

Welcome back everyone. We are out the other end of the busy Christmas season and enjoying an Indian summer here in Blackmans Bay. Our solar hot water (SHW) system has kept ourselves (Sarah, Andrew and Joshua) and our visiting family and friends in hot water for the past 3 months and our solar panels are still generating up to 15 kilowatts (kW) of electricity a day – a lot more than we are using.

We embarked on retrofitting our home with solar apparatus in 2007 starting with SHW. We used about 35kW/day of electricity which is the daily average for a household in Australia. There were five of us living in the home and hot water made up a third of our Aurora bills. It cost us about \$6k after a \$1k rebate and we anticipated a ten year payback period. As a comparison, SLiK SHW bulk purchase recipients are paying about \$4.5k. We chose an evacuated tube system for its improved effectiveness (up to 30%) having had a flat panel SHW system in our old home which worked well but certainly didn't produce the same quality or quantity of hot water (go to www.slikinfo.org for a more in-depth analysis of this).

In 2008 we started our install of photovoltaic (solar panel) for the generation of electricity. We had nine panels (1.5kW) installed with a 2.3kW inverter so we could add additional panels as we could afford them. The first install cost us \$10k after a rebate of \$8k. There was no calculation of payback periods – it felt like a good investment. We added another seven panels over the following year which cost us another \$6k. Today, you will pay a third of what we paid – but be aware – you get what you pay for.

Every day Andrew would check the amount of electricity being generated on our roof and then being used in our house prior to it heading out into the grid to be used by

neighbours. This accessible data led to many behavioral changes in the house so that now we use about 3kWh/day in summer and about 8kWh/day in winter. If you are considering solar apparatus then we recommend a home sustainability assessment so behavioural changes can be identified and reinforced.

Green ways should always come with or before green wares. Our main behavioral changes included:

- Maximum 4 minute showers/efficient shower heads
- Cold water wash
- Didn't replace dishwasher when it broke – hand wash dishes
- Run heat pump on 16C heating and 26C cooling when necessary (use thermometers to gauge your room temp!)
- Operate blinds and windows to retain heat or cool through cross ventilation
- Zoned house by installing doors so we could heat/cool specific areas rather than all of house
- Use of residual heat in cooking(turn off early)
- Turned up fridge
- Measure water in kettle - only boil what you need
- All standby's off at wall
- Use minimal lighting and turn off when leave rooms



Sarah & Andrew's solar roof top

Reading your electricity bill

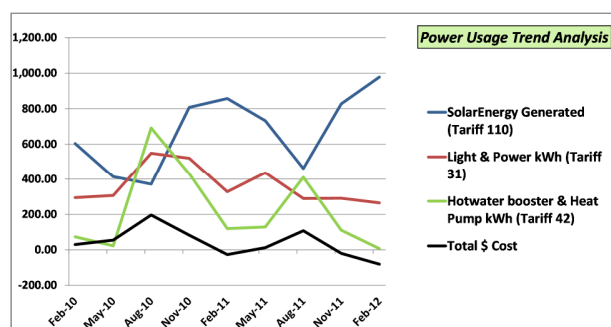
Your electricity bill is a mine of information and can be useful in helping you understand and monitor your electricity usage.

Many people only take notice of the \$ amount due on the front page of the statement. This amount is the total cost owing for all of your energy consumption for the billing period.

However, it is worth paying attention to the additional pages which give a much more detailed picture of where your energy is being consumed. This information will help you to form a better picture of the different types of energy usage in your household.

By comparing this information from bill to bill across the seasons you can build up a picture of your usage. If you apply any energy efficiency actions in your household this ongoing picture will help you assess how those actions have impacted on your kWh usage.

The diagram below shows a series of consecutive bills for a household that have been plotted using Microsoft's Excel spreadsheet tool.



This household has both solar hot water and photo voltaic cells installed. The summer months show a very low energy consumption for hot water (tariff 42) and significant solar energy being generated (tariff 110) to the extent that in both the February billing periods for 2011 and 2012 more solar electricity was being generated than energy being consumed, resulting in a credit \$ cost overall.

More detailed information on 'Reading Your Electricity Bill' can be found at:

<http://www.andrewwatsonsarahlowe.com/Newsletter-Resources.html>



Sustainable Stories

Planting the Seeds of Sustainability – OAK Tasmania

Last edition we promised we would showcase a workplace that is active in increasing its social, economic and environmental sustainability.

OAK Tasmania www.oak.org.au is a not for profit organisation that has been improving the lives of Tasmanians with disabilities since 1952. Clearly it is already highly committed to 'social sustainability' in terms of providing meaningful employment and training opportunities, and a range of community services that enhance the lives of those who experience disadvantage.

In October 2010 we were engaged to conduct a sustainability audit of OAK's business divisions including; Tahune Fields Nursery, Oakdale Industries, Walkabout Industries, Mailhouse Tasmania, Oak Sewing Services and Head office. From this we worked out how much electricity, fuel, paper and how many flights were used, and converted these figures into green house gas (GHG) emissions. A report arose out of that and provided strategies OAK could use to reach some reduction targets – targets were set in dollar and GHG emission terms.

