SOLAR

GRID CONNECT

IMPORTANT INFORMATION

How Your Solar Power system works

Solar cells are a practical use of the photovoltaic (PV) effect. In this process when light hits a conductor and semiconductor it transfers its energy to that conductor. Light is actually a stream of energy particles called photons. When the photons hit the silicon surface in the solar cells they generate electricity by transferring energy and causing electrons to flow.

Flowing electrons is electricity. In this way electricity is generated. Put simply, photovoltaic cells are energy converters – converting the energy from sunlight into electricity.

How a grid connect system works

1. Solar Panels
Directly convert energy in the form of sunlight into direct current (DC) electrical energy.

2. Inverter
An inverter changes the solar DC power into 240V alternating current (AC) ready to be fed back into the grid or used in your home*

3. Switch board
AC power from the inverter goes through the switch board for use in your home.

4. Electricity meter
The meter records the energy sent to the grid from your solar system as well as the energy consumed from the grid.

5. The electricity mains grid
Under a net feed in tariff: Any surplus electricity being generated simply flows through into the mains grid for use elsewhere.

*For safety reasons, when the grid goes down your solar PV system must automatically and immediately turn off. This is to ensure the safety of the electricity lines workers who are working to restore power.

System Performance

The system performance will largely depend on the geographical location, the weather and other atmospheric conditions at the installation site. The direction your panels face, the temperature they reach, the angle of tilt they are on, the amount of dust and shading they encounter all affect the ability of the system to perform at its peak level.

Safety

Your personal safety is very important to us. The following safety instructions MUST be followed to ensure your safety. Please read and understand all the safety instructions, warnings and cautions before using this system.

*Do not service or maintain your solar power system unless you are a licensed electrical contractor and it is completed in accordance with the Australian Electrical safety rules and standards.
*Do not make any modifications to your solar power system as you may endanger yourself and/or others and void the system and component warranties.
*Do not pour cold water on your solar panels when they are hot as the glass protective cover could shatter exposing you to electrical danger and voiding the component warranty.
*Do not walk on the solar panel's surface as it will damage the surface and void the component warranty.
*We do not recommend you walking on your roof unless you have an approved heights training course and the appropriate safety equipment.
*Observe all safety signs installed as part of your system, these signs must remain in place and visible to ensure both your safety and that of others.
*DC voltages can kill or cause serious injury, even when the system is completely isolated and all the circuit breakers are switched off there could still be DC voltages present across the solar modules.
*Do not open any of the components of your solar power system unless you are a qualified licensed BSCE accredited installer.

Guarantee and warranty claims
The guarantee and warranty claims will be void if unauthorized persons open or modify and components.

Electrical or building works
The solar power system must be shut down before commencing any electrical work or building works which may come in to contact with its electrical cables on the building. Observe all signage and warnings. Ensure you isolate the system before working.

Shut-down procedure for emergency and maintenance
Following procedure must be followed to shut down the system completely.

1. Take note of the fault on the inverter.
2. Turn OFF AC-AC output isolator next to the inverter if fitted.
3. turn OFF AC-Solar supply main switch isolator in switchboard
4. Turn OFF DC-PV array main switch (DC input isolator) next to the inverter.

Start up procedure
1. Turn on DC.
2. Turn on AC.

Fire
In case of a fire, try and shut down the system as long as it is safe to do so. All circuit breakers must remain off until the fire is extinguished.

Daylight voltage in the solar modules
In daylight hours, as well as at dusk and dawn, DC voltage will be present in the connected wires and cables.

Cleaning the solar array
Cleaning should only be carried out by an accredited BSCE licensed Electrician with the appropriate Working at Heights training certificate and the appropriate safety equipment.

System Maintenance

Once a week
*Check inverter is operating.
*Check meter is recording export power

Every three months
*Check electricity bill to ensure you are being credited for the power you are producing.
*Check for panel shading, as shading reduces performance,
*Check for build-up of dust or bird droppings

Every 1-2 Years
*Professional system performance and maintenance check by an accredited BSCE licensed Electrician.

System Maintenance Procedure

Meter
Check it during the day when there are no (or minimal) electrical appliances operating in your house. The meter should be showing energy being exported. If you are having trouble understanding how to read your meter, contact Skilled Electrical Services QLD for advice. If it is currently winter, the solar system may not make a significant difference to your bill.

Check your electricity bill
The easiest way to do this is to compare your current bill with the bill for the same period last year. Look at the number of kilowatts your household has consumed, it should be less than the last bill prior to the installation of the solar system, provided your usage has not changed. If it is currently winter, the solar system may not make a significant difference to your bill.

Check for shading
Trees can grow quickly and they may have grown since your solar system was installed. If trees are shading your panels, you will be able to see this by checking the array for shading across several hours during the day. Check at 10am, 12 lunch time and 3pm. If you detect shading, the trees may need to be trimmed. Be sure to check with your local council to ensure you comply with local laws before trimming or removing trees.

Professional system performance and maintenance check
To make an appointment for a professional system performance and maintenance check please call our friendly Electrical Contractor at
Skilled Electrical Services QLD Pty Ltd on 0430 311 555
greg@skilledelectrical.com.au BSCE #A9439245

Trouble Shooting

Inverter
The inverter is considered to be the “heart” of the solar system as it controls every aspect of the power generation within the system and provides system status indication. Your inverter manual contains information on identifying problems.

If the inverter doesn't respond
*Check there has not been a power cut. If there is the inverter will reconnect when power is restored.
*Check solar array main switch is in the ON position.
*Check solar supply circuit breaker is in the ON position.

System Protection

Surge Diverter
The installation of a quality surge diverter designed to protect your solar investment located at your main switchboard.

Skilled Electrical Services QLD Pty Ltd

Ph: 0430 311 555

www.skilledelectrical.com.au