

Solar Power

RSPB Policy Briefing, May 2017

Summary

Climate change is one of the greatest threats to birds, wildlife and people worldwide. The RSPB strongly supports the use of renewable energy to reduce the UK's greenhouse gas emissions. This briefing summarises our position on solar energy, focusing mainly on large solar PV arrays in the non-built environment (including floating solar farms). It also states our position on solar PV arrays in the built environment, solar thermal panels, passive solar heating and lighting and concentrated solar power.

While solar energy technologies can impact upon birds and other wildlife, the RSPB considers that if deployed in suitable locations and appropriate mitigation measures are taken, solar energy technologies can be deployed in harmony with nature. In many cases, there may in fact be opportunities to enhance biodiversity on solar array sites. This briefing suggests ways in which to avoid and mitigate potential impacts, and to improve natural habitats and enhance biodiversity where possible.

Policy background

Climate change is one of the greatest threats to birds, wildlife and people worldwide [see our latest report [here](#)]. The RSPB strongly supports the UK's recent commitment to reduce emissions by 57% in the 2028-32 period (the fifth carbon budget) which keeps us on a trajectory to achieving 80% emissions reductions by 2050. Moreover, we note the Committee on Climate Change's statement that, in light of the Paris Agreement goal, the UK will probably have to raise its 2050 target to net zero emissions and we welcome the Government's commitment to take action on this area in the Minister's statement "The government believes that we will need to take the step of enshrining the Paris goal for net zero emissions in UK law, the question is not whether but how we do it". We have also supported the Renewable Energy Directive's target of generating 15% of UK energy consumption from renewable sources by 2020, and post Brexit, we are calling for ambitious levels of deployment to 2030 and beyond¹, whether or not the UK remains subject to EU law in this area as we leave the EU.

The RSPB supports the development of solar power and other forms of renewable energy in order to contribute to these targets and reduce the UK's greenhouse gas emissions. However, we consider that renewable energy deployment must take place in harmony with the natural environment. The RSPB's Energy Vision report sets out our vision for achieving this (see *The RSPB's policy on solar energy* below).

¹ In October 2014, a binding target of increasing the share of renewable energy to 27% of the EU's energy consumption by 2030 was agreed by European Council. This is binding upon the EU as a whole but not on individual member states. The UK therefore retains flexibility in how it meets its emission reductions targets, in line with the carbon budgets mandated by the Climate Change Act (2008).

Solar technologies

Solar energy can be used for direct space heating and lighting (passive solar), to heat water for direct use and space heating (solar thermal), and to convert solar radiation to electricity (photovoltaic or PV). . On a small-scale and when deployed on rooftops, these technologies involve low ecological risk, and also offer opportunities for public engagement in climate action, for instance through individual or community ownership. We therefore fully support their deployment as a means of delivering low-carbon energy. Our Energy Vision report shows that by 2050 up to 182 TWh/yr could be generated by rooftop solar schemes. Furthermore, the RSPB has already installed a number of solar panels onto our visitor facilities at key reserves, and are currently engaged in a wider roll-out as part of a programme to install renewable technologies (including solar PV) on our sites.

Sunlight can also be concentrated using mirrors or 'heliostats' to generate electricity (concentrated solar power), either by heating water and raising steam to drive turbines to generate electricity or reflecting the concentrated light onto PV cells. This technology is increasingly used in the US, Spain and the Middle East but is unlikely to be deployed in the UK as it requires intense sunshine and little cloud cover in order to be economic².

The focus of the remainder of this policy briefing is large-scale PV arrays in the non-built environment, as these are increasingly being deployed in the UK and potentially have implications for birds and other wildlife. Given the distribution of solar irradiance, the majority of applications for solar arrays are in the south and west of England.

UK policy framework for solar energy

Policy support for solar energy has been substantially reduced recently. The UK Government has argued that due to a substantial drop in the price of solar panels, thanks largely to very substantial investment in the technology by China, that subsidy is no longer needed. Nevertheless it is helpful to understand the recent support mechanisms that existed to bring solar to commercial viability.

Feed-In Tariff (FIT)

The UK Feed-In Tariff (FIT) was set up in 2010 to provide a financial subsidy for electricity generation using solar PV. The tariff applied to installations with an installed capacity up to 5MW, was index linked to the Retail Price Index and the tariff period was 20 years. PV panels typically have an operational life of around 30 years or longer, so could remain in place longer than the FIT. The tariff has attracted significant interest not only for small roof-mounted PV systems, but also from developers applying for planning permission for large ground-mounted arrays, the largest (5MW) requiring approximately 25 acres of land³. However, the government has made significant changes to the FIT scheme recently, reducing tariffs by up to 70% and introducing quarterly deployment

² Committee on Climate Change, 2011, 'The Renewable Energy Review' (p51)

³ Solar Trade Association <http://www.solar-trade.org.uk/solarFarms.cfm> (Accessed 05/12/14)

caps from 1 January 2016. After an initial spike in activity, this has resulted in a significant slowdown in solar deployment in the UK.

