

CEFC and NAB co-finance innovative bioenergy project

\$950,000 from CEFC (\$2.86 million project)

SUMMARY

The Clean Energy Finance Corporation (CEFC) and National Australia Bank (NAB) are co-financing an innovative waste-to-energy project at Queensland poultry business Darling Downs Fresh Eggs.

CEFC strategic alliance partner and leading biogas-based renewable energy company, Quantum Power, is working with its own strategic partner, US company RCM International. They will design and deliver the \$2.86 million onsite power plant for the family-owned poultry business at Pittsworth in south-east Queensland.

EXPECTED OUTCOMES

The anaerobic digester and generators will provide ready power and heat sources for Darling Downs Fresh Eggs by converting chicken manure from approximately 390,000 hens and other organic waste.

- Reduce current grid electricity usage by 60 per cent in the first year.
- Reduce carbon emissions of up to 1,000 tonnes per annum, through the reduced electricity and LPG usage.
- Reduce methane emissions by over 6,000 tonnes of CO₂e a year.

- Achieve cost savings of more than \$250,000 a year.
- Eliminate about half the labour and transporting costs associated with the disposal of poultry farm waste products.

While Darling Downs Fresh Eggs will access power from the grid in peak periods, it will produce 100 per cent of the company's energy requirements in all other periods.

The project also allows Darling Downs Fresh Eggs to capture the heat from the biogas generator and use it to warm chicken rearing sheds and heat the water for the grading floor – almost eliminating the need for a separate gas source for heating.

The digester has the potential to allow for the processing of food waste from the local and surrounding areas.



THE TECHNOLOGY

Organic waste is collected and treated in an anaerobic digester to produce enough biogas to fuel a single engine generator. A hydrogen sulphide scrubber unit removes hydrogen sulphide from the biogas to extend the working life of the engines and ensure consistency of gas flowing into the gas treatment system. The heat by-product from the process is captured and also used in farm operations.

FINANCE

The \$2.86 million total project costs are being financed with:

- CEFC finance of \$950,000 (originally through Low Carbon Australia, now integrated into the CEFC).
- National Australia Bank finance for nearly half the project cost.
- An Australian Government grant of \$333,823 through the Clean Technology Food and Foundries Investment Program.
- Balance of capital cost funded by Darling Downs Fresh Eggs.

Darling Downs Fresh Eggs, established in the early 1980s, is 40 kilometres south-west of Toowoomba in the Darling Downs region in Queensland. The business is a family-owned and operated enterprise providing high quality farm fresh eggs. Darling Downs Fresh Eggs uses the latest farm production technologies to ensure the product maintains the highest possible quality standards.

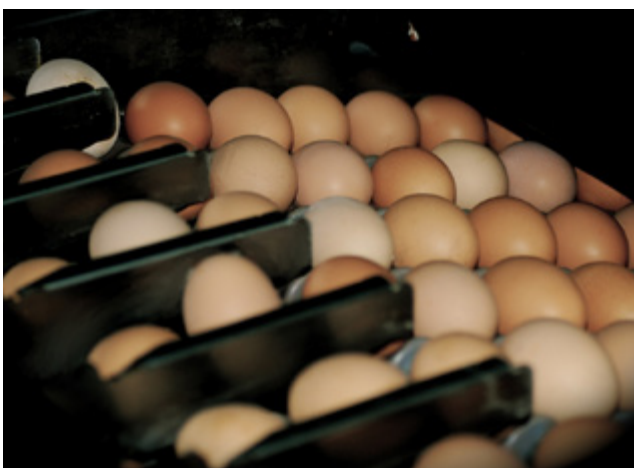
The integrated food manufacturing business produces point-of-lay pullets and shell eggs, grades and packages eggs, undertakes wholesale and retail distribution of eggs, and mills and wholesales stockfeed.

The Quantum Power Limited Group of Companies is an Australian niche power business focused on the production of energy from biogas. The group is a developer, owner and operator of power stations generating electricity and co-generated heat primarily from biogas.

The Quantum power generation system targets clients with existing digestion infrastructure in place, and those requiring complete turnkey solutions to establish these systems.

“Darling Downs Fresh Eggs can concentrate on its core business while we work with RCM International to deliver an anaerobic digestion plant that will reduce carbon emissions by up to 1,000 tonnes per annum, through reducing the business’ reliance on grid electricity and LPG. While Darling Downs Fresh Eggs will access power from the grid in peak periods, it will produce 100 per cent of its energy requirements at all other times.”

Richard Brimblecombe
CEO, Quantum Power



BIOGAS AND BIOENERGY POTENTIAL

There are more than 400 egg farms in Australia with 13 million hens producing 2.34 billion eggs in a year.

If biogas digesters were installed on these sites, the biogas yield from this could generate about 66 gigawatt hours (GWh) of electricity – enough to support the energy needs of more than 8,500 average family homes.

Bioenergy presently provides 0.9 per cent of Australia's electricity generation, but the Clean Energy Council estimates that this has the potential to increase sixfold by 2020 with the right support in place. The Clean Energy Council's projected 2020 target for agricultural biogas production is 791 GWh.

In Australia, the biogas sector holds tremendous potential for the intensive agriculture, meat and food processing industries, offering significant opportunities for cost-effective energy savings, renewable energy generation and carbon abatement. Agriculture and meat processing industries alone could abate over two million tonnes of greenhouse gas emissions a year for a capital

"We're expecting cost savings of more than \$250,000 from year one. This project is the first within the Australian egg production sector and will achieve efficiencies by capturing biogas generator heat for use in chicken rearing sheds and hot water for the grading floor – almost eliminating the need for a separate gas source for heating."

Geoff Sondergeld

CEO, Darling Downs Fresh Eggs

investment of around \$300 million. Industries and sectors ideally suited for biogas capture include piggeries, poultry operations, abattoirs, canneries, rendering plants, breweries and any organisation with high-load organic wet waste streams.

Bioenergy Australia estimates that anaerobic digestion emits 11 grams of CO₂ per kilowatt hour (kWh) compared with natural gas emitting 443g per kWh and unscrubbed coal more than 1kg per kWh.

The CEFC has received over 45 proposals in the bioenergy sector for projects totalling \$2.3 billion. Of these, about one third cover biogas projects, mostly in the agricultural, forestry and fishing industries.

Darling Downs Fresh Eggs will produce 100 per cent of its non peak energy requirements.

The Clean Energy Finance Corporation (CEFC) has been established by the Australian Government to mobilise capital investment in renewable energy, low-emissions technology and energy efficiency in Australia.

The CEFC's flexible mandate and commercial approach provide an opportunity to achieve genuine market-based change by helping overcome the financial barriers that have previously prevented clean energy investment at scale.

Learn more at www.cleanenergyfinancecorp.com.au

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