

## TRIGENERATION TECHNOLOGY AT ABATTOIRS

### BACKGROUND

Wodonga Rendering, is a service renderer attached to the Wodonga Abattoir business in northern Victoria, employing 372 staff. The rendering plant is a high temperature plant processing inedible mixed abattoir material (MAM), fat, bones and raw blood from abattoirs, boning rooms and butcher shops from within Victoria and Southern New South Wales. This raw material is then processed to produce the resultant - tallow, meat meal and dried blood. The Rendering products produced are marketed directly to domestic and export markets.

The rendering plant and abattoir consume a large amount of energy to raise steam or rendering and cleaning, process as well as refrigerate meat. Therefore, the plant has a consistent requirement for electricity, heat, and cooling. Energy prices at the site had been on the rise and were forecast to rise further in the near future. This prompted management to explore opportunities to take control of the energy costs at the site and consider more efficient means of meeting the electricity, heating and cooling requirements at the site.

The business is in the process of installing a \$4.12 million trigeneration (trigen) system to generate electricity, heat and coolth for the rendering and abattoir operations. The project has dramatically reduced the impact of rising energy costs, enhanced energy supply stability, enabled the business to achieve greater control over electricity fluctuations and reduce

annual greenhouse emissions from their meat processing and rendering operations.

### OPPORTUNITIES

Traditionally, Wodonga has been reliant upon electricity from the mains grid. With electricity costs rising, the company needed a way to lift its competitiveness, and continue to provide employment for its staff. An opportunity existed to future proof the energy supply to the site by installing a trigeneration system to supply electricity, heating and cooling for the abattoir and rendering facility, therefore reducing the requirement for importing energy from the mains electricity and gas grid.

Wodonga financed half the project with Energy Efficient Loan through the Commonwealth Bank and the Clean Energy Finance Corporation. The Victorian Government also contributed \$1 million in funding for the project through the Regional Growth Fund while the Australian Government's Clean Technology Investment Program, a grant program incentivising investment in clean energy technology, contributed a similar amount.

The trigen plant will consume \$200,000 worth of natural gas, but will reduce electricity sourced from the grid by 73 percent, or around \$760,000 a year, and the annual carbon emissions from the site by 41 percent or 11,900 tonnes per annum. These reductions were to be achieved at a cost that was deemed attractive to the various funding bodies and Wodonga alike.

### MEASURES IMPLEMENTED

Wodonga Rendering is implementing a \$4.12 million trigen plant. The Trigen plant includes a natural gas-fuelled, reciprocating engine driving a 415 volt alternator to deliver 2 megawatts of three-phase, 50 Hertz (Hz) electrical power in addition to heat and coolth for use in processing various meat products at the site.

### OUTCOMES

Electricity sourced from the grid is expected to decline by 73 percent, from 16,184 megawatt hours per annum

to 4,373 megawatt hours per annum. The carbon emissions from the site is expected to decrease by 41 percent or 11,900 tonnes per annum.

The reduction in expenditure on energy will help the plant to remain competitive in a global market for red meat. This is particularly important as up to 95 percent of the meat processed at Wodonga is exported to places such as the US, Japan, Korea, China, South East Asia and the Middle East. In addition, 90 percent of the skins and hides from slaughtered animals are sold to export markets.