

# CEFC finance catalyses on-site biogas for agribusiness

## Up to \$20 million finance from CEFC for biogas infrastructure

### SUMMARY

Finance from the Clean Energy Finance Corporation (CEFC) to leading Australian biogas specialist Quantum Power Limited, is helping catalyse up to \$40 million investment in new biogas energy infrastructure that will cut energy costs for agribusinesses and manufacturers.

These new biogas projects will provide food processors and other agribusinesses with on-site energy, reducing their grid electricity usage and total energy costs while recycling their organic waste. Quantum Power will build, own, operate and maintain (BOOM) the facility, allowing the clients to focus on their core business operations.

The program will focus on the agriculture and food product manufacturing sector, which is an important source of jobs in rural and regional communities. Utilising on-site waste to create energy will reduce the input costs for these businesses and help them improve their competitiveness.

"Our agreement with biogas specialist Quantum Power enables food processors and other agribusinesses to turn on-site waste streams into a valuable source of energy. Quantum Power will build and manage the on-site facilities, leaving businesses free to keep focused on their core operations."

**Oliver Yates**  
CEO, Clean Energy Finance Corporation

For the client, biogas offers lower cost, lower emissions power than electricity sourced from the grid. Under the BOOM finance model, the client business does not need to provide upfront finance for the cost of the facility, which is operated, managed and maintained by Quantum Power. Quantum receives a guaranteed price for the energy produced by the biogas plant, helping protect the client business from the impact of rising grid electricity prices.

Generating on-site energy using renewable sources can also have the broader economic benefit of reducing the need for expensive network upgrades to meet electricity demand.

The individual biogas project investments are typically between \$2 million and \$4 million. The CEFC financing of up to \$20 million to Quantum Power will be matched with Quantum Power equity on a deal-by-deal basis to realise up to \$40 million of new investment in biogas infrastructure.



### PROJECT IMPACT

#### Reducing costs

Food processors and other agribusinesses benefit from reliable, on-site energy and significantly reduced energy costs. As the client business enters into a power purchasing agreement with Quantum Power, they gain control over their power bills and reduce the impact of rising grid electricity prices.

Biogas projects undertaken by the CEFC and Quantum Power demonstrate that grid electricity usage can be reduced by between 30 per cent and 60 per cent, with the associated reduction in costs.

In many of these businesses, energy costs are a significant input cost so that savings achieved can improve profit margins and competitiveness, while reducing emissions.

Savings can also be achieved through reduced waste management costs as the organic waste produced by the business' operations is used in the biogas plant to generate energy.

#### Providing an effective operating model

Under the BOOM finance model the client businesses obtain on-site energy with no upfront costs and without having to operate and maintain the plant and equipment. It allows them to focus on their core operations and their areas of expertise.

The biogas plants use on-site waste generated by the agribusiness and food manufacturers, thereby significantly reducing their waste management requirements and associated costs.

#### Reducing emissions

Biogas projects reduce methane emissions by capturing organic waste, generating biogas from anaerobic digestion and utilising this biogas as a fuel, which is a highly cost-effective and efficient way to reduce carbon emissions. Methane, which is 21 times more potent a greenhouse gas than carbon dioxide, is the dominant agricultural greenhouse gas in Australia. Methane from livestock represents twelve per cent of national greenhouse gas emissions.

According to BioEnergy Australia, anaerobic digestion emits only 11 grams of Co<sub>2</sub> per kWh. As a comparison to fossil fuels, this is about two per cent of the emissions for natural gas (443 grams per kWh) and one per cent of the emissions for un-scrubbed coal (over a kilogram per kWh).

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*Project Impact continued...*

### Catalysing a new industry

The biogas sector is still in its early development in Australia although the European Biogas Association estimates there were more than 13,800 biogas plants in Europe in 2012 with more than 7,400 MW of installed capacity. According to Pike Research, world biogas generation capacity is expected to double over the decade 2012 to 2022.

Biogas projects in Australia using the BOOM model have experienced difficulty in readily obtaining finance due to their small scale and the lack of Australian finance sector experience in technology applications in this area. The CEFC's financing will act as a catalyst, helping Quantum Power bring forward development of its growing pipeline of qualified projects in intensive agriculture and meat processing operations across Australia.

With increased experience in the market, it will demonstrate the potential for other financiers. The financing structure that the CEFC has developed for its partnership with Quantum Power can be used by other financiers to further develop Australia's biogas sector and support the nation's regional and rural communities.

"Our plants convert the business' organic waste to a bioenergy supply that is used to power its operations and the company agrees to purchase the generated power at an agreed rate for a specified time. This gives the business certainty over its power bills and reduces costs associated with organic waste disposal."

**Richard Brimblecombe**  
CEO, Quantum Power

## FINANCE

CEFC is providing up to \$20 million in senior secured debt finance to Quantum Power.

Quantum Power will provide matched 50 per cent equity on a deal-by-deal basis.

No concessionality applies.

## CASE STUDIES

### Egg producer creates energy from organic waste

Darling Downs Fresh Eggs, a poultry business based in Pittsworth, Queensland, is installing an anaerobic digester that will generate power from their operational waste.

This project constructed by Quantum Power will cut Darling Downs Fresh Eggs' grid electