

# LAKE SIDE ELECTRICAL

## DOMESTIC & COMMERCIAL SOLAR SOLUTIONS

Reduce Your Power Consumption and  
Carbon Footprint by Generating Solar Power

### About Us...

Lakeside Electrical is a family owned business offering a professional service every time in all aspects of Solar Design, Installation and Customer Service for both commercial and domestic PV Grid Connect systems.

If you're looking for an approachable, local, reliable solar contractor, Lakeside is for you. No matter what your system size, we will ensure quality and customer satisfaction with competitive pricing.

Paul is accredited with the Clean Energy Council of Australia in Solar Design, Installation with Battery Endorsement, is a NECA member (National Electrical Contractors Association), and an Authorised Level 2 Service Provider with Essential Energy.

### Our Services Include:

- 35 years experience in the electrical industry
- Solar Systems specifically designed to suit your home, family and budget
- Deal with the same person from beginning all the way through to post sale
- Solar Design, Installation and Battery Endorsement
- All necessary applications, certificates and paperwork completed on your behalf
- Workmanship warranty and manufacturers warranties
- Competitive pricing
- After sales customer service

### The Benefits of PV Grid Connect Solar

Solar energy is not only clean and sustainable it is a natural renewable source, producing zero emissions whilst converting the sun's rays into usable electricity during this silent process.

Not only does solar power reduce your energy bills, it adds value to your home's resale estimation and is the way of the future.

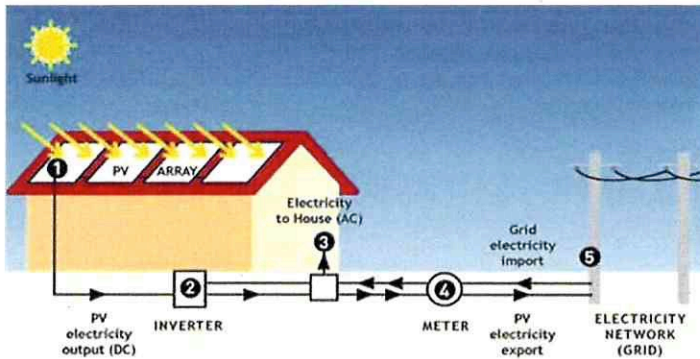
It is estimated the return on investment averages approximately 10-15%

Breakdowns and faults are very rare with high quality panels as there are no moving parts. Maintenance is minimal once installed.



## How Does Solar Work?

Solar Photovoltaic (PV) panels are generally fitted on the roof in a northerly direction or east/west split array and at an angle to maximise the amount of sunlight that hit the panels.



### Traditional DC System

Solar PV panels on the roofs of homes and businesses generate clean electricity by converting the energy in sunlight. This conversion takes place within modules of specially fabricated materials that make up the solar panels. It is a relatively simple process that requires no moving parts. In most cases solar panels are connected to the mains power supply through a device called an inverter.

Most suburban homes in Australia are connected to the electricity grid, which uses Alternating Current electricity (AC). But the electricity generated by solar panels is Direct Current (DC). That means grid-connected (GC) solar PV systems need an inverter to transform the DC household needs. **Houses with solar systems use solar power first before sourcing electricity from the grid.**

When the panels are not producing electricity at night, electricity is supplied from the existing electricity grid.

## Types of PV GRID Connect Systems

### 1. Traditional DC String System

The most common type of grid connect solar is the Traditional DC String system. This typically has panels that are wired in strings to a single central inverter, these systems are ideal for unshaded roof spaces. DC systems can range from budget products right through to top of the range products. This type of system is not battery ready and does not have an uninterrupted power supply function. Monitoring of your system (production only) is generally available.

### 2. DC Hybrid Systems

A DC Hybrid system is very similar in design to a Traditional DC String system. Although Hybrid inverters have added functionality compared with Traditional inverters. The Hybrid inverters are battery ready with compatible batteries and have an uninterrupted power supply option, therefore you have a backup circuit in the event of a grid shutdown. (You do require batteries for this to function). The Hybrid systems generally have a very user friendly monitoring system, showing consumption and production.

### 3. Micro-Inverters

Micro-Inverters are a different type of system where each panel has its own micro-inverter and are wired in parallel rather than a series - there is no central inverter. Micro-Inverter systems can be up to 25% more efficient than traditional string inverters and are used for both commercial and domestic situations. They are ideal for roofs that have slight shading at certain times of the day or require installations with various orientations due to roof space. Enphase micro-inverter systems are also battery ready, compatible with their lithium ion phosphate batteries, however at this stage they do not have backup circuit functionality. Enphase have a fantastic, very user friendly monitoring system that can be used on your smart phone, tablet or computer. Another advantage of this system is that they are modular, so extension of the system at a later time is easy!

*Please note:* If the grid has a blackout both DC and AC systems will shut down.

## Frequently Asked Questions....

### What size system should I consider?

The size of your solar PV system will depend on:

- The area available for the installation of your panels
- How much you are prepared to invest
- What portion of your electrical consumption you wish to generate

To work out the correct size solar PV system to suit your requirements you need to analyse your household's daily electricity consumption. Your monthly or quarterly electricity bill measures your household's electricity consumption in kilowatt hours. From this figure, you can calculate your average daily electricity consumption and the average amount of electricity your solar PV system needs to produce to cover your electricity needs. Lakeside Electrical will assist with this as part of the site assessment. The general industry advice is to install more solar than you need, that way you can offset your night time use with your feed in tariff.

