

## Facts & Figures

### Did you know?

- The earth receives enough energy from the sun in one hour to power the world's population for a year.
- Enough sunlight reaches the earth each year to produce 1000 times more energy than is produced burning fossil fuels.
- If every roof in the UK were to be covered in solar panels, we could exceed the whole nation's energy demand.
- Solar PV could provide 10,000 times more energy than the world currently uses.
- If we covered a small fraction of the Sahara desert (600miles<sup>2</sup>) with PV, we could generate all the world's electricity requirements.
- If you install a solar PV tiled roof, you could prevent over 34 tonnes of greenhouse gas emissions during its lifetime.
- Two billion people on earth have no electricity. Typically their energy comes from candles, kerosene and batteries. Often these monthly costs are greater than the cost of a solar mortgage for a quality solar home system.
- Many buildings use cladding materials, which cost £1000 per square metre. The bronze façade to the new Westminster parliament office complex cost over £7000 per square metre. By contrast, solar PV cladding - which can look every bit as attractive as marble or bronze - costs as little as £500 per square metre. It would also have provided clean and free power for the building.

### How much solar do I need?

It is unusual that all of your electricity demand is met by solar. Typically, solar systems installed provide between 30 and 50%. This is generally due to roof space or budget restrictions.

The easiest way to start is to calculate the amount you can fit on the roof, and go from there.

Here is a calculation:

Roof space (m<sup>2</sup>)/10 = number solar kWp fit on roof

### How much will the solar generate?

A 1 kWp system will generate 800 units of electricity pa (kWh)

\_\_\_kWp x 800 = solar electricity generated (kWh)

### How much will it cost?

Generally 1 kWp = £9,000 fully installed

### What % of my electricity demand will the solar provide?

First you will need to calculate the amount of electricity you use over the year. This can be done by collecting the last four electricity bills and adding up the electricity units (kWh) used.

kWh generated/ kWh used pa x 100 = % figure

**Energy Calculator** This is a really good site that allows you to calculate your carbon footprint (i.e. carbon emissions) based on annual energy consumption. It also allows you to calculate what carbon emission savings you could gain from a solar system. The site gives examples that allow visualisation of what the figures mean in real terms.

<http://www.thecarbontrust.co.uk/energy>

### Payback/Money saved

One of the most frequently asked questions is about payback. We'll start by asking about your motivation to *go solar*.

If you are concerned about the environment solar is a great way to make your own contribution to reducing emissions, and to make a positive impact.

We'll be honest - if you're purely looking to save a lot of money by installing solar PV this technology isn't for you. With a solar grant from the government, the payback is about 50 years.

If you consider yourself a pioneer then you could light the way with a solar beacon, as an example of what can be done to reduce emissions and pollution.

### Net metering – selling electricity to the grid

During the day any electricity not used in the house can be sold. Various electricity supply companies offer this service at varying rates of return.

### How does the solar system connect into my home?

The solar array is fitted to the property, usually on the roof. When exposed to daylight the solar will generate electricity as DC power. The array is connected to an inverter, fitted in the loft space, which converts DC power to AC power, a form that most household appliances can use. The solar electricity feeds power to where it is required. Any surplus is exported to the grid. At night, when there is no solar electricity being generated, electricity is imported from the grid. Any shortfall in solar electricity during the day will also be imported from the grid. The meter in your home will record how much is imported. A second meter is installed to record how much is exported.

*Imagine...* a world where you could harness the power of the sun to meet your energy needs

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