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News release

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Regional and rural communities to benefit from new green electricity from biosolids

New technology to produce green electricity from sewage and food processing residuals that currently go as waste will benefit small and medium scale biosolids producers, including food processing industries and communities less than 100,000 persons.

"The new technology is based on the latest advances in environmental biotechnology. It will offer significant cost savings in comparison to existing technology options for smaller or medium scale treatment systems. Current systems are relatively expensive in terms of capital and operating costs and they are extremely energy intensive, especially at smaller scales", said project leader Dr Damien Batstone. "This technology will produce energy rather than consume it", he said.

EBCRC researchers at the Advanced Water Management Centre (AWMC) are developing a treatment plant that can be used to sanitise, reduce and utilise organic solids. It will have an input of biosolids and an output of renewable electricity and Class A solid organic fertiliser that meets regulatory requirements.

"The technology will be extremely beneficial as it will reduce the amount of organic material ending up in landfill, and leverage existing resources. Also, council and industry attempts to minimise energy use and greenhouse gas emissions will be supported by the new approach", Dr Batstone said.

"The technology significantly reduces the environmental footprint of small to medium scale wastewater treatment. Current treatment methods emit greenhouse gases at 40 kg of carbon dioxide per tonne of biosolids treated. The new technology will produce renewable energy, worth 40 kg of carbon dioxide emissions offsets. It will therefore result in a net reduction of 80 kg of carbon dioxide per tonne treated. When biosolids are disposed of in landfill, they can produce upwards of 290kg of carbon dioxide equivalents per tonne in methane emissions", Dr Batstone continued.

"Energy is from methane produced in the second anaerobic stage. This will produce electricity and heat that can supply up to half of the electricity needed to run the parent plant. The renewable energy certificates can either be used directly by the council, or sold externally."

"The technology will also make agricultural industries more affordable as it decreases the cost burden associated with small-scale food processing and replaces substantial amounts of mineral fertilisers, especially in regional Australia", Dr Batstone concluded.

The initial phase of the project involves research into the mechanism of enhanced biosolids stabilisation. The demonstration phase will involve design, construction and operation of a pilot-scale demonstration facility (30-50 kW).

The research at AWMC is also supported by a generous grant from the Queensland Government. EBCRC industry members Meat & Livestock Australia Limited (MLA) and the Australian Meat Processor Corporation (AMPC) will facilitate introduction of the technology to red meat processors Australia wide. Other EBCRC industry partners have expressed an interest in applying the technology to urban sewage treatment and solid waste recycling industries.

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