## Do I need battery storage?

Batteries come in all shapes, sizes and various "recipes". Lithium Ion Phosphate batteries are a common type of battery used with grid connect solar. These batteries store excess energy production for use at night or during low production days. If you work during the day and are mainly consuming the majority of your power at night, use medical equipment or would like an Uninterrupted Power Supply (UPS), it may be more economically viable to install a larger solar system and feed back to the grid than install batteries. This can be assessed by Lakeside.

## Are rebates still available?

Yes... Rebates are available in the form of Small-scale Technology Certificates (STC's).

STC's are an electronic form of currency created by the Renewable Energy (Electricity) Act 2000. The amount of STC's you are eligible for depends on the size of your system and the Zone within Australia you live. The price of STC's change according to market conditions on a daily basis.

STC's are most commonly assigned to your accredited installer for a point of sale discount on your solar system.

## What are Feed-In Tariffs?

A feed-in tariff pays you for excess electricity generated by your solar PV system. Under a net feed-in tariff, a premium is paid for any solar energy that goes back into the grid from your house. So if you have surplus energy generated by your panels, you get paid for it and will be offset against your next energy bill. Feed-in tariffs vary between electricity retailers, therefore it pays to shop around for the best Feed-in Tariff and overall discounts offered.

## How much power will my PV system produce?

The output of a PV solar system depends on many factors such as size of system, shading, roof orientation, roof inclination and seasons. However, the average daily output for the South Coast of NSW is:

System Size	Output
1.5KW	6kWh / day
2KW	8kWh / day
3KW	12kWh / day
4KW	16kWh / day
5KW	20kWh / day
10KW	40kWh / day

## What is Connection to Grid?

To connect your solar system to the grid you will require a Smart Meter to be installed by your electricity retailer as per new regulation by NSW Government from 1 December 2017. This Smart Meter replaces your current general meter and will monitor your consumption and excess electricity being exported to the grid. Generally most retailers will install this meter free of charge, however it can take up to 4-6 weeks. Lakeside Electrical can help you with this application.

## Can you explain the installation process?

Should you decide that a solar system is the right investment for you or your business, Lakeside Electrical is here to help with the process.

- Contact Karen on 02 6494 3115 for an obligation free site inspection and quotation
- If the quotation is accepted, we will submit an application to Essential Energy on your behalf
- Once approval is received, we ask for a 20% deposit and order the materials required for your system
- Installation will take place on a day suitable to you. Dependent upon the size of the system, the installation can take between 1-4 days to complete
- You will have a run through with our staff on how your system works and the maintenance required to optimise your output
- You will then be required to complete some paperwork and finalise the balance of invoice

## What maintenance is required?

To ensure that your system is performing at its peak, we have compiled a list of system maintenance procedures you should undertake on a regular basis.

**Weekly:** Check inverter performance during the day. Keep it clean, dust free and check for any vermin infestation.

**Monthly:** Check your Solar Export Register to ensure it is reading any surplus solar power that is being exported to the grid.

**Quarterly:** Check cables and plugs, check for shading, check panels for dust build up.

**Every other year:** Maintenance Check of whole system, and if required, cleaning of panels – this can be scheduled with Lakeside Electrical.

## Warranties explained.....

Warranty is an important issue for a large investment such as a solar system and should not be taken lightly.

Should, in the rare occurrence, an inverter or panel fail, help is at hand. Lakeside Electrical offer a 10 year workmanship warranty as well as manufacturer's warranties. We ensure to use quality systems that guarantee a minimum of 5 years warranty on inverters and a minimum 12 years on panels with a panel output warranty of 25 years.

## Products

There are many products available for solar systems. Lakeside Electrical only use quality products that have been proven in the market for years, the manufacturer is financially stable and invests in development and their warranty service is up to our standard. It is essential to compare "apples with apples", not "apples with rotting bananas". Don't be fooled into buying a "cheap" solar system – it will end up costing you more in the long run.

Lakeside prices are very competitive, we offer ongoing support and for those clients' systems that we can monitor, we will check those on an ongoing basis at no extra charge.



## Hot Water Diverters

Hot Water Diverters are a logical solution to reducing your peak or off-peak consumption, utilising your excess solar production and diverting energy to your standard electric hot water tank or solar hot water tank. Forget about constantly changing tariffs. Catch is always assessing how much off-peak has been used and adjusting to maximise the use of your solar. We recommend the Green CatchPower Hot Water Diverter.

### How does it work?

Green Catch is simply a diverter of solar power that is excess to your household.

- Catch is installed in the meter box.
- Catch monitors power coming and going from your premises; when the diverter senses solar power leaving, it redirects that power to your hot water service.
- The Catch Control Pad gives the owner greater control of their hot water heating allowing for shorter days in winter, or an extra boost if required.
- The Control Pad can be adjusted to heat water immediately (from general tariff electricity), to never using the mains at all.
- Green Catch will automatically adjust the timer set to make the best use of your solar.
- Solar, together with Catch, can reduce your reliance on mains supplied power by an average of **85%**
- Lakeside Electrical is your local Catch Installer Partner.

*Should you have any queries, Lakeside Electrical is here to help – drop in to the Office in Pambula, send an email or give Karen a call.*

Link to CEC Consumer Guide:

<http://www.cleanenergycouncil.org.au/resourcecentre/Consumer-Info/solarPV-guide.html>

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