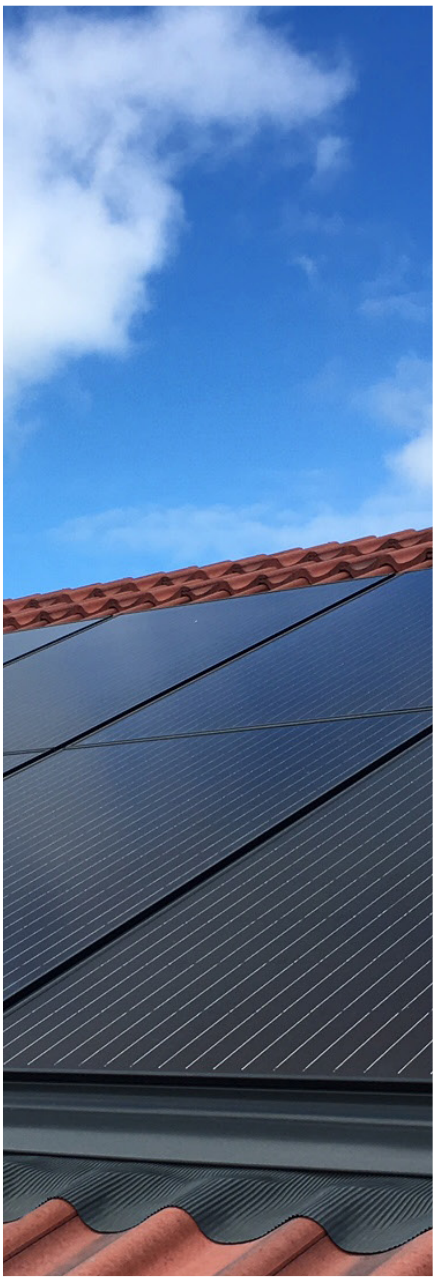
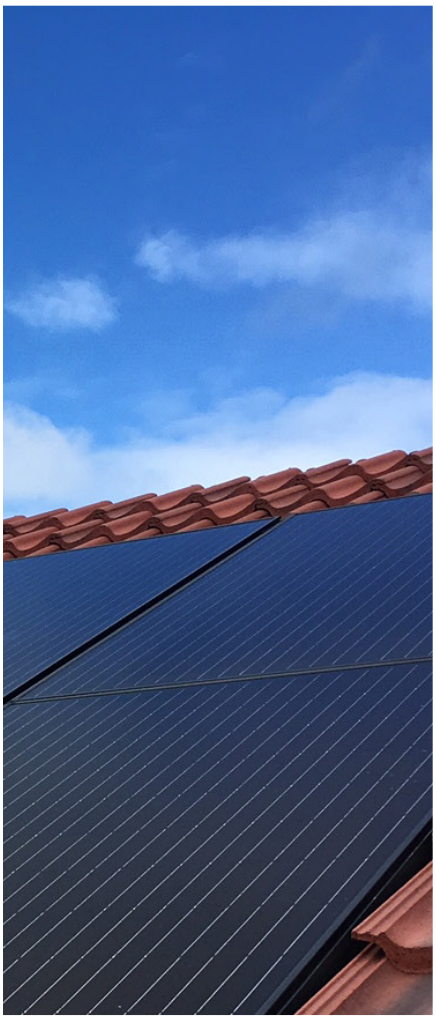






