

Sustainable Illawarra Solar Expo

- **5:30pm – 6:30pm:** Opportunity to talk to suppliers
- **6:30pm – 7:30pm:**
 - Presentation on **SOLAR POWER** by Sustainable Illawarra
 - Presentation on **SOLAR HOT WATER** by Jamberoo FutureCare
- **7:30pm – 8:30pm:** Opportunity to talk to suppliers

Sustainable Illawarra

- Workshops
- Events
- Special offers
- Information



www.sustainableillawarra.com.au or 4227 7453

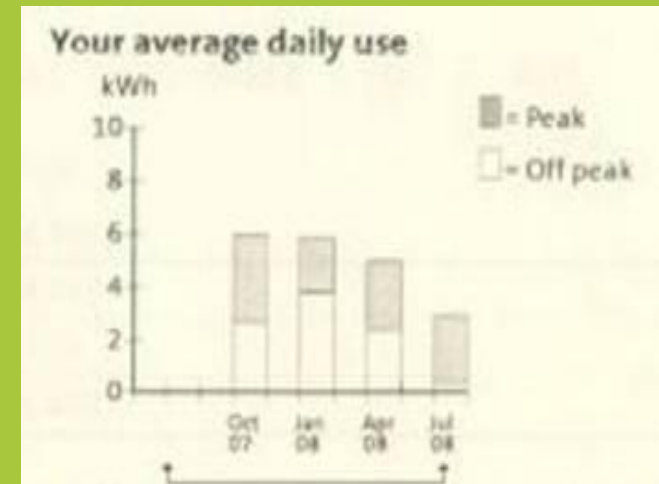
sustainable illawarra sustainability begins at home

Why a solar power system?

- Also called Photovoltaic (PV) systems
- To **generate sustainable and renewable energy** – but won't heat your hot water!
- Globally we're the **highest per capita greenhouse gas emitters**. Majority of electricity from coal fired power systems.
- Solar power can significantly **reduce if not entirely cover your power bills**

Thinking about a solar power system?

- **First - Check out your energy bill**
 - Power measured in watts
 - A kilowatt (kW) is 1,000 watts
 - Energy usage measured in kWh
 - In one hour a one kilowatt appliance uses one kWh of power.
- Look for average daily use
- 'Typical' household 14kWh - 20kWh daily
- Possible to use less than 3kWh!
- **Second – reduce your energy usage**
- Remember you can opt to buy accredited GreenPower - www.greenpower.com.au



What uses all this energy?

- Hot water
 - Switch to **solar** or heat pump or gas
 - Water efficient showerhead
 - Use cold water for washing machine
- Heating and cooling
 - Install insulation (Gov rebate will be \$1,000, expected June 2010)
 - Add awnings, eaves and vegetation for shading
 - Use curtains and operate house effectively
 - Use fans instead of air conditioning
- Refrigeration– compact, energy efficient model



Simple behavioural changes can make a big difference. It's not all about infrastructure.

Federal Gov. Green Loans Program

- Can help you identify energy and water savings by providing a **FREE comprehensive home sustainability assessment** valued at \$250
- Trained assessor **visits your home** for approx 1 ½ hours to discuss energy and water usage and options for savings
- You receive a free personalised report showing where the greatest opportunities for improvement are
- You can apply for an **interest free loan up to \$10,000** with partnering banks (e.g ANZ, Westpac) to implement changes suggested in the report. Normal lending criteria applies.



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Federal Gov. Green Loans Program

- Owners, tenants and landlords are eligible if they are an Australian citizen or permanent resident, earn less than \$250,000 p/a & aged over 18 yrs.
- Program began in July 2009 and free assessments have proven popular with almost 270,000 houses booked already
- **Major changes** to the program were announced on 19 Feb 2010. Funding was increased to cover assessments for 960,000 homes (initially covered 360,000 homes)
- The less popular interest free 'Green Loans' component of the program is being **cut from 22 March 2010**.
- For more info: www.environment.gov.au/greenloans or 1800 895 076 or go direct to local assessors or companies.

