scottish Government to refer to our Leading Lights report which provides a variety of case studies of local authorities investing in solar and storage projects for revenue streams.⁶ An example is Cambridge County Council who successfully secured a 12MW solar array Triangle Farm after obtaining a contract for Difference (CfD) from the Government. The solar park now creates an additional revenue stream for the local authority to use to improve services for all.

We commend the Scottish Government for its already supportive planning environment in that its guidance is presumptive to support renewables. Despite this, we observe that Scotland has not to date attracted the levels of large-scale solar projects that we would expect. To better support the construction of "climate friendly places", our members feel the Government could further streamline its planning process to eliminate requirements for costly

² <https://www.solar-trade.org.uk/sta-blogs-the-future-of-solar-in-scotland/>

³ <https://www.edie.net/downloads/Low-carbon-jobs-Net-job-creation-for-energy-efficiency-and-renewable-energy/63>

⁴ <https://www.solar-trade.org.uk/wp-content/uploads/2018/04/local-authority-solar-guide-WEB.pdf>

⁵ Ibid.

⁶ Ibid.

studies that in practice are not particularly applicable to solar, and to “update” its LPA guidance to reflect the positive outcomes and lack of negative impacts from the large number of solar generators already deployed elsewhere in the UK and in Europe.

With this in mind, we would also strongly urge the Scottish Government to reconsider extending Permitted Development Rights (PDRs) under NPF4 to larger roof mounted, and to larger-scale ground-mounted solar. We believe that, if the actual risks relating to solar are properly considered in detail, and the Government adopted a risk-based approach in setting its planning requirements, then it would find the evidence supports extending the permitted development scope for solar. The STA and its members are willing to work with the Government on such a review if this were of interest.

Solar parks are a temporary and, in most cases, a completely reversible land use. For almost all ground-mount solar installations, panels are set on posts and there is minimal disturbance to the ground (typically less than 5%). The remainder of a field utilised for solar park development is still accessible for plant growth and potentially for wildlife enhancements and complementary agricultural activities such as conservation grazing of sheep. Solar parks are secured facilities and long-term installations (with 25-40-year operational lifespans), requiring minimal human disturbance of the grounds, and with a very small infrastructure footprint – all attributes that engender them as good areas to enhance the ecological value of the landscape. Indeed, several of our members have reported that threatened and endangered species regularly make use of their large-scale solar sites as habitat. For more information, we would refer you to our recent report on the [Natural Capital Value of Solar](#), case studies in which describe the natural and constructed habitat enhancement activities our members are undertaking at their solar sites. We are confident that, if designed, constructed, and maintained properly, large-scale solar developments have a net positive impact on the natural capital value of the landscape in question, and support a wide range of ancillary community benefits.

More generally, we advocate against the decision to reject the extension of PDRs within aerodromes and technical sites. The information on which this decision has been made is outdated. STA Scotland have engaged multiple times with Scottish Government officials and provided exemplary evidence showing that solar PV is no cause for concern in relation to the impact of potential glint and glare on aviation and airports. Solar PV panels are built to absorb sunlight. The reflective capacity of PV panels is lower than that of most objects found in or around aerodromes, such as car doors and windows. Furthermore, evidence has shown solar panels do not interfere with communications equipment nor does it infringe on airspace. Solar PV panels are built to absorb sunlight. In addition, the reflective capacity of PV panels is lower than that of objects most found in/or around aerodromes. For example, car doors or windows. We urge Scotland to review this and adopt the same PDR for solar panels within the vicinity of aerodromes as other parts of the UK. This is supported by a full technical briefing which is publicly available. There are [several examples](#) of airports with large installations on aerodromes, next to the runway or under the flightpath, including:

- Gatwick Airport – (50kW, positioned 150m from runway)
- Heathrow Airport – floating array on Thames QEII reservoir (6.3MW under flightpath)
- Southend Airport – (120kW on terminal and 5MW under landing flightpath)

In addition, the report is yet to recognise the potential positive economic effect of installing solar within aerodromes. By using solar PV, airports and other similar businesses could have more control over their electrical infrastructure and reduce demand on the grid as the energy would be both produced and consumed onsite. Solar Power Purchase Agreements (PPAs) are another available option. The Scottish Government should take advantage of this support to deploy solar at no cost to the airport. In the last few years there have been several examples of airports capitalizing on similar opportunities.

Q.2-How can planning best support our quality of life, health and wellbeing?

