

# Living off-grid Solar Energy Data Sheet

Earth & Soul Retreat is about experiences and one of the experiences we offer is living off-grid on a stand-alone solar powered energy system. We urge you to use this time as a learning experience.

Donna & I have been living off-grid for over 10 years and in that time, we have had to run a back-up generator twice. This rare event has occurred during extended periods of dull, grey days when there is not much power being generated. You learn to manage your activity around your free energy.

## Mindfulness

The key to living off-grid is mindfulness.

We learned that when the sun is shining, do everything electrical that you possibly can. When the sun is not shining be mindful of what you use. You're not making any more electricity until the sun shines again!

In the afternoon, maybe 3pm in summer and 2pm in winter, the sun has generally gone off the solar panels. This means that you are no longer generating power and this is when you stop your electrical behaviour. The main things we learned at home are:

- Use a kettle on gas or woodfire and not the electrical kettle.
- Don't vacuum.
- Don't use the washing machine.
- Don't run water for long periods (garden etc) as it uses the electric pressure pump.
- Don't use things like hair-dryers, toasters, coffee machines.

The power you are using at this time is what you have stored in your batteries to last overnight and run your fridge/freezer, lights, water, tv etc.

## Monitor your energy usage

To help you to be mindful, in the cabin we have installed a Digital Monitor which tells you the current state of your batteries.



If the day is dull and grey or it is in the afternoon or evening and you want to do something that uses power, check the monitor. Touch any one of the buttons on the dial and it will light up like in the picture above.

## Shut off!

It is not expected that your power will drop and you will experience a Shut Down situation but if you do then please be aware.

The solar power system we have installed doesn't like being drawn down below 30%. If this occurs the system is programmed to go into emergency mode and power will only be provided to the fridge/freezer and emergency lighting.

## Call out!

In this event you will need to contact us (0417 669 449) at the main home and we can help you out. A call out will incur a fee, unless the issue is due to a system failure independent of your activity.



## System design

The Off-Grid power system at the Earth & Soul Retreat Cabins is designed, installed & supported by Solar Blessing (Tim Hourigan Consultant 0424 251 033 <http://www.solarblessing.com.au/>).

The system design is based upon a 4-kWh expected peak power requirement and is a 2.97kW solar array with 5.88 kWh battery system. It is expected that the system will generate 13 kWh on an average day. In the winter months this could drop to 10.7 kWh.

Bear in mind, solar power generation is not dependent on hot, sunny days. A nice, bright day (even a bright full moon) will generate electricity. The Granite Belt has perfect climate and weather for solar

power. The system is designed to be robust enough to provide you power over 3 or 4 grey days if you are mindful of your power usage.

If the day is bleak or it is late in the afternoon (when the sun is not generating much power), before using any electrical items, **check the digital monitor**. If the % is getting low, bear in mind that when power is not being generated you are using your battery storage which is required for the fridge/freezer, lighting, television etc until the sun shines again which generally is tomorrow, unless we're experiencing an overcast spell of weather.

## General Off-grid behaviour

At Earth & Soul Retreat cabins you are provided with 2 kettles for boiling water.



The gold-coloured kettle uses electricity.

**Note: Don't inadvertently put the gold-coloured kettle on the gas cook top or the wood-fired stove top**

The grey kettle is used on the gas cooktop or the wood-fired stove cooktop.



We recommend that in **winter** the wood-fired baker's oven cook top is used for heating/cooking etc and this way you save on gas and you also are not using your electricity.

**Note: when using the Baker's Oven cooktop don't remove the round hot plate lids and expose your kettle, pots & pans to a direct flame. Place the kettle, pots/pans etc on the cast iron surface.**

In the late afternoon/evening be mindful of using:

- Electric kettle (use the grey kettle on the gas cooktop or the baker's oven cooktop).
- Electric toaster.
- Electric hair dryer.
- Electric Coffee machine.

Be aware that even your water supply is provided by an electric pressure pump. Extended use of water (long showers etc) draws power from your batteries.

Microwave ovens are not too bad. Generally, their usage is short.

The television should not show any impact.

If you have any doubts or worries, **check your digital monitor.**

