



Solar Energy

What?

Solar power systems take sunlight energy and convert it into direct current electricity. The panels used for this are referred to as photovoltaic panels, and as they have no moving parts they are virtually maintenance free.

Two types of systems you can choose from are:

Grid-connected solar Photovoltaic (PV) system is an array of photovoltaic modules connected via an inverter to provide power for your home, with excess production feeding into the grid.

Stand-alone solar Photovoltaic (PV) system is not connected to the electricity grid. Together the battery bank and the inverter supply electricity to your appliances. However, if you try to use more electrical energy than batteries hold, you will run the batteries too low reducing their life expectancy.

Why?

By generating electricity from the sun's energy, we are preventing the release of approximately 500 tonnes of greenhouse gases each year being released into the atmosphere. These harmful greenhouse gases contribute to climate change.

An average Sydney household has an electricity usage of about 5000 kWh per year. A house with energy efficient appliances and using non-electric cooking, heating and hot water could use as little as 1000 kWh per year.

Annual Peak Sunhours	4	4.5	5	5.5	6
kWh/year grid connection	1120	1260	1400	1540	1680
kWh/year stand alone	810	910	1015	1115	1215

Source: Commonwealth of Australia, 2005, 3rd edition Your Home – Design for lifestyle and the future; Technical Manual, Commonwealth of Australia

Benefits of a solar power system to the householder are:

- Solar energy is 100% renewable and does not release any harmful greenhouse gases into the atmosphere
- Solar panels or modules are silent, without any moving parts and can be mounted on an existing roof
- Solar modules can be integrated into the building in the form of windows, walls, roof tiles or pergolas
- Solar electricity can supplement or provide all your electrical consumption and excess electricity can be fed into the grid
- Once installed, the system provides free electricity, sourced from the sun!

How?

Solar PV systems use sunlight to generate electricity for domestic and commercial use. These systems are able to store excess electricity in batteries for later use or feed the stored energy into the electricity grid to reduce your electricity bill.

Solar power systems are oriented to the North and inclined in order to generate the maximum amount of electricity from the sun.

Determine whether the mains electrical supply is available at an affordable price

If **yes**, then you should consider a grid-connected power system.

If **no**, then you should consider a stand-alone power system.

Choose the system size that will meet your electrical demands

If you can minimise your household electricity consumption, and you are able to purchase a large system, you may be able to meet all or most of your electricity demand through a solar PV system. However, if your household uses a lot of electricity, and are only able to purchase a small system, the saving on your electricity bill will not be as great.

Therefore, you may wish to consider some energy conservation and efficiency measures to reduce your electricity consumption, and replace a larger portion of your electricity use with your solar PV system.



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Where to go?

To locate your nearest supplier of solar equipment call Solar Power Hotline on 1300 138 222 or look in the Yellow Pages under "Solar Equipment".

Shop around with electricity retailers. They can arrange connection to the grid, including any requirement for additional metering to measure the electricity produced by the solar system. Retailers which operate in NSW are:

AGL Electricity Limited	www.agl.com.au	131 245
Australian Inland	www.aienergy.com.au	1300 650 477
Country Energy	www.countryenergy.com.au	132 356
Integral Energy	www.integral.com.au	131 002
Origin Energy	www.originenergy.com.au	132 463

Contact your local council to ensure that installation of the solar panels does not have an adverse affect on your neighbours. Some Council's may require a Development Application prior to installation of any solar energy system.

Your local Council may also assist residents, schools and community use buildings with the costs of installing solar power, insulation and energy efficient hot water systems.

Camden	4654 7777
Campbelltown	4645 4000
Liverpool	1300 36 2170
Wollondilly	4677 1100
Macarthur Centre for Sustainable Living	4647 9828

How much will it cost?

When choosing the correct system for your household, the following factors must be considered:

- **Electricity demand** – the more electricity your home or business demands, the larger the system and the cost
- **Budget** – how much you are prepared to invest will limit the size of your system
- **Location** – depending on whether the mains electricity grid is available, will contribute to the cost of bringing power to your property
- **Aspect** – there must be sufficient space on your roof for the mounting of north-facing modules
- **Rebates** – The Australian Government will provide rebates to residents for the installation of solar power energy systems.

Note, these rebates are subject to change from time to time.

The Australian Government Photovoltaic Rebate Program

The Commonwealth Government has introduced the Photovoltaic Rebate Program to encourage long-term use of the photovoltaic technology to generate electricity from sunlight, increasing the use of renewable energy in Australia.

The Photovoltaic Rebate Program makes available cash rebates to households who install grid-connected or stand alone photovoltaic systems. Conditions do apply, and applicants must gain approval before installing a system.

Remember! Once your solar power system is installed, there are no running costs. Energy from the sun is free!

Want to know more?

Have a look at the following websites:

www.dwe.nsw.gov.au or phone the Energy Information Line on 1300 136 888 for details
www.energyaustralia.com.au
www.greenhouse.gov.au/solarhotwater/index.html
www.greenhouse.gov.au/renewable
www.noco2.com.au
www.originenergy.com.au
<http://solarpanelrebate.com.au/solar-installations-solarpanels-eco-faq.htm>
www.yourhome.gov.au