The Green House Effect

Solar & Battery storage systems

Healesville, Victoria

ENERGY STORAGE CASE STUDY:

PROJECT NAME
6kw Hybrid System

LOCATION
Eaglemont, Victoria

APPLICATION
Residential, solar preferred

OWNER/DEVELOPER
Mick & Maria McGarvie

KEY SUPPLIERS
Selectronic Battery Inverter
Kaco Solar Inverter
ReneSola panels
Nerada Gel-Carbon batteries

DATE
February 2015

SCOPE
Customer target was to use as much solar power as possible with zero export of any balance.
System was to be able to provide solar power to the whole house, even in the case of grid failure**.**
The customer's viewed harvesting solar power as an extension of their self sufficient lifestyle which already including growing vegetables, harvesting rainfall, honey from hives and eggs from chickens.

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RESULTS

In the first six months of operation the customers had achieved greater than 90% solar self sufficiency,

CUSTOMER SUMMARY

You get a similar buzz when rain water pours into your tanks, when chooks deliver your dozen eggs effortlessly, or when your own hive of bees works tirelessly to pollinate your flowering and fruiting plants. Roof solar filling up home storage batteries delivers that same sense of achievement and exhilaration.

When the idea of harnessing the day's solar in batteries for use at night dawned on me as an accessible technology I leapt at the opportunity. At 6c a kilowatt for delivery of roof solar back to the grid, Maria and I knew the power company placed no real value on our self-generated power. So on the advice of the tidiest and neatest installers ever encountered, we asked our friendly contractors at **thegreenhouseeffect.com.au** to deliver nothing back to the grid and keep it all for ourselves - in our special bank of 16 carbon-gel batteries on the wall in the carport. Apart from the sunless and low altitude winter months, our 24 PV panels easily deliver full charging power to the batteries for use at night.

I now have access to graphs and stats from our power company (AGL) that reveal not only do we win hands down in the consumption stakes against average local homes, but we also easily beat all energy-efficient homes in the neighborhood as well.

What now turns me on is going out at night and watching the whole house running out of a trusty battery bank, ready for re-charging at sun-up the next day. What's also amazing is the way 24 PV panels produce a steady flow of recharging power even on a sunless, dull day. Very impressive.

We have morning and afternoon-facing panels on the east and west

slopes of the colour-bond roof on a 1930's Californian Bungalow. All big tree shadows are gone by around 9am and the panels are configured in a way that allows the sunlit panels to function efficiently even if shadow falls on some of the other panels in the array. Once a week, the grid is programmed to fully re-charge the batteries with off-peak power. This will add to their long life but is probably only needed in winter, as full re-charging is easily delivered by the sunrays, almost daily, in the other seasons.

What is brilliant about the sense of self-sufficiency in storage batteries is that you become really focussed on switching off and saving your precious energy, especially in winter. There is nothing more uplifting coming home in the dark on a winter evening and noticing that you have 5/7 or 6/7 of maximum charge in your batteries just because the weak winter sun shone for several hours while you were at work in your concrete city office.

Another noticeable change is we never have flashing clock-radios any more. Previously, once a month the clock-radio needed re-setting, signalling to the home-owner that at some time during the past 12 hours a grid interruption had caused an outage. With hybrid solar, as soon as the grid fails the batteries seamlessly kick in and take over, keeping everything going.

Every so often, Jerry Robinson from **thegreenhouseeffect.com.au** rings me up to see how the settings are and to see if the system is still meeting expectations. It's reassuring to have the installer regularly thinking and delivering after-sales service like this.

Although we are not off-the-grid yet, being almost self-sufficient with a PV roof and a wall of carport batteries makes powering your home an absolute pleasure. It's been a really positive experience that I would commend to anyone even half interested in their planet's future. Go for it. You will never regret it.