viridian solar

User Guide

How to get the most out of your PV solar sytem

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Clearline fusion

Congratulations on your new Clearline fusion roof-integrated solar system

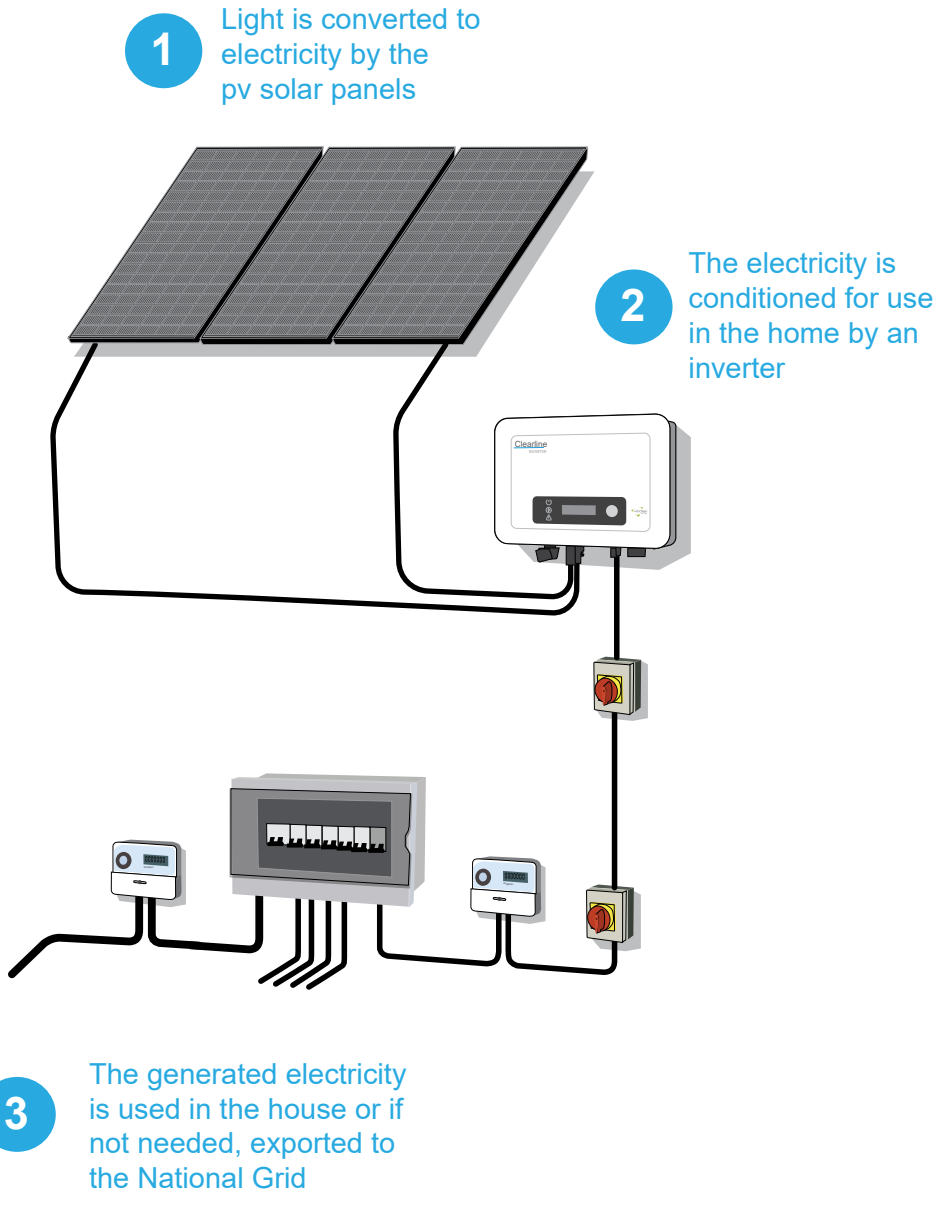
- Saving money on your energy bills - by generating your own free electricity you are protected against rising energy costs
- Reducing your carbon footprint - solar panels provide a clean and renewable energy source
- Providing years of trouble-free operation

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About Your Solar Photovoltaic (PV) System

