

Oxford Community Group: a community PV group buying scheme

Working Document

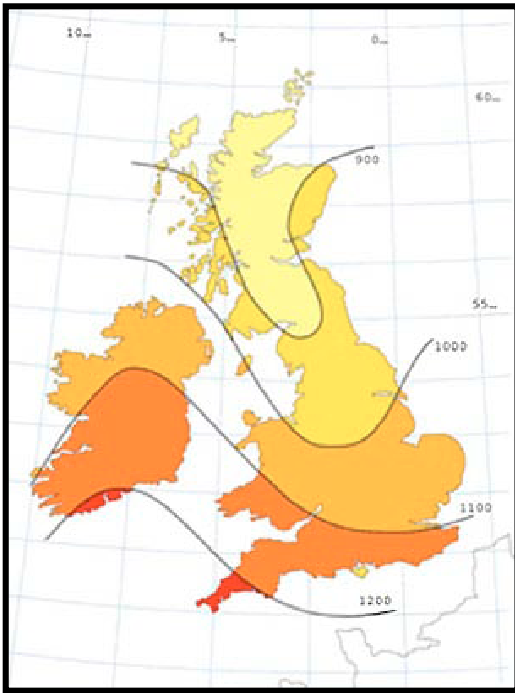
Introduction

OCG is a consortium of community groups in the Woodstock/ Kidlington/ Kirtlington area with an interest in 'living more lightly'. We are run by volunteers and support a number of different environmental initiatives relevant to our communities. Our OCG scheme is a group buying arrangement with EnergyMyWay, an Oxford based renewable energy company specialising in the installation of domestic solar photovoltaic and other renewable energy technologies and covers the OX5 1,2,3, OX7 and OX20 postal areas. Simply by sharing the marketing costs with EnergyMyWay, and gaining economies of scale from having a cluster of users in the same area, the typical installation costs are actually less than the minimum of the range suggested by the latest Energy Saving Trust figures. The scheme will run until the end of March 2012, to take advantage of the current Feed-in-Tariff.

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What is solar power?

Solar power is the conversion of sunlight into electricity, most commonly using a technology known as photovoltaics (PV). PV systems can generate income via the Government's Feed-in Tariffs, with the electricity generated fed directly into the electricity supply of the property. Once installed the system provides electricity with no carbon emissions, and requires little maintenance over its



lifetime. The systems purchased under the OCG scheme are easy to install, have a 25 year performance warranty and use solar panels sourced within the UK.

In recent years the cost of PV technology has dropped significantly and it is becoming an increasingly competitive source of electricity, especially where grid electricity is not available. Some believe there are good prospects it can eventually compete with grid electricity, however for the time being it is not competitive in the UK without subsidy. The good news is that the Government introduced special Feed-in Tariffs (also known as the 'clean energy cashback' scheme) in 2010, which have made the installation of solar PV panels an attractive investment for homeowners and businesses. Solar PV panels can enable

UK solar radiation annual total in KWh/m2
you to generate about half the electricity
used in your home, depending on the number of panels and how much electricity
you use.

Solar power or PV should not be confused with solar thermal energy, which is the conversion of solar energy into heat, mostly used to provide hot water for homes and offices.

Feed-in Tariffs

In April 2010 the Government introduced Feed-in Tariffs (FiTs) to support the small-scale deployment of a number of electricity generating renewable energy technologies (including PV, wind energy and hydropower). Over time the Tariffs available to new users will decline, so there is a real advantage to investing before the Tariffs drop. For PV the first drop is on 1st April 2012. Once an installation has been approved to receive FiTs, the Government has undertaken to maintain its initial Tariff for a period of 25 years for PV, and it will be increased yearly in line with the Retail Price Index (RPI). Income from the Tariff is also free of income tax.

PV projects below 4kW installed before the end of March 2012 onto existing buildings will receive 43.3p for every unit (kWh) of electricity generated by the system for 25 years.

The tariff was initially set at 41.3p per unit but this increased to 43.3p in line with inflation from 1st April 2011. The export tariff also increased from 3.0 to 3.1p per unit. 4kW requires about 30m² of roof area, which represents a very large domestic system. In addition projects will receive 3.1p for every unit of electricity exported to the grid, formally estimated to be 50% of the generation. Any PV power that is consumed locally also reduces the amount of power you need to purchase from your electricity supplier (which on average costs around 13p/unit for most people). The financial return on investment over the 25 years is therefore made up of these three sources and can typically provide a 10% return (or a 10 year payback period) - very attractive compared with other investments available at present. The discount that OCG has agreed with EnergyMyWay (up to 10%) makes this an even more attractive investment. There are a number of factors that affect the payback period, for example the amount of electricity you use, how much you export and how much solar energy you receive (roof angle, position relative to due south and any shading from trees or parts of buildings).

