

A PV installation in the Pennines

A couple, who first became interested in renewable energy over 20 years ago when the cost of photovoltaic (PV) panels was prohibitively high, have recently installed a PV system on their bungalow.

They both appreciated that as the number of solar electric installations grew, so the cost would reduce. They liked the idea of reducing their reliance on central power stations and fossil fuels, and kept abreast of developments in the renewable energy field through the Centre for Alternative Technology in Machynlleth (www.cat.org.uk).

They moved into their current house, on the edge of the south Pennines, in 1994. A 1979 chalet bungalow, the house had lots of potential for improvement in terms of both energy saving and sustainable living. As there had been a solar hot water system at their previous house, they decided to install one at their new home too. The south-facing wall was totally blank, so they also added windows, making the most of the solar gain by using low-emissivity glass, and gaining spectacular views to the hills in the process.

Unfortunately, in 2003 some of the roof timbers needed replacing, so the whole roof had to be stripped, but the couple realised that this would be an ideal opportunity to install PV panels. Some inheritance money eased the financial situation, aided further by the PV Grant scheme. They considered installing integrated PV panels (which look like roof tiles) but, at that time, the choice of styles was limited and they could not find anything which matched their existing tiles, which they were hoping to re-use.



Financial information

Overall cost	£11,387
Grant value	£5,694
Cost to customer	£5,693

N.B. These costs relate to the actual PV system only.



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The installation

The homeowners approached three PV installers from the grant scheme list, and decided to place the work with Dulas. Dulas liaised with the roofing contractors to negotiate the best time for them to be on site, to ensure that disruption was kept to a minimum. The solar hot water contractor was called back at the same time to move the solar thermal panels. The couple were staggered by how quick the whole process was – the PV panels were generating electricity two months after initial enquiries (see installation timetable below).

Installation timetable

mid March:

- first enquiries to three installers
- grant forms requested from EST

early April:

- three quotes received
- order confirmed with Dulas and partially completed grant application form sent to them for technical information to be added
- Dulas asked to arrange grid-connection
- local Planning department confirmed planning permission not required

mid April:

- written confirmation of grant approval sent by Energy Saving Trust

mid May:

- PV panels installed and connected to grid via domestic supply

A deposit of 30% was payable when the PV system was ordered, rising to 40% upon delivery. The balance was due within 20 days of completion, which caused some problems due to the delayed payment of the grant which was in turn due to delays in the Distribution Network Operator issuing a Parallel Connection Agreement. The good news for anyone considering installing a system now is that new engineering standards have been agreed, which mean Parallel Connection Agreements are no longer required.

The installation took three people two days to complete. Dulas explained to their clients how the system worked, and were on hand (by telephone and email) to answer any queries that arose later.

Technical information

Installed kWp	2.16kWp
Module	Kyocera KC120-2
Module type	Poly-crystalline
Inverter	IG20
Bolt-on or integrated	Bolt-on
Property age	1979

There is a two-year system warranty in place, in addition to the warranty on the Kyocera panels (90% of specified power output after 12 years; 80% output after 25 years).

Monitoring

The couple have a display meter which they use to record how much electricity they have generated. The system is grid-connected; they sell electricity back to the grid via Powergen's Solarnet scheme for the same unit price as they buy it for. Powergen then send them a cheque once a quarter.

On the whole, the system is performing as anticipated. In the first 12 months, the PV system generated 1612kWh and the homeowners received a cheque through Solarnet for £80. They used an additional 2644kWh through the national grid (spending £156), which means just over 50% of their annual electricity needs are met by their PV system.

Anticipated savings

Estimated kWh per year	1620kWh
Estimated £ saved per year ¹	£97.20
Estimated kg CO ₂ saved per year ²	696.6kg

¹ assumes 6p/kWh

² assumes 0.43kg/kWh

So what do the couple think of their system? "There were some annoying delays in getting the Powergen Solarnet system up and running, but this is understandable with new technology. We've helped to educate some people within the electricity industry itself who knew nothing about PV. Hopefully this will help those that come after us." They say they would consider having more photovoltaic panels installed as they have the space, but cost may be an inhibiting factor. "We are making our small contribution to our planet and we feel good about it."

For further information call our helpline on **0800 298 3978**
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