RESIDENTIAL SOLAR POWER

FACT SHEET

Council is a big supporter of solar energy, as it helps the environment and helps you save money too. Since 2008 we have been harnessing power from the sun with the installation of solar panels on 25 community buildings, producing clean energy in our community.

Solar can also be a great option for local households. This fact sheet gives you some basic information to help you learn more about solar for your home.

IS SOLAR ENERGY RIGHT FOR YOU?

Installing a Photovoltaic (PV) system (solar system) can benefit both the environment and homeowners. It not only produces energy from a renewable resource (the sun) and reduces your carbon emissions, but can also increase the value of your home and help save you money on power bills.

Ideally solar panels should be facing as close as possible to true North to make sure your system is as efficient as possible. Solar power can be used in all parts of Australia providing there is a suitable site with a north-facing (or almost north facing) roof, or ground space that is not shaded during the day.

Use Google maps (satellite layer) to determine which way your house faces (Google maps default with north at the top of the page). If your roof isn't north facing there may be extra costs involved such as frames which could be used to orientate your panels.

HOW DO SOLAR PANELS WORK?

Solar panels convert light energy from the sun into Direct Current (DC) electricity. A device called an inverter is used to convert this energy into the Alternating Current (AC) electricity we use in the home.

ENERGY-EFFICIENCY OF YOUR HOME

The size of the system you need and how much it will cost depends on how much energy your house consumes during the day.. As solar panels only

produce energy when the sun is shining, it is generally not cost effective to have a system that produces more energy than you use during the day.

There is no point spending money on a large solar system when the energy it generates is not used by the household and sent back to the grid.

Probably the most important part of solar system design is the energy efficiency of a home. Spending a few hundred or even a couple of thousand dollars on more efficient appliances and making your home more energy efficient upfront means you can buy a smaller solar power system, and save significant money over the longer term.

It's also important to remember that battery storage technology is advancing and may be cost effective for some households.

WHAT SIZE WILL I NEED?

Without a smart meter installed, it is hard to determine daytime energy usage. You can average out your energy use and make a guess about how much energy you use during the day. There are also several websites that can assist you with this.

Once you have worked out your approximate daytime energy usage in kWh, divide the figure by the average peak sun hours per day. In Sydney this is 4.7 hours, and this will give you an idea of what size system you would need.

For example, if you want to generate 5kWh per day, divide 5kWh by 4.7 hours. This will give you a system size of 1.06kW. An average 1.5kW system will generally need 6 (250W) panels and require 10m^2 of roof space.

1 unit = 1000 watts = 1 Kilowatt hour (kWh)

There are many things that may affect the efficiency of your system, including roof orientation, partial shading, solar panel and inverter efficiency, so this is just a general guide to help you get started. We recommend getting quotes and advice from multiple solar installers before making a decision.

CAN I SELL MY EXCESS ENERGY BACK TO THE GRID?

Some (but not all) retailers offer payments to customers for the electricity they export to the grid. The feed-in tariff pays you for electricity generated and fed into the main grid by your solar system. Typically this is about 6 or 8 cents per kWh, but you should shop around for the best deal available. The value of these payments will generally be credited to your bill, reducing your total electricity bill. Generally it costs more to purchase your solar system than the money you would receive for your feed-in tariff. For this reason it's usually recommended that you match your solar system to your daytime usage, as it is not financially efficient to install a larger system in the hope of getting back extra money from the feed-in tariff.

Solar systems use a net meter. With a net meter, energy generated by your solar system is firstly used in your house and reduces the electricity drawn from the grid. Any excess electricity is fed back into the grid and you only pay for electricity which you haven't generated yourself.

REBATES

There are no direct government rebates for installing a solar power system, but a solar system can qualify for Renewable Energy Certificates (RECs) created through the Renewable Energy Target market. The amount of RECs your

system creates depends on the size of your installation. Typically most installers will offer customers a discount which is included in the price, and the installer will receive the RECs for the installation. For regular households, this is the simplest way and reduces your up-front costs. You can arrange to create and sell the certificate yourself if you wish.

DO I NEED COUNCIL APPROVAL?

Most home solar installations do not need approval from Council, but some do. To check if you need approval for your planned installation, please contact Council's Duty Planner on 4732 7991.

FINANCING MODELS FOR ROOFTOP SOLAR

New ways to finance your solar system have emerged which take away the need to buy a system upfront.

Solar leasing: A company installs and maintains the solar system and you make monthly payments. Although the return on investment may be less than purchasing a solar system upfront, there are advantages to solar leasing – like the maintenance being taken care of by the solar retailer, and no upfront costs.

Before you commit to a solar lease, ensure you are aware of the full charges associated with any contract, and any early exit penalties.

Solar power purchase agreements (PPAs): Like solar leasing, solar PPAs can also lower your electricity bill with no upfront cost. The difference is that solar leases require you to pay monthly, whereas payment for PPAs is made based on how much electricity you agree to buy. PPAs are generally more suited to customers with a large demand for electricity, and are most commonly taken up by businesses.

WARRANTIES

Warranties on the components of solar systems range from one to 10 years for inverters; with the better quality solar panels offering 20 to 25 year guarantees.

WHAT TO ASK WHEN BUYING

As with any major purchase, carefully consider both price and quality to ensure you choose the best option for your home. Always get at least three suppliers to quote for the same size system so you can compare prices. Ask for details on the type and quality of solar panels and inverter and the cost effectiveness of the system. It's also important to make sure the installer has Clean Energy Council accreditation.

Extra costs to be aware of that mightn't be included in your initial quote include:

- application to connect to the grid
- meter change or reconfiguration
- upgrades to your switchboard or cabling and
- site preparation needs (eg condition of roof).

For more information on installing solar panels download the Clean Energy Council's guide at: solaraccreditation.com.au/consumers/purchasing-your-solar-pv-system/solar-pv-guide-for-households.html

If you have any questions please contact the Sustainability Team (sustainabilityteam@penrith.city) or 4732 7803.

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Information adapted from - www.cockburn.wa.gov.au/Renewable Energy; the Alternative Technology Association website ata.org.au, and the Clean Energy Council.

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