If you finance your installation through a 25-year loan, FiTs have been designed so that the average monthly income from your installation should be significantly greater than your monthly loan repayment. The Energy Saving Trust provides a Feed-in Tariff/Cashback Calculator to help you find out how much you could earn, and see the payback times. There are also online calculators provided by sites such as Solar Power Portal (though we cannot vouch for their accuracy). The Government has recently announced a review of the Feed-in Tariff scheme which is likely to result in tariffs for large-scale PV schemes (>50kW) being reduced, but there is no indication that this will affect smaller-scale schemes. Note that, once an installation has been approved under FiTs, the Government has confirmed that its tariff will not be changed except for RPI adjustments, whereas tariffs for new installations may be adjusted following review.

Our chosen installer: EnergyMyWay

OCG chose to partner with EnergyMyWay following a tendering exercise undertaken in March-April 2011. The tender assessment panel was composed of impartial representatives of all the community groups involved in the scheme. The selection criteria favoured companies based in Oxfordshire as part of the scheme's goal is to help create a strong local supply base.

In the last 12 months, EnergyMyWay has installed over 100 Solar PV systems in Oxford and the surrounding areas. They are fully accredited for Solar PV by the Microgeneration Certification Scheme (MCS), as required by the FiTs scheme. Every member of EnergyMyWay's installation team lives in Oxfordshire. They primarily specify Romag polycrystalline PV panels, which are manufactured in County Durham by PowerGlaz, however they also have relationships with a number of other panel manufacturers, including Sharp (manufactured in

Wrexham) and Kyocera. Inverters are sourced from the established market leaders Fronius and SMA, made respectively in Austria and Germany. They use a tried and tested roof hook and rail mounting system manufactured by the German company, Mage, which maintains the weather-proofing of the roof and does not affect its structural integrity. Customers will be offered and encouraged to include a remote monitor in their order; this is included in the Guide Prices table on page 4. Where customers do not want a remote monitor their quotation will reflect this. A video of the PV installation process can be seen on EnergyMyWay's website.

In addition to solar PV, EnergyMyWay install small-scale wind turbines, solar thermal panels, biomass boilers and heat pumps. Initially the OCG scheme is limited to solar PV, however we have agreed with EnergyMyWay that, following a site survey under the OCG scheme, they can discuss and recommend other potential renewable energy technologies if these are deemed more appropriate.

How the OCG scheme works

The contractual relationship is entirely between the property owner and EnergyMyWay. EnergyMyWay has agreed discounted prices for PV systems with OCG and these are shown in the next section. Note that these are indicative prices only, as each system needs to be specified separately and some aspects (such as the cost of scaffolding) are highly property dependent.

The scheme works as follows:

1. The property owner contacts EnergyMyWay to arrange a site survey and consultation; contact details are provided on page 9. You will be asked a number of questions to ascertain whether your property is suitable for PV power. Each property is unique and therefore a bespoke quotation will be provided. There is no charge for the survey and no obligation to proceed once the survey has been completed.
2. If the property owner wishes to proceed with the installation under the terms of the quote provided, you accept the offer formally and enter into a purchase agreement with EnergyMyWay. You pay a 25% deposit direct to EnergyMyWay and agree a date for your installation.
3. Equipment is delivered, installed and commissioned – once the system is up and running, you pay the remaining 75% to EnergyMyWay.
4. All those who make use of the scheme will be invited to submit their monthly electricity generation reading to OCG for monitoring purposes, however participation in this is entirely voluntary.

Please refer to the frequently asked questions in the next section for further detailed information.

Guide prices

The following prices are for guidance only and are based on a typical, straightforward installation. Each property is unique and therefore each would require a site survey and a bespoke quotation is provided after the survey is carried out. There is no charge for this survey.

System Size (kWp)	No. Of Modules	Module Output (W)	Inverter	Price (£)	VAT 5%	Total (£)	Annual FIT
1.11	6	185	SMA SB1200	5,506	275	5,781	427
2.1	10	210	Fronius IG20	8,131	406	8,537	807
2.96	16	185	Fronius IG30	10,017	501	10,518	1138

Please note that prices may go up or down if wholesale prices change during the period of the scheme.

