

Solar PV (Photovoltaic)

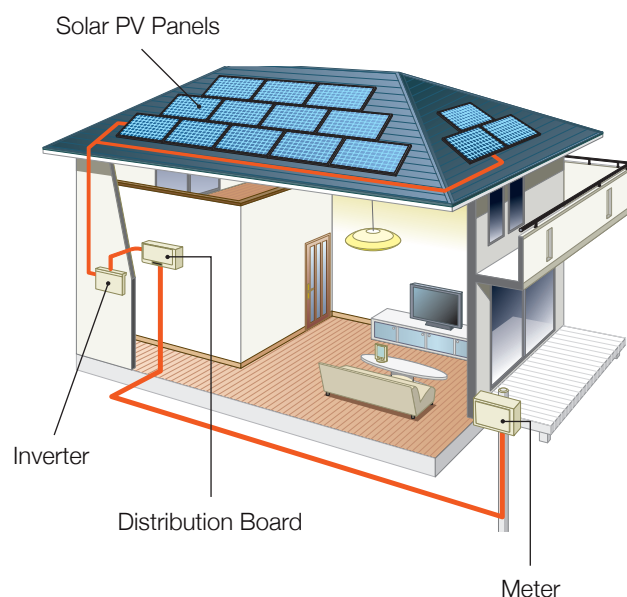


The Sun provides us with an unlimited and reliable source of free energy. Solar PV (Photovoltaic) panels harness this free and natural energy and convert it into useful electricity. With Photovoltaic systems daylight is what counts, it will produce electricity even on cloudy days.

- **Own your electricity supply.**
- **Sell your excess electricity to your electricity provider.**
- **Future proof against rising electricity costs.**
- **Improved Building Energy Rating (BER).**
- **Reduce carbon foot print.**
- **Adds value to your property.**
- **Zero Maintenance and long service life (approx 25 years).**
- **Can also be used as 'Stand-alone' off grid system.**

How it works (the basics)

- 1** Solar PV Modules are made up of a number of individual cells each producing about 0.5 volts.
- 2** The cells are connected in series to make up the modules which are then connected to make up larger arrays.
- 3** The Inverter changes the Direct Current (DC) to Alternating Current (AC) and ensures safe connection to the grid.
- 4** The AC power generated by your PV system is connected to your main distribution board and is used in the same way as electricity drawn from the power grid.
- 5** When the Solar PV Panels are producing more power than you are using, the surplus is fed back to the grid. At times of higher demand the shortfall is made up by power drawn from the grid



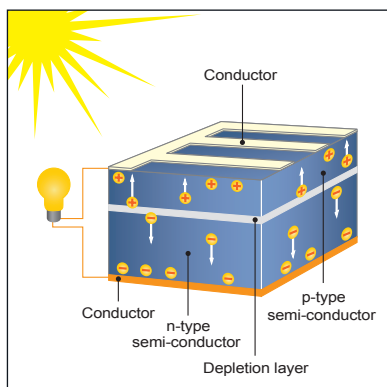
Installation

PV systems are suitable for both new build and retrofits. They are designed and sized based on a customer's budget, electricity needs, size / shape and orientation of roof space. The PV array should be installed in the best location to maximize the power output. PV modules may be surface mounted, roof integrated, PV flat tile or PV building cladding

In a typical 3 bed house (using 3290 kWh/yr of electricity), a PV system of 1.5 - 2 kWp (about 12 to 15m²) could provide 30% to 40% of your annual electricity requirements.

Solar PV panels are fully compatible with:

Grid Connected Systems, Off Grid systems with battery storage, or a hybrid of these systems.



Solar Cell

Installation process

- Planning Permission, if required, should be secured before work commences.
- Your application for grid connection must be submitted and agreed with your electricity provider before work commences.
- For new builds 'Roof Integrated' panels may be mounted during construction.
- For retrofits 'On Roof' or 'Frame Mounted' panels are installed, using specially designed mounting systems, on the finished roof.
- Scaffolding / roof access equipment is erected.
- Roof brackets and mounting rails are fixed to the roof structure.
- Cables are run into place.
- The Solar PV modules are mounted.
- The PV modules are interconnected modules and connected to the DC isolator.
- The PV array is tested.
- The inverter and isolators are fitted and wired.
- Metering / monitoring equipment is connected.
- The system is connected to the power distribution board.
- The system is commissioned (set-up) and handed over.
- Complete installation should take no more than 2 to 3 days.



Solar PV Array