Solar Power Checklist

- Type of system – grid connected or stand alone
- Capacity of system
- Lifespan of system
- Positioning the panels
- Cost of system
- Government incentives



Type of System – Grid Connected

- Most common in residential areas
- Connected to main electricity grid
- Feeds energy into grid and draws from the grid
- As well as solar panels you need:
 - **Inverter** to change DC to AC electricity.
 - **Additional meter** that measures the energy you generate.
This will be installed by an electrician from Integral Energy
- Lower cost and very little maintenance compared to 'stand alone' systems
- Power will go out in a blackout of the mains grid



Type of System – Stand Alone

- Not connected to main electricity grid
- Popular in remote areas
- As well as solar panels you need:
 - **Battery system** to store power
 - **Solar regulator** to prevent batteries overcharging
 - **Inverter** to change DC to AC electricity.
 - **Back up power** system
- Increased cost & maintenance compared to grid connected



Capacity of the system

- Referred to as 'rated power output.' Measured in kilowatts
- You need to know how many kWhs of power you can expect out of a system on average in your location. For **EXAMPLE:**

| Capacity (rounded to nearest 0.5 kW) | Average daily output |
|---|----------------------|
| 1kW | 4kWh |
| 1.5kW | 6kWh |
| 2 kW | 8kWh |
| 3 kW | 12kWh |
| 4 kW | 16kWh |
| 5 kW | 20kWh |
| 6 kW | 24kWh |
| 10 kW | 40kWh |

Roughly in the Illawarra you can multiply the system capacity by 4 to get the average daily output.

Lifespan of the system

- A quality solar power system CAN have an expected lifespan of more than 30 years
- Look for a long warranty of **panels** and **inverter**. Many panels will come with a 25 year warranty
- Look for a reputable company with a quality product. Ask people who have had panels installed about their experiences.



Positioning of the panels

- Suppliers will assess the suitability of your roof. A visit to your house is better than assessment via aerial maps.
- Keep in mind:
 - Maximum sun is best
 - The direction the panels will face. North is ideal
 - The angle the panels will sit at. In the Illawarra panels are best positioned at a 22 degree angle. There may be additional costs if your roof is very flat or very steep to create a customised support frame
 - In terms of space, as an example, a 1.5kW system will take up about 8m x 1.5m of roof space

Government Incentives

- Improve the affordability and pay back time of solar panels
- No longer any rebates as in \$ you can claim back
- **Federal Solar Credits Scheme** - works on Renewable Energy Credits (RECs) system.
- **NSW Solar Bonus** - Pays a premium price for green energy feed into the main electricity grid

Renewable Energy Credits (RECs)

- Created by Fed Government to reduce greenhouse gas emissions by increasing renewable energy generation
- RECs are a **form of currency** that recognises renewable energy generation has taken place
- Like shares, RECs can be traded. Their **value varies** based on the REC market
- For solar power systems, **one REC represents 1 megawatt** hour of electricity generated
- Household solar power systems are entitled to a certain amount of RECs based on the **location** and **system capacity**.
- As an example for a 1.5kW system in postcode 2500, you can claim **31 RECs**.

Federal Solar Credits Scheme

- **Multiplies the number of RECs** you would **normally** receive (based on location & system capacity) for the **first 1.5kW** of capacity for new small power solar systems. The multiplication is according to the following timeframes:

| Installation Period | Multiplication |
|----------------------------|----------------|
| 9 June 2009 – 30 June 2012 | 5x |
| 1 July 2012 – 30 June 2013 | 4x |
| 1 July 2013 – 30 June 2014 | 3x |
| 1 July 2014 – 30 June 2015 | 2x |

- So if you install a 3kW system now you will receive 5 times the value of RECs for the first 1.5kW capacity and the normal amount of RECs for the other 1.5kW. This equates to (31 RECs x 5) + 31 RECs = **186 RECs**

So what does this really mean for you?

