

# Solar, so good

Harness the sunshine and look forward to 'lighter' electricity bills

**Are rising electricity bills getting you hot under the collar? Then why not consider an alternative cost-effective and renewable way to heat your dairy's hot water and see how much you could save.**

**We spoke to a producer who's already saving money.**

As major users of hot water, dairy producers are only too well aware of the recent hike in energy costs. Average prices for electricity have risen 61% during the past five years, according to Energywatch figures. And this trend is set to continue, according to Somerset-based Daystar Energy's director Nick Higgins.

"The good news is that the relative cost of installing a solar hot water system has reduced making such a system both a practical and financially sensible option for most, if not all, dairy units," he says. Every dairy unit is different and has its own unique requirements and there are also a variety of ages and models of water heaters in current use.

"So, with this in mind, we developed a flexible solar hot water system that can be installed on dairy units – without the need for new water heaters – making a large saving on energy bills for a low initial investment.

"And working on the basis of current energy costs, we are confident that a farm business will recoup the costs of our solar hot water system within three years," adds Mr Higgins, who has more than 20 years of experience working in the heating and plumbing industry.

The figures are certainly stacking up for dairy producer Langdon Turner. He farms in partnership with his father Vince and runs a 300-cow commercial herd at his unit at Mells, near Frome in Somerset.

## Soaring bills

He first considered the possibility of installing a solar-powered hot water

heating system last year and finally took the plunge in February after seeing a similar system working well at an on-farm cheese making plant just down the road.

"My electricity bills had been soaring during the past year and I knew that much of it was being used to heat hot

water for the dairy. So that seemed like a good place to start," says Mr Turner.

His system was designed and installed by Daystar Energy. Eight solar panels were fixed to the roof above the bulk tank shed and these now heat much of the water used by the dairy – particularly now the sunnier summer months are here.

Back in November 2007 his monthly electricity bill was £1,000 and this rose to £1,400 in December. "In February, after installation, this dropped to £968. By March we were looking at a bill for £909, April's bill was £843 and by May this year the electricity bill had fallen to just £746 – half what it was back in December," says Mr Turner.

And the summer months could see a further reduction, according to Mr Higgins. "It all depends on how much sunshine – or solar radiation – we see during July, August and September. But even on a dull, cloudy day the panels will still function."

He's pleasantly surprised at how well the system has performed at Finger Farm – it has already exceeded his initial expectations. And Mr Turner is very happy too.

"We're saving a considerable amount of money and I suspect that if I looked at the actual number of units of electricity we're using now compared to five months ago, rather than the cost



Solar solution: eight panels on the bulk tank shed roof are heating water at Finger Farm

## How does the solar hot water system work?

Solar panels are fixed, ideally, to a south or south-west facing roof although they can work effectively on east and west facing roofs. And then an anti-freeze fluid is pumped through the panels where it gathers heat.

The fluid travels down and through a coil in a pre-heating tank, heating the water within it. During the summer months the system is capable of heating the water up to the temperature required for parlour washing and will continue to make a contribution in reducing electricity use.

Once the wash is complete, the heater is filled with the water from the pre-heating cylinder. During the summer the water will be at, or near, the required temperature but retaining the existing heater means that it can be brought up to temperature if required.

When the dairy heater has been filled the pre-heating cylinder, having been re-filled, will continue to be heated by the solar hot water system. And when the evening wash is complete the dairy heater is again filled with the pre-heated water for storage overnight and brought up to temperature for the morning wash using low-tariff electricity.

Additional solenoid valves may be



The system simply 'slots in' with any existing water heating set up

added to the system to ensure that best use is made of the solar gain, for example if the hot water is to be used every other day for washing out bulk tanks.

The pre-heated water, however warm it is, is always used via the dairy heater and, since it takes 5kw hours to raise the temperature of a 450-litre tank by only 10°C, the potential savings are huge.

of the electricity bill, I'd be even more impressed as I haven't factored in the fact that electricity prices are still rising."

The system, which cost around £6,000 to install, is well on its way to paying for itself. Mr Higgins says it should take just two years at Finger Farm and no more than three years on some other units.

## Tax incentive

Any money invested in a solar hot water system would also be subject to tax relief. Recent changes to the tax legislation mean that there is 100% tax relief on capital invested in environmental projects with 20% relief thereafter.

"That, along with income tax relief, makes it possible to make in the region of £1,400 tax savings in the first three years of the system's life," says Mr Higgins.

"It was also quick and easy to install – it

took just a couple of days and there was no hassle," adds Mr Turner.

The beauty of the system is that it simply slots in with any existing hot water heating system. "It's an 'add on' – there's no need to invest in an entire brand-new system or interfere with what's already in the dairy. The solar hot water system just fits in between the water tank and the existing heater."

And maintenance is minimal too. "So far I haven't had to do a thing," says Mr Turner. The anti-freeze substance in the panels does require replacing every three years, but it's a quick and low cost job at around £100. "I'd recommend any dairy producer to invest in a system like this," he says. "It's made a huge dent in my electricity usage and it's another reason for me to feel good when the sun is shining."

Rachael Porter