DEPARTMENT OF ENERGY & CLIMATE CHANGE

Householder's Project Case Study

Photovoltaic

Low Carbon Building Programme

Householder's Project Case Study – Photovoltaic

System Installation Detail

Technology	Photovoltaic (PV)
Size	4.3kWp (26m^2)
Annual Yield	Approx 3250kWh
Total Cost	£22,694
LCBP Grant	£2500
Estimated £ saved per year[1]	£357.5
Estimated kgCO_2 saved per year[2]	1398kgCO_2
Location	Aldershot,Hants
1 Assumes 11p/kWh 2 Assumes 0.43kgCO_2/kWh	

"My house with both PVs and solar thermal is an example to others."

Alun Davies
Householder

Mr Alun Davies lives in a 4 bedroom house with his wife and two children. Like most people he wanted to make his house run as cheaply as possible, especially as he was facing the possibility of medical retirement and the subsequent financial consequences.

Alun's house already had cavity wall insulation therefore to minimise his energy bills further he installed loft insulation as part of a loft extension and low energy lighting. In particular he found that the low energy lighting resulted in a noticeable difference in his energy bills. Following these improvements he thought the next step should be to invest in renewable energy which would decrease the amount of energy he needed from the grid and therefore his bills.

With a large south facing roof Alun believed solar power would be his best option for a renewable installation. With the aid of the internet he searched for information on the types of Solar PV cells and solar thermal tubes that are available in different countries. He then continued his research by contacting UK manufacturers for their advice on what to install. Alun advises it is worthwhile spending

time researching the different renewable options as there is a lot of information available. Details on the different renewable technologies can be found on the Energy Saving Trust website which also includes an Energy Generation to do list to help you get started. (**www.energysavingtrust.org.uk/Generate-your-own-energy**).

Mr Davies found out about the Low Carbon Buildings Programme (LCBP) grant via the Energy Saving Trust website. Through the LCBP website Alun was able to find an accredited installer and ensure that the product he wished to install was accredited for the grant scheme. He was also able to use the LCBP website to apply online for his grant which meant that he received instant confirmation of his application via email.

Alun was awarded the maximum grant of £2,500 for the installation of Solar PV (this maximum is irrespective of the number of technologies being installed). Alun found the process of applying for the grant very straightforward especially as the energy efficiency measures he had already carried out complied with the terms and conditions of the grant. Obtaining planning permission was fairly easy as well and it is now even easier following planning permission rule changes in April 2008. Please click here for details. (**www.energysavingtrust.org.uk/Generate-your-own-energy/Getting-planning-permission**)

The installation of the PV panels took one week and Alun felt it went very well with little disruption experienced. He was also pleased with the quality of the installation and the very good advice he received from his installer. Once the installation had been completed Alun found claiming the grant very easy and in all it took only two weeks to claim the grant.

In the first three months Alun noticed savings of £91 on his electricity bill and has also sold some power back to the grid. The installer and electricity supplier were both helpful in giving advice on selling back to the grid. To be able to do this Alun points out his electricity meter had to be changed and there are now three readings produced. This can be a little confusing and therefore Alun would recommend that you ask for plenty of advice from your installer and electricity supplier on this. For more information on selling electricity back to the grid please see the Energy Saving Trust website. (**www.energysavingtrust.org.uk/Generate-your-own-energy/Sell-your-own-energy**).

Overall Alun is very happy with the installation and thinks it was a worthwhile project especially if you plan to stay in the property for a long time. His friends and neighbours have been very interested and think it is a good idea – some have even asked for the installer's details!

Is PV suitable for my home?

Solar photovoltaic systems can be integrated into a new roof or bolted onto an existing one provided it is strong enough to take the additional weight of the panels. Before involving an installer, consider:

Permissions – If you do not own your home, you will need written permission from the owner. You should also check with your local council if there are any planning or building control issues to take into account – particularly if you live in a listed building, or in a conservation area. Make sure you inform your building insurance company of your installation as they may need to note it as a material fact on your policy. This shouldn't increase your premiums but check first with your insurance company.

Orientation – Your roof should ideally face south at a pitched angle of 30-40° from the horizontal to give the best overall annual performance. However, east or west facing roofs can provide up to 85 per cent of this optimal performance. Installation is not recommended on roofs facing north.

Shape of roof area – PV arrays are made up of modules of about 1m^2 which allows most available roof shapes to be accommodated. As a general guide a roof area of 10m^2 to 20m^2 would be sufficient to deliver between 20 per cent and 45 per cent of a typical household's electricity requirements.

Shading – Any shading on a single module will affect the performance of the whole array as all the modules are connected. A system can tolerate some shading early or late in the day without much reduction of overall output but it should not be shaded between 10am and 4pm. Nearby trees, chimneys, TV aerials and vent pipes are all common causes of shading and should be accounted for before any installation.

Launched in April 2006, Phase I of the Low Carbon Buildings Programme offer grants to householders towards the installation of renewable technologies such as solar photovoltaic (PV), solar thermal hot water and wind turbines. For the full list of technologies supported and the level of grant available please visit our website.

Website:
www.lowcarbonbuildings.org.uk

Helpline:
0800 915 0990