

UNLEASHING INTERNAL ENERGY



Industry Greenhouse Program Key outcomes

Savings (p.a.)

Reduction in energy costs

Savings of approx. **\$5.5 million**

Volume reductions (p.a.)

Reduction in Greenhouse Gas emissions

51,153 tonnes of CO₂-e

(Equivalent to taking 11,896 cars off the road)

Return on investment

Recovery of implementation costs

1 year

Further information

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“The Industry Greenhouse Program gives you a very good understanding of your internal processes. The audit process identified issues we may not have seen otherwise. You can work out which processes are running inefficiently and clearly see what you can do to improve them.”

Julian Leitch,
Energy Team Member, Leongatha

Establishing an Energy Management Team, the largest milk processor in Australia showed how shared learning and focused action plans could save 5.5 million dollars across its eight sites.

The 2,900 dairy farmers supplying milk to the Murray Goulburn Cooperative are also the shareholders. Tough times on the land make it even more important to focus on initiatives that not only reduce impact on the environment but also reduce costs, thereby improving their bottom line.

In 2003 the cooperative began its participation in the EPA Industry Greenhouse Program. This involved undertaking an energy audit, developing and implementing action plans and then measuring the outcomes.

An Energy Management Team, with representatives from each of the company's eight Victorian milk processing and cheese manufacturing plants, was formed. Comprehensive energy audits were undertaken and each site developed a specific action plan to reduce energy use.

The \$5.5 million investment in energy reduction initiatives has resulted in energy cost reductions estimated to be approximately \$5.5 million per annum. A sizeable amount of these savings can be attributed to common actions such as installing variable speed drives, fixing steam leaks and changing heating and cooling cycles. Similarities between Murray Goulburn's plants allowed the company to copy successful energy saving actions at a number of sites. For example; the compressed air systems at Cobram, Leongatha and Kiewa plants now have energy saving electronic drain valves, and heat is now recovered from whey production at both the

Leongatha and Kiewa plants.

Larger projects implemented include heat recovery and converting trucks to more energy efficient fuels such as liquefied natural gas.

Murray Goulburn's Cobram plant embarked on an innovative steam turbine project which, while falling outside of the 3-year payback requirement, was undertaken with a view to educate the process of similar installations in other plants. The new steam turbine enabled excess steam pressure, left over from the milk drying process, to be used to generate power for on-site use before being used elsewhere in the plant as required. Steam turbine installations are now planned for other Murray Goulburn sites and it is believed they will be implemented at a reduced cost with significantly improved payback.

The significant energy reductions have resulted in reducing greenhouse gas emissions by 51,153 tonnes CO₂-e per year; equal to taking more than 11,890 cars off Victorian roads.

The Energy Management Team also embarked on an energy awareness program across the organisation. Corporate Energy and Utilities Manager Leon Ryan describes this program as being instrumental in 'unleashing internal energy.' Instead of feeling pessimistic and helpless in the face of climate change, staff are empowered to take the initiative when it comes to energy reduction.

For instance, outside of the EPA program, the staff at Murray Goulburn's Laverton warehouse (a comparatively low energy consumer) have reduced the warehouse energy usage by one third, saving about \$5,000 per month.

Energy and resource efficiencies have become standard considerations at Murray Goulburn. These aspects will be carefully evaluated when selecting all new plant and equipment for a planned redevelopment of the Leongatha plant.

There are more savings on the way!



Industry Greenhouse Program highlights

Realising the business benefits of energy efficiency.

EPA Victoria's Industry Greenhouse Program is the first regulatory greenhouse and energy efficiency program for industry, and one of the first in the world.

Large energy using and greenhouse gas emitting sites have been required to undertake an energy audit and implement any actions with a payback period of three years or less.

The projected final outcome for the program at the end of 2007 includes:

- Reduction in GHG emissions of 1.23 Mt CO₂-e per annum, an average of 3.0% reduction in the annual GHG emissions for these sites (from a 2003 baseline)
- Annual savings of \$38.2 million in energy costs for Victorian Industry with implementation costs of just \$64.6 million.
- Average payback on implementation of just 20 months.
- A total of 1377 actions were completed under the program to the end of 2006, and this is expected to increase to 2436 actions by the end of 2007.

With growing pressure on all our environmental resources, it is increasingly important that companies use energy and water as efficiently as possible and minimise waste production and disposal.

Building on the success of the Industry Greenhouse Program, EPA Victoria is currently developing a new program, Environment and Resource Efficiency Plans (EREP) program.

Under the program, Victoria's largest industrial and commercial users of energy and water will be required to assess energy, water and waste flows and implement identified cost effective actions.

Save Energy

Energy source and use has significant impact on profitability, productivity and greenhouse gas emissions.

- Install variable speed drives (VSDs) on pumps and other equipment.
- Optimise your boiler performance with regular maintenance and tuning and consider insulation, fixing steam leaks and installing economisers.
- Optimise your compressed air systems through insulation, fixing air leaks and optimising operating pressures.
- Review your plant lighting including efficiency of lighting, motion and daylight sensors and removing unnecessary lighting.
- Ensure your hot water system is insulated and running at an optimal temperature.
- Explore heat recovery options in industrial processes, such as collecting condensate for use as feedwater for your boiler or using waste heat for space heating.
- Assess your heating, ventilation and air conditioning (HVAC) systems. Consider optimising thermostat settings depending on the weather (26 °C in summer and 18 °C in winter). Ensure systems are switched off out of operating hours.
- Regularly review plant equipment as upgrading equipment can often improve productivity and deliver energy savings.

Save Water

Understanding where water is used and lost in your business provides opportunities to quickly save water.

- Can existing processes use less water? Vacuuming, sweeping and high-pressure trigger nozzle hoses can be just as effective as cleaning with water.
- Review tank & system cleaning processes to identify opportunities to automate or amend to minimise water required for cleaning.
- Minimise water use in cooling processes by recycling cooling water, using fogging nozzles instead of running mains water, and shutting off flow when not in use.
- Identify opportunities to reuse or recycle your rinse, waste and greywater – the final flush may be able to be used as the first rinse.
- Establish a regular preventative maintenance program for water pipes to ensure blockages are removed, and leaks and overflows are minimised.
- Reduce water pressure where possible to minimise volume of water lost to leakage.
- Install rainwater tanks for irrigation use.
- Use non-potable water for appropriate end-uses in place of potable water (for example, dust suppression, on-site toilet flushing).
- Replace existing fixtures with more water efficient fixtures (for example toilets, taps and equipment).

Reduce Waste

Reducing waste can save your business money as well as saving valuable resources and helping the environment.

- Choose products with less packaging and purchase raw materials in bulk to minimise packaging.
- Plan ahead and avoid waste by matching raw material quantities to batch sizes.
- Educate and involve all staff in waste minimisation projects with rewards for new and creative approaches.
- Regularly review causes of 'off-spec' product and adjust systems and processes to minimise these occurrences.
- Establish 'take back' loops with suppliers such as packaging waste, product, which is faulty, or at the end of its useful life.
- Minimise product residue in packaging by removing more raw materials.
- Avoid product spillage through installing conveyor and gutter guards.
- Evaluate product design and manufacturing processes to find ways to avoid producing prescribed industrial waste.
- Investigate whether your waste could be used as a resource elsewhere and find opportunities for reuse.
- Share recycling resources with other businesses in your community to reduce cost. For ideas, see www.wasteexchange.net.au.