

# Emissions Reduction Fact Sheet – Renewable Energy

Australia has amongst the highest residential solar uptake in the world on a per capita basis, with over 1.7 million homes having installed solar PV. The proportion of households within the City of Charles Sturt with rooftop solar is 37.2%, equating to 81MW of generation capacity, which is just short of the South Australian average of 41%.

With solar panel efficiency increasing and prices on the way down (since 2008 the cost of solar PV has dropped by 80%), installing solar is an important way of reducing emissions, energy bills and future proofing a home. Battery storage systems can also be installed to make best use of generated solar energy, limiting export to the grid.

## 1. Solar PV

A Clean Energy Council Approved Solar Retailer (see resources section) can provide the best advice on a suitable system for the location, roof, overshadowing, house size and energy consumption, and provide a certified contractor for installation. Where panel shading is an issue, systems that include microinverters or power optimisers can offer improved solar generation.

Setting timers on appliances (i.e. washing machines and hot water systems) to run during the day when solar energy is generated will make best use of the system. Unused energy will be exported to the grid, but export is also limited by SA Power Networks to manage grid stability, and Feed-in Tariffs are low (approximately 10 cents per kWh compared to 30-50 cents per kWh to purchase electricity from the grid).

In order to balance a home's predicted energy use over the year, indicative solar PV system sizing based on the area of the home is provided below.

Home Size	PV System Size (kWe peak)
Up to 150 m <sup>2</sup>	5.5
150 m <sup>2</sup> - 250 m <sup>2</sup>	7.5
250 m <sup>2</sup> - 350 m <sup>2</sup>	10

## 2. Battery Systems

Battery storage systems are also an option to make best use of generated solar energy, limiting export to the grid. Assess the homes energy needs before investing in a battery system and consider the financial impact. Homes and businesses that consume energy mostly during daytime hours or have limited ability to generate solar energy due to shading or space restrictions, may have reduced benefit from a battery system. Batteries are rapidly decreasing in cost, even faster than Solar PV over the last decade.

## 3. GreenPower

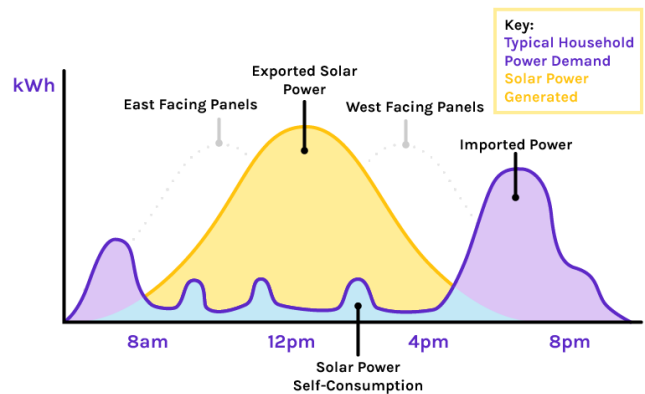
An alternative option in sourcing renewable energy may be to purchase GreenPower through the electricity retailer. GreenPower is renewable energy from government accredited sources. Almost all electricity retailers in Australia have a GreenPower Accredited product that lets you purchase between 10 and 100% of your electricity from a renewable source. The scheme supports the grid transition to renewable energy, with the cost of GreenPower invested into renewable energy projects within Australia.



#### 4. Smart Plugs and Meters

Utilising smart meters or smart plugs allows homeowners and business owners to take control of their energy consumption by providing greater transparency on peak times of electricity use and identifying high energy use appliances. Some options also allow for Solar PV generation to be integrated, as well as controlling renewable energy export to the grid and appliance time-of-use against energy tariffs, to reduce energy bills and make best use of solar energy generated, whilst reducing emissions.

#### SOLAR POWER SELF-CONSUMPTION



**EXAMPLE:** Installation of rooftop 8kW solar PV

**Upfront Cost:** \$8,000 after rebates (approximately \$1000-\$1200 per kW is expected for a quality system)

**Ongoing Cost Saving:** Potential \$2,000 saving on annual electricity bills, where annual bills are \$2,500 per year charged at 36 cents/kWh and 80% generated energy is exported to the grid at 10 cents/kWh (dependent on system efficiency)

**Emissions Reduction:** Up to 1.8t CO<sub>2</sub>-e per annum per household and 49,000t CO<sub>2</sub>-e per annum for the entire council area.



#### More Resources

Clean Energy Council Approved Solar Retailer  
<https://www.cleanenergycouncil.org.au/consumers/buying-solar/find-an-approved-solar-retailer>

Solar Quotes  
<https://www.solarquotes.com.au/>

#### Low-Cost Quick Wins

- Switch to GreenPower as part of your energy contract
- Use smart plugs to track energy consumption of major appliances and control usage to daylight (solar generating) hours