As Scotland moves to an electricity generation mix based largely on renewables, energy storage will be vital to ensure the balance of supply and demand. Storage technologies are a nascent market and will undoubtedly play a critical role in a smart, flexible energy system with high penetration of variable renewable energy. The interaction between solar and storage has the potential to be a significant building block of the clean energy transition and will be vital to meet future demand. Solar and storage complement one another, allowing for more energy to be available for non-productive hours, enabling homes to utilise 100% renewable energy and making storage vastly more efficient when combined with solar. The Government should support increased opportunities for co-located solar and storage applications by creating a consistent and reliable policy framework that accommodates the projected rapid advancement in energy storage and co-location opportunities.

According to the Committee on Climate Change, the housing stock already required 'near complete decarbonisation' to meet the Government's previous emissions targets of 80% by 2050, let alone achieving net zero.⁷ Transitioning to a smart, flexible energy system is widely understood as necessary to support cost-effective decarbonisation and the increasing electrification of transport and heat. The Government must recognise the key role of building regulations in decarbonisation by ensuring ambitious home efficiency standards are incorporated within a smart, flexible system. Imperial's analysis of the residential sector's flexibility potential suggests whole system cost savings of £6.9bn are possible, through reducing investment requirements in network infrastructure and opting for cost-effective wind and solar instead of more expensive low carbon generation like nuclear and CCS.⁸ A holistic approach to decarbonisation and flexibility is required and it is noticeable that the consultation makes little or no reference to energy storage, the Heat Roadmap, Heat Networks Investment Project (HNIP) or potential requirements for new builds to have EV changepoints.

Solar is reliable, aesthetic, has widespread public support (BEIS' Public Attitude Tracker places its support at 85% from the public, the highest of any renewable energy sources), and a supply chain that can deliver at scale nationwide.⁹ Incorporating battery and heat storage with smart facilities allows for energy to be stored until it is required. Decarbonisation also requires the active engagement of society. No other energy generation technology empowers engagement in the clean energy transition right across society like solar through reducing energy bills, providing revenue streams for exported energy and access to renewable generation ownership. There are new opportunities for householders with onsite generation, including participation in flexibility services and demand side response, peer to peer trading and the emergence of local energy markets such as in the Isles of Scilly and Cornwall, which allow homes to generate, store and sell their energy to energy companies or neighbours. Suppliers such as Octopus Energy are offering time of use import and export tariffs able to be integrated with technology such as Amazon's Alexa, enabling power management through voice automation. Further, these models are all facilitated through innovations that are already driving the energy transition, including Blockchain and widespread Artificial Intelligence.

Q.3- What does planning need to do to enable development and investment in our economy to benefit everyone?

Scotland has to date not attracted the levels of solar deployment that it deserves, nor needs in order to achieve its decarbonisation targets. We suggest that solar has over the last 20-years demonstrated itself to be a benign and socially accepted technology, so we recommend that the Government modernise its guidance to LPAs to streamline the planning process for applicants at all scales. In a previous consultation on planning fees, we and our members provided evidence that the current planning fees that apply to solar are disproportionate and hindering deployment.

⁷ <https://www.theccc.org.uk/wp-content/uploads/2019/02/UK-housing-Fit-for-the-future-CCC-2019.pdf>

⁸ <https://www.ovoenergy.com/binaries/content/assets/documents/pdfs/newsroom/blueprint-for-a-post-carbon-society-how-residential-flexibility-is-key-to-decarbonising-power-heat-and-transport/blueprintforapostcarbonsocietypdf-compressed.pdf>

⁹ <https://www.gov.uk/government/collections/public-attitudes-tracking-survey>

We note that the outcome of the planning fee consultation has been paused due to COVID-19 but we strongly urge the government to recognise it as a barrier to implementation in Scotland and to prioritise it as a useful post-COVID-19 recovery measure. We also propose an improvement to the Government's "joined up thinking" for instance by addressing anomalies with non-domestic rates, and the sterilisation of prospective ground mounted sites by the government's inflexible position on AECS.

The Scottish Government must recognise the importance of the solar and utility sectors. These key sectors will only be able to provide the crucial support needed to economy within Scotland if barriers to deployment are removed.

Nondomestic business rates in Scotland provide a significant barrier to decarbonisation for Scottish Business. At a time when Scottish Government has committed to meeting net zero greenhouse gas emissions by 2045, disproportionately high business rates for solar are deterring Scottish businesses from decarbonising. Those who have solar installed on their rooftops are penalised with business rates which are on average six times higher than the income generated from selling power back to the grid. We strongly urge the Government to remove business rates for solar to encourage the growth of the renewable sector and support a healthy economy.

Solar, alongside other renewable energy development, has considerable potential for driving local economic growth and creating employment opportunities. We urge the Scottish Government to capitalise on this by promoting the substantial sustainable job opportunities provided by solar in comparison to alternative land uses. There are various studies on the job intensity and employment opportunities provided by solar as documented in [UK Energy Research Council Literature Review 2014](#). It should be noted that solar PV requires the highest labour percentage compared to most other renewable technologies. Furthermore, the '[Renewable Energy and jobs: Annual Review 2019](#)' states that the solar industry represent one third of the total renewable workforce worldwide.

