



Department for
Business, Energy
& Industrial Strategy
LAD Phase 2 funding

Solar



Getting the best from your solar PV panels
How to make it pay while the sun shines

Solar PV

If your home has solar panels you may need to re-think the way you consume electricity in order to reap the greatest benefit.

Solar photovoltaic (or PV) panels convert the energy in sunlight into electricity, and this is effectively free electricity that can be used in your home. Any surplus electricity that is generated can also be exported to the grid for other homes to use.

However, there will be times when you're using more electricity than the panels are producing, such as on overcast days or on dark evenings. At these times you will need to buy extra electricity from the national grid and you will be charged for it by your energy supplier at the normal rate.

If you want to realise the most gain from your free electricity you should look to stagger the use of high-wattage appliances to make the most of the free electricity available. This might mean waiting for your washing machine to finish before running the dishwasher.

Out during the day?

Households who are home during the day can take easier advantage of the free electricity than those who are only at home mornings and evenings (an average saving of £240 on the bills, compared to £100). In these situations, use inbuilt delay-start timers for appliances such as washing machines.

If you own your home and have the money to invest, you could also explore installing battery storage.

What's an inverter?

The inverter is there to convert the electricity generated by the solar panels from direct current (DC) into alternating current (AC), a form that your household appliances can use. A display on your inverter will inform you how much electricity is being generated at any point in time. If you know how much your appliances use, you'll be able to look at your inverter and then choose what you should run in order to make the most of the free electricity being produced.

Inverter



Your inverter may be installed in out-of-the-way places like the loft and if this is the case, it's worth thinking about buying a solar energy monitor that you can put in a more convenient place. If you don't own the solar panels, do check with whoever does that it is OK for you to fit a monitor.

See reverse →



Solar Electricity

Power your home with free sunlight

The sun provides an abundant source of clean, renewable energy. This can be converted into electricity using solar photovoltaic panels, usually referred to as 'solar PV'. Electricity generated by a domestic solar PV system can be used to power your home, leading to savings on your electricity bills.



How does it work?

Solar PV systems turn sunlight into direct current (DC) electricity through the 'solar cells' they contain. An inverter converts this to 240V alternating current (AC), so that it can be used in your home or stored in a battery if you have one. Any surplus electricity can be sold to the grid at 4-6 pence per kWh if you have a smart meter and your supplier supports the Smart Export Guarantee.

Cost

Most domestic solar PV systems are 4kWp and cost between £5,000 and £8,000. These systems are capable of generating approximately

3,400 to 4,200 kilowatt hours (kWh) of power a year. The average household uses around 3,000 kWh a year, but only some of this will be replaced with generated electricity unless you're careful to make the most use of it. The inverter may need to be replaced after around 10 years at a cost of about £500-1000. Most systems require little or no maintenance and the panels should last for decades.

Is solar PV for you?

Solar PV works best in these conditions:

- Maximum exposure to the sun, achieved by facing panels in a direction between south east & south west.
- No shading from trees, chimneys or buildings.
- A structurally sound roof. It will need to take the extra weight of the solar panels plus the fixing frames.
- You use electricity during the day
- Combined with battery storage

To get the most out of your solar generated electricity, try running high-usage appliances like washing machines and dishwashers during the day or with delay-start timers, although it's best to stagger their use so they're not all running at once. Doing this can increase savings by around 50%.

Storage

Combining a solar PV system with battery storage allows you to store excess energy and use it when you need it (eg. in the evening). Although domestic battery storage is currently quite expensive, the technology is developing rapidly, and costs are falling. Excess electricity could be used to charge an electric vehicle, or used to heat water in a hot water cylinder.