

## GREEN EFFICIENT LIVING – FREQUENTLY ASKED SOLAR PV SYSTEM QUESTIONS

Everything that 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 for 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 that 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. 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 products 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 that you use each day into account first. 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 of 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 meters and are having 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 types of panels available to you. These are 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. Poly-crystalline cells are made by pouring melted silicon into moulds, which means that 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 that 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 are referred to as 1.5kW, 3kW, etc – what is a kW?**

A kW, or kilowatt, is 1000 Watts and a wattage is a measurement 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 homes. Every time that 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 Load Washer	328kW/annum	
Clothes Drier	223kW/annum	
Stove Top	150w low 1500w high	Approximate power for cooking at 180°
Oven	240w	800w/20 min 1000w/60 min 1500w/90 min
Sandwich Toaster	1000w	43w/sandwich

Colour TV	34cm 76cm	55w/hr 150w/hr
Iron	100w	55w/10 min 105w/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 your power bill, but larger systems can eliminate it entirely and even return a monthly credit.

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

### Is it 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 16.8kW hours per day. That is consistent generation of electricity, every hour, every day.

There is, of course, an installation cost. In order to get the free electricity, you have to pay for the equipment to capture that electricity. While solar PV systems used to be largely expensive, the cost of them is significantly reducing. The idea is 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 the very best, with a properly designed system, you can eliminate your power bills entirely and recoup your original outlay in as little as four to five years. In addition, solar PV systems add extra value to your home, and with all of these benefits, we think that the costs are justified.

Average Daily Production					
City	1.0kW system	1.5kW system	2.0kW system	3.0kW system	4.0kW system
Adelaide	42.kWh	6.3kWh	8.4kWh	12.6kWh	16.8kWh
Alice Springs	5.0kWh	7.5kWh	10.0kWh	15.0kWh	20.0kWh

Brisbane	4.2kWh	6.3kWh	8.4kWh	12.6kWh	16.8kWh
Cairns	4.2kWh	6.3kWh	8.4kWh	12.6kWh	16.8kWh
Canberra	4.3kWh	6.45kWh	8.6kWh	12.9kWh	17.2kWh
Darwin	4.4kWh	6.6kWh			
Hobart	3.5kWh	5.25kWh	7.0kWh	10.5kWh	14.0kWh
Melbourne	3.6kWh	5.4kWh	7.2kWh	10.8kWh	14.4kWh
Perth	4.4kWh	6.6kWh	8.8kWh	13.2kWh	17.6kWh
Sydney	3.9kWh	5.85kWh	7.8kWh	11.7kWh	15.6kWh

Ultimately, the decision is yours, but with our expertise and commitment to you, we can help make the decision easier.

### **What about the actual solar system installation?**

Never underestimate the importance of experienced tradespeople! Always make sure that your installers are accredited. Many solar companies use 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 when it comes to solar installations – safety and performance are 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 start 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 South Australia?**

As solar can be a significant investment, depending on the system size and quality, it is important to ensure that it has cover in case of fire, theft or accidental damage that may occur. Some insurance companies view an installed PV system as part of the 'building's 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 possible wattage will be required along with the 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. As noted above – ensure that you get it in writing from your insurance company that your newly installed solar power system is covered by your insurance policy/s.