

Case Study: Off Grid Solar System

Somersby NSW 2250

8.16kW



Completely off grid this new home is immune to current and future electricity price escalation and black outs.

With the cost of connecting to the main electricity grid in excess of \$30,000, this property owner was eligible for significant government incentives assisting their off grid solar power investment.

With a newly constructed home catering for two adults the proposed off grid solar system was carefully and systematically designed after analysing their energy profile and total energy consumption. With Superior Solar's advice energy savings were gained through using energy smart appliances including gas cooking, gas boosted solar hot water and wood fire heating rather than any unique building design. Resistance load such as electrical heating requires high power demands and alternatives to these are best considered (eg gas) to reduce the cost of energy storage (i.e. a smaller battery bank). Additional energy loads for this property such as self managed sewerage & water were all taken into consideration adding to the home's total energy demands.

This AC coupled system will provide power for an

average daily usage of 16.83 kW and allow for 2.5 days of autonomy in times of low solar production. This means the house could run all their appliances on their energy profile in this period from stored power without any input from solar or generator and not run out of power. The AC coupled system will extend the life of the batteries and is designed to meet higher energy demands. (More about AC Coupling). The solar batteries are German made by Sonnenschein and have a work life of 15 – 20 years. The design of the system will use only 50% of the stored power from the batteries to ensure a maximum life.

The entire system is autonomous, managed by three Sunny Island management systems which can deliver 19kW at one time. In times of high, instantaneous power demands additional systems will be brought on line to meet demand requirements. Produced energy is either converted to AC and used subject to the demands of energy consumption or stored for later use.

Continuous power management of consumption and storage are met on demand as is the automatic activation of the generator.

The installed solar power system will save around 11 tonnes of carbon pollution per year which is equivalent to removing 3 cars off the road for the same period.



Figure 1 Energy Board Construction



Figure 3 Rooftop Solar Panels



Figure 2 Solar Battery Bank



Figure 4 Off Grid Solar Management Hub

System Information	
Location	Somersby, NSW
Application	Off Grid Residential Rooftop
Size	8.16kW
Modules	QCELLS Q Pro 240w
Inverter	SMA Sunny Mini Central Inverter
Mounting	Conergy SunTop III

Estimated Performance	
Calculated daily usage	16.83kW
Days of Autonomy	2.5
Back Up	Auto start Generator
Solar Battery Bank	24 Sonnenschein Solar Batteries
Management System	3 x SMA Sunny Island

Disclaimer: The above calculations are to be used as a guide only, these figures are based on averages and actual performance and results may differ. The above information has been calculated based on the information available at the time of the calculation. It does not take into account energy price increases or panel performance depreciation.

Holistic Package

Superior Solar specialise in Solar Hot Water, Solar Power and Solar Pool Heating. Established since 2000, offering our products, service, knowledge and experience to Central Coast and Hunter residents wishing to reduce their energy costs and take a step towards a greener, cleaner future.

Experience you can trust

With an experienced and qualified team of designers, installers and specialist tradesmen, we don't believe in a one solutions fits all. Here at Superior Solar we tailor a system to meet your requirements resulting in a system that gives you the best results with ongoing support well into the future.