



Energy from the sun



Orchard House has been a Youth Hostel since 1947, and although it is privately owned, it continues to operate within the Youth Hostel Association. Increasing power bills together with the desire to cut carbon dioxide emissions and attract visitors from the environmental sector persuaded the managers to install first solar collectors to warm water, then photovoltaic (electricity producing) panels and a wood burning stove. The solar collectors warm the water for several showers, saving oil. The log burning stove replaced an open coal fire, which was not only very inefficient and burned fossil fuels, but when not lit, heat from the oil fired central heating system escaped very quickly up the chimney. So even when not lit the stove saves fuel!

How does it work?

The solar heated water system was installed at the same time as a new extension, in 2003. The solar collectors have tubes within them that carry a liquid which is warmed by the sun. This in turn heats water for showers. This technology works particularly well in this situation because solar collectors are at their most efficient during the summer, when the majority of visitors come. Solar collectors work throughout the year, although in winter the boiler is used to back up the system. The panels cover an area of 5.1m².

The photovoltaic array is made up of six Isofoton 110W panels, mounted on a frame on the gable end of the building. Daylight stimulates a reaction within the panels to produce electricity, and although they generate more in summer, they do not need bright sunlight to function. Although these panels do not make the hostel independent

of grid electricity, they make a contribution to its electricity requirement, and reduce electricity bills accordingly.

Installation and costs

The solar heated water system was installed by Secon Solar. The PV panels were installed by local company Winsund, and cost a total of £6,128, but the business was awarded a 50% grant from Energy for Enterprise (mainly EU funding) and £1,650 from the DTI's PV

Demonstration Programme (both projects are now closed). These panels are connected to the national grid, so that any surplus electricity can be sold back to the grid through a green energy electricity supplier. At 2007 prices, the hot water panels will save oil bills of approximately £85 per year, and the PV panels £37 per year.

Environmental impact

Photovoltaic panels of this size will save, on average, 212kgs of CO₂ emissions. Heating water with power from the sun will reduce this business's carbon dioxide emissions by about 717kg per year.

Further information

Visit the other renewable energy sites shown on the map overleaf.

Kielder Castle renewable energy exhibition is open from Easter to October.

www.tynedalerenewableenergy.co.uk

www.yha.ninebanks.org.uk

or 01434 345288

www.winsund.com or 01207 255365

www.seconsolar.com or 0191 516 6554

