

**CLIENT:**

Yarra Valley Water

LOCATION:

Wollert, VIC

SERVICE:

Waste to Energy

CAPACITY:

100m³ of waste

CONTACT:

Anthony Davey

DRIVERS:

Sustainability, greenhouse gas reduction, additional revenue from water projects

SOLUTIONS:

Biogas Plant

COMPLETION DATE:

April 2017

Operation and Maintenance

Contract commenced early 2017.

Waste to Energy Facility

This project was developed over three years, from feasibility through to detailed design, in a collaborative partnership with Yarra Valley Water who were seeking an innovative solution. The project drivers were sustainability, reduction of greenhouse gases and additional revenue sources from normal water projects. The WTE facility was designed and built within 15 months and has been successfully operating since May 2017.

Aquatec Maxcon has built upon innovative ideas and waste to energy products as part of the vision to provide innovative and sustainable technology to the Australian water industry. Aquatec Maxcon has always considered that digesters are an under-utilised asset in Australia and partnered with Weltec Bio Power, a German company specializing in building Waste to Energy facilities with over 10 years of experience. Weltec has built over 300 biogas installations across Europe, the United States, China and Japan and is a pioneer in the field of biogas plants.

The Waste to Energy (WtE) facility was designed to generate electricity by feeding organic waste, typically disposed to landfill, into a biological process and using the methane-rich biogas produced to fuel generators.

The WtE facility will receive 100t of waste each day and produces approximately 1MW of electricity; enough to provide its own power, as well as supply the adjacent sewage treatment plant at Aurora, with the excess electricity exported to the grid as renewable energy.

As the designer and technology provider on the project, Aquatec Maxcon's scope of works included design and construction of all civil works; and design, installation, and commissioning of all mechanical and electrical works, HV, procurement and installation of cogeneration plant.

The facility consists of:

- A weighbridge to weigh incoming and outgoing waste trucks;
- A waste receipt and processing building where trucks deliver waste which is then prepared for the next stage of the process;
- Two process tanks (digesters) (~3.6ML each);
- Four liquid waste storage tanks (~0.08ML each);
- One weekend waste storage tank (~0.3ML), for temporary storage of wastes during times when the facility is unmanned;
- A pasteurisation system for treating the waste following the digestion stage;
- A residual storage tank (digestate storage) (~4.5ML). This tank stores the fully treated residual matter (digestate).
- Space for an additional digestate storage tank if approval is obtained to sell the digestate as a soil amendment for agriculture;
- Two Combined Heat and Power (CHP) biogas engines (generators) capable of using the biogas produced by the digesters to create electricity. Each engine can produce up to 530kW;
- One biogas flare to be used in rare situations when the biogas cannot be supplied to the engines;

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Project Summary

- One odour treatment system;
- An office building for staff amenities; and
- Various minor treatment equipment and mobile plant.

AWARDS

The continuing success of the Waste to Energy facility has been demonstrated through the award of the following accolades to date:

- “Best International Commercial Plant Award” – British Anaerobic Digestion Association (ADBA), UK AD & Biogas Industry Awards, 5th July 2017
- “Outstanding Corporate/Institution Initiative in Collection/Processing Marketing Award” - 2017 Victorian Australian Organic Recycling Association (AORA) Awards, 22nd August 2017
- Finalist in the Environmental Protection category for the 2017 Victorian Premier’s Sustainability Awards, 12th September 2017
- “Shared Value Project by an organisation or collaboration, Highly Commended Award” – 2017 NAB Shared
- “Leadership in the Circular Economy Award” – Banksia Foundation National Sustainability Awards, 1st November 2017

