

# Your new solar PV panels

## How to make it pay while the sun shines

If your home has solar panels – installed by you or your landlord, or through a ‘rent-a-roof’ scheme – you may need to re-think the way you consume electricity in order to reap the greatest benefit.

This is to ensure that you are making the most of the free electricity that the solar panels are generating. It may mean you need to change your routines and planning ahead, for example using your washing machine or dishwasher during the day rather than in the evening.

Solar photovoltaic (or PV) panels convert the energy in sunlight into electricity, and this is effectively free electricity that can be used in your house (once the cost of installing the panels has been taken into account, of course). Surplus electricity is exported to the grid.

However, when the sun isn’t shining, or when you’re using more electricity than the panels are producing, the extra will be imported from the national grid, as it was before you had the panels, and you will be charged for it by your energy supplier at the normal rate.

A typical 2kWp (2000W) household array of solar panels will produce 2kW under optimum conditions, that is:

- i) if the panels face more or less south and are sloped at the right angle to receive the most sunlight
- ii) if the panels are free from shade
- iii) if it is a sunny day

So, at noon on a bright June day they could be producing close to 2000W, while on a cloudy afternoon in December that output might be nearer to 100W.



**Solar panels: use them wisely to make them pay**

In order to know how to use this free energy wisely, you need to have an idea of how much electricity different appliances use. Let’s look at some typical power ratings:

Low energy light bulb: 15W
Fridge: 100W
Laptop: 150W
Microwave: 750W
Washing machine: 2500W (2.5kW)

And let’s assume your solar panels are generating a steady 1000W (1kW). Of this, 100W will be used by the fridge – though not continuously since it switches itself on and off according to need – leaving 900W for other appliances. So based on the ratings above you could use your 750W microwave for free and still have 150W available to run lower power appliances, such as lights. If you wanted to run your washing machine you’d pay for the extra 1600W that you need and that the solar panels can’t generate.

It follows that you should 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.

Use a timer to set your dishwasher or washing machine to make use of the free electricity that your solar panels will generate on a sunny day



## Check your inverter

Solar panels come with an **inverter** which converts the electricity generated by the panels from direct current (DC) into alternating current (AC), a form that your household appliances can use. A display on the inverter shows how much electricity is being generated. 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. But remember that what you read on your inverter display shows the output at that particular moment in time; this may quickly change according to weather conditions.

It may be worth making a note of the power rating of your appliances (e.g. laptop, 150W; hairdryer, 1300W) and keeping it next to your inverter display to help you make quick decisions about what appliance you want to use.

However, the inverter may be installed in out-of-the-way places like the loft. If this is the case it's worth thinking about buying an energy monitor that you can put in a more convenient place.

These can be bought for around £100. Some models are straightforward to install but others may need to be fitted by a professional electrician. You can even have your system connected remotely to your computer, allowing you to monitor your panels over time. If you don't own the solar panels, check with whoever does that it is OK for you to fit a monitor.

## Feed-in tariff: a brief introduction

The feed-in-tariff is a payment incentive to encourage people to invest in systems which generate electricity from renewable technologies, like solar panels. The owner of the system receives a payment not only for any **unused** electricity (which is fed back into the grid), but also for every unit of electricity **generated**, whether or not it's being used.

It's important to remember that you will benefit more financially if you use your appliances when your PV panels are generating the most electricity. This is because what you earn for exporting electricity is worth much less than what you save by using it yourself.

If you don't own your panels – for example if they were installed under a 'rent-a-roof' scheme or a community-owned PV initiative, or installed by your landlord – you will probably not receive this payment as you don't own the panels. You may however benefit from the free electricity they produce.

See [www.cse.org.uk/advice-fits](http://www.cse.org.uk/advice-fits) for more information



Photos | close-ups (L) Katharina Wittfeld; (R) Fernando Alonso Herrero; washing machine, Carlos Caetano. All from www.iStock.com. Houses (front) CSE; houses (back), Kevin Lindgaard.

**Lots more information, free downloads and tips on saving energy at [www.cse.org.uk/adviceleaflets](http://www.cse.org.uk/adviceleaflets). A particularly relevant leaflet is What uses watt?**



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CSE's Home Energy Team offers free advice on domestic energy use to householders in Bristol and Somerset (including the unitary authorities of North Somerset and Bath & North East Somerset).

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