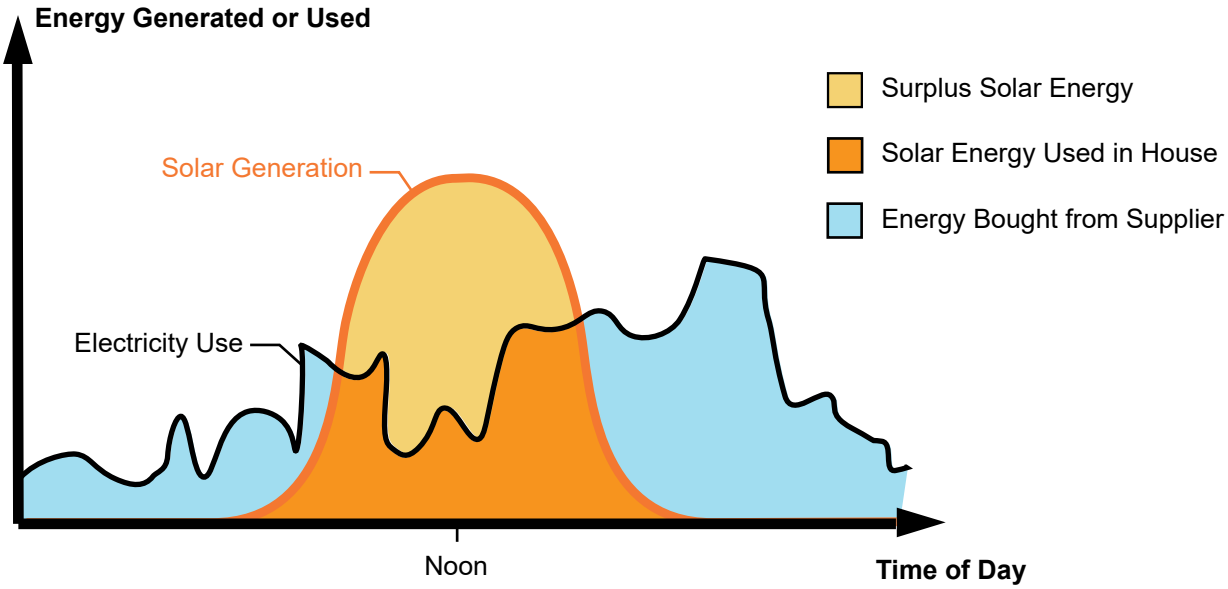
How Solar Power Works

Clearline PV16 solar panels contain crystalline silicon cells that convert light into electricity. The cells are electrically connected and sealed behind a sheet of toughened glass. The glass is then mounted to a durable aluminium frame. The panels are fixed to the roof to replace tiles or slates.



Solar panels will generate electricity even on a cloudy day, but they will generate more power when in direct sunshine.

Your electricity use changes all through the day and so does the solar generation. When you are using more energy than the solar panels are generating the balance is imported from your electricity supplier. At times when the solar generates more than you are using, the surplus power can be exported onto the grid for other people to use.



The solar electricity you generate is naturally used in the property if there is a demand for it. So electricity is not taken from the grid and the reading on your electricity meter will not go up. The meter will only count power use when the solar generation is less than the house is using and you need to top up with grid electricity.

Grid connected solar generators need to disconnect from the grid in the event of a power cut. Your inverter will detect a power cut immediately and shut down, automatically restarting once power is reconnected from the grid. As a result your solar system will not power the house in a power cut.

It is possible to configure a solar system to provide backup power - often in combination with battery storage, but the low frequency of power cuts rarely justifies the extra expense.

Energy Savings

The amount of energy a solar system generates each year depends on:

- the size of the system (the number and power rating of the panels),
- the direction the panels are facing,
- the location of your house,
- the tilt angle of its roof and
- shading from vegetation and nearby buildings.

The solar installation company will have supplied an MCS certificate which shows a figure for the Annual Estimated Generation, calculated using an approved method.

It is highly unlikely that solar will meet your entire electricity needs. Even if the system is large enough to generate the same energy each year as you use, there will be differences in timing between when you're generating and when you want to use the energy (for example at night).

Technologies can help you use more of the energy you generate, for example:

- The solar system can be combined with a battery storage system
- A solar diverter can send surplus solar energy to an immersion heater in a hot water tank
- Some electric vehicle (EV) chargers can control the charging rate to make the most of solar energy

Without special measures like these a rough rule of thumb would be to expect 40-50% of what you generate to be used in the house. Multiply the Annual Estimated Generation figure by 40 or 50%, to calculate an estimate for the energy saving on your electricity bill. Mulitply the energy saving by how much you currently pay for a unit of daytime electricity and this will give you an estimate for the saving on your bills.

You may be able to increase this figure by using more of the energy you produce yourself or selling your surplus generation to an energy supplier (see next section for tips).

Tips to Make the Most of Your Solar System

Your solar system will operate automatically but there are things you can do to make the most of it.

Time-Shift Your Power Use
Electricity bought in from the supplier costs more than you can make selling your surplus generation, so try to shift energy use to the sunniest times - for example running a dishwasher, or washing machine at this time.

Technologies such as a solar-enabled electric vehicle (EV) charger can help you use more power when the solar is generating.

Keep an Eye on Your System
See the Maintenance and Troubleshooting section for guidance on how to check your system is continuing to operate normally.

Sign Up for the Smart Export Guarantee (SEG) Tariff
You can get paid by an electricity supplier for any exported surplus generation.