Q.4- How can planning, improve and strengthen the special character of our places?

The Scottish Government must recognise that the current policies in place are reducing the deployment of solar significantly.

We appreciate the importance of heritage sites within Scotland; however Scottish Government must adapt and extend the current PDRs to allow for the development of solar PV and encourage the use of renewable technologies. The versatile design of PV panels makes it a far less intrusive option in comparison to other forms of renewable energy such as wind turbines. We would refer the Government to a report by the Campaign to Protect Rural England (CPRE) on good practice for solar PV designers, manufacturers and installers has highlighted the importance of place-responsive design.¹⁰ This report sets out recommendations for ensuring installations are in keeping with the properties' characteristics and are respectful of the surrounding area.

We would like to draw attention to the case study provided below where solar PV has been installed on a historic country outbuilding. "Principles of symmetry, full coverage and frameless panels have been applied to an in-roof BIPV system in what is a sensitive local context in Cambridgeshire, given the historic buildings. This project used large format (500Wp) roof integrated panels of the same size, all in the same position. They cover approximately 18 m², span the roof from eaves to ridge on the outbuilding as the furniture on the ridge of the roof does not prevent their use. The installation, therefore, has a clean, uncluttered look."¹¹

Q.5-What Infrastructure do we need to plan and build to realise our long term aspirations?

¹⁰ <https://www.cpre.org.uk/wp-content/uploads/2019/11/Place-ResponsiveZDesignZforZSolarZPhotovoltaics.pdf>

¹¹ [Ibid.](#)

As the Scottish Government strives to reach net zero by 2045, decentralised renewable energy generation with smart, flexible operating systems will replace centralised fossil fuel plants.⁷ Solar and storage will be key drivers in accelerating the transition. Solar PV is entering a new phase of innovation with significant opportunities for the UK. New innovative ideas from businesses with the potential to cut costs across sectors must lead to rapid deployment to facilitate a broader range of applications.

At present, most applications of solar PV are large-scale, ground-mounted 'solar farms' or roof-mounted systems. However, the innovations in cell technologies, development of storage technology and new business models are opening up a wide range of new applications from building integrated solar and floating solar to solar roads and solar carparks with onsite electric vehicle charging. The Scottish Government must take advantage of these innovative technologies to deliver an array of applications for solar PV in an advantageous and aesthetic manner.

A recent solar report commissioned by REGEN concluded that the use of building-integrated photovoltaics (BIPV) is a key opportunity to develop new PV applications within the UK. "The term BIPV includes building facades, solar tiles and other architectural items that can also generate power. Bloomberg's latest projection is that the global BIPV market is likely to expand from USD 6.7 billion to USD 32.2 billion by 2024, a compound annual growth rate of 23.4%."¹² The Scottish Government must encourage innovation in the use of BIPV to enable existing infrastructure to play a key role in reaching net zero by 2045. BIPV enables buildings to become energy stations, transforming the use of energy within cities and reducing energy bills for users. The use of smart, flexible energy systems such as BIPV also has the potential to significantly reduce pollution levels within Scotland, by enabling clean energy to be generated right where its consumed. This application would be especially beneficial for those experiencing energy poverty.

The Government must recognise that the increased demand for clean power and renewable deployment is hindered by an outdated and heavily constrained grid, which is costly and prohibitive towards renewables connecting and transporting the generation to where it is needed. Energy generated and stored at a local level, if not onsite, will be critical to mitigating increases in demand and localised constraint issues. Furthermore, increasing electricity retail prices mean that a zero-carbon future should place consumer costs at its heart. New build onsite generation provides a unique route to mitigating increases to unregulated energy that result from technologies such as EVs as well as being capable of tackling the regulated energy demands that remain after energy efficiency improvements. This vision will be integral to achieving the Government's vision of becoming net zero by 2045. The cost-effective, scalable, adaptable and reversible nature of solar makes its use appropriate for rooftops, farmland, carports, fields, housing estates, schools or even bodies of water. It is a given that solar will have a central role in local generation, meaning this cannot be ignored by building regulations.

In addition to the deployment of solar on buildings we encourage the Government to review current use of agriculture land that is arable or unprofitable with a view to utilise the space through ground mount solar deployment. We strongly suggest that the Government look at this cheap and accessible land space with a view that solar deployment will not only provide a source of renewable energy but additionally promote biodiversity and increase natural capital as mentioned previously.

¹² Ibid.