

Solar PV and Batteries

Solar PV (photovoltaics) generate electricity from daylight. The panels, which can be roof or ground mounted, generate electricity, which is then converted, from DC to AC, by inverters so that it can be integrated with standard electricity in the grid.



In the 2010's, the Feed in Tariff meant electricity generated from solar PV could be used as an income stream, by selling it into the grid. This Tariff is no longer available so typically the electricity produced is consumed within the building the installation is on and therefore panels are most suitable in churches with high, consistent levels of daytime use. Payback from the capital costs of a solar PV installation primarily comes through reduced energy bills. It's therefore important to understand the amount of electricity used within the building, and the times it's used at, so an array can be suitably sized.

The [Smart Export Guarantee](#) (SEG) does mean a small amount of income can be made from selling any excess electricity generated back to the grid. Any church which wants to receive payments for the electricity they export back to the grid needs to apply to a SEG licensee (an electricity supplier which offers a SEG tariff, a list can [be found here](#)). The licensee does not need to be the same company as your energy supplier. If you use an energy broker, you may need to arrange your own SEG tariff as not all brokers will deal with them.

If you are considering roof mounted panels, you should ensure the roof is structurally sound and can support the additional weight, as well as checking if any more minor repairs are required, as the panels may reduce access to undertake these. If repairs are

needed to the roof, try to undertake these immediately before the panels are installed, so you are only paying for scaffolding hire once.

An installer may discuss solar panel optimisers with you. These are small devices which are integrated into or installed onto individual panels. Where a solar array is partially shaded, optimisers monitor each panel individually and adjust their outputs to ensure they operate at their maximum power point (MPP). Simply put, each panel operates at their MPP and the output of unshaded panels is not compromised by those in shaded areas. Eon Next have [more information here](#).

[MCS](#) sets and maintains standards for low carbon technologies, contractors and their installations. You can find MCS certified [installers here](#). To qualify for the SEG, the array should be installed by an MCS registered installer. In general, insurance companies will also want churches to use an MCS certified installer. They may also want to see evidence of the structural survey of the roof and that emergency DC isolation switches are installed. Methodist Insurance have [guidance here](#), as well as a [questionnaire for churches](#) who are planning an installation. Ecclesiastical Insurance also have [guidance here](#).



Batteries store excess electricity generated by solar panels during the day, so that it can be used at a later time. For buildings used in evenings, this can help to reduce your reliance on the grid and further reduce your electricity bills. Before installing batteries, churches need to consider where they will be situated- best practice is to situate them away from the main building or within a

compartment with 4 hour fire resistance. Churches should be aware that the typical lifespan of a battery is shorter than that of solar PV, so they will need replacing before the panels.

Churches may have ethical questions regarding the production process for solar panels and batteries, with concerns that forced labour is used to mine the raw materials. Due

to a lack of transparency within the supply chain, it is almost impossible to verify working conditions.

If churches are concerned about this, they should ask the company they plan to use about this issue. While they may be unable to provide a guarantee of the working conditions during the sourcing of raw materials, they should be able to provide assurances from the assembly stage onwards. Asking the question of suppliers and installers keeps the issue live, showing that it matters, and encourages them to do what they can.

When considering the appropriateness of solar panel arrays for listed buildings or those of pre-1919 construction, it is important to adopt a whole building approach. It is important that you thoroughly understand your building in its context and how it performs, but also to try and avoid harm to the significance of the building and minimize the risks of negative and unintended



Array at Littlebeck Methodist Church.
Photo by Anais Pedron

consequences. Solar panels can be part of the solution, even for older buildings, but visual and physical impact has to be a consideration, and often formal consents will be required. It is important to assess other, less impactful measures, such as fabric repairs or draught proofing, before deciding on an array. However, with the right professional advice (either from a conservation accredited architect or surveyor) solar panels can be approved on our oldest of buildings. Find more guidance on Net Zero on our [Historic Places of Worship and Climate Change](#) page.

You can find more guidance from [Eco Church here](#) and from [Historic England here](#). Historic England also have guidance on [energy storage and batteries](#).