

# Energy Matters

JANUARY 2010

Alan Cuthbertson

alan@sysprosoft.com

## Solar Panels.. All you need to know

*..sell your REC's and invest the money in a renewable energy project....*

### Inside this issue:

*Solar Panels— All you need to know* 1

*My Solar Panels* 2

*My Projects* 2

### Disclaimer

The views in this newsletter are those of the author and not necessarily those of the Green Loans program

Solar panels are difficult to understand. This article is fairly long, so here is the short story. A 1.5 KW system will cost \$5,000, it will generate 2,100 KWH per year, and save you between \$400-800 a year. I recommend selling your REC's and investing them in a renewable energy project such as Hepburn wind.

And now the long story.

**How much will it cost?** The current rebates mean that the most cost effective system is a 1.5 KW system. There are several suppliers around. I notice that Origin have an offer for \$6,000 while Bunnings have an offer for \$5,000. There are several other suppliers (Clear Solar, Modern Solar and State Solar) and you can check them out on the web (just google "Solar Panels" ) They don't quote prices, but I think they are all around \$5,000.

**How much Power will you generate?** A 1.5 KW system will generate 2,100 KWH per year. This assumes a North facing roof, with no shading. An East or West facing roof will reduce it by 15%. Shade will make quite a difference and is difficult to calculate. If any part of the panels are shaded, output drops significantly. That is, if 10% of the panels are shaded, output drops by 80%, not 10%. As a conservative rule, you need to determine the percentage of time that shade falls on any part of the panels and reduce the output by the same percentage. Since the panels are most productive during the

hours of 10:00—4:00, and more productive in summer than winter, if shading occurs outside these times you can halve the effect.

**How much will you save?** Victoria uses a net feed-in tariff. That means that while you pay 15 cents per KWH for power you use, you get 60 cents for power you push back into the grid. This means that if you used all of the power you generated, you would save \$315 a year. However if you used no power during the day and pushed it all into the grid, you would save \$1,260 a year. By way of a guide, I would estimate that if your average usage is 10 KWH per day, you would push 50% of your power back into the grid, giving an annual saving of around \$750, if it is 20KWH per day, it will be around \$500 a year. If it is 30 KWH per day, you will only save \$400 a year. Of course your savings will be higher if no one is home during the day so that your usage is mainly during the night rather than during the day.

**Should I sell my REC's?** Purists argue that selling your Renewable Energy Certificates means that it reduces the number of REC's available for others and reduces the value of REC's, thus discouraging investment. While true, I argue that if the alternative is that you won't buy the system because it is too expensive, then sell the REC's. And for the purists, sell the REC's and invest the money in something like [www.hepburnwin.com.au](http://www.hepburnwin.com.au) This is likely to have a bigger benefit than not selling them!

## My Solar Panels

### Looking for Solar Panels?

This site provides 3 independent quotes. Not sure how good they are...

<http://solarquotes.com.au>

I purchased my system through Ecosmart using the \$8,000 govt rebate. I got a 1 KW system for \$2,000 and the install went very well. After 6 months it is on track to deliver 1300 KWH per year. This is slightly lower than they stated, mainly because I have some shading in the afternoon.

I have installed the new smart meter. These have a peak tariff and an off peak tariff. My old tariff was 15.7 cents per KWH. My new tariff is 18.5 for peak usage and 11.5 for off peak. Peak is defined as 7:00 to 23:00, Monday to Friday and it works out that approximately 50% of my usage is off peak, giving an average rate just under 15 cents per hour, so I am better off.

My average power usage is 17 KWH per day and I find I pump nearly 20% of my generated power back into the grid. This was August through November. It will be much higher in Summer

so I hope to average 30% back into the grid over the whole year.

Just for instance, if you have a smart meter, there are 17 different readings you can get:-

- #1 Time
- #2 Date
- #3 Total import power (kwh)
- #4 imports - 7am-11pm Mon-Fr
- #6 imports - all other times
- #7 total off peak Hot water
- #13 total exports
- #14 exports 7am-11pm Mon-Sun
- #16 exports-all other times
- #20 Current Volts
- #21 Max Volts
- #22 Max Volts time
- #23 Max Volts date
- #24 Current Watts
- #25 Current M Amps
- #26 Current S Amps
- #27 Max M Amps

## My Projects

*..contact me if you want to borrow a power meter to work out how much power your fridge (or fridges) is using....*

As I have often said, minimising your carbon foot print is a an ongoing process, so after 3 years I still find I have a lot to do.

My big project is to install water tanks. The cost looks like being around \$6,000 for a 13KL tank.

Because I have lots of down pipes, I decided to build a pit at the one place that they all meet then use a pump to pump from the pit to the tank.

I am also installing a pump and switch to connect to my toilet and washing machine. This requires a plumber, but I get a \$900 government rebate for it. At this stage the tank is installed and the pit dug. I need to get all of the plumbing done and then wait for some rain.

My other small project was to make shades that hook on to the east and west windows. These are only small

windows so I simply cut out some shade cloth, put hems and eyelets on to them and nailed it on to the windows. I can easily remove them in winter and it was much cheaper than blinds.

My other work in progress is DIY double glazing. I bought a sheet of glass (\$50) and attached it on the outside of an existing window with minimal sealing. It does make a difference, but it did "fog up" once when the temperature dropped suddenly. Basically the glass cooled and moisture between the two sheets condensed. So I think I will have to do it properly and get some silica gel to absorb moisture from the air gap and seal it properly. Will tell you how it goes in a future newsletter