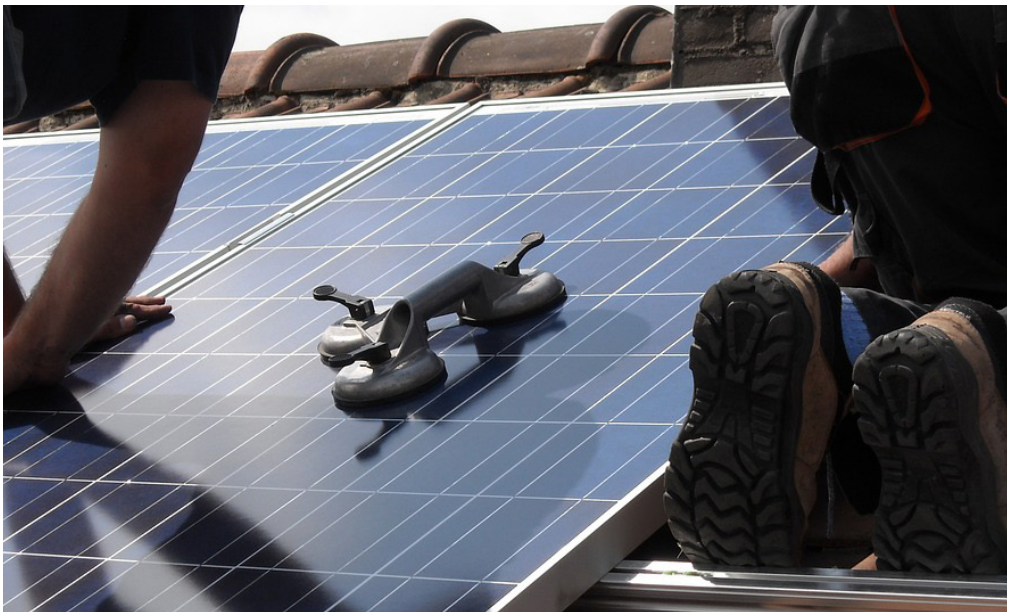
RURAL CITY OF WANGARATTA

ISSUE #5

GREEN *Guru*

SOLAR PV AND BATTERIES



Drive around your neighbourhood and you will see more and more people harnessing the sun's power for clean, renewable energy. In fact, in 2015, small-scale solar was responsible for 16.2 per cent of Australia's clean energy generation and produced 2.4 per cent of the country's total electricity.

Solar panels will use the energy from the sun to generate electricity cleanly and quietly. It produces no carbon pollution, there is no need to transfer energy over long distances using expensive electrical infrastructure and will help save money on your electricity bills long-term.

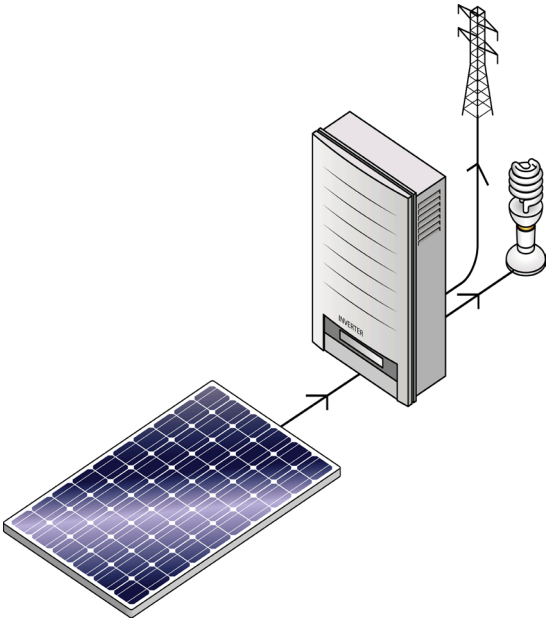
So how do you make the switch? Read on and find out.

Solar Past and Present

Over the years, the technology of a solar panel has improved and is continuing to become more energy efficient. Solar panels have been used for household energy production since the 1980's however an increase in household installation was seen in 2009 onwards thanks to generous government incentives and paybacks.

Solar panels have become more efficient and have increased in wattage. For example, in 2009, a standard solar panel purchased was typically 180 Watts. In 2016, you can now purchase a 300 Watt panel, which would reduce the amount of panels you require for a system.

> ***"I'd put my money on the sun and solar energy. What a source of power! I hope we don't have to wait until oil and coal run out before we tackle that."***
>
> *- Thomas Edison, 1931*



HOW DOES IT WORK?

Solar panels capture the sun's light (photons) then the silicon and conductors convert the light into a DC (Direct Current), before being converted to an AC (Alternating Current) in the solar inverter.

This AC electricity you can then use in your home. Electricity is drawn from the grid when you need more power than your solar energy system can produce.

TOP SOLAR QUESTIONS:

Which way should my solar panels face?

Ideally, solar panels should face north and be angled at 35° (+/- 10° for summer/winter). However, if you are not able to place them north facing or if it is shaded, you can install them east or west facing however this will produce less electricity throughout the day when the sun is not in a favourable position.

How big a system should I purchase?

In Victoria a typical house consumes around 15 kilowatt hour (kWh) of electricity per day and over a year a 1.5 to 3 kilowatt system can generate around 35% to 70% of this – the amount generated by the system varies throughout the year as the amount of daily sunshine changes.

A solar module should last for 20 to 30 years, with inverters lasting up to 10 years. Remember that the size of the system is not measured in the number of panels as some can generate more electricity than others depending on the design.

What feed in tariff will I get if I install solar PV now?

The minimum feed in tariff set by the Essential Services Commission is 5 cents per kWh. Your electricity retailer can provide a higher rate than this in a contractual agreement.

If I add a battery system to my solar PV system, will I lose my current feed in tariff?

In Victoria, your feed in tariff will not cease with the addition of a battery system. You may find that your feed in to the grid will be less as this energy is now being stored in the battery. However if you add extra panels to extend your system, you will void your current feed in tariff.

BATTERIES

Batteries have been a choice for off grid houses however recently it has become more mainstream due to rapid drop in prices and evolution of lithium-ion batteries.

Batteries connect to a Solar PV system and provides ongoing renewable power production when sunshine is not available. The most recent technology allows a house to still be connected to the grid and access their battery storage.

An example of this is the Tesla Power Wall battery. When required, the battery provides power to the house.

It's important to think ahead when buying solar – install a battery-ready solar panel system of suitable size if your ultimate goal is to add energy storage. Not all solar power systems will be easily upgradeable, so check with an accredited installer first.

Further Reading & Resources

1 'Powerful Potential: Battery Storage for Renewable Energy and Electric Cars' report - www.climatecouncil.org.au
2 Power Wall Tesla Home Battery - https://www.teslamotors.com/en_AU/powerwall
3 Feed in tariff information - http://www.energyandresources.vic.gov.au/energy/environment-and-community/victorian-feed-in-tariff
4 Australian Government information about installing solar - ttp://yourenergysavings.gov.au/energy/solar-wind-hydro-power/solar-power/install-solar-power
5 Find or check an accredited installer - http://www.solaraccreditation.com.au/consumers/find-an-installer.html
6 Compare energy retailer prices, feed in tariffs and understand your billing rights - http://www.yourchoice.vic.gov.au/
7 The Alternative Technology Association has plenty of current Australian information with active online forums https://www.ata.org.au/