

Solar Energy FAQ Sheet

Everything you do in your home costs money and energy. When you build it right with Green Efficient Living you have a chance to balance the books and help the environment for you now and your children's future.

Solar energy generates an income by utilising the free energy available from the sun. Data provided by the Clean Energy Council assumes 50% of electricity produced is used and the remainder fed back into the grid. This means that every dollar you spend on purchase and installation will be repaid within four to five years and after that it is pure profit for wise decisions and selection of the best materials that we can provide.

Can we be beaten on price? Sure we can. We will not, however, provide you with poor quality panels or poor workmanship. We will advise and select the best, most modern and researched product that will satisfy your needs for years to come meaning that you can build electricity credits long after you have paid for the original costs.

Which choice is best for you?

Green Efficient Living will take your budget and the amount of energy you use each day into account first. Make sure you pay for what you need but don't waste money paying for what you will never need. It is very worthwhile to review your current energy usage within your home and take measures to reduce your energy consumption

The smallest system for grid connect is 1.5kW, which could supply approximately up to a quarter of a medium household's energy needs. It also currently attracts the maximum rebate. A 4Kw system can often supply all the energy that a household with a medium consumption needs. By considering the possibility of improving the efficiency of your household equipment such as energy efficient heaters, effective window, wall and ceiling insulation and installing L.E.D. lighting systems it may be possible to install a smaller solar system.

Will you need to change your electricity meter when you install solar power?

Yes, normally if you currently have either a one-way digital meter or one of the old style "rotating wheel" type meter and are installing a grid connected solar system you will have to change the meter to a digital import-export meter. Your solar system generates and exports electricity to the grid and the new meter will measure both how much you use and how much you are returning to the grid.

Can you explain the term 'photovoltaic' and how it relates to solar power?

Photovoltaic is the process of converting light energy into usable electrical energy. When sunlight strikes the silicon cells in your solar panels the energy of that energy causes electron flow within the silicon wafers. This 'electron flow' is what we call electricity!

What are the different kinds of panels and does it really make a difference?

There are two kinds of panels available to you, Mono-crystalline and Poly-crystalline.

Mono-crystalline cells are made by cutting thin wafers from a single, specially grown crystal, which means each cell will be the same uniform deep blue colour. Polycrystalline cells are made by pouring melted silicon into moulds, which means the surface of each cell will be a varying shade of blue. Mono-crystalline cells are the most efficient of the two types.

The individual cells collect the solar radiation and convert that into electricity. Each cell needs the sun's rays to hit its silicon semi-conductor, so it can absorb energy from the sun and knock its electrons loose. These free flowing electrons are then directed as electricity along a path, or circuit, within the cell's electric field.

Solar Systems referred to as 1.5Kw or 3Kw etc – What is a Kw?

A Kw or Kilowatt is 1000 Watts. Wattage is a measure of electrical power. The power equipment in your home is rated in Kw. Below is a table of power usage from common household electrical appliances in our home. Every time you turn on an appliance, you are using power.

Appliance	Rated	Power usage
Older Small fridge	595Kw/annum	Rated power usage
Modern Large fridge	589Kw/annum	
Front Loader washer	328Kw/annum	
Clothes drier	223Kw/annum	
Stove top	150w low 1500w high	Approximate power for cooking at 180°
Oven	2400w	800w/20 min 1000w/60 min 1500w/90 min
Sandwich Toaster	1000w	43w/sandwich
Colour tv	34 cm 76cm	55w/hr 150w/hr
Jug	2400	105w/hr
Iron	100w	55w/10 min 105 w/25 min
Microwave	1500w	25w/min

The solar panels aim to produce electricity to compensate for what you use in the home. Smaller systems will reduce you power bill. Larger systems can eliminate your bills and even return a monthly credit.

When we talk about solar systems, the larger Kw rating a solar panels system has, the more electrical power it will produce. Typically you will see 1.5Kw up to 5 or 10 Kw. The difference is simply how much power they can generate from your solar panels. Currently, most panels installed produce 250 watts. You need four of them to produce a Kw of power under ideal weather conditions. So, for more power you need more panels and a bigger feed in system.

Is it even worth the bother?

The table below, figures from the Clean Energy Council, shows the average rated power generation in some of Australia's more popular cities. In Alice Springs, for

example you can generate 20Kw hours per day of electricity. In Adelaide you can draw up to 16.8 Kw hours per day. That is consistent generation of electricity every hour, every day.

There is, of course a cost of installation. In order to get the free electricity, you have to pay for the equipment to capture that electricity. The costs are not insignificant. It can be expensive. You need to balance the initial cost with the years of reduction of power costs. At the very least you can reduce your overall electricity charges by 25%.

At best, with more panels, you can eliminate your power bills entirely. We think the costs are justified and you will recoup your original outlay in as little as four to five years.

The decision has to be yours but we can help you with our experience and research.

Average Daily Production					
City	1 kW system	1.5 kW system	2.0 kW system	3.0 kW system	4.0 kW system
Adelaide	4.2 kWh	6.3 kWh	8.4 kWh	12.6 kWh	16.8 kWh
Alice Springs	5.0 kWh	7.5 kWh	10.0 kWh	15.0 kWh	20.0 kWh
Brisbane	4.2 kWh	6.3 kWh	8.4 kWh	12.6 kWh	16.8 kWh
Cairns	4.2 kWh	6.3 kWh	8.4 kWh	12.6 kWh	16.8 kWh
Canberra	4.3 kWh	6.45 kWh	8.6 kWh	12.9 kWh	17.2 kWh
Darwin	4.4 kWh	6.6 kWh	8.8 kWh	13.2 kWh	17.6 kWh
Hobart	3.5 kWh	5.25 kWh	7.0 kWh	10.5 kWh	14.0 kWh
Melbourne	3.6 kWh	5.4 kWh	7.2 kWh	10.8 kWh	14.4 kWh
Perth	4.4 kWh	6.6 kWh	8.8 kWh	13.2 kWh	17.6 kWh
Sydney	3.9 kWh	5.85 kWh	7.8 kWh	11.7 kWh	15.6 kWh

What about the actual solar system installation ?

Never underestimate the importance of experienced tradespeople! Make sure that your installers are accredited. (Many solar companies are using sub-contract installers and it is hard to guarantee the work of people who are not regular employees of your installer. Contract electricians work to a price, not a standard. It may save you money but there are many more important questions than money when it comes to solar installations: safety and performance are at least equally important.) Dealing with one company which lives in your state or capital city and use their own tradespeople will mean that warranties and service can be relied upon. Remember that many companies that started out with a bang in the solar industry

are no longer in business. Reliable companies employ their own electricians. Always ask this question.

Are there any insurance implications of installing solar panels in s.a. ?

As solar can be a significant investment, depending on the system size and quality it is important to ensure it has cover in case of fire, theft or an accidental damage that may occur to it. Some insurance companies view an installed p.v. system as part of the 'buildings insurance', however it will most likely need to be noted on your current policy and a description of the brand of solar panels, quantity and possibly wattage required along with type of solar inverter installed. Regarding premiums some companies will allow up to a certain dollar value for a solar installation and above that value an additional premium may be payable. Ensure that the sum your home is insured for will be sufficient to include the addition cost of the solar system, if not an extra premium may be payable to cover a larger value that includes your system. As noted above – ensure you **get in writing** from your insurance company confirmation that your newly installed solar power system is covered by your insurance policy/s