Power for the People!

BY SOPHIE LOVE

How to take control of your energy usage, expenditure and eco-responsibility.

Building a home is a pivotal moment in your life. So many decisions, so much money to spend, building your dreams without bursting your budget. How to power your home is an important part of the equation – both for the short and long term.

There is no doubt now that the level of pollution generated daily by our high tech, high consumption lives has permanently altered the earth's atmosphere. The only fact that everyone can agree on is that global temperatures and weather patterns are changing – but nobody can predict what the future will bring us. There are limits to everything in life, and our fossil fuel reserves are no different. Common sense dictates that as coal, oil and gas become scarcer and harder to find, their prices to the consumer will rise. Not only do we have an individual responsibility to do what we can to limit the amount of our own household's contribution to pollution and climate change, but the clever consumer can make far reaching decisions NOW that will affect their energy bills far into the future.

Last year the Howard government announced the phasing out of incandescent light bulbs by 2010 as part of their commitment to climate change. Contrary to popular opinion, fluorescent globes do not give off a harsh white light (so unflattering to those of us over 40!) but come in all sorts of soft tones and wattages to suit the needs of every home. As they use up to five times less power, by simply changing all your bulbs over you can make a big difference to your energy usage. One of the little known facts is that the common, so called 'low voltage downlights' are big drains on your power source; while each bulb only uses the same kilowatt per hour as a single 'normal' globe, you need three times as many downlights to light the same area as they only 'spot light' and don't produce diffused area light.

The other power hungry household pests are any household items that have a heating element – the iron, breadmaker, toaster, hairdryer, electric grill, clothes dryer, toasted sandwich maker, electric frypan, airconditioner, heater, hot water service etc. While it is my opinion that the day doesn't start until the toast is consumed, and that no girl should ever have to be without her hairdryer, it really does pay to see just how many of the above you don't need, or can find valid alternatives for. Cooking with gas is more than just an expression, and good ventilation and a wood-burning stove are so much nicer than the fake environment created by airconditioning.

Most people think that turning off lights is the best way to conserve energy, but actually your hip pocket (and the environment) will be far better off if you turn the telly, washing machine, computer and printer off at the plug when you have finished with them. An idling washing machine can use 96 watts a day (35,000 watts a year). Add them all up and you might as well stand in the shower ripping up $5 bills!

When connection to the grid is the easiest option for your new home, because 'it is there,' even contemplating the expense of either a stand-alone or grid connect solar system seems foolish in the extreme. However, consider this: Australian electricity companies have already publicly stated that the cost to their consumers is set to increase by up to 40% over the next five years... NOW are you interested in looking at some alternatives?

Alternative power

Where Australia should be leading the global revolution in solar technology (after all we have more sun than most other places on earth!) unfortunately we are lagging far, far behind Europe.

Germany is currently the world leader and has been running solar boats on the River Rhine for over a decade, and the Dutch are not far behind having just won the World Solar Challenge Car Race in Australia's dry and dusty heartland. They are also pioneering solar yachts. And these are two of the greyest, wettest, coldest countries on earth – go figure! Seville, in southern Spain, opened Europe's first commercial solar power station that powers up to 6,000 homes a day. A concrete tower, 40 storeys high, stands bathed in bright white light as 600 huge mirrors bounce sunlight up to a collector on the top of the tower which, in turn, uses the heat to generate steam which turns the turbines. Ultimately the entire plant will generate sufficient power to feed all the homes of Seville's 600,000 inhabitants.

Solar hot water

Rather than paying the electricity company to heat your water, you make an initial infrastructure investment and then enjoy (nearly) free hot water forever more! Solar hot water systems are a relatively cheap and effective way to make a difference both to the environment and your monthly electricity bills. Water heating is the largest single source of greenhouse gas emissions from the average Australian home (excluding the family car), accounting for around 28 per cent of home energy use. Installing a climate friendly hot water system can shave $300 to $700 off an average family's electricity bills each year.

