

Environmentally Sustainable Design and Energy Efficiency Information Sheets

Information Sheet – Solar Panels

The purpose of solar panel systems is to harness sunlight in order to generate electricity. The rising cost of electricity has left many homeowners worried about future electricity costs, and many are turning to solar panels in order to reduce energy bills. Others are also looking to install solar panels to produce greener energy and be environmentally friendly.

- To determine what size solar panel system you need, you need to work out how much electricity you use, and at what times of the day you use it. To do this, check previous electricity bills.
- Different days, times and seasons will require different levels of usage ie. usage is typically higher on weekends when more people are at home, summer time means extended air conditioning use, while in winter, the heater is often running.
- A typical Australian home uses 20kWh of energy a day, which equates to a 5kWh system
- The number of panels installed is actually irrelevant; it's about the overall capacity of the system that you install as to the success of the system
- If you choose panels with a higher power rating (and therefore a higher output), you will need less panels. However, if you have more roof space available to install the panels, sometimes it can be more economical to purchase cheaper panels that have a lower energy efficiency individually, and install more of them
- In Australia, solar panels work best when they are facing north, as this is the optimum direction for catching sunlight. North facing solar panels generate more electricity, which in turn assists with lowering energy bills.
- It is important to ensure that there are no trees, structures or power lines which could result in the shading of the solar panels
- There are two main components to the solar panel system; the panels themselves, and the inverter (the part that enables the electricity generated by the solar panels to be converted to use in household circuits to power your television, fridge, air conditioner etc). Some people also chose to install a battery to store any surplus energy for future use as required.
- In Australia, we have grid-connected and off-grid solar systems. Grid-connected are the most common and are those systems which are also connected to the main electricity grid. During the day, the power generated from the solar panels is used, and at night, or on days when there is less sunlight, the main electricity grid can be used (if no battery is installed).
- The off-grid system is a complete stand alone system, and all the power for the dwelling comes from the solar system (though sometimes from other sorts of power generation, like wind, and in some instances, generators can also be used).

