

# BeGreen

## Photo-voltaic Panels & Feed-in-Tariffs

*Feed-in-tariffs* came into effect in April this year and are modelled on schemes that have been successfully introduced in other countries. The principal aims of the scheme are to rapidly build-up the domestic PV industry, reduce costs, and expand a small but important part of the renewable energy mix.

Photo-voltaic panels can last 30-40 years, albeit with a drop-off in efficiency to around 80% after 25 years. However, until now, the high installation costs typically meant a payback of 25-30 years. The *Feed-in-Tariffs* now guarantee a fixed price, index linked, for a period of 25 years from registration, for all electricity generated. There is a small additional minimum tariff for energy exported back to the grid. The tariffs will be paid by the utility companies.

The result of this is that the payback periods reduce considerably; to around 13 years for a typical installation. Given the tariffs last for 25 years, this represents a fairly healthy, and guaranteed, return on investment. If the scheme is successful in building the industry and reducing costs, then at some point the scheme will be closed to new entrants but this should not affect anyone already registered; the tariffs effectively form a 25 year contract.

To encourage early take up, the tariffs will be subject to a degression whereby their level is reduced year on year, but the starting rate will be held until April 2012.

Installation still involves quite a high capital investment; a 2 kWp array, that could generate around 50% of a typical households demand, costs in the region of £10,000. However, because the *Feed-in-Tariffs* effectively guarantee a predictable return on investment, there is the prospect of loans becoming more readily available to fund such measures. The *Energy Savings Trust* currently operates an interest free loan scheme but the fund for this is limited and may be discontinued.

The main political parties have indicated the introduction of some form of '*Green Mortgage*' or '*Pay-As-You-Save*' scheme for energy efficiency measures that should include renewables. Given that almost all energy efficiency measures pay for themselves in the long term, this may be the key to unlock up-front capital funding for a whole range of improvement measures, so long as the loan or mortgage is tied to the property rather than the person. Hopefully a detailed scheme will be forthcoming.

PV panels work most effectively facing South-East to South-West, although East and West facing panels still generate reasonable amounts of electricity. They can cope with diffuse light but not direct shadow; as the cells are connected in series even a small proportion shaded can effectively stop the panel working. They can be mounted flush with the roof or raised slightly above, and are classed as Permitted Development so do not require permission outside *Conservation Areas* or on *un-Listed Buildings*. In *Conservation Areas* or on *Listed Buildings* the Planning Department will take a view on a case by case basis. As they are permitted development elsewhere, an application for *Conservation Area* or *Listed Building* consent should not involve a Planning Fee.

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## Photo-voltaic Panels - Indicative Costs

A typical domestic photo-voltaic installation would be rated between 1.5-3 kWp.

A 2 kWp panel would cover about 16m<sup>2</sup> and cost in the region of £10,000.

16m<sup>2</sup> of panels would typically generate around 1,600 kWh/yr and save about 0.86 tonnes of CO<sub>2</sub>/year.

The Energy Saving Scotland Home Renewables Grant Scheme no longer supports the installation of PVs. However the Be Green Renewables Grant provides funding of 20% of installation costs up to £1,200.

With this grant the cost would be reduced to £8,800.

The electricity feed-in-tariff (FIT) has started at 41.3p/kWh for every kWh generated. Electricity sold to the grid earns an additional minimum 3p/kWh, whereas electricity used represents a further saving of around 12p/kWh in electricity not bought from the grid.

### Annual saving

Assuming 50% of energy sold to the grid:	800 kWh @ 41.3p + 3p /kWh	= £354
Assuming 50% of energy used:	800 kWh @ 41.3p + 12p /kWh	= £426
Total savings per year:		= <b>£780</b>

### Simple Payback Period

With FITs alone:	13	years
With FITs and grant:	11	years

The introduction of FITs greatly reduces the payback time for photo-voltaic installations. From April 2012 the FIT is subject to a degression rate whereby the tariff is reduced. This is used only to determine the tariff applicable to the system based on its registration date; if registered in years 1 or 2 the 41.3p/kWh rate (index linked) will apply over **25 years**, if year 3 the rate will be 37.8p/kWh over **25 years**, if year 4 the rate will be 34.6p/kWh over **25 years** etc. The 2009 Pre-Budget Report also confirmed that households who use renewable technology to generate electricity mainly for their own use will not be subject to income tax on feed-in tariffs.

The Energy Saving Scotland loan scheme provides interest free loans of up to £4,000 for energy efficiency measures such as Photo-voltaics. However the funds for this scheme are limited and it may be discontinued. Instead, some form of 'Green Mortgage' or 'Pay-As-You-Save' loan scheme to fund energy efficiency measures may be introduced in the near future.

