

Case Study – Ground mounted solar PV panels

St Martin-in-the-Fields Church, Finham, Coventry



What prompted the initiative?

Our church facilities are widely used by the community, both during the day and in the evenings. There is also a coffee shop. As a result, our electricity usage is high – around 23,000 kWh per year and it was costing us a lot of money, especially after the steep rise in the price of electricity.

We were also concerned about our carbon footprint and wanted to reduce it. We started praying about the issue, and much to our amazement we received an anonymous donation of £17,000, explicitly designated for solar PV panels. This confirmed to us that the Lord wanted us to take up this project.

What options were considered?

The church roof is not suitable for solar panels, as there are several dormer windows. So, we initially assumed that the panels would need to be located on our hall roof. The hall is a Nissen-style structure adjacent to the church and has a dome-shaped roof.

Five different solar PV panel companies gave us proposals to install them on this roof, but when a more detailed structural survey was carried out, it was found to be completely unsuitable.



This left us with two options:

install PV panels on five different small flat roofs or

use some adjacent overgrown land to install ground mounted panels.

Both options were initially problematic. For the flat roofs, we were concerned about potential future repairs to the flat roofs and how we would handle the panels if that was needed. Also, some of the flat roofs were very visible from the street and so we were concerned about security. For the ground mounted option, we were told that it would be prohibitively expensive.

How did St Martin's proceed?

We felt confident that the Lord must have a solution and so started an internet search for a reasonably-priced ground mounted solution. We found a company that has devised a tilt-adjustable, ground-based system known as the [Cornish Rocker](#) and that is not limited to large-scale installations. They were willing to collaborate with our chosen solar PV panel installation company, [UPS-Solar](#), and then install the following, along with two inverters:

48 x PV panels, 390 W, on a tilt-adjustable, ground mounted system

2 x 5.7 kW Triple Power Lithium-Ion batteries

The total price came to £30,731, with an estimated annual generation of around 16,000 kWh of solar power, plus any spare we could sell back to the grid. We decided to proceed, and the whole system was up and running in mid-March 2023.



How did you raise the money?

The Lord was very gracious. We were awarded £12,000 in grants from different sources and, in addition to the anonymous donation, the remainder came from gifts from church members.

How successful has the new system been?

The solar panels have been generating very well and despite the very wet weather over a long period, the estimated production has been achieved. This means that we have made a saving of more than 70% on our electricity costs. As a result, we have been able to keep the cost of renting our facilities to the local community at a very reasonable rate.

What challenges have you faced?

We had some initial technical difficulties pairing the inverters with our Wi-Fi, after which we noticed that the batteries were not filling as they should be. Following numerous exchanges between UPS-Solar and [Solax Power](#) (the manufacturer of the inverters), Solax eventually identified the problem and replaced one of the inverters that had turned out to be faulty. We then noticed some inaccuracies in the online monitoring system (different figures from [Octopus](#) and Solax) and the engineers are currently looking into that. Fortunately, it is just a monitoring matter, not production *per se*.

Perhaps our biggest challenge has been with our insurers. [Ecclesiastical](#). Despite receiving approval from them prior to installation, when we informed them of the successful completion, they then told us that they were unable to insure us for a ground mounted system – only for panels installed on a roof. They acknowledge their error in giving the initial approval and gave us a certain amount of compensation.

The insurers are concerned about security for a ground mounted system, yet the irony is that if we had put panels on our flat roofs, they would have been more visible from the street, more liable to damage the church buildings if they became faulty or to be damaged by failure of the building, and more vulnerable to theft.

We have installed security fencing around the panels and discussions are ongoing over issues associated with fire-proofing the areas where the batteries and inverters are located. We are in discussion with the insurers and the Church of England regarding the whole issue of insuring ground mounted panels nationally.

Does the church have any other Net Zero ideas?

In due course, we shall be looking to replace our gas heating and then, as we are on a renewable energy tariff, we shall look at various Net Zero options using electricity, such as Air Heat Source Pumps or radiant heating.

How can I get further information?

Colin Angus has further details from St Martin's, Finham, including the contractor's breakdown of charges. Sincere thanks to the Project Coordinator for making these available and for much of the content above.

If you want to visit the church during [service times](#), then you would receive a warm welcome. If you want to visit at other times, for example to combine this with a visit to the [Revive Coffee Shop](#), please make prior arrangements. ([Contact details](#) available on request.)

This Case Study was produced by members of St Martin's, Finham and by colin.angus@coventry.anglican.org

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