

Students help Cornish dairy embrace renewables revolution

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Renewable Energy students giving their presentations

Students from the University of Exeter are helping a family-run Cornish business reduce their carbon footprint by embracing the renewables revolution.

The Renewable Energy undergraduates from Exeter's Penryn Campus have teamed up with Trewithen Dairy to determine how to maximise the potential benefits of installing a 500 kW wind turbine on site.

The independent dairy, based near Lostwithiel, joined the 'renewables revolution' by installing solar panels at its site, as part of a multi-million pound refurbishment in recent years.

Now, they are planning on installing the wind turbine near the site, to help generate electricity for the dairy and for the National Grid.

As part of their 'Energy Management' module, the students were given access to the dairy's current energy data, and other relevant information, to carry out a complex analysis of the proposed wind turbine project over a six-week period.

Having formed seven working groups, the students were tasked with producing a detailed proposal of how the dairy would best utilise the energy production offered by the wind turbine.

The teams presented their findings to representatives from Trewithen Dairy on Wednesday, December 10.

Dave Parish, Renewable Energy Project Manager said: "Having a real case study to work on adds hugely to the learning outcomes and development of the students. The combination of high calibre students and excellence in teaching results in great quality graduates ready for the workplace from day one. Trewithen Dairy have been extremely supportive throughout this work and they will benefit from some inspired work by the students."

The students recommended two strategies that would help the dairy benefit most from the introduction of the turbine. They were:

- Installation of an electric steam boiler in parallel to the existing boiler will allow [electrical energy](#) from the wind turbine to displace some kerosene fuel used in the main steam boiler. Energy storage via sub-cooling ethylene glycol.
- When necessary, electrical energy from the wind turbine is stored as 'cold' and used later to reduce the main chiller's demand on grid electricity.

The students suggested that if both of these measures are adopted the [dairy](#) will consume a very high proportion of the electrical energy produced by the wind turbine, which would greatly improve the financial and environmental benefits it offered.

Speaking after the event Bill Clarke, from Trewithen Dairy said: "As a business we're completely committed to ensuring that everything that we do is as sustainable as possible. Working with these talented students has really opened our eyes to the detailed options and their fresh thinking will definitely influence how we proceed. We're extremely grateful for their enthusiastic help."

The students will now offer the detailed design and analysis of these systems to the University's 4th year MEng [students](#) for group design project work after Christmas.

Provided by University of Exeter

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