



BECOMING A SOLAR CHURCH

A guide for Uniting Church congregations



The Uniting Church in Australia QLD Synod

Finance & Property Services

Property Resources

So you want to get solar?

First of all, good on you for thinking of the idea. It can be a great thing for your church. Solar can be a key part of your church's commitment to care for creation. It can also help your congregation save money on energy and show your community that you care and are doing your bit to help the world.

But, like any financial and property related decision, it pays to thoroughly investigate your options and weigh up the costs and benefits before you make a commitment on behalf of the Church.

Here are some helpful hints for getting solar at your church.

How much energy do panels generate?

Solar panel systems come in various sizes, measured in kilowatts (kW). In Queensland weather conditions, a kilowatt of panels generates around 4.2 kilowatt hours (kWh) of energy per day. This equates to around 1500 kWh per year. This number will depend a bit on which direction the roof faces, and how much shade falls on the roof from surrounding objects, but is a good estimate.

What's the impact on the emissions?

Whether the energy is used onsite or exported into the electricity grid for neighbours to use, it reduces the demand for electricity sourced from fossil fuels. Each kilowatt of panels results in reducing around 1350 kg of greenhouse emissions each year. Over the 25 year life of the panels, that would be around 34 tonnes of greenhouse emissions saved, for each kilowatt of panels installed.

How much money could we save?

The short answer is "it depends".

To get a really precise answer there's a key question to think about. How much energy does the church require during good solar daylight hours (for example between 8am and 4 pm)? Put another way, the most significant savings from a system will be driven by the daytime use of the property, because that's when your solar system will actually be generating energy you can use.

For accurate comparison, you should also know how much the church currently pays for its electricity. With these facts at hand you can properly start to assess your potential benefits.

The real value of a unit of energy will vary depending on your actual usage opportunity. For example if you generate energy from solar and have an immediate use for it, then you are not using externally provided energy and therefore saving the cost of that energy in real financial terms.

If however, you generate it, but can't use it at the time, then you may receive *some* income from selling it back to the grid, but will pay normal usage costs for the energy you use later (when your solar system is not generating).

Power to use or power to sell?

For the following examples, let's assume that the cost of electricity is 25.5 cents per kWh (including GST).

Onsite usage

If you use all the energy you produce onsite, then each kilowatt of panels means 1500 kWh less electricity that you need to purchase from the grid. At 25.5 c/kWh that's a saving of around \$390 per year, for each kilowatt of panels. Even if prices stay where they are, that's a \$9750 saving over the 25 year life of the panels.

System Size	Yearly saving	25-year saving
1kW	\$390	\$9750
2kW	\$780	\$19,500
3kW	\$1170	\$29,250
5kW	\$1950	\$48,750
10kW	\$3900	\$97,500

Exporting to the grid

If you export energy into the grid you can receive money for this energy. Depending on your energy retailer you will receive between 6 and 8 cents per kWh you export. If you exported all the energy from a kilowatt of panels, you would be credited with \$90-120 per year, which would be subtracted from your bill.

System Size	Yearly saving	25-year saving
1kW	\$90-120	\$2250-3000
2kW	\$180-240	\$4500-6000
3kW	\$270-360	\$6750-9000
5kW	\$450-600	\$11,250-15,000
10kW	\$900-1200	\$22,500-30,000

Somewhere in between

The two scenarios we've calculated are the extremes. Most churches would be somewhere in the between these estimates. It is likely that for most sites, if you want to ensure most of the power generated is used on site, it makes sense to size your system according to your daytime usage.

How do we measure our daytime usage?

As we saw earlier, there is a big financial difference depending on whether or not the church has a need for daytime energy. The bills you get include ALL of your usage - So how do you find out your need for daytime energy?

It's as simple as reading a meter. Find the church's electricity meter. Take a reading around 8 or 9 am. Take another reading around 3 or 4 pm. Subtract one from the other and that's your daytime usage.

Try it on different days as the church might need different amounts of electricity on different days.

What size system should we get?

An easy rule of thumb is that for each 4 kWh of daytime usage, get about 1 kW of panels. Once you have an idea of your daytime usage, you can work out what size system would provide the level of power you want during the day.

You may want to get a bigger system if you are wanting to make an even bigger environmental impact, or if you want to export energy to offset the cost of your night-time usage.

Solar companies can also help you work out the best size to get.

What about “solar as a service”?

Generally speaking, we consider the “solar as a service” arrangements are unsuitable for congregations. In these cases the panels remain the property of the energy company.

There is no upfront cost, but there are ongoing payments for the energy provided by the panels. These are less than market rates, but over time they really add up. Across the term of the lease, these payments can be 3-4 times more expensive than a simple outright purchase.

Additionally, at the end of the lease period there is an additional fee to remove the panels, if you decided you didn't want to remain in the system.

As we've discussed earlier, the congregation is agreeing to buy all energy is produced from the panels, whether they have a need for it or not. In these days of reduced feed-in tariffs it can mean the congregation is purchasing excess energy and feeding it into the grid at a loss. For example, you could be buying energy at 15 cents per unit and selling it into the grid at 6 cents per unit.

Should the congregation close or merge with another congregation during the term of the lease, and the new owner of the premises does not wish to continue the arrangement, there is an early exit fee for which the congregation would be liable.

Taking all this into account, the “solar as service” model is strongly discouraged for congregations.

As an alternative, in the current low interest rate environment, there may even be benefits for congregations in seeking loan facilities, subject to normal assessment, to buy their systems outright. If this is attractive, please call the Property Resources team at Synod Office to discuss your options.

Summing up...

There's no doubt that solar energy can provide financial benefit to congregations, providing the correct assessment of your requirements and relative costs is done before you commit. If you can take the steps to fully research the issues and facts relating to your property and usage, then you're bound to get a better result.

For further information please contact:

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Disclaimer – Correct as at October 2016. The information in this guide is general information for congregations in Queensland. It may differ depending on your circumstance and may be updated from time to time.