



Case study 10

Aurora food to waste energy plant

Yarra Valley Water

This case study showcases

water businesses delivering more than just water and sewerage provision

how water businesses are rethinking internal processes, services and skills to better serve communities

Problem

As the millennium drought hit, Yarra Valley Water investigated the augmentation of their satellite STPs to include recycled water provision, which would essentially drive up energy costs. Initial assessment of a number of renewable energy sources such as traditional cogeneration systems, wind, solar, etc. did not stack up economically for smaller sized plants. The Australian water sector is a large energy user during the supply, treatment and distribution of water. In an uncertain future, relying on non-renewable sources of energy will mean utilities and communities will face a number of challenges

climate change impacts on society if greenhouse gas emissions are not curbed

shocks to energy price and supply variability

rising costs as more energy intensive options, such as recycled water, decentralised systems and desalination are considered.

Solution

Yarra Valley Water is currently constructing a waste to energy facility next to the Aurora Sewage Treatment and Recycled Water Treatment Plants in Melbourne's north. A long standing

partnership with East Bay Municipal Utility District in California provided insights on what might be possible from co-digestion with food waste as a feasible renewable energy source. From a regulatory and cost standpoint, the best approach was to separate the sewage sludge and food waste processes and not integrate the two.

100 tonnes of food waste that was previously destined for landfill will be processed every day into biogas via anaerobic digestion. The site was strategically chosen for its location near the treatment facilities but also for its proximity to local food manufacturing as well as the wholesale markets in Epping. The plant is designed to divert 33,000 tonnes of waste per year from landfill, and power both treatment plants. The plant will be operational in early 2017.

Business case

The business case was reliant on taking an asset off the grid or selling to another customer, as contributing straight to the grid did not stack up economically.

Yarra Valley Water set up a separate entity. Commercial organic waste from local markets and manufacturers will be processed into biogas via anaerobic digestion. It is expected that enough energy will be generated to run the facility and the neighbouring Treatment Plants. Any surplus energy will be exported to the electricity grid, helping to reduce greenhouse gas emissions, and Yarra Valley Water's reliance on traditional sources of electricity.

Key drivers

With the economics finally in favour of renewables, the consideration of a food waste to energy plant was further sparked by a paradigm shift of Yarra Valley Water's role as a processor of waste, not just sewage: Yarra Valley Water already processed 75% of region's waste by volume – why not expand into other waste streams? This was achievable from a capacity and capability standpoint.

There was also strong community support to construct the plant which was achieved through strong community engagement throughout the project. The township of Aurora was built as an 'environmental showpiece' and providing recycled water via a renewable energy source contributed to this vision.

Benefit/outcome

Reduction of waste going to landfill

Reduction in greenhouse gas emissions.

Reduction of energy costs to utility (and less costs being passed on to customers)

Non-regulated revenue stream for the utility from gate fees to treating the waste

Sustainable energy source resilient to supply or price shocks.