Due to the dairy shed having an East/West alignment a canopy was constructed that faces directly south on the gable end to maximise the heat gain from the sun, and also to give a shelter area outside the milking parlour

Dairy farmer turns to the sun to cut heating bills

Hywel James runs a large organic dairy herd of pedigree Holsteins at Plas Y Berllan in the Tiefi Valley, Pembrokeshire, where he was using substantial amounts of electricity to cool down the milk and heat water for cleaning and washing purposes.

Deciding to try and cut his electricity bill, Mr James fitted a heat-recovery unit to his existing ice-bank chiller system and installed 18 sq metres of solar thermal panels to heat the water.

Mr James requires about 500 litres of hot water at 90 C on a daily basis and chose the Welsh solar heating installation company, Llani Solar Ltd, to install a 180 Thermomax evacuated tube solar system connected to an 800-litre cylinder.

The ice bank heat recovery unit heats the water up to between 35 C and 55 C during the night in a 500-litre pre-heat cylinder; this is then fed into the 800-litre cylinder where the solar thermal panels can heat the water to 900 C during the day. The heated water can also be passed through electric heaters to boost the water up to the required temperature at night if the day has been overcast.

A WELSH DAIRY FARMER DISCOVERS THAT SOLAR POWER HELPS HIM CUT HIS HEATING BILLS SIGNIFICANTLY – AND THE PAYBACK PERIOD IS EXPECTED TO BE LESS THAN 10 YEARS

Chris Lord Smith, Llani Solar managing director, advised that it would be a good idea to over-size the solar system to maximise the solar gain during periods with less sunshine in the winter and thus provide good heat all year round, albeit with an excess in the summer, Mr James is currently exploring ways to use this excess with a hot tub.

He has managed to achieve other savings, too, by signing up with an electricity company (Good Energy) that offers its own renewable heat incentive scheme to its customers and pays him £80 a year for using the solar thermal panels on his house and £147 a year for the ones on the dairy.

The system was installed last October and Mr James has already reported significant savings, which are expected to exceed the design expectations, with the solar thermal panels in line to produce around 10,000 kWh of heat with an annual saving of around £1,500 per year.

It appears that the payback period will be as little as seven and a half years, although the actual time may be even shorter if the cost of energy continues to rise and when the various tax advantages of installing renewable energy systems are taken into account.

In most cases, businesses are able to write off such expenditure in the year it has incurred, though farmers are advised to check their particular eligibility status with their accountant, said Mr Lord Smith.

In addition, Mr Lord Smith pointed out that the government had indicated that the incentives offered by the renewable heat initiative (RHI) scheme due to come in at the end of April next year, would be made available to businesses that installed solar thermal panels (and wood boilers) after July 2009.

If these proposed subsidies do, in fact, become law, then the economic advantages of fitting such a system will be even greater.

‘Over-size the system to maximise the solar gain during periods with less sunshine … and provide good heat all year round’