

Community Renewable Energy Case Study – Solar hot water.

Introduction

Relentless rises in our energy prices are leading to growing interest in how we can produce our own domestic renewable energy. Micro generation renewable energy equipment is being installed in an increasing number of homes across the highlands and islands.

This case study focuses on one family in the area who have installed solar panels that contribute to heating their hot water.

Background

George and Sandra Hogg stay at Drumchardine in a bungalow with a large south facing roof. Having already taken steps to improve the insulation of their home, they were keen to install some micro generation renewable energy equipment to help reduce their energy bills even further and reduce their carbon footprint. Sandra has also been involved with the project to purchase and install solar PV panels on the community centre.

Purchase

George and Sandra researched different systems on the internet. Most of the available solar systems would have involved replacing the existing hot water cylinder or adding a dedicated solar cylinder. This would have been difficult as space was tight where the cylinder is located. However Solar Twin (www.solartwin.com) produce a system which directly feeds hot water into the existing cylinder, and unlike other systems doesn't use mains electricity to pump the water round but uses a small solar panel to produce electricity for the pump. This means it's carbon neutral in operation. It's designed to run without anti freeze, using pipes designed to expand if the water freezes.

The solar hot water panels were installed in 2005. At this time a government grant of 30% was available to help with the installation costs. The panels cost just under £3,000 installed and the grant was £900. The current price is around £3,700 (incl VAT).

Installation

Installation took a day and the disruption was minimal as the cylinder didn't need to be changed. The installers just needed access to the roof and the loft.



Operation

The panel has been operating for six years now. It produces nearly all the hot water in the summer, mostly just needing a bit of a boost to bring it up to full temperature especially in cloudier weather. In the winter it pre heats the water, reducing the amount of oil George and Sandra need to use.

There have been no problems with operating the panel and its simplicity means there's no maintenance needed. The only problem was when mice chewed through one of the soft flexible pipes in the loft and water leaked into the kitchen. This was easily sorted by incorporating some garden hose and the pipes are now well and truly mice proof.

Perspectives/Summary

The system has worked very effectively and George and Sandra are very pleased with the operation of the panel and look forward to many more years of benefit. Installing the panels has spurred them to look for other ways of reducing their energy costs and producing carbon. They have recently fitted solar pv panels to produce electricity to use in the house with the surplus exported to the grid. They've also installed cavity wall insulation, fitted double glazing and installed a log stove which is connected to the central heating system and reduces the amount of oil burned over the year.