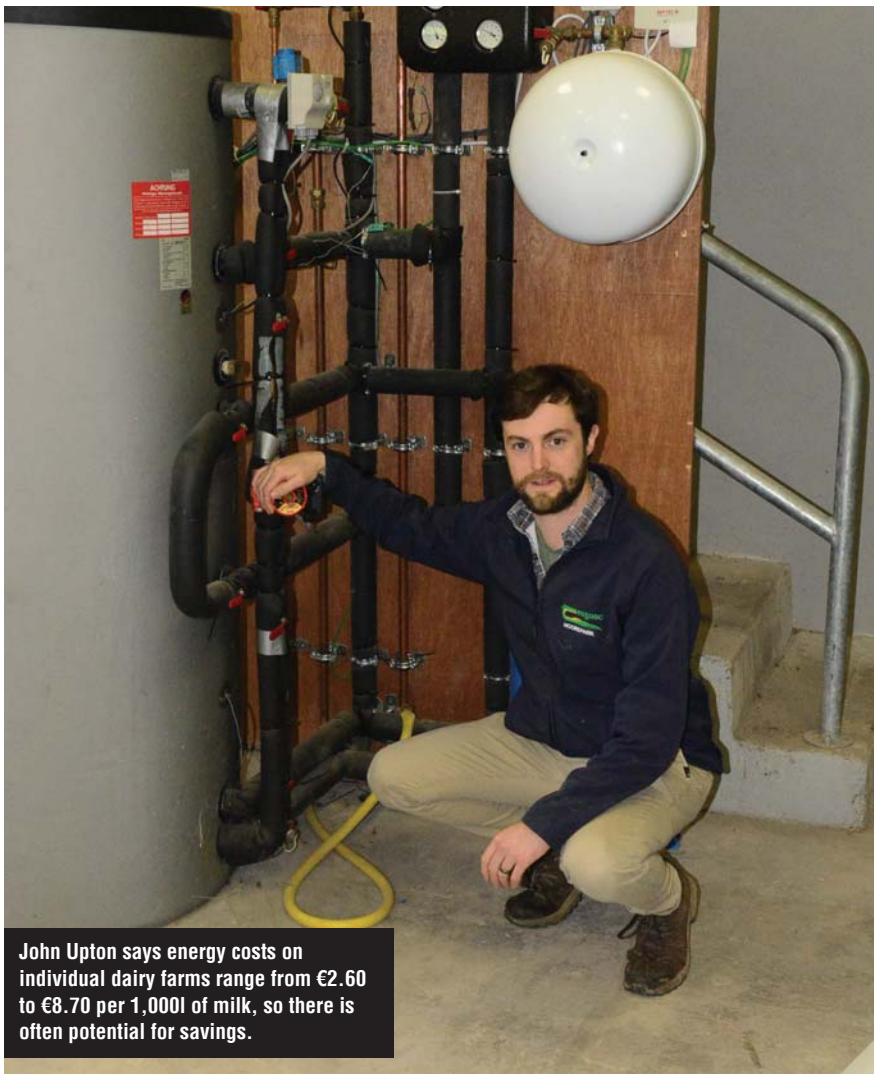
Dairy energy bills: reducing cost and carbon

John Upton
Teagasc Animal and Grassland Research & Innovation Programme.



John Upton says energy costs on individual dairy farms range from €2.60 to €8.70 per 1,000l of milk, so there is often potential for savings.

How to reduce energy consumption

It is possible to reduce on-farm electricity consumption and related CO_2 emissions by up to 60%.

Key steps include the installation of a milk pre-cooler (plate cooler), heat recovery system (recovery of heat from the cooling system for pre-heating of water), VSD motors (variable speed drives on the vacuum pump and milk pump) and a micro-generator Solar Photo-Voltaic (PV) system (solar panels that generate on-site electricity from the sun with zero emissions).

These measures would save over €2,500 on a 100-cow farm. This is also good for the environment, as 8t of CO_2 per year would be offset. Adding a night rate electricity meter and changing to the least cost energy supplier is also worthwhile, as there is downward pressure on prices currently due to additional competition in the market.

Electricity costs can be reviewed using www.bonkers.ie. There are large variations in the price of a unit of electricity (e.g. from 18.3 to 13.8 cent per kWh for day rate electricity). An average size farm can save over €800 per year by simply changing electricity supplier.

Night rate electricity is a good fit for all dairy farms. There is no charge from ESB networks to install a night rate meter. The meter standing charges increase from approximately €0.46 per day to €0.60 per day after moving to night rate electricity.

Integrating renewable energy

Solar energy can be harnessed and used to reduce the demand of the milking parlour or heat water on dairy farms. Photo-voltaic (PV) panels are the most feasible means of achieving this. Small PV installations (up to 11 kWp) have been grant-aided to-date under TAMS.

This technology is expected to feature again in future grant schemes. Solar PV can deliver a good return on investment where the farmer is grant eligible and where the expense is written off against tax in the year of purchase under the accelerated capital allowance scheme.

Decision Support

Consult the Teagasc Dairy Energy Decision Support Tool at https://www.teagasc.ie/animals/dairy/energy-support-tool/

The tool delivers farm-specific advice on energy efficient and renewable technology investments.

- Average electricity costs on Irish dairy farms are €5 per 1,000l of milk produced. Energy costs on individual dairy farms range from €2.60 to €8.70 per 1,000l of milk, so there is often potential for savings.
- The main drivers of energy consumption on dairy farms are milk cooling (31%), the milking machine (20%) and water heating (23%).
- Reducing fossil energy use is also good for the environment, as energy use contributes to the farm's carbon footprint.
- It is easy to estimate on-farm electricity costs on your farm. Simply divide the electricity cost from your bills by the number litres of milk produced over the same period. If the house is on the same meter as the farm, deduct 5,000 units of electricity per year for a three bedroom house.