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## **AnaeCo™ plant at WMRC Project achieves electricity grid connection milestone**

### **Highlights**

- The AnaeCo™ plant located at the WMRC facility in Shenton Park, Western Australia achieves technical and regulatory approvals from Western Power allowing for permanent connection to the electricity grid of the 1.2MW combined heat and power (CHP) gas powered generator.
- At full design capacity the AnaeCo™ plant can produce biogas containing around 1,200 tonnes of methane per annum. The energy content of this methane can fuel the generator to provide around 800kWe of electrical power and 800kWt of thermal power (heat).
- This will be the first operational waste facility in Western Australia generating electrical energy by processing municipal solid waste (MSW).
- Key attribute of AnaeCo technology validated: delivery of substantial environmental benefits by diversion of putrescible material from landfill and production of renewable energy.
- Surplus electricity not used to power the AnaeCo™ plant will be exported for use in the local Western Power owned electricity grid.

AnaeCo Limited is pleased to announce that the Company's first commercial scale 60,000tpa reference facility, being delivered as part of the Western Metropolitan Regional Council (WMRC) Project, has achieved the key milestone of grid connection for export of electricity.

The 1.2MW combined heat and power (CHP) generator installed at the AnaeCo™ plant in Shenton Park, Western Australia has now received the required technical and regulatory approvals from Western Power allowing for permanent connection to the electricity grid.

Commenting on the milestone AnaeCo Managing Director David Lymburn said,

"Connection of the gas powered generator to the electricity grid enabling export of electricity, is a significant WMRC Project milestone and another step forward in the commercialisation of AnaeCo's innovative technology.

The plant will be the first operational waste facility in Western Australia generating renewable electrical energy by processing MSW, and the first to incorporate AnaeCo's patented organics recycling technology, the DiCOM™ bioconversion process, anywhere in the world.

The AnaeCo™ System provides a closed loop approach to municipal organic waste management. By combining the naturally occurring processes of anaerobic digestion and composting we are able to extract maximum value from this resource, producing both renewable energy and organic fertiliser.”



**Figure 1:** DiCOM™ bioconversion vessel (left) and the gas fired combined heat and power (CHP) generation unit for the production of renewable electricity and heat (right).

The CHP gas powered generator is immediately able to generate electricity using natural gas supply. Once commissioning of the biogas scrubber is completed over coming weeks the plant will begin using the methane rich biogas captured during the anaerobic digestion phase of the DiCOM™ bioconversion process to fuel the generator. Biogas captured during anaerobic digestion contains hydrogen sulphide which must be removed by scrubbing before it enters the generator.

The generator is a dual fuel unit and will run on a mix of biogas produced by the process and natural gas. The level of biogas generated during normal operations will vary and be complemented by natural gas to maintain the steady flow rate required by the generator.

The electricity generated will be used to power operations at the plant, with the surplus exported for use in the local Western Power owned electricity grid. Thermal energy recovered from the generator will be used to maintain process water at temperatures suitable for the anaerobic microbiology.

On an annual basis, the plant installed at the WMRC facility is designed to produce a quantity of biogas with a component of around 1,200t of methane. This

is extracted from the estimated organic fraction of 28,250t separated from 55,000t of municipal solid waste (MSW).

Ongoing analysis of biogas production during biological ramp-up to date indicates the plant will be a net exporter of energy when processing at design capacity.

Our modeling predicts this will enable the continuous generation of an average of 800kWe of electrical power and 800kWt of thermal power. It is estimated that around 40% of electrical power generated at the WMRC facility will be available for export to the local electricity grid, totaling around 3,200 MWh per year which is enough to power around 500 homes for a year\*<sup>1</sup>.



**Figure 2:** View of the AnaeCo™ plant facing north east, with the suburb of Shenton Park in the background.

Anaerobic digestion occurs naturally in landfills that contain putrescible organic waste materials such as food, paper, and green waste. The decomposition of putrescible waste in landfills results in the release of methane into the atmosphere. This greenhouse gas (GHG) has a global warming potential that is considered to be 25 times more damaging to the environment than carbon dioxide\*<sup>2</sup>.

Diversion of putrescible organic material from landfill and higher order use of methane as a renewable fuel benefits the environment through both GHG abatement and fossil fuel displacement. AnaeCo estimates that at full design capacity bioconversion processing at the WMRC facility will result in the abatement of around 30,000 tpa of carbon dioxide equivalent, similar to removing around 6,300 cars off the road each year\*<sup>3</sup>.

Generating electricity and thermal power from biogas substantially lowers energy costs for the plant's owner (an asset owned by Funds managed by Palisade Investment Partners Ltd). Revenue from the export of surplus electricity to the grid



creates further benefit. The economic benefit obtained by selling carbon credits (Australian Renewable Energy Certificates (RECs) or Australian Carbon Credit Units (ACCU)) for the abatement of greenhouse gases will be shared between the plant owner and WMRC on this project.

**The benefit to AnaeCo at the WMRC project is the opportunity to validate the efficient generation of renewable energy from MSW as a direct output of the patented DiCOM™ bioconversion process and to demonstrate that this plant will be a net producer of renewable energy from mixed MSW.**

### Notes

\*<sup>1</sup> Calculated using average annual electricity consumption data from ACIL Tasman – electricity bill benchmarks for residential customers – December 2011.

\*<sup>2</sup> Intergovernmental Panel on Climate Change's Fourth Assessment Report (AR4)

\*<sup>3</sup> CO<sub>2</sub>e expressed as cars removed from the road annually has been calculated using the United States EPA Greenhouse Gas Equivalencies Calculator.

### Units of measure

kWe	kilowatts (electrical power)
kWt	kilowatts (thermal power)
MW	megawatts (electrical power)
MWh	megawatt hours
t	tonnes

ENDS

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## **About AnaeCo**

AnaeCo delivers waste resource recovery facilities based on the AnaeCo™ System, incorporating the patented DiCOM™ bioconversion process. The AnaeCo™ System includes advanced sorting, recycling, anaerobic digestion and aerobic composting to recycle municipal solid waste (MSW) into renewable energy from biogas, organic fertiliser and recyclables such as steel, aluminium, glass and plastics, thus maximising diversion from landfill and ensuring social, economic and environmentally sustainable management of MSW.

The AnaeCo™ System enables resource recovery intervention closer to source, with enhancement of existing waste transfer stations now a viable waste management option. AnaeCo's experienced team provides design, and commissioning services for AnaeCo™ facilities.

For further information go to [www.anaeco.com](http://www.anaeco.com)

## **About the WMRC Project**

The WMRC Project involves the construction and commissioning of an AnaeCo™ plant at the JFR McGeough Resource Recovery Facility in Shenton Park, Western Australia.

The JFR McGeough RRF is a solid waste transfer station owned and operated by the Western Metropolitan Regional Council.

The AnaeCo™ plant is an asset owned by Funds managed by Palisade Investment Partners Ltd and is contracted to receive 55,000tpa of MSW.

The WMRC Project is the first full operational scale installation of the AnaeCo™ System and is a transfer station retro-fit occupying less than 4,000m<sup>2</sup>.



**Figure 3 :** AnaeCo™ AWT Plant at WMRC JFR McGeough Resource Recovery Facility, Shenton Park, Western Australia