

Renewable Energy Information sheet



SOLAR ELECTRICITY - PHOTOVOLTAICS

What is solar PV (Photovoltaics)?

Electricity can be generated from the sun using 'photovoltaic' or PV panels. They are made of materials that generate electricity when exposed to light. There are various types of panel available and the sun does not have to be shining for them to work. Originally developed for use powering satellites, developments in manufacturing techniques have steadily reduced the cost and improved the performance.

How are they used?

Positioned on roofs facing from Southeast to Southwest, panels can be fixed to the roof, wall or gable end, although they operate best at an incline of 30-70 degrees. Some panels can be used to replace conventional materials such as roofing tiles or cladding. They are increasingly being used to meet electricity needs worldwide particularly when integrated into buildings. They are particularly useful for providing power in locations that are not grid linked.

How much does it cost?

The costs of PV are still high but have dropped drastically over recent years. A typical 3kWp system currently costs around £10,000 installed. In new build the costs are lower. Improvements in the technology and higher volume production are continuing to bring costs down further.

How long will the panels last?

Systems are expected to have a life of 25 years with very low maintenance - routine cleaning forming part of normal building maintenance. Many systems today are provided with operation and power output guarantees for the lifetime of the equipment. The electronic control equipment is the most unreliable part of the system.

Will I need planning permission?

Not usually, but if you live in a listed building or in a conservation area you may need consent. Contact your local authority planning department for advice and also check if building regulations might apply. If there are problems installing the panels on the roof, it may be possible to put a system in the grounds of your house.

What are the environmental aspects?

PV is emission free and the systems require no fuel or cooling water. It is a silent operation and so is very suitable for installation in urban areas. The manufacture of the panels uses potentially harmful substances but industrial production techniques and equipment are used to minimise this.

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Energy payback

Energy payback is the energy required to manufacture, install, run and decommission a technology. PV can expect to pay back all this energy in around 4 years. This makes PV, which usually has at least a 25 year lifespan, a good technology for helping reduce carbon emissions.

Are there any grants or incentives available to help with the costs?

As of April 2010, feed in tariffs have been introduced in the UK - making it not only environmentally friendly, but also economically profitable, to have microgeneration systems installed in ones home or workplace. Feed in tariffs pay a guaranteed premium rate for the energy you generate regardless of whether you use it yourself or export it onto the grid. To ensure that you can gain the full advantage of being part of the feed in tariff scheme please ensure that your system is installed by an MCS registered fitter. For details of these schemes, download the **Financial Incentives information sheet** from our website. For information about the feed in tariff and accredited installers within the Yorkshire and Humber area visit www.yhmp.org

Are there many solar PV systems in the UK?

There has been a massive increase in PV installations since the FIT was introduced. It is estimated that there is over 750MW of installed PV capacity in the UK. There are tens of thousands of domestic size systems around the UK. In other parts of Europe the numbers of systems are much greater than in the UK.

Trade Association

The British Photovoltaic Association (BPVA) is the Trade Association for the PV industry of Great Britain. Their membership body comprises of suppliers and installers of PV systems and components. More information and a fully searchable membership database can be found at their website: <http://www.bpva.org.uk/>

A variety of low carbon energy calculators, which can help you calculate everything from your carbon footprint to the wind power and solar potentials of your home or workplace can be found at www.energysavingtrust.co.uk. These are free and easy to use.

The ATC promotes energy efficiency – it is cheaper to save energy than produce it.