Prices are based on a property with:

- A roof in good condition and structurally sound.
- Minimum of 10m² area of roof available with no shading or obstructions per Peak kW.
- Average scaffolding cost with ease of access and straightforward installation.
- Dependent on roof setup and tile type.
- Easy loft access (for installers and equipment).
- Space for inverter and AC/DC isolators, and a spare way on the distribution board.
- Distribution board and earthing compliant with 17th Edition electrical regulations.
- A distance of no more than 15 metres from panel location to inverter.

Please note that solar PV is not suitable for properties with thatched roofs.

Expected electricity output

The expected electricity output from systems depends on many factors, not least the variability of weather conditions. All installers accredited under the Feed-in Tariff scheme are required to use a standard procedure to calculate the expected annual output of system they are quoting for. The procedure does not take account of the location within the UK and uses average values for system losses so is therefore not precise. Of course output will vary from year to year because of differences in annual insolation. The European Commission operates a website (<http://re.jrc.ec.europa.eu/pvgis/apps4/pvest.php>) that provides a solar

radiation atlas and database for Europe. In fact there are two databases - one compiled from older ground observations and one from more recent satellite data (which gives 11% higher readings for our region). These data provide an indication of the variations in output that can be expected over the year but clearly there will also be variations between systems and from year to year.

It should also be noted that shading of PV systems is an issue that needs to be considered carefully at the system design stage, as shading of just one panel in a 'string' of panels will reduce the output of all panels in that string. Again the SAP calculation only takes a fairly simple approach to this. Sometimes installing a slightly smaller system that reduces the shading impact on particular panels will give a more cost effective system overall.

Monitoring output

The OCG is planning to monitor the electricity generation stimulated by the scheme. To do this we will be requesting participants to provide their monthly electricity generation figures on a voluntary basis. This information will allow participants to compare their systems against others and will allow OCG to collect and present data on the carbon savings from this scheme on an anonymous basis.

Frequently asked questions (FAQs)

We thank Transition Town Marlow's 100 Solar Project for providing an exemplar for the following frequently asked questions and disclaimer.

Is this scheme open to properties outside the OCG area?

The scheme is aimed at properties in the OX5 123, OX7 and OX20 postal areas but in certain cases those outside the area can benefit from the discounted prices. If you do not live in the area but wish to participate in the scheme, please contact EnergyMyWay for a survey and quotation.

Why is OCG organising this project and are there any financial benefits to the organisers?

We are voluntary, not-for-profit organisations and no one in our groups is benefitting financially from this scheme. We are promoting the OCG scheme because we believe it is important to reduce our reliance on fossil fuels and reduce the amount of CO₂ we generate. In recognition of the advantages to the company of a local group-buying scheme, EMW will contribute 1% of its income from the scheme to the community groups to further their energy-reduction programmes, pro rata according to the location of individual properties.

Why did OCG choose EnergyMyWay?

Oxfordshire based renewable energy company EnergyMyWay was selected from a tendering exercise run by representatives of the community groups, on the basis of a tender document developed by the National Energy Foundation. EMW was chosen based on product quality, past installations, credibility and the keen price they are able to offer.

How much electricity can I generate with PV panels in the UK?

Even in the UK, solar power can provide about half of your home's electricity (depending on the number and size of panels and their orientation). Your financial return is maximised if you are able to use the power as it is generated, i.e. during the daytime. This can partly be achieved by running any power-hungry devices such as dishwashers and washing machines during periods of PV generation.

Planning permission – do I need it?

Recent changes to 'permitted developments' mean that in most cases no planning permission is needed. However, if you live in a listed building or conservation area you should contact your local planning office.

What do I need to do with regard to Building Regulations?

The rules on Building Regulations changed in October 2010, meaning that EnergyMyWay can now self certify their own installations. This was down to the fact that their accreditation body, NAPIT2, is now included in the list of bodies whose members can sign off their own installations. All electrical works will be carried out under Part P, so they are signed off in the normal way. Post installation, EnergyMyWay supplies customers with a Minor Electrical Works Certificate, a Building Regulations Compliance Certificate, and an MCS (Microgeneration Certification Scheme) Certificate.

What guarantees does EnergyMyWay provide?

Most crystalline solar panels come with a performance warranty of 80% of their rated (as new) output after 25 years. This is a very conservative figure, with a smaller reduction over this time being typical. There is also typically a defects warranty of 5 years, which covers material and processing errors. These guarantees are supplied by the panel manufacturer. The inverter has a five year manufacturer's guarantee, which can be extended in five-year increments. The International Energy Agency (IEA) suggests an average inverter life of 15 years, so to be prudent you should expect to change the inverter once during the lifetime of your system (the inverter typically makes up roughly 10% of the initial system cost, depending on the system). In addition, EnergyMyWay provide a two-year installation guarantee.

Will my system's performance deteriorate over time?