Large-scale Market Support (electricity)

As well as the FIT, solar PV was also incentivised through the Renewables Obligation (RO) which required licensed UK electricity suppliers to source a proportion of the electricity they provide from eligible renewable sources. However, the Department of Energy and Climate Change (DECC) removed support for solar developments over 5MW from 1 April 2015, and for projects 5MW or less from 1 April 2016. Instead, solar projects over 5MW must bid for support under the Contracts for Difference (CFD) scheme, which is one of the key mechanisms introduced through Electricity Market Reform. A CFD is a contract between a low carbon electricity generator and the Low Carbon Contracts Company (a government-owned company), in which the generator is paid the difference between the 'strike price' (a price for electricity reflecting the cost of investing in a particular low carbon technology) and the 'reference price' (a measure of the average market price for electricity in the GB market). Three solar projects were offered, and accepted, CFDs in the first allocation round in 2015. However, it was announced in Autumn 2015 that the second allocation round would be postponed and the Government indicated that solar PV may be excluded from future rounds.

Renewable Heat Incentive

The Renewable Heat Incentive is a tariff scheme which is available to domestic and non-domestic energy users generating their own renewable heat, including solar thermal installations. The non-domestic scheme has been operational since November 2011 and the domestic scheme commenced in April 2014.

The RSPB's policy on solar energy

The RSPB is generally supportive of solar energy technology providing its deployment is not causing harm to wildlife. , The lowest risk comes from PV arrays mounted on roofs, or on previously developed or sealed land with low wildlife value (such as car parks). However, our recent 2050 Energy Vision report shows a significant opportunity for solar farms (ground-mounted solar PV) in the UK with low risk for wildlife, and these could potentially be managed to benefit biodiversity. Large PV arrays mounted in agricultural fields (or other non-urban / unsealed areas) are unlikely to be a concern from a nature conservation perspective provided they are developed in suitable locations. There is no evidence that solar farms displacing agricultural production is a concern at the current scale of deployment. Furthermore, solar farms can in fact provide complimentary opportunities for agricultural activities such as conservation grazing. They may also benefit future production by effectively letting land lie fallow whilst the installation is in place. As such we see that currently available technologies such as solar, alongside onshore wind, are key to meeting our decarbonisation goals, and calls for well-sited projects to be supported.

Table 1 summarises the different types of solar energy available and our position on each.

Table 1: Types of solar energy and the RSPB’s policy position on each

Type of Solar Energy	Description	RSPB Position
Solar photovoltaic (PV) arrays – <i>the focus of this briefing</i>	Large arrays of PV panels mounted on agricultural fields or other unsealed land.	Supportive, at the current scale of deployment, unless there are site-specific concerns. Concerns are most likely when located in or close to protected areas, or close to water features where development could pose risks to aquatic invertebrates.
Solar PV (built environment)	Small PV arrays (or single panels) mounted on roof tops, or previously sealed land such as car parks. On S/SW sloping roofs they may be integrated / flush with roofing materials.	Supportive. Possible risks of disturbing roof-nesting / roosting birds and bats. Installation should take place outside the breeding season, and avoid blocking access points.
Solar thermal	Panels used to raise water temperature for space heating and/or hot water supply. Usually roof-mounted.	Supportive. Similar issues to solar PV (built environment).
Passive solar	Use of building orientation and design (e.g. large areas of south-facing windows) to reduce space heating loads and use of mirrors to reflect sunlight into dark areas of buildings.	Supportive.
Floating solar (PV)	PV panel arrays mounted on floats installed on bodies of water e.g. reservoirs, lakes.	Supportive, as long as developments meet the appropriate planning criteria and the ecological quality of the water is maintained or improved.
Concentrated solar power	Use of mirrors to concentrate solar energy for thermal or PV electricity generation.	Supportive, as long as our potential concerns are addressed (see above). However, this technology is unlikely to be used on a commercial scale in the UK.

Impacts on wildlife

The wildlife impact of a solar array scheme will be largely determined by location. Where proposals are not within or close to protected areas and functionally linked land, it is unlikely that the RSPB will have major concerns. However, this will depend on the ecological characteristics of the site and its sensitivity to the proposed changes. In all cases, we should seek to ensure implementation of appropriate mitigation and enhancement measures.

For further information, please contact the Climate Change Policy team (climate@rspb.org.uk), or the casework team and Conservation Science for casework related queries.