

Home Solar Panels

A guide to getting the best results

This guide aims to provide you with an overview of what you need to know to get the right solar system for you. Prices and policy on solar panels are frequently changing, so the figures provided in this guide are only examples. Actual costs and savings will vary based on your particular circumstances and as prices and policies change.

Why should I consider installing solar panels on my home?

By installing solar panels you can produce your own renewable energy and may save money on your electricity bills long-term! As generating solar energy does not produce carbon pollution, you can also help achieve Australia's carbon pollution reduction target.

How do they work?

Solar energy can be generated in all parts of Australia. Solar photovoltaic (PV) systems convert sunlight into electricity. These systems require little maintenance other than the occasional check to ensure it is still

operating and cleaning the solar panels if dirt builds up. Refer to your system instructions for maintenance requirements.

Do I need a north facing roof?

Solar panels should be installed on roughly north-facing parts of your roof that are not shaded. If you do not have a north facing roof or it is partially shaded, you can still install solar panels but it will produce less electricity and increase the payback period for the system. For example, a solar panel on an east or west facing roof can produce 10-20% less electricity than one on a north facing roof .



Generating solar energy does not produce carbon pollution! Now that really is great news.

How big a system should I purchase?

The size of a system to purchase depends on how much electricity you use at home and how much you have to spend. A solar installer can calculate the size of system you would need to cover your current electricity use if you can tell them the amount of electricity you used over the last 12 months (which you can find out by looking at the graph on your latest electricity bill). But you can choose to get a smaller or larger system than this. When choosing the size consider how much you have to spend, the environmental benefit you want to achieve, and which size will provide you with the best financial return.

The most common size installed on homes is a 1.5 kilowatt (kW) solar system. A Watt is a basic measure of electrical power, and one kilowatt is 1000watts i.e. 1.5 kW = 1500Watts. The size of the system is not measured in the number of panels installed as some panels can generate more electricity than others depending on the design of the panel.

How much do they cost?

It depends on how big a system you purchase. A 1.5 kilowatt system costs around \$5,000-\$8,000 without the up front Federal Government discount, but prices seem to be coming down over time.

The Victorian governments Feed-In Tariffs provide people producing their own renewable energy with a financial return for the excess power they feed into the grid. New customers can apply for the feed-in tariff of a minimum of 8 cents, which is available to households, community organisations and businesses who install sustainable energy systems less than 100 kilowatts in size. All electricity retailers with more than 5,000 customers must offer a minimum 8 cent feed-in tariff (some may choose to offer a higher rate), but they may offer different packages and terms and conditions.

For more information on Victorian Government rebates go to www.dpi.vic.gov.au/energy/environment-and-community/victorian-feed-in-tariff-schemes



The Australian (Federal) Government offers households across Australia that install a home solar PV system or eligible solar hot water system the possibility to receive a benefit under the Small-scale Renewable Energy Scheme (SRES) to help with the purchase cost. Under the Small-scale Renewable Energy Scheme, eligible solar panel systems are entitled to a number of small-scale technology certificates (STCs). This is based on the estimated amount of electricity in megawatt hours (MWh) the system generates over the course of its lifetime. The number of certificates created is based on the amount of renewable electricity the system produces or the amount of electricity consumption it reduces, and the climate region where it's installed. Small-scale technology certificates used to be called renewable energy certificates or RECs. Your STCs can be assigned to a registered solar panel Agent (such as a retailer or installer) in exchange for a financial benefit, such as a discount off your invoice.

Selling or assigning the Small-scale Technology Certificates (STCs)

Owners have two options for selling their STCs:

- Assigning them to an agent, usually the system installer, in exchange for a discount or delayed cash payment; or

- Selling the certificates themselves, either:

1. through the open STCs market - pricing subject to market forces; or

2. through the STCs Clearing House - price fixed at \$40 per STC, excluding GST.

Small-scale Technology Certificates (STCs) are administered by the Clean Energy Regulator (CER). Information about STCs, your options for gaining financial benefit from them and eligible technologies can be found at the following CER website pages

For information call 1800 106 059 or visit www.livinggreener.gov.au/rebates-assistance/aus/renewable-power-incentives

As a guide, during the 2012/13 financial year, a 1.5kW installed solar system may cost about \$2,500 - \$6,000 in total out-of-pocket costs.

As the discount is reducing over time due to changes in government policy, and also because of regular changes in the REC price, it is critical that you get the latest figures when you are considering your solar system so you can make an informed choice.

Your electricity company will pay you for electricity you feed into the grid!

How do I get the solar discount?

Your installer should sort out all the paperwork for the upfront discount - all you need to do is sign and pay the price gap.

Price vs. quality – what is the right balance?

The reason the price of a solar system varies also relates to the quality of the system and the installation. High quality systems should last a lot longer, have a longer warranty and are less likely to have problems, but they will cost you more initially. The quality of the installation is also important. If a solar system is not installed thoroughly, it can create major problems. Do your research to find out about the quality of different systems, the reputation of the installer and make a choice on your system based on your own personal circumstance.

How much do I get for the energy I produce?

The electricity you generate from your solar PV system will be used to meet your electricity needs first.

Any electricity that is not used immediately in your home will be fed into the mains grid via a device called an inverter and through your electricity meter. When you have your solar system installed, you will need to contact your electricity company and ask them to put your home on the solar feed-in-tariff. On this tariff your electricity company will pay you a minimum 8 cents a kilowatt hour (kWh) for electricity you feed into the grid. You will also draw electricity from the grid if you use electricity when the sun is not shining or when you produce less than you use. In this case you will have to pay your electricity company for this. Before you get onto the feed-in-tariff, it is important to compare the prices offered by different energy companies for the electricity you buy (look for the lowest price) and sell (look for the highest price) as prices can vary a lot. You may want to change electricity companies at this time.

At the end of each billing period, how much you have to pay your electricity company (or how much they pay you) depends how much electricity you feed in and how much you take out of the grid. It also depends on



how much you pay for electricity (in cents per kWh) versus how much they pay you. As of October 2012 the Victorian Government legislated a 8c/kWh price paid for electricity fed into the grid by residential solar panels. This will change over time (it was much higher in the past), so check the latest feed-in-tariff when you are planning your installation.

Why have the discounts and incentives for solar panels changed?

Both the Federal and State Governments have reduced the rebates, discounts and feed-in-tariffs for home solar panels over time. This is because the costs of solar panels have come down significantly over recent years, so the need for subsidies to make solar panels affordable has reduced. The solar feed in tariff, for example, was paid for through a very small increase in energy prices. As the financial benefit for households installing solar panels increased and the solar industry became more established, the government no longer felt the cost of this initiative was warranted so it reduced the feed-in-tariff.

How long will it take me to pay off my panels?

Some people find solar panels can be costly up front, but once installed you are likely to reduce your electricity bill, or even get paid by your electricity company if you end up generating more electricity than you use. For example, if you currently use about 11kWhs per day on average throughout the year and pay a rate of 25c per kWh, then you are likely to spend about \$1000 plus service fees per year on your

electricity bills. If you install a 1.5kwh system, then you are likely to meet about half of your electricity needs, (a 1.5kW system in Melbourne produces about 5.4kWhs of electricity a day on average), and thus should roughly halve the consumption on your electricity bill. However, how much you save will depend on when you use most of your energy. Given the solar feed-in tariff is 8c/kWh (that is you get paid 8c/kWh for energy you don't use and feed into the grid), and you might pay 25c/kwh for the electricity you use, it makes financial sense to use power while the sun shines. If you use it at night, you will have pay 17c/kWh more for the energy you use than what you were paid for it.

There are other factors that will also influence this situation. Power prices are rising rapidly (they are projected to double in the next eight years) which would increase the financial savings from using less electricity from the grid. But it will also increase the gap between the 8c/kWh you are paid and the amount you pay for electricity you use. Also, some of your electricity use could be on a peak/off-peak rate and not a flat rate, so again this will affect the payback period. The option to switch to time-of-use or flexible electricity tariffs may also impact on this.

In short, it is very complicated to calculate your exact payback period as government policy is constantly shifting, billing is changing and future electricity prices are uncertain. But after the pay back and for the remaining life of the solar panels you are likely to financially benefit.

Choose your solar PV system carefully - consider both the price and quality of the system.

Which company should I use to install my panels?

Darebin Council cannot recommend a specific installer, but we can tell you that you must ensure the installer is accredited and that the solar panels and inverter meet Australian Standards. To find an accredited installer and see products that meet Australian Standards go to www.solaraccreditation.com.au or ask the installation company to show you their accreditation.

When choosing your solar PV system carefully consider both the price and quality of the system to figure out your best option. Always get at least three suppliers to quote for the same size system so you are able to compare prices and product details. Make sure the quote includes all the costs – including the cost of the panels, the inverter, the labour for installation, and the safety inspection. It should also include the benefit of the REC discount. Check the payment terms

including any deposits required and if the deposit is refundable.

What about the warranties?

Solar PV panels generally come with a performance warranty (output) of up to 25 years and a guarantee for the product of 5 to 10 years. There should also be a warranty on the inverter and on the installation of around 5 years each. It is important to know who is providing the warranty – it should be the manufacturer and not the importer. If the importer is responsible for the warranty it puts your warranty at risk. According to the Clean Energy Council, if the importer changes their business name or sells their business, their warranty obligations towards you may cease. Ask your installer who is providing the warranty. Get information about the warranty in writing as this written documentation will be essential if you need to make warranty or insurance claims.



What is the process for having a solar PV system installed?

1. Make sure you understand the costs and benefits before you agree to have a solar PV system installed.
2. Contact several accredited installers to arrange for a quote. A list of accredited installers in your area can be found at www.solaraccreditation.com.au
3. Choose an installer based on the quote, which should include information about the cost, the brands of the panel and inverter (indicates system quality), the payment method, and the length of the warranty.
4. The accredited installer designs the solar PV system to meet your requirements.
5. You and your installer complete the connection and approval forms for your electricity retailer and distributor, and your installer applies for discount (from the sale of government renewable energy credits) on your behalf.
6. The accredited installer completes the installation of your solar PV system.
7. The installer contacts your electricity retailer or distributor to arrange for your new meter to be installed.
8. The installer arranges for the solar PV system to be inspected by Energy Safe Victoria.
9. An appropriate qualified professional installs a new meter or adjusts your smart meter.
10. Your solar PV system is now ready to produce electricity.
11. Contact your electricity retailer to set up your feed-in-tariff agreement. Compare prices and terms with other companies. You need to look at the rates you are charged for service and electricity use; the rates you are paid for electricity you feed into the grid; whether costs change with time of day; as well as how and when you will be refunded if you go into credit.

Recommended Sites - for your own research

- Accredited Clean Energy Council www.solaraccreditation.com.au
- Australian PV Association www.apva.org.au
- Australian Solar Energy Society www.auses.org.au
- Australian Technology Association www.ata.org.au
- GreenPower www.greenpower.gov.au
- Solar PV Best Practice Program www.solarbestpractice.org
- Your Home Guide www.yourhome.gov.au

All sound too complicated for you?

Getting a solar PV system installed is not a quick and simple process, especially due to time needed to research products, prices and policies - which we do recommend. If you decide a solar system is not for you, but you still want to support renewable energy and reduce your pollution, then consider purchasing 100% accredited GreenPower for your home electricity use instead. For a small increase on your electricity bill, you can make a real difference as voluntary GreenPower purchases are additional to our national pollution reduction target. Contact your

electricity company to sign on to GreenPower.

Please note: the estimates within this paper were based on policy, practice and approximate prices **as of February 2013** and should not be relied on to make purchase decisions. Inform yourself of costs, prices and policy applying to your energy and solar decisions at the time you are considering purchase as frequent changes occur. This information should be used as a guide only and Darebin City Council takes no responsibility for your solar panel purchase decisions.

