

# Community Renewable Energy Case Study – Solar PV, solar hot water and wood fuel.

## Introduction

This case study focuses on one family in the area who have taken several renewable energy steps, the most recent and largest investment being in solar PV panels.

## Background

David Shepherd and Annie Griffiths stay at Windyridge, an extended croft house built in the 19<sup>th</sup> century near Drumchardine. Over the years the house has been extended. Heating used to be provided by night storage heaters run off a cheap economy overnight electricity tariff, and an inefficient wood stove and back boiler. This was upgraded by installing an efficient wood burning stove with a back boiler. The night storage heaters are now only used for emergency back up. David and Annie have also installed both solar hot water panels to provide hot water and solar PV panels to produce electricity.

## Purchase

Eighteen solar PV panels were the most recent equipment installed at David and Annie's home. These were bought from The Natural Energy Company in Fife <http://www.thenaturalenergycompany.co.uk/>. Contact details were obtained from the Energy Saving Trust web site where there is an up to date register of accredited suppliers and installers. The panels cost just under £19,000

## Installation

The pv panel installation process was relatively straightforward. The first stage was to provide the contractors with some photographs of the house and loft to help them plan the layout of the system. The contractor then visited the house to finalise the system layout and plan the installation. The contractors returned, spending 2.5 days installing the PV panels and wiring. There was no disruption to family life during the installation.



Log store and panels on the house

## Operation

The PV panels were installed in early 2010 and have been performing better than initially forecast. It is important for installers to ensure panels are at the most efficient angle as well as facing south, to catch as much solar energy as possible. The system qualifies for feed in tariff payments (where the home owner is paid for the electricity produced by their PV panels). David and Annie will receive just over £1,000 tax free this year for the electricity produced by their pv panels, as well as reducing their electricity bill as they now don't have to purchase electricity.

## Perspectives/Summary

David and Annie are very pleased with the low carbon energy solutions for their home. Planning their wood requirements of 6-7 tonnes a year is essential to ensure logs have dried out, which maximises the energy they release when burnt and minimises the accumulation of tars and soot in the chimney. Logs are cut, split and stacked in a well ventilated shed to dry for two years before use.

Their solar hot water panels provide hot water requirements between May to September. In April and October there can be less hot water produced and if the weather is not cold enough to require the stove to be lit, the immersion heater is used to top up the hot water.

The couple feel the renewable energy mix is effective for their situation, the different systems complement each other and also how David and Annie use their home.