



MLA case study: Waste to energy technology

What: Covered high-rate anaerobic lagoon system
Who: MDC, AMPC, NH Foods Australia (Oakey Beef Exports)
Why: Reduce emissions and energy costs

Waste water: from problem to profit

Greenhouse gas reduction is a hot topic for the red meat industry, but producers aren't the only ones targeting emissions.

Processors are also putting their money where their emissions are, thanks to MLA Donor Company (MDC) investment.

NH Foods Australia's abattoir at Oakey, Queensland, has installed a covered, high-rate anaerobic lagoon (COHRAL™) system to harness methane-rich biogas from the facility's wastewater.

MDC and the Australian Meat Processor Corporation assisted with research and development to underpin the project, which presents an opportunity for the entire Australian red meat processing sector to tap into alternative waste-to-energy technologies.

It is the first time the European designed COHRAL™ technology has been used in an Australian red meat processing facility. It is used in reactor tanks around the world, but never before in a covered lagoon, and the system has been adapted to the existing anaerobic lagoon system at Oakey.

Wastewater from the abattoir flows into an equalisation pond then pumped at a consistent rate to the covered pond system, where concentrated anaerobic bacteria digest a minimum of 70% of the organic matter to produce methane biogas.

A membrane on the top of the pond surface traps the biogas so it can be harnessed to generate energy. This cover prevents methane leaks and ensures biogas is higher quality than produced by open lagoons.

Fast facts

- First use of COHRAL™ waste-to-energy technology in an Australian abattoir
- Bacteria digest >70% of organic waste to produce methane biogas
- System produces a megawatt of alternative energy a day
- Abattoir's reliance on natural gas cut by 42%
- Five year return on investment
- Odour and sludge disposal reduced





Waste to energy technology

Uncovering the benefits

This waste-to-energy technology will benefit:

Abattoirs

- Use of renewable energy source
- Cheaper energy
- More efficient waste treatment
- Less risk

The community

- Lower greenhouse gas emissions from the sites activity
- Less odour from wastewater treatment
- Sustainable local employment

Red meat producers

- Sustainable abattoir with reduced operating costs
- Improved environmental credentials for the red meat industry

Unlike some green energy technologies, this anaerobic digestion technology is not dependent on wind or sun – delivering a more reliable source of energy.

The unique wastewater distribution and settling system reduces water retention from 25 days to 15.

Biogas is stored in a large reserve tank for peak operating demand, to fuel the abattoir's boiler and heat water for sterilisation and rendering. This storage capability will minimise the need to flare any excess gas generated from the waste water treatment plant.

The system could generate a megawatt of energy each day, slashing the abattoir's reliance on natural gas by 42%. The plant owners invested over \$4 million in capital works, but savings made on gas, coal, electricity and diesel purchases could repay construction costs within five years.

Oakey abattoir will also smell better – a plus for residents in the nearby town – as the process helps curb odours that would emanate from an open lagoon.

The system reduces sludge disposal issues and will deliver better quality water for further use in irrigation and cropping.

“Energy is a significant operating cost, but energy prices are only going one way, so this waste treatment project makes good business sense. But it's not just about energy cost saving, there is also a huge environmental management perspective. It demonstrates Oakey's commitment to the environment, its customers, employees, neighbours and the broader community in ensuring that the plant remains a strong and sustainable manufacturer for years to come. NH Foods Australia sees the Oakey Beef Exports site as industry leading.”

Further information

info@mla.com.au



Level 1, 40 Mount Street, North Sydney NSW 2060
Tel: +61 2 9463 9333 Fax: +61 2 9463 9393 www.mla.com.au

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