- Eligible systems must be designed & installed by a supplier **accredited** with the Business Council for Sustainable Energy or Clean Energy Council.
- Most people sell their RECs for a **discount** on the cost of the system, or a **cash payment**
- There are registered **REC agents** who can buy your RECs
- Your supplier may recommend a REC agent. Alternatively select one from the registered agents list at the Office of Renewable Energy Regulator (www.orer.gov.au or 6159 7700)
- You don't have to sell your RECs to an agent. You can register them yourself but this is much more complex.
- Many solar power suppliers will assist with this process – which **makes it very easy!**

So what does this really mean for you?

| System (rounded to nearest 0.5 kW) | Average daily output | No. RECS * | RECs \$* | Cost of system | Cost after RECs |
|--|----------------------------|---------------|----------|-------------------|-----------------------|
| 1kW | 4kWh | 103 | \$2,781 | \$11,450 | \$8,669 |
| 1.5kW | 6kWh | 155 | \$4,185 | \$13,089 | \$8,904 |
| 2 kW | 8kWh | 165 | \$4,455 | \$18,823 | \$14,368 |
| 3 kW | 12kWh | 186 | \$5,022 | \$24,677 | \$19,655 |
| 4kW | 16kWh | 207 | \$5,589 | \$34,394 | \$28,805 |
| 5 kW | 20kWh | 228 | \$6,156 | \$39,406 | \$33,250 |
| 6 kW | 24kWh | 248 | \$6,696 | \$45,503 | \$38,807 |
| 10kW | 40kWh | 331 | \$8,937 | \$75,790 | \$66,853 |

EXAMPLE costs only from supplier outside the Illawarra. Includes panels, inverter & installation.

* Total number of RECS after increases through solar credits scheme. Estimated to be \$27 per REC.

Source for cost of system prior RECS: www.bellingensolar.com.au/grid-connect-solar-systems.htm

The NSW Solar Bonus Scheme

- 'Gross' feed-in tariff
- Householders are paid 60cents a kW for all the electricity that eligible solar power system feed into the mains electricity grid.
- Solar power systems up to 10 kilowatts in size are eligible.
- Tariff rate will be fixed for the 7 years of the scheme (from 1 January 2010)

So what does this really mean for you?

| System capacity (rounded to nearest 0.5 kW) | Average daily output | Payment for electricity per day | Payment for electricity per year | Pay back time (cost divided by payment for electricity per year) |
|--|----------------------|---------------------------------|----------------------------------|---|
| 1kW | 4kWh | \$2.40 | \$876 | ~ 10 years |
| 1.5kW | 6kWh | \$3.60 | \$1,314 | ~6.5 years |
| 2 kW | 8kWh | \$4.80 | \$1,752 | ~8.0 years |
| 3 kW | 12kWh | \$7.20 | \$2,628 | ~7.5 years |
| 4kW | 16kWh | \$9.60 | \$3,504 | ~8.0 years |
| 5 kW | 20kWh | \$12.00 | \$4,380 | ~7.5 years |
| 6 kW | 24kWh | \$14.40 | \$5,256 | ~7.5 years |
| 10kW | 40kWh | \$24.00 | \$8,760 | ~7.5 years |

- Based on 60c per kWh feed-in tariff and system costs as indicated in previous slide. You may receive a higher payment for your energy from your electricity supplier. Note you can change your energy supplier.

The NSW Solar Bonus Scheme

Electricity Tariff - Solar Electricity Buyback

| | Meter Number | Previous Reading | Current Reading | Usage kWh | @Rate c/kWh | Amount \$ |
|--|--------------|------------------|-----------------|-----------|-------------|------------|
| From 31 Dec 2009 to 15 Jan 2010 - Bill Days 15 | | | | | | |
| Peak Use | | | | | | |
| Energy Use | 1660470 | 1970 | 2033 | 63 | -66.0000 | 41.60 cr |
| Sub-Total | | | | | | \$41.60 cr |

- Example with 66c feed-in tariff payment. Payment of \$41.60 in 15 days = \$2.77 per day.

Wrap up – Key Points

- Understand your **energy bill** & look to **reduce your energy usage** first. Consider solar hot water.
- Ask a few **different companies** for info and quotes
- **Don't feel overwhelmed** with technical info. **Ask suppliers** any questions you have.
- **Ask people who have had solar panels installed** about their experiences with the supplier they used
- With the government incentives (higher number of RECs and feed-in tariff) solar panels can be a **worthwhile investment**, on top of the **environmental and ethical benefits**.

For more information

- www.sustainableillawarra.com.au – details about rebates, special offers and a copy of this presentation
- Solar power suppliers
- Your Home Technical Manual – www.yourhome.gov.au/technical
- Renew Magazine: Issue 110 Jan – March 2010 has a comprehensive guide to solar panels.
- Alternative Technology Association - www.ata.org.au