



## CASE STUDY

### Photovoltaics at St John, Shiphay



#### Summary

The parish of Shiphay is next door to Torquay. In 2000, the parish installed 3kW of photovoltaic solar panels on the church hall to generate electricity as part of a package of measures to improve the building.



#### Description of the project

In 2000, the parish wanted to develop the church hall to make it more user-friendly. It became aware that the photovoltaic (PV) technology was available, and approached installers, to discover that the government was providing 50% capital grants. It therefore incorporated it into a project that improved energy efficiency and the building all round, also insulating the roof and installing double glazing.

The company SolarSense came recommended, and they installed 3kW of PV panels at a total cost of £18K. The government provided a grants of £9K, and the parish fundraised for the remainder.

Although the fundraising was hard work, there was a spin-off in terms of building relationships between the congregation and the rest of the community, and putting the building at the heart of the community. Having a visible sign of the parish's environmental ambitions has also provided a missional spin-off. The installation has also had a positive influence on the outcome of other grant applications.

The panels provide electricity to power the lighting, and any excess is sold to EdF under a power purchase agreement for approximately 7p/kWh. Each year, the parish receives a cheque for £200 cheque from EdF. However, they have not been able to quantify how many kWh the PV panels have generated, owing to a fault with the meter.

The PV panels have been maintenance-free since installation. However, the SunnyBoy solar inverter (which converts direct current from the PV panels to alternating current for use in appliances or export to the grid) broke in 2008. Installation of a new inverter cost £350, with 2-year warranty.

### **Considerations for other projects**

In the South West of England, it requires about 8m<sup>2</sup> of PV cells to provide a 1kW array, which would capture about 800kWh per year. The cost is about £6,000 for the first kW and £5,500 for each subsequent kW without a grant.

Grants are available from the government's Low Carbon Buildings Programme (LCBP) and many other sources (see the guidance on grants at [www.exeterstf.org.uk](http://www.exeterstf.org.uk)), but note that PVs are very popular and the funding allocations tend to run out, and PV-only schemes are lower priority. Electricity from PVs will be eligible for the Feed-In Tariffs, to be introduced in April 2010 (again, see the guidance at [www.exeterstf.org.uk](http://www.exeterstf.org.uk)). Depending on the size of the array, this could provide an income of 28-36 p/kWh for any electricity generated, plus 5p/kWh for any electricity exported to the grid. This makes PVs much more economically viable. However, note that some central government grants may have the condition that the grant becomes repayable if the system is registered for tariffs.

Questions when considering installation of PVs:

- Orientation and pitch of the roof. For maximum efficiency, the roof should be south-facing and at a pitch of 30-45° from horizontal, with no shading.
- The energy-efficiency of the building should be improved first, especially the lighting.
- After efficiency improvements, the electricity requirements of the building, and the economics of replacing current electricity purchasing and/or exporting to the grid.
- If electricity is to be exported, the electricity meter needs to be three-phase.
- Installers need to be properly accredited in order to receive grants and to work on church buildings.
- Whether the roof is sufficiently load-bearing, fixing the panels to the roof, and the electrical connections.
- Visibility of the panels from surrounding highways and buildings.
- Faculties and planning permission. Note that, at the time of writing, the government is consulting on permitted development rights for renewable technologies, relaxing slightly the requirements for planning permission.

See also the DAC guidance on renewable technologies at [www.exeterstf.org.uk](http://www.exeterstf.org.uk). Where a faculty is required, the DAC consider every installation independently depending on its particular circumstances and design.

### **Contact for more information**

Please get in touch with the Diocese – see [www.exeterstf.org.uk/contact-us](http://www.exeterstf.org.uk/contact-us).