



A NICE DROP IN POWER USE WITH NO CAPITAL OUTLAY

No money to install energy saving technology?
No problem. Rather than purchasing the technology outright, why not pay it off with the savings you make?

Valuable partnership

Many businesses recognise the wisdom of investing in energy efficiency but are put off by the initial capital cost outlay. But a partnership between Craggy Range winery and plant-design-and-manufacturing-company Transfield Worley has overcome this barrier, and installed a heat recovery system with no capital outlay. Instead, the winery pays for the system and installation through the real, measurable savings the system delivers.

The result is that Craggy Range has reduced their electricity use by at least 13%. At this current rate of savings, the winery will have paid Transfield Worley for the unit in about four years. After that they will completely own the unit and get the full benefit of lower power bills.

Transfield Worley is among a number of companies with innovative solutions to finance the cost of taking on energy saving technologies.

Such solutions can be very appealing. In this case, for example, it is in the contractor's best interests to make installation cost-effective and working to its optimum – their profits depend on it. They therefore strive for the best energy savings possible, which effectively delivers the shortest pay-back period.

This successful project delivered financial and environmental benefits – and was supported by an EECA capital grant.

"The gains are not only financial, but also environmental"



Sustainable wine, sustainable future

“We are focused on sustainable wine growing,” says Michael Wilding, Chief Operating Officer of Craggy Range. “Steve Smith our Director of Wine, is a strong advocate for sustainability, not only in the vineyard but across our group. We are constantly investigating process re-engineering opportunities that will deliver energy efficiencies, which inevitably will also deliver financial savings.”



Reducing greenhouse gas emissions is an important part of sustainable practice. In addition to using less power, the winery will cut its annual CO₂ emissions by 157 tonnes. Not only is this good news for the environment, it will also help to offset food miles perceptions – another growing issue with global trade.

Food miles is a concept that refers to the carbon emissions generated in getting the food to the table, including its production and its transport. Some negative press overseas has focused on the food miles element of New Zealand produce. However, most New Zealand produce is relatively efficient in its production that even taking into account the distance it travels, it's still competitive with overseas produce in terms of energy used and therefore, greenhouse gas emissions generated.

Michael Wilding says the New Zealand ‘clean and green’ brand is becoming an even more important differentiator in an increasingly competitive global environment. “Non-sustainable wine growing is not currently a barrier to trade in any of our export markets, however the level of awareness is increasing and momentum continues to shift towards sustainable practices.”



What does the heat recovery system do?

At Craggy Range, the system recovers heat from chillers and an air compressor. This recovered heat is used to heat hot water for the vineyard's facilities, offsetting electricity costs. These sorts of recovery systems have been around for some time – and are used at businesses with high hot water and refrigeration needs, such as food and beverage processing plants and milking sheds. However, their arrangement needs to be closely considered.

Paul Gibbs, Process Engineer from Transfield Worley, explains, "The process of recovering heat from chillers and compressors has been around for a while, but companies can get smarter about how to use it for their business. The way to do this is to find the optimum match between the waste heat sources and the heating demands around the site so that you can maximise the heat recovery potential."



"Once a good overlap is found, and a suitable medium for storing or upgrading the waste heat is identified, then there's a good case for a heat recovery system. The configuration is crucial. If you don't make this match then the possible efficiency gains might not warrant putting a system in place." The recovered heat from the chillers and the air compressor cuts electricity use in two main ways. First, it heats the make-up water for the hot water tank – water that otherwise would have been heated with the electric boiler. Secondly, it reduces the load on the electrically powered cooling fans for the chillers.



Ongoing benefits

Michael Wilding is pleased that the benefits of this project will be seen for years to come. "Sustainability is an ongoing focus for our operation – and reusing energy from our core business activities is making an important contribution to this. Fundamentally it just makes sense. Craggy Range is looking to the future – and will be well placed to meet the environmentally conscious consumers' appetite for sustainable products."

"Sustainability is an ongoing focus for our operation"

Monitoring success

The Energy Efficiency and Conservation Authority (EECA) supported Transfield Worley with a capital grant for some of the cost of this project. In addition to this, EECA commissioned an independent auditor, Demand Response Ltd, to undertake a monitoring programme in the year before the new system was installed and then afterwards to measure its success. Monitoring included the demands on refrigeration and hot water, and how much power was used.

The audit showed more than satisfactory results, detailing the heat recovery and chiller efficiencies of the plant and how the total savings outstripped predictions.

To broadly substantiate the findings, the electricity usage of the same period in 2007 was compared to that of 2008, after the system was installed. The amount of electricity used overall decreased by 13%.

EECA enables organisations to increase their domestic and international competitiveness by adopting energy efficiency and renewable energy practices.

We work with businesses to identify the opportunities for energy management that are available to them and help them develop energy management action plans to make the most of these opportunities.

Good energy management has many benefits for businesses, including lower costs, increased productivity, reduced greenhouse gas emissions and a positive effect on the brand.

We have a particular interest in:

- encouraging new or under-used technology that can make processes more efficient
- projects that reduce greenhouse gas emissions, and
- developing the wood fuel industry.

For more information, contact us directly – see details below.

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