



SOLAR ELECTRICITY SYSTEM

# Owner's Manual

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## *Introduction*

Congratulations on purchasing your solar panel electricity system from GPower Energy. Not Only are you insulating your property from current and future costs of electricity, you are also reducing significant carbon dioxide gas emissions which helps reduce the effect of global warming on our climate.

You system is designed to meet all Australian standards and conditions. Although your system requires very low maintenance, it must be remembered that the system produces electricity and we ardently recommend that you do not attempt to service the system yourself unless you are suitably qualified. Your safety and wellbeing is our main concern.

## *Maintenance*

For your safety and wellbeing, we recommend that you do not attempt to service your system yourself, unless you are suitably qualified.

The solar panels work best when clean. Washing them down with a hose will generally do the job. If they do become excessively soiled they can be cleaned with a light rub of detergent and warm water. However we strongly recommend that you do not climb onto the roof unless you are qualified and trained in occupational health and safety procedures.

Shading of the solar panels will affect their output performance. Vegetation and plane growth that can cause shading at different times of the year should be monitored and dealt with. Likewise, leave and other debris coming to rest on the solar modules should be removed.

If you need to shut down the system, please follow these steps:

1. Switch off the **Solar Supply Main Switch** in the main switchboard or meter box.
2. Switch off the circuit breaker marked **Solar DC** in the inverter box or meter box.

Following these steps will isolate the solar array. To switch it back on, you simply reverse the procedure.

Always remember that your system will be generating electricity during daylight hours and care should be always taken to eliminate the risk of electric shock. Refer to the **operating safety** on page 4 for more information.

## *System Performance*

During daylight hours, your solar panel system will be generating electricity at varying levels depending on the local environmental conditions. The more sunlight falling on the solar array the more electricity is produced. Therefore variables like cloud cover, seasonal solar angle variations, off-azimuth solar orientation and shading or soiling of the solar array, will have an effect on your system. Note that you need not change your energy usage lifestyle to correspond with your solar systems. Your power consumption will be supplied by both your solar panel system and grid.

Table 1 below shows expected system performance in different cities using 1 KW nominal PV array facing true North at a tilt angle equal to the latitude angle, with no shading.

Table 1 System performance

Location	Best Month kwh per day	Worst Month kwh per day	Annual kwh per day	Average
Brisbane	4.61	3.34	4.04	
Canberra	5.32	2.76	4.22	
Darwin	5.11	3.5	4.47	
Hobart	4.6	2.1	3.54	
Sydney	4.83	2.82	3.94	
Melbourne	4.59	2.22	3.58	
Adelaide	5.72	2.51	4.25	
Alice Springs	5.19	4.21	4.81	
Perth	5.4	2.93	4.4	
Cairns	4.44	3.18	3.86	

A 1 KW nominal PV array facing True North at a tilt angle equal to Latitude with no shading, system performance has been determined in accordance with AS 4509.2 SPS Design guidelines. Average system efficiency has been used—includes PV array, wiring and Inverter losses.

## *How your solar panel system works*



## *Operating Instructions*

Your solar panel electricity system is designed for automatic operation with no need for user interaction. There are no moving parts and apart from normal performance monitoring. There is no need for the owner to intervene in its operation.

In the case of mains grid supply failure the inverter will be automatically disabled. This is known as 'anti-islanding'. Once the power has been restored, the inverter will be automatically re-enabled.

## *Operating Safety*

- Do not attempt to service the system unless you are **Fully Qualified** to do so.
- All service work must be carried out in strict adherence with all national and local electrical codes and standards
- Review and follow all safety instructions supplied with all components of the solar panel electricity system as well as those supplied by the Australian Business Council for Sustainable Energy
- Remove all jewellery such as rings, bracelets, etc. prior to working on the system to reduce the risk of electrocution
- Avoid servicing or working on the system in wet or damp conditions
- The solar array will generate electricity during sunlight, so before servicing the solar modules should be covered
- Do not attempt to clean or come in contact with the surface of a solar module with broken glass. This could result in a dangerous electric shock
- Be aware that power may be present at any point in electrical circuits despite the opening of circuit breakers
- Circuit breakers can trip automatically if problems occur. If the circuit breaker is switched back to the closed or “on” position and it immediately trips back to the open or “off” position an ongoing problem is indicated
- Do not substitute materials supplied with the solar panel electricity system
- Appropriate precautions must be taken when working on rooftops or at heights in accordance with local and national occupational health and safety regulations

## *Energy Conservation*

Your solar panel electricity system represents an investment in your future energy needs as well as the environmental. Unlike conventional sources of electricity that have been causing major environmental problems like smog, acid rain and global warming. Your solar panel system produces no air or water pollution while it is generating electricity.

Considering that it generates free electricity from sunlight. It makes sense to consider the other side of the energy situation – your electricity demand. You do not need to make any significant changes to your comfortable lifestyle. But there are some simple things you can do to conserve energy—

- Install a solar hot water system that will provide all of your hot water using a combination of free solar energy and purchased conventional energy
- Replace any other inefficient appliances, like old refrigerators, with new high efficiency appliances. Look for the energy rating stars. The more stars, the more efficient the product. Energy smart appliances will save you money and reduce your greenhouse gas emissions
- Replace incandescent light bulbs with energy efficient lighting. Turn the light switch off when leaving a room
- Turn off electrical appliance appliances at the wall as they continue to use electricity when in standby mode. Turning TV's, VCR's, DVD's and stereos off at the power point can reduce your home's greenhouse gas emissions by up to 150 kilograms a year
- Close doors and windows to rooms you do not need to heat or cool. Open curtains during the day to let sunlight in to your home

Thus you will be saving money on both circumstances of the energy situation—on the supply side by generating your own free electricity and on the demand side by practising energy saving techniques.

## *Warranties*

Your solar Smart solar electric system comes with the following warranties:

Solar Electric Modules – Refer to the warranty information contained in the documentation supplied with the solar electric modules

Inverter – Refer to the warranty information contained in the documentation supplied with the inverter

Roof Mounting frames – Refer to the warranty information contained in the documentation supplied with racking system

Installation – One year from the date of installation