



Energy Efficiency and
Conservation Authority
Te Tari Tiaki Pūngao

media release



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AWARD NOMINATION FOR PIG MANURE ENERGY GENERATION PROJECT

A project investigating the feasibility of using pig manure to generate energy has been nominated for a Green Ribbon Award.

The nomination comes just as New Zealand Pork and the Energy Efficiency and Conservation Authority completed the latest stage of their joint project determining the feasibility of generating biogas on pig farms.

New Zealand Pork's chief executive Sam McIvor says the feasibility studies into using pig manure to generate biogas in a range of farming situations shows that technology can work in a New Zealand environment, and provide a number of benefits.

"This is technology which can take manure and deliver clean, low-emission energy to help future proof our farms.

The benefits are there - reducing methane emissions, reducing odour, and generating renewable energy."

The feasibility studies looked at a range of farming situations, including large and small farms, pig and mixed pig-and-dairy farms.

"EECA helped fund the programme in order to help pig farmers assess the viability of investing in farm biogas systems", EECA's primary production spokesperson Tomo Reed said.

"The upfront capital costs of these systems is often high, but as these studies show, the savings from on-farm energy generation means the investment can be paid back in as little as three or four years."

“Using biogas to generate energy not only has environmental benefits through the treatment of a waste product, it reduces energy costs and provides farms with a degree of energy independence”.

One of the most interesting potential outcomes was a multi-stakeholder project in Canterbury, Sam Mclvor said. The “Hub” project was a consortium of partners exploring the feasibility of a centralised facility sourcing pig manure and other ‘waste’ organic materials from around a large farm with high annual energy demands.

“The benefits would include not only the opportunity to put pig manure and other ‘waste’ products to good use, it would also supply methane to heat the buildings’ boilers instead of diesel, and nutrient-rich digested fertiliser for the farm.”

Sam Mclvor said the study has generated a lot of interest: “We’ve already seen farmers successfully implement the technology and more are at the ‘seriously investigating’ stage.”

New Zealand Pork has been nominated in the category of ‘reducing our emissions’. The Green Ribbon Awards take place in Wellington on 3 June.

Media contact:

Jane O’Loughlin, senior communications advisor, EECA, 04 470 2421 or 027 445 5975

Sam Mclvor, CEO, New Zealand Pork, 04 917 4754 or 029 438 8222

BACKGROUND

What is a farm biogas system?

In simple terms, a farm biogas system is a way of turning manure into a usable fuel, and fertiliser.

Manure is stored in an enclosed chamber - either an in-ground covered pond or an above-ground enclosed tank – and the organic material is digested by anaerobic bacteria. This creates energy in the form of methane (which can be used directly as heat, or converted to electricity or bio-fuel) and high quality fertiliser (the digested, nutrient-rich material).

Is it new technology?

No, farm biogas systems are used overseas, including Europe, Britain, North America and Australia. Some farm biogas installations were set up in New Zealand in response to the oil shock of the late 70s but were subsequently shut down.

Where were the feasibility studies conducted?

A range of scenarios were tested:

- Two pig farms – one small, one large (one North Island – Whanganui, and one South Island - Canterbury)
- Two mixed pig and dairy farms (both North Island - Wairarapa)
- A collective multi-stakeholder, mixed feedstock centralised hub project (Canterbury)
- Covered pond and tank digester solutions

What did the studies consist of?

The feasibility studies describe the technical and financial feasibility of biogas recovery systems specific to the farm/project. This included analysing the

manure available, calculating a suitable size for a digestion facility (pond or tank capacity), considering how the methane/energy might be used on the farm or facility, the capital costs involved, the cost of recovering the heat or energy, and estimates of payback periods.

What are the results?

The covered pond results are especially encouraging:

- Covered ponds offer reasonably easy integration into existing farm systems, especially in the North Island
- The capital costs are significant (in the order of \$100-200,000 for on farm systems), but the payback periods on energy savings are reasonably attractive (3 - 4 years)

The centralised hub facility offers great incentives to all stakeholders, with the simple payback for the facility of just under 6 years based on the returns from fertiliser and energy.