Leadership is critical to addressing some of the sustainability challenges that we face. John Paton, the CEO of OAK Tasmania, said in the Reports Foreword that;

"This isn't just a hard patch to work through in a few years then return to business as usual. These changes are long-term, and they demand more of nonprofits than seeking new funding or cutting programs. They require the

definition of a new normal, where flat is good..... OAK Tasmania is going to have to learn how to develop and evolve without the expectation of growth.”

We set up a GHG emission accounting tool for OAK, providing them with the ability to capture and monitor their GHG emissions. Data collection allows us to track our progress toward our goals. Monthly reporting back to divisions keeps people on track and motivated. Champions were elected in each division who were keen to see sustainability improvements. One division signed up nearly all its employees – rapid changes occurred and it became a scheduled item at their team meetings.

Champions received some training that provided them with the ability to ‘see’ where there was waste, report it and identify solutions. A focus on doing the same in the home made it very personal. Some managers had home sustainability assessments done to better understand how to efficiently manage electricity and water use. OAK’s supported employees took to this role with great excitement and zeal – both at work and at home. One employee and his family managed to use the same amount of electricity in 8 days on “Pay as you go” as they had previously in 7 days - this amounted to a saving of \$300/yr. At another site, by more efficiently running a cool store, thousands of dollars were saved.

The beauty of having champions is that they tell everyone their ‘story’ and then others follow suit.



Gerard is a sustainability champion at Walkabout Industries

Small pilots allow practice and fine tuning on the ground before larger pilots are rolled out across the organisation – they also get some

wins on the board. This is how ‘norms’ change in our communities and workplaces.

OAK now has a Sustainability Policy and is integrating sustainability into its 2013 Strategic Plan. This means sustainability will be part of all decision making and planning. OAK sees itself as a leader in the disability services sector and aims to share its successes with this sector nationally. We wish OAK all the best and watch its progress with excitement.



Consumption Fact

- 1 teaspoon raw **sugar** = 12 litres of water
- 1.16MJ energy is required to produce 1 dietary MJ

So many of the consumption impacts are invisible to us, but by making the invisible visible, might help us be a little more aware.



What’s happening out there?

A question from our December newsletter:

How can milk require so much water?

Water is needed in large amounts to irrigate pasture, process milk and to hydrate cows.

Becoming conscious of what it takes to produce/supply milk etc., helps us think and make more sustainable choices.



Sustainable Living in Kingborough



Love Living Locally was held at Kingston Council Chambers on Sunday the 25th of March. It showcased (over 40 stalls) all the

wonderful local food and produce available in our community and a good time was had by all. Visit www.slikinfo.org to see more and to get an update on our solar hot water bulk purchase.

John Michael Greer (in his book the Ecotechnic Future – see book review below) says:

“Since people still need to eat, a future of this sort will likely accelerate the rise of micro farms and market gardens and the cooperatives, farmers markets and community supported agriculture schemes that provide food distribution outside the official economy.”



Bits 'n Pieces

Book Review

The Ecotechnic Future by John Michael Greer who says:

“As we move further into the 21stC, the industrial food chain of the late 20thC has become a costly, brittle anachronism.”

This book envisions a post peak oil world and rams home the fact that everything we rely on in life in turn relies on our limited supply of fossil fuels. We can find guidance through investigating the rise and fall of previous societies and there is hope! A good read if you are grappling with what our future could look like and how you might start to evolve toward it.



Handy Information

Lighting can be almost 10% of our household energy usage. Lighting energy efficiencies can be achieved in a number of ways including:

“Less is more.” Ludwig Mies van der Roh

- ✓ Using light colours in rooms for walls and furnishings
- ✓ Having light surfaces outside to reflect light in e.g. a light painted wall or fence
- ✓ Using different levels of lighting for background vs. task lighting (such as a desk light or reading light)
- ✓ Skylights
- ✓ Separate switches allowing only the lighting needed to be used and two way switches which encourage people to turn off lights
- ✓ Replacing incandescent lights with more efficient light globes such as GFL or LED lighting (see Globe Conversion Table below)

Light Bulb Conversion Table

- ❖ Energy usage is measured in Watts (W) – less watts, less the energy used
- ❖ Light bulb brightness is measured in Lumens (Lm) – higher the lumen rating the brighter the bulb
- ❖ Light bulb colour is measured in Kelvins (K) – higher the kelvin value the whiter or bluer the light. This is typically expressed on packaging as 'warm white' (2700K-3000K) or 'cool white' (3500K-5000K), with warm white more yellow and similar to incandescent lighting

Incandescent Bulbs	CFL	LED	Lumens
25W	5-7W	3W	220L
40W	7-8W	6W	450L
60W	11-12W	8W	800L
75W	13-18W	10W	1000L
100W	18-23W	14W	1500L

The wattage and lumens figures listed above for CFL and LED are approximations only and may vary between manufacturers. Use wattages as a guide only. Alternatively, refer to the Lumens column. You can then check the lumen output (Lm) shown on the lamp package you are purchasing. (NB: Not all products carry lumen details)



Have a very happy and peaceful Easter.

Sarah, Andrew & Judy