> Note: Some areas are subject to restrictions on exported power imposed by the District Network Operator (DNO) due to limitations of the local power infrastructure. In this case your inverter may be set to prevent export completely or keep it below an agreed limit.

If you have a smart meter you can register to receive payment for your exported surplus solar energy under the Smart Export Guarantee (SEG). You don't have to apply to the same energy supplier that you buy your power from, and the rates on offer vary a lot between suppliers so we recommend that you shop around.

Further information on the SEG:
Comparison of SEG tariff rates:

Maintenance and Troubleshooting

Clearline fusion PV16 solar panels are designed for long life and require very little maintenance.

Check the Solar Generation Meter
The simplest way to keep an eye on the performance of your solar system is to check the generation meter every so often. This will be installed near the electricity Consumer Unit and will be labelled. It displays the running total of the number of units of electricity (in kilowatt hours or kWh) that the solar system has generated. The value should be consistently rising over time.

You can compare the rate of increase on the meter with the Annual Estimated Generation figure on the Microgeneration Certification Scheme (MCS) certificate provided by the solar installer. Bear in mind that the solar system will generate more in the summer months.

Many Generation Meters have an indicator light that will flash when the solar PV is generating. The flash frequency increases the greater the power output. At night the light will be constantly on.

If you believe there is a problem with your solar system, refer to the troubleshooting section below or contact the installation company that installed your solar system. You will find its contact details on the MCS certificate.

Panel Cleaning and Shading
Normal rainfall is usually sufficient to keep the glass surface clean. However solar panels in certain locations prone to bird fouling or leaf fall may benefit from periodic cleaning. In this case we recommend that the services of a professional cleaning company is sought. Panels should only be cleaned with warm soapy water or glass cleaner.

Check also from time to time that vegetation has not grown to shade the solar panels and cut back any that does.

Damage to Panels

Clearline fusion solar panels are robust and long-lasting but damage by vandalism, stones dropped by birds or extreme weather (large hailstones) can occasionally occur.



Broken panels may suffer water damage and become a fire risk. If you see cracking on the glass immediately disconnect the system at the isolator switch and seek the advice of a solar installation company.

Inverter

We recommend if possible to check the inverter display for error messages. Refer to the inverter's user manual for further information. If you have a Clearline Inverter you can find the user manual on the following links. 0.7-3.0 kW: 3.6-6.0 kW:

Electrical System Maintenance

As recommended by BS 7671 the safety of the building electrical system should be tested by a qualified electrician every 5-10 years, and the solar system should be included in this testing.

Troubleshooting



PV systems feature dual supplies (DC & AC). Please contact a qualified electrician for advice before attempting any work.

If the PV System is not producing energy during daylight:

- Check there has not been a power cut. If there is a power cut then the solar system will cease operation until power is restored.
- Check all Isolator Switches are set in the ON position. One AC isolator should be by the Consumer Unit and one will be near the Inverter. A DC isolator switch may be integrated with the inverter or separate. Establish why the isolator was switched off to start with and only switch back on when it is safe to do so.
- Check the circuit breaker for the solar circuit has not tripped. Switch the circuit breaker on only after checking for and rectifying any fault that caused it to trip.

- Check the Inverter, Check the panel on the front of the Inverter for error messages. If you have a Clearline Inverter you can find the user manual on the following links. 0.7-3.0 kW: 3.6-6.0 kW:
- Try a Reset. Power the entire system off at the main AC isolator. Wait 10 seconds and switch back on. Allow several minutes for the Inverter to start up.

If you still have a problem, as your next step please contact the company that installed your solar system for assistance. You will find its contact details on the MCS Certificate.

End of Life

As your solar panels reach the end of their operational life, it is essential to handle their disposal responsibly to minimize environmental impact.



Ensure compliance with local WEEE regulations when disposing of solar panels. There are specific guidelines for the proper disposal and recycling of electronic waste, including photovoltaic panels.

The decommissioning of a solar installation involves electrical hazards and should be done by a competent person who will be able to advise you on disposal and recycling of the components, including the solar panels.

Warranty Details

We expect our products to give years of trouble free operation. Details of our warranties can be found on the below links.

Clearline fusion solar panels and roofing kits

Clearline Inverter

Or navigate to: https://viridian.solar/warranty/

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