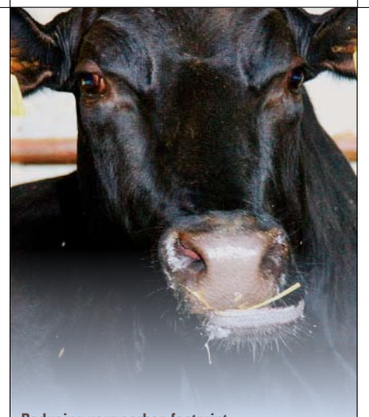

Reducing your carbon footprint

This comprehensive series aims to offer producers clear and practical information to help them increase efficiency and save money. It highlights affordable and effective methods to reduce greenhouse gas emissions on UK dairy units.

Review your electricity use and take a fresh look at renewables

Power your plant with precision

Time spent assessing electricity use – and wind speed – should be time well spent, leading to a considerable reduction in your herd's carbon footprint and costs. And there's more good news as installing a wind turbine will not only make your business 'greener', but could also generate some much-needed additional income. We spoke to three energy experts to find out more.

text **Rachael Porter**

Electricity is an inevitable cost on dairy farms, but is it a fixed cost or a cost that can be managed? "Producers can take steps to significantly reduce their bills," says Promar consultant Andy Taylor.

Figure 1 shows the whole farm electricity cost for farms recorded through Promar Farm Business Accounts shown against milk yield per cow. There is a range of more than 1ppl between units, suggesting that some are both purchasing and using electricity more efficiently.

"The fact that the cost per litre tends to fall as yield rises suggests that much of the electricity usage is relatively fixed, including that of the farmhouse itself, and does not vary much with milk volume to be cooled," explains Mr Taylor.

"DairyCo suggests a dairy unit target annual electricity usage of between 200 and 400kwh per cow. Average use is currently running closer to 400kwh."

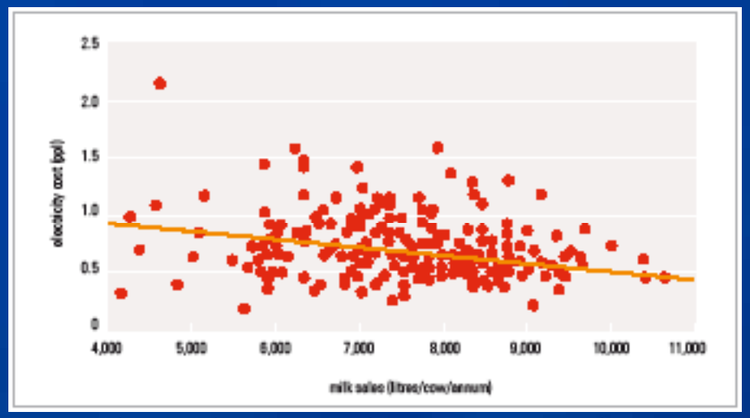

Figure 1: UK dairy units' electricity costs in ppl (source: Promar International)

Invest in plate-coolers

The five main areas of electricity use are heating water, cooling milk, running the milking plant, lighting and the farmhouse. He suggests reductions can be achieved by investing in plate-coolers or variable vacuum pumps, or through small changes such as fitting light sensors, auto switches, or movement sensors on security lighting.

"It will certainly pay to ensure the bulk tank is working efficiently as this uses 25% of annual electricity. Exactly the same can be said for the boiler heating the water for parlour cleaning, as well as the immersion heater in the farmhouse. Investment in energy-saving technologies like heat exchangers is often worthwhile and there are grants available to help with installation."

DairyCo's Judith Stafford said that energy can be lost through poorly insulated hot water pipes and tanks: "So ensure they're well lagged," she says, adding that milk cooling is another area that can be improved on many units in terms of energy consumption.

"On many units that I visit the plate cooler could be bigger and better use made of water to cool the milk, rather than relying on the bulk tank." The cost of electricity needs to come under the spotlight regularly too. Two key ways to reduce the cost are to make full use of day/night tariffs and to shop around for the best deal.

"Most units should be on a day and night tariff as night time electricity can be considerably cheaper. The aim should be to have 40% of total electricity use on the night tariff," says Mr Taylor. "This might mean using timers to switch some electricity usage to the night time.

"If you do not have separate day and night meters, take readings of electricity used between 12 midnight and 7am and between 7am and 12 midnight to understand when power is being used. If more than 15% is used at night it will pay to consider moving to a day/night tariff," he adds.

Shop around

Armed with information on how much you use and when it is used, he believes that producers are in a good position to compare prices. "It pays to compare rates and to shop around using brokers or comparison websites. The latter can potentially save as much as 15%.

"If you think you might want to change supplier, make a note in your diary at least four months ahead of your current contract renewal date. This will give you time to shop around and give notice to your present supplier.

"And, once you have shopped around, don't be afraid to go back to your current supplier and negotiate. It may offer a lower rate, which means you can avoid the hassle of switching."

For more energy saving and carbon – and cost – cutting tips visit: www.dairyco.org.uk/farming-info-centre/tools-information/energy-cost-calculators/introduction.aspx

Blow away those big bills

Wind turbines are generating a lot of interest – as well as electricity – on farm at the moment, according to both the Farm Energy Centre's Jon Swain and DairyCo's Judith Stafford.

"They caused a stir about 10 years ago, but fell out of favour due to their size and technological problems," says Mr Swain.

"Wind, however, is a little easier to come by on many dairy units and any energy that you generate but don't use can be sold to the National Grid."

Judith Stafford adds that wind turbine technology has moved on, offering fewer break downs and lower maintenance costs. And producers can now choose to fix their 'feed in' tariff for a number of years, which has also made installing wind turbines more attractive.

"If producers know how much they're going to be paid for the electricity that they generate it allows them to budget with confidence and, for many, the new higher price paid for generated electricity means that they're looking at a pay-back period of between two and three year, rather than 10 or even 20 years, depending on the capacity of the turbine installed," she says.

And the new turbines are also more compact and suited to medium-sized farms – not just large ones. Judith has seen several wind turbines on medium to large dairy units that generate electricity to power the parlour. The spare power is fed into the grid.

But installing one is not for the faint hearted or impatient. "Installing a wind turbine is a lengthy process that involves applying for planning permission, which can be the biggest hurdle. But the first step is to assess whether your farm is windy enough."

Geographic location, rather than altitude, is key here. If you're close to the coast, for example, then your farm should have plenty of wind.

There is a website that uses the wind speed database that producers can visit to see if their unit literally has enough puff to power a turbine http://www.decc.gov.uk/en/windspeed/default.aspx.

But beware, this is only the average for your general location. If you happen to be in a 'hill or a hole' it could be somewhat different.

"You need an average annual wind speed of at least six metres per second and we always recommend a wind survey," says Mr Swain. "It'll cost between £1,000 and £2,000, but that's small when you consider the amount required to install a 50kW turbine could cost more than £200,000. "It's vital to make sure that you've enough wind to power the turbine and see a return on your investment," he adds.

"I know of instances where they haven't checked and, far from saving money and generating an income, it proved to be a costly mistake."