

» Suburban environmentalists Alison Mellor and Richard Walter recently went through this process for their two-person home in Wollongong, NSW. They found they could get their energy use down to 2.5 kWh per day after installing solar hot water and insulation and making other changes. This meant they only needed a 1-kW system, which cost an affordable \$4,400 after rebates. Now they feed energy into the grid because their system produces twice as much as they need.

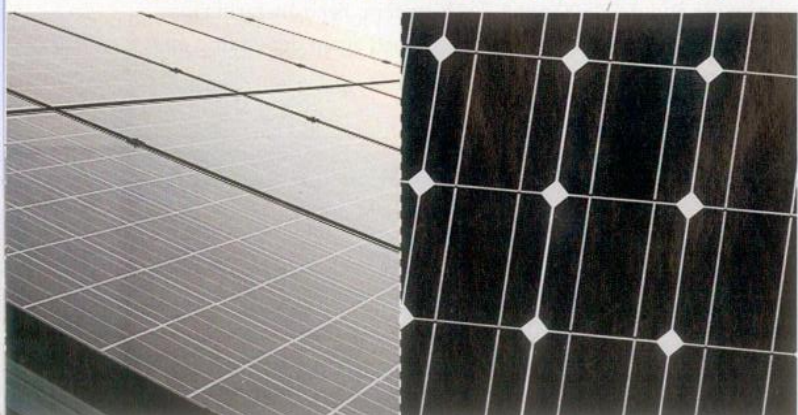
Grid connected versus stand-alone

Solar panels can be connected to the grid, in which case you won't need a battery. A grid-connected system consists of PV modules, a meter and an inverter. The panels create DC electricity, which is converted (by an inverter) to AC electricity. You need AC electricity to be able to run appliances. A meter allows you to measure how much electricity you generate versus how much you buy back from the grid at night.

Few people realise that grid connection means that during a blackout your system will also lose power because it will be automatically turned off for safety reasons. If you want uninterrupted power, a battery system is required, which will substantially increase costs and maintenance. Angus Hawke, manager of renewable energy at Enviro Friendly Products, recommends installing a diesel generator as a back-up instead.

If, however, you live in a remote area you'll want a stand-alone system. Remote users will need a battery to store energy, a back-up system and a solar regulator, which controls the amount of charge going into the batteries to prevent them from being overcharged. Installing solar panels in remote areas is usually very cost-effective when compared with paying to connect to the grid, even factoring in the additional costs of batteries and back-up systems.

Clockwise from top left: One of Conergy's polycrystalline panels; BP's monocrystalline panel; Sanyo's new hybrid panel; a polycrystalline panel by Kyocera.



Which model?

How do you choose a solar PV system now there's a bewildering array of brands and suppliers? John Payne, director of Enviro Friendly Products, says "it's advisable to go with established companies and brands." He also cautions that "if the offer is too good to be true it probably is". Payne advises consumers to read the terms and conditions carefully, and check if the warranty is based in Australia and what happens if you want a refund. The module should also meet Australian standards.

Hawke recommends choosing an operator who will carry out a site inspection in person. He says some operators rely on Google Earth to check the property, potentially missing tree shading or a neighbour's renovation.

How to get the panels installed

After you've chosen your panels you'll need to find an accredited installer. "It's very important to get correct installation because there is a potential for fire or electrocution if it's done incorrectly," Hawke explains.

However, just because they are accredited doesn't mean they are good. "I would always ask to see a few examples of an installation," Kahn says. Hawke agrees. "You want to know if the installer left ugly holes in the roof!"

It's also worth talking to your energy retailer. Walter says he "had a few hiccups with the energy company" – they didn't read the meter. "Next time we would contact the energy company directly and let them know we had installed solar panels".

Finally, don't forget to obtain approval from your local council before installation, especially if you live in a heritage area. **G**

REBECCA BLACKBURN is an environmental scientist and the author of *Green is Good*.

Resources

List of accredited installers: www.bcse.org.au/default.asp?id=119
 Solar panel calculator: www.energymatters.com.au/climate-data
 Detailed booklet on photovoltaics: www.cleanenergycouncil.org.au/info/installation/CEC_36pp_booklet.pdf
 Richard and Alison's blog: www.happyearth.com.au
 Bulk Buying Schemes: www.ata.org.au/news/faqs-on-solar-bulk-buying-schemes

Solar panel manufacturers

Monocrystalline

BP Solar www.bpsolar.com.au
 Sharp www.sharp.net.au/product-catalogue/solar-panels
 Siemens www.siemens.com.au
 Sunpower www.sunpowercorp.com.au

Polycrystalline

BP Solar www.bpsolar.com.au
 Kyocera www.kyocerasolar.com
 Sharp www.sharp.net.au/product-catalogue/solar-panels

Thin film

Global Solar www.globalsolar.com
 Kaneka www.kaneka.com/siliconpv.html
 Sharp www.sharp.net.au/product-catalogue/solar-panels
 Uni-Solar www.unisolar.com.au

Hybrid

Sanyo www.sanyo.com