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ATA Fact Sheet - Solar Photovoltaic (PV) Power Systems

Solar photovoltaic systems (PV) are made from a series of panels cut primarily from silicon that directly convert energy in the form of light from the sun into electrical energy. Solar power can be used in all parts of Australia as long as you have a suitable site with a north-facing (or almost north facing) roof, or ground space that is not shaded during the day.

Grid-interactive systems

With a grid-interactive system the energy produced by the solar panels is fed directly into the mains grid via a device called an inverter and through your electricity meter. The home can also draw power from the grid when the sun is not shining. This is the simplest system, and requires little or no maintenance, other than the occasional check to ensure it is still operating, and cleaning the solar panels of excessive dirt build-up.

Energy-efficiency of your home

How big a system you need and how much it costs is dependent on how much energy your house consumes. Probably the most important part of solar system design that is often overlooked is the energy efficiency of a home. There is no point spending money on a solar system when the energy it generates is wasted.

Spending a few hundred or even a couple of thousand dollars on more efficient appliances and making your home more energy efficient means you can buy a smaller solar power system, and save significant amounts of money over the longer term.

Size, costs and financial incentives

A typical home system is between 1 and 3 kilowatts (1,000-3,000 watts) of peak generating capacity. A 1.5 kilowatt system costs around \$10,000 before the subsidy that can be gained from creating and trading its Small Technology Certificates (STCs) (<http://www.ata.org.au/rebates/federal-recs-renewable-electricity/>)

The wholesale price of solar panels has been highly volatile recently, with significant reductions over the past 12 months on the back of reductions in global silicon prices, variations in the value of the Australian dollar and manufacturing process improvements.



There are no direct government rebates for installing a solar power system. Instead they qualify for STCs created through the Renewable Energy Target market. The amount of STCs your system qualifies for is dependant on its size and your location. As an example, a 1.5 kW system in Melbourne is currently allowed to create and trade 133 RECs, and the current REC price is approximately \$40.

In most states if you have a grid-connected system, you may also be eligible for a feed-in tariff and get paid for the clean, green power you put back into the mains grid. When installing a grid-connect system ask your electricity retailer what feed-in tariff they offer as some are more generous than others. Alternatively, you can check out the Feed-in Tariff Survey on the Alternative Technology Association website. (www.ata.org.au/projects-and-advocacy/feed-in-tariff-for-solar-systems/ata-national-feed-in-tariff-retailer-survey/)

Warranties

Warranties on the components of solar systems range from one to ten years for inverters; with the better quality panels offering 20 to 25 year guarantees.

What to ask when buying

As with all things, careful consideration of both price and quality should be undertaken to ensure your home's best option. Always get at least three suppliers to quote for the same size system so you are able to compare prices. Ask for

details on the type and quality of solar panels and inverter. Also make sure that the installer has Clean Energy Council [<http://www.cleanenergycouncil.org.au/cec/accreditation/Solar-PV-accreditation.html>] accreditation.

Solar electricity: plan your own solar electricity system, ATA info series booklet 3 - shop.ata.org.au

Clean Energy Council - www.cleanenergycouncil.org.au

For more information

ReNew: technology for a sustainable future solar panels buyers guide - www.renew.org.au

Top tips from a PV customer

Based on his experiences researching and purchasing a household PV system, in *ReNew* magazine issue 14, contributor Aaron Hodgson put together this list of questions to ask solar companies and installers before you take the plunge.

- * What is the total purchase price for a (XX) kW system?
- * Is there a deposit required?
- * What are the additional costs on top of the contract price (e.g. meter)?
- * Does somebody inspect the property first in case there are extra installation costs?
- * What is the total waiting period from sign-up to installation?
- * How many panels are required for a (XX) kW system?
- * How many square metres will this size system require?
- * What is the brand and type of solar panel?
- * What size is each panel (in Watts)?
- * What is the length and width of each panel?
- * What is the average daily and yearly kWh production for this system?
- * What is the average summer/winter kWh production per day for this system?
- * What brand is the inverter?
- * What size system is the inverter?
- * Is the inverter a larger system than the panels or are they compatible?
- * What does the inverter display show?
- * Are there extra products you can buy for the solar system such as in-house monitors and software monitoring equipment?
- * What is the warranty on: panels? inverter? mounting frame? workmanship?
- * What warranty is there for the gradual loss of production over time, e.g. 90% of production for how many years?
- * How long is the inverter likely to last?
- * What is the percentage efficiency of the panels?
- * Where are the panels made?
- * Are the solar panels made by the brand name company or are they made by a different manufacturer and then relabelled under a new brand name? If so, who is the original manufacturer of the panels and the inverter?
- * Which countries are the solar panel and inverter brand companies based in?
- * Does the solar panel brand name company that honours the panels' warranty have a base in Australia that I can contact if there are any issues with the panels? Also for the company that honours the inverter warranty, if different? What are the phone numbers and addresses?
- * For how long have the solar panel and inverter brand name companies been selling these systems for?
- * If the solar system is significantly cheaper or more expensive than the average market prices then why is this so?
- * How many carbon credits do I get for a (XX) kW system?
- * What is the value of the carbon credits (per share) in dollars?
- * How much do I get for the REC certificate?
- * For insurance coverage what is the total cost before discounts and carbon credit sales?
- * What sort of after-sales service do you have for enquiries and trouble-shooting issues?
- * What is your BCSE accreditation number for solar installation?
- * Will you organise metering and switchboard modification, including the inspection and paperwork?
- * Do you organise the application for the government REC rebate?
- * Is your installation work contracted out?
- * How long has your company been installing solar photovoltaic systems for?