It should be noted that the output of all crystalline photovoltaic solar panels deteriorate over time. A warranty of 80% of the new performance after 25 years is standard, with the IEA suggesting a 20% decrease after 30 years. There is other published research that suggests that this is the worst case, but it is useful as a reference figure. It is hard to make any definitive statement on the precise performance of a particular PV system over its 25 year lifetime, but on average the SAP figure for energy generation is probably a fair indicator of lifetime performance.

Are there any properties I can view that have already had solar panels installed?

Yes, EnergyMyWay can arrange viewings with existing clients. Please contact EnergyMyWay if you are interested.

Are OCG members installing PV panels under the scheme?

Several members of the groups are actively considering making use of the scheme however, like all potential users, they will first need to assess the results of their property survey.

I'd like a survey and pricing for my property now. What should I do?

You can contact EnergyMyWay at any time for a survey. Please see the special OCG page the company has set up on the groups' websites.

Once the panels are installed, do they need maintaining?

When positioned at an angle of over 20 degrees, the panels have a level of self-cleaning. To maintain their performance EnergyMyWay recommends that they are cleaned, with water only, once a year. This can be carried out by a window cleaner, with a long-reach pole. For PV panels, EnergyMyWay recommends an electrical test every three years. PV systems require very little attention, although some customers arrange regular inspections at 2 - 5 year intervals. N.B. the system EnergyMyWay has specified includes an optional wireless monitor, so you can actually see how much electricity the panels are generating at all times!

What do I do if the PV panels do not provide the promised benefits?

EnergyMyWay size their panels and calculate their predicted outputs based on the standard assessment procedure (SAP) provided by the Microgeneration Certification Scheme, as do all other MCS approved installers. This is based on a Government assessment plus the last 5 years' weather data. It is of course impossible to predict exactly the amount of solar radiation (sunlight) at a specific location due to the variability of the weather, so the actual amount of power generated will be slightly different from the indicative figures. For more information on SAP, see website details on p. 9.

If I wanted to know more about the OCG groups, who should I contact?

To find out more about Kidlington vs Climate Change, Sustainable Kirtlington or Sustainable Woodstock, please visit their websites at <http://www.sustainablewoodstock.co.uk>; <http://sustainablekirtlington.co.uk/> <http://www.kvscc.org.uk/>

Disclaimer

Please note that OCG or any individual or individuals working to promote the OCG scheme cannot accept any liability whatsoever in respect of any loss or damage suffered by a purchaser or any other person in respect of any goods supplied or installed under this scheme, including any loss or damage suffered as a result of the quality or lack of fitness for purpose of any goods supplied or installed, or any failure by the supplier to deliver or install the goods or to install them to the purchaser's satisfaction. The OCG groups and their members have

provided all information in good faith and you are solely responsible for your own project, any survey or preparatory works and no reliance can be placed on this document, the public meeting(s) or any other communication from OCG or the OCG scheme. Please make sure you have checked the credentials of anyone visiting your home and take appropriate security precautions.

Contact details and web links

www.sustainablewoodstock.co.uk;

<http://sustainablekirtlington.co.uk/>; info@sustainablekirtlington.co.uk

<http://www.kvscc.org.uk/>; info@kvscc.org.uk

EnergyMyWay

E-mail oxon@energymyway.co.uk

Tel. 01865 873880

<http://www.energymyway.co.uk/>

<http://www.energymyway.co.uk/solar-wantage> (includes a form to book a survey)

The EnergyMyWay Mission (including short video)

Energy Saving Trust

Feed-in Tariff scheme: <http://www.energysavingtrust.org.uk/Generate-your-own-energy/Sell-your-own-energy/Feed-in-Tariff-scheme>

Solar electricity: <http://www.energysavingtrust.org.uk/Generate-your-own-energy/Solar-electricity>

Ofgem (energy regulator)

Feed-in Tariffs:

<http://www.ofgem.gov.uk/Sustainability/Environment/fits/Pages/fits.aspx>

For full details of the way the FiTs scheme is working see the Ofgem reports on the website

Standard Assessment Procedure for calculating expected electricity production

For full information, see 'The Government's Standard Assessment Procedure for Energy Rating of Dwellings - 2009 edition', otherwise known as SAP 2009. This document describes SAP 2009 version 9.90, dated March 2010, revised October 2010. The document is published by the Building Research Establishment and is available from www.bre.co.uk/filelibrary/SAP/2009/SAP-2009_9-90.pdf. Solar installers certified under the Microgeneration Certification Scheme (MCS) are required to calculate the expected annual energy production using this procedure and quote the expected FiTs income on this basis.

