CASE STUDY
Small Scale Waste to Energy

Client | Bundaberg Regional Council
Utilising grant from the Queensland Government's Waste to Biofutures Fund (W2B Fund)

Project completion | Current 2019 - 2021

Location | Bundaberg, QLD

ABOUT

The Bundaberg region is one of the major horticulture regions in Australia, producing a range of fruits, nuts, vegetables and herbs with a farm gate value of over $500m. The natural production cycles, along with consumer demands, create a pre- consumer waste stream of between 5 and 20% of gross production tonnage. This waste is being treated by donations to livestock farmers or ploughed back to the land.

The Queensland government's new Waste Management Strategy has at its centrepiece a waste disposal levy. This levy reduces the incentive to dispose of waste to landfill making it more attractive to be diverted to alternative use, such as the generation of electricity and fertiliser.

THE SOLUTION

Energy 360 offers bioenergy systems which collect waste streams including horticulture, industrial food processing and household food waste streams. These waste streams are treated using anaerobic digestion to create biogas which can be used in a generator to produce electricity.

WHAT HAPPENS

The substrate is fed into the airtight sealed heated digestor. Agitators in the hopper ensure a uniform distribution of the biomass and prevent sinking and floating layers, which could disturb the gas extraction process and the functionality. The fermentation in the digester produces biogas. The recovered biogas is collected by a flexible roof over the digester and the gas is fed to the CHP which generates heat and power.

The project will create electricity for council use enabling storage to power electric (EV) waste recovery vehicles. In addition, the residues from the fermentation process, called digestate, can be used as high quality, valuable fertiliser.

BIOGAS AS A BATTERY

The biogas can be stored without conversion to another energy source and used as needed to generate power. The electricity produced can be grid connected or used behind the meter.

BENEFITS OF A BIONERGY SYSTEM

Food and agricultural waste a part of the circular economy

- Organic (non-synthetic) fertiliser will enhance soil carbon capture
- No phosphate run off from fertiliser which reduces blue-green algae
- Renewable electricity
- Naturally derived carbon dioxide for industry use
- Prevents carbon dioxide emissions process, called digestate, can be used as high quality, valuable fertiliser.