



Tel 0115 981 3932

Mob 07430 914486

In partnership with The Fireplace Centre and other Assured Companies

SOLAR ELECTRICITY – (PHOTOVOLTAIC or PV)



How do photovoltaic (PV) cells work?

PV cells are panels you can attach to your roof or walls. Each cell is made from one or two layers of semiconducting material, usually silicon. When light shines on the cell it creates an electric field across the layers. The stronger the sunshine, the more electricity is produced.

PV cells come in a variety of shapes and colours, from grey "solar tiles" that look like roof tiles to panels and transparent cells that you can use on conservatories and glass.

The strength of a PV cell is measured in kilowatt peak (kWp) - that's the amount of energy the cell generates in full sunlight.

The benefits of solar electricity

- **Cut your carbon footprint:** solar electricity is green, renewable energy and doesn't release any harmful carbon dioxide or other pollutants. A typical home PV system could save around 1200 kg of carbon dioxide per year - that's around 30 tonnes over its lifetime.
- **Cut your electricity bills:** sunlight is free, so once you've paid for the initial installation your electricity costs will be greatly reduced. A typical home PV system can produce around 40% of the electricity a household uses in a year.

- **Sell electricity back to the Grid:** if your system is producing more electricity than you need, or when you can't use it, someone else can use it - and you could make a bit of money.
- **Store electricity for a cloudy day:** if your home isn't connected to the national grid you can store excess electricity in batteries to use when you need it.

Is solar electricity suitable for my home?

Solar panels are not light and your roof must be strong enough

To tell if solar electricity is right for you, there are a few key questions to consider:

- **Do you have a sunny place to put it?** You'll need a roof or wall that faces within 90 degrees of south, and isn't overshadowed by trees or buildings. If the surface is in shadow for parts of the day, your system will generate less energy.
- **Is your roof strong enough?** Solar panels are not light and the roof must be strong enough to take their weight, especially if the panel is placed on top of existing tiles. If in doubt, ask a construction expert or an installer.
- **Do you need planning permission? In England and Scotland,** you don't need planning permission for most home solar electricity systems, as long as they're below a certain size - but you should check with your local planning officer if your home is a listed building, or is in a conservation area or World Heritage Site.

Cost, savings and maintenance

Costs for installing a solar electricity system vary a lot - an average system costs between £8,000 and £14,000, depending on its size and type.

In general:

- the more electricity the system can generate, the more it costs but the more it could save
- solar tiles cost more than conventional panels
- panels built into a roof are more expensive than those that sit on top but,
- if you need major roof repairs, PV tiles can offset the cost of roof tiles

Savings can be considerable - almost 1 tonne of CO₂ a year, and around £200 off your electricity bill*. A 2 kWp system could provide around 40% of a household's yearly electricity needs.

Maintenance is generally small - you'll need to keep the panels relatively clean and make sure trees don't begin to overshadow them.