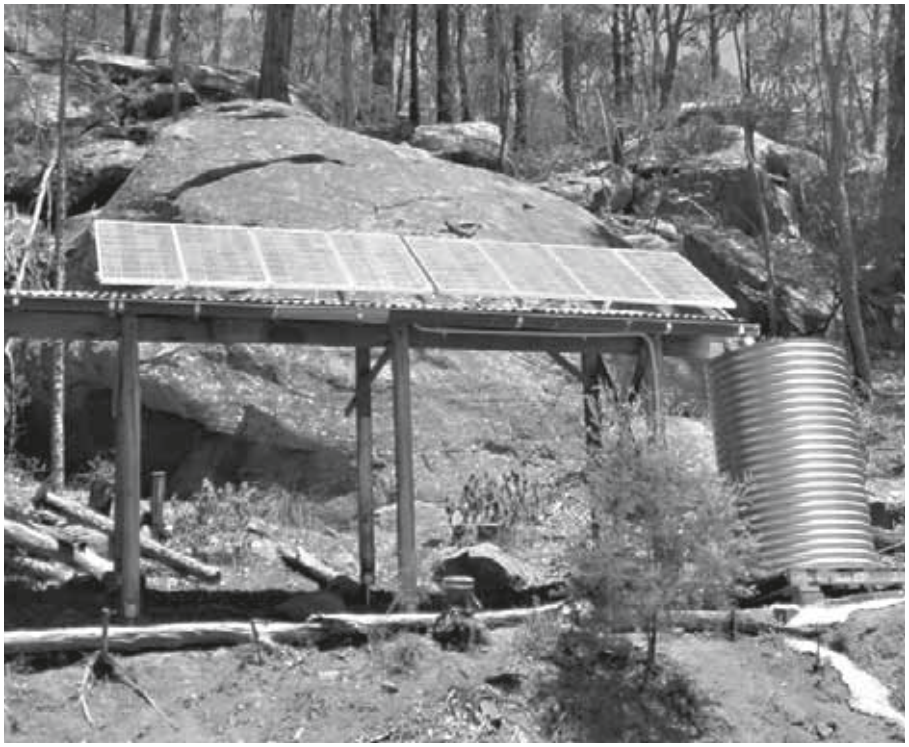
Solar hot water systems have evolved dramatically over the last few years and there is now a wide choice of styles, makes and models to suit your roof, budget and household size. For instance, round solar tubes blend in better with corrugated roofs, hot water tanks on the ground rather than on the roof with the panel (although they then require a water pump), etc. You can choose between having a gas or electric booster system for those cool cloudy days.

An installed 315 litre solar hot water system with gas booster will set you back somewhere between $4,000 to $6,500. You will get a means tested Federal rebate of $1000, as well as further state and local council rebates where available. You will also receive approximately 30–35 RECs (Renewable Energy Certificates).

Grid connect

What is this? Simply speaking this is the easiest way to offset your electricity bills by making a contribution back into the electricity grid, and receive some payment in return. You invest in a solar system that is connected back into the local electricity grid. Your home or office then creates energy, which is used firstly to power your house, and then the EXCESS is pumped back into the grid. The dreaded monthly power bill then becomes a balance between what you have used and what you have generated. Your local solar expert will advise you about the best size of system for the kilowatt hours (kW.h) you are currently using, and also how to become more energy efficient and reduce your usage and maximise your output. Wouldn't it be nice to have your energy provider sending you a cheque every month rather than demanding one? *Editors note: The power you generate is not physically used to power your own home – it is all transferred into the grid and then used to offset against your usage.*

As a guide, a 1–kilowatt (kW) grid connect system, producing (on average) five and a half kilowatt hours a day, will cost around $15,000.00. The Federal Government will give you an $8,000.00 rebate on this system (if your combined family income is less than $100,000 gross per annum), you will earn 21 RECs and your energy provider will pay you per kilowatt hour the equivalent of what they are currently charging you for your usage. However, new South Australian legislation requires that small solar power producers are paid TWICE the amount for energy they feed into the grid as they are charged for take-out (currently 44 cents per kW.h), and the ACT is currently lobbying for a bill that increases the input tariff rate to a mighty 67 cents per kW.h – which is on a par with what solar producers in Germany



are currently earning. It is only a matter of time before the other states are forced to pass similar legislation.

RECs are like renewable energy shares but unlike most shares on the stock exchange, the value is constantly increasing – in September 2007 they were worth $36.00 each and now (early June 2008) they are an amazing $49.00 each.

Stand-alone solar systems

Of course if you are investing in a rural property, sick of rural blackouts, or if you are really committed to being energy efficient or carbon neutral, you can invest in a stand-alone solar system, which means that you are independent of the power companies and effectively your own little energy sub-station. It's a big investment but it is bliss not to have to deal with escalating power bills and the vagaries of the weather on commercial supply. It means saying goodbye forever to all those power hungry modern gadgets we mentioned earlier, checking the batteries once a month and having a generator in case of prolonged, severe weather conditions. But solar panels convert even a little daylight into power and the more panels and batteries you have, the more you can store for a rainy day!

A stand-alone system for a small house with two people will probably cost in the region of $20,000–$30,000. The Federal Government will give you up to 50% as a rebate on a stand-alone solar system (up to an installed value of $200,000).

Wind and hydro power

The general rule of thumb in Australia is that unless you live right at the ocean's edge, with a constant supply of wind, you are always going to create more energy with solar. It's different in Europe where the sun is less of a constant and the wind more so. However hybrid systems (combining both solar and wind) are great for boat owners and coastal dwellers, meaning whatever the weather does, it still equals power for you.

Rural landowners sometimes have access to a watercourse with a good water fall or 'head' that enables them to provide their own power by harnessing the energy from the water to create their own hydro power plants. Talk to your local energy efficiency expert for a site visit and cost and energy projections.

REC's may be available on wind and hydro systems.

Even if you are not yet ready for the move to clean, green power for any part of your home or office, you will be well served in talking to an expert about becoming more energy efficient – not just for the sake of the environment and keeping this pristine area pollution free, but because the less you use, the less you pay for! There is no doubt that solar power is the only viable future for Australia's energy needs. And sooner or later we have to take responsibility, both collectively and individually for our power requirements so that civilisation can grow in a sustainable way. Let's hope that it is this generation that takes a stand, embraces solar, and makes a difference! ■

For further information on renewable energy solutions for your home, go to www.energyandspace.com.au
For more articles by Sophie Love go to www.thezenpen.com.au

• Renewable Energy Certificates

For information and conditions on RECs, see the Office of the Renewable Energy Regulator website *www.orer.gov.au* or call *02 6274 2192*.

• Federal Government Rebate Programmes

SOLAR HOT WATER
1800 808 571, www.environment.gov.au/settlements/renewable/solarhotwater

PHOTOVOLTAIC SYSTEMS
1300 138 122, www.environment.gov.au/settlements/renewable/pv

STAND-ALONE POWER SYSTEMS
1300 137 880 or see the website – *www.environment.gov.au/settlements/renewable/rrpgp*

• Further state and local council rebates may also be available

ACT
02 6260 6165, www.heat.net.au

NSW
02 9995 5000, www.environment.nsw.gov.au
1300 138 122, www.deus.nsw.gov.au

NT
08 8999 7348, www.nt.gov.au

QLD
1300 369 388, www.epa.qld.gov.au

SA
08 8204 1888, www.dtei.sa.gov.au/energy
08 8204 1888, www.sustainable.energy.sa.gov.au

TAS
1800 105 688, www.dier.tas.gov.au

VIC
1300 363 744, www.sustainability.vic.gov.au

WA
1300 658 158, www.sedo.energy.wa.gov.au