Photovoltaics - solar electricity

Using Photovoltaic Panels

MEA factsheet #2a

marches energy agency

Electricity can be generated from the sun using “solar” photovoltaic (PV) panels. They don’t have to be receiving direct sunlight in order to work – any daylight will generate electricity. However full summer sun will generate more power than an overcast day in winter and the more of it the panels receive, the more cost effective they will be. PV panels come in a wide range of different sizes. For domestic installations, the new Feed-In Tariffs (FITS) allow you to sell surplus electricity back to the grid and so recoup your initial investment two or three times over.

Different Uses for PV Technology

PV panels come in various different sizes and can be used for a range of different applications. Very small PV cells can be used to charge all sizes of batteries for home use.

Small PV units can be a good solution for providing light and power away from the grid, such as in an outbuilding. Large 12V batteries will be needed to store the power and an inverter will be needed to convert it into useable 240V electricity.

Large PV panels can also be installed either with a series of 12V batteries for remote locations unconnected to the grid or they can connected directly into the National Grid. Using a two-way meter, surplus power can then be sold back to your supplier.

Mini solar pv cells can be used to charge electrical devices such as mobile phones, mp3 players or cameras.

Larger, flexible panels are now being integrated into items such as rucksacks and shoulder bags. Again, these can be used to charge small electrical devices.

At the other end of the scale, huge arrays of large pv panels (pictured here in Nevada, USA) are being used to generate 10 to 14 megawatts of electricity.

Cost Effectiveness

Prices for PV panels vary hugely, depending on the scale of the technology. Solar battery chargers, for example, begin at about £10, while small off grid panels range from about £250 - £1000. Larger PV panels, costing £8000-14000, should be seen as an investment, and have been shown to add to the value of a property.

The cost effectiveness of a domestic PV system depends on the site, size of panel and on the electricity market. The panels should face between SE and SW to maximise output. Because neither sunlight nor your electricity needs are constant, you will still need a mains supply for when you can’t generate enough. However, the feed-in tariffs incentive (see below) makes it possible to sell excess electricity back to the national grid. This will make a significant difference to the cost effectiveness of installation.Generally, larger panels will pay for themselves more quickly than smaller ones.

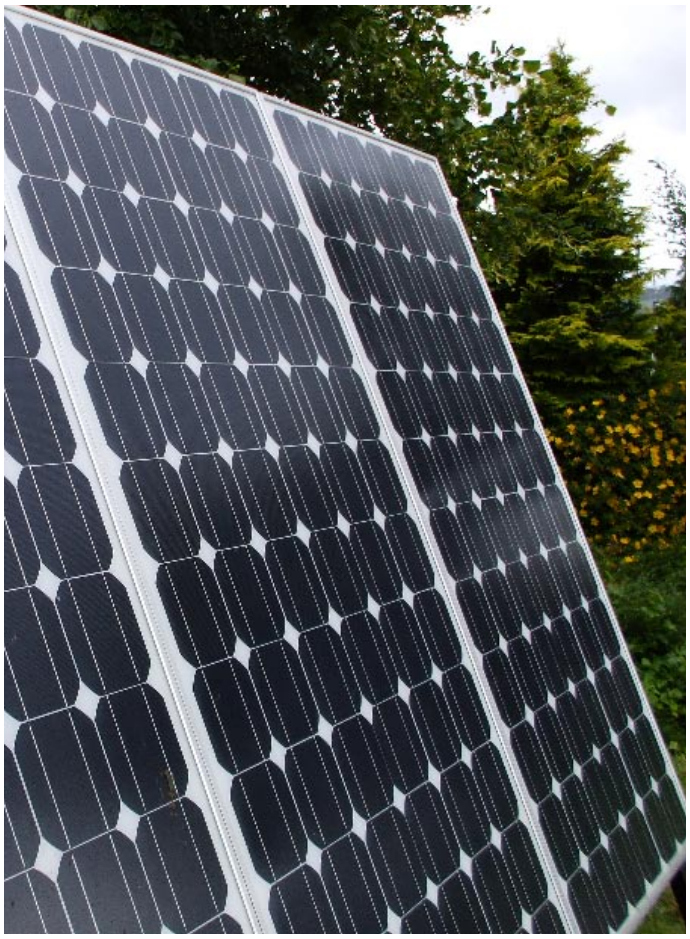
Ultimately, the size and orientation of roof and the amount of energy required dictates the size of panel to be purchased. We recommend you consult a professional installer or manufacturer.

Feed-In Tariffs

Feed In Tarriffs (FITS) is a new Government-backed initiative to make it more worthwhile installing renewable or low carbon energy technology, including wind PV solar, in your home, business or community. By using a special two-way meter, FITS allows you to sell electricity into the national grid at a higher rate than you would buy it. Fully insulating your home and using as many energy saving technologies as possible will maximise your income from the scheme. In addition, you get paid for any energy you produce, even if you use it all yourself. Thirdly, even if you're not fortunate enough to become self sufficient in electricity, the amount you have to buy in from your supplier will drastically reduce.

The exact amount earned and saved depends on the type and scale of the technology. Generally, over the lifetime of the tariff you will recoup the initial investment at least two or three times over. The tariffs will be index linked to allow for inflation.

To qualify for FITS payments you must use an MCS registered supplier or installer. Generally, small-scale wind installations will not need planning permission unless you are in a listed building or conservation area but you should check with your local authority first.



Further Information:

General information

Energy Saving Trust
0800 512012
www.energysavingtrust.org.uk

Centre for Alternative Technology
01564 705950
www.cat.org.uk

MCS Registered Products and Installers
020 7090 1082
www.microgenerationcertification.org

Solar Trade Association
01908 442290
www.solar-trade.org.uk

Suppliers and Installers

Please note that this list is not exhaustive. The companies listed are offered as a starting point for enquiries but with no implied recommendation of any product or service.

Ownergey 020 7173 5010
www.ownergy.co.uk

Southern Solar Ltd 0845 456 9474
www.southernsolar.co.uk

Wind and Sun Ltd 01568 760671
www.windandsun.co.uk

Dulas Engineering 01654 705000
www.dulasltd.co.uk

Greenearth Energy 01981 241399
www.greenearthenergy.co.uk

Solar Century 020 7803 0100
www.solarcentury.co.uk

Solar Energy Alliance 01502 515532
www.solarenergyalliance.com

Supplier and Installer Directories

www.accessrenewables.co.uk
www.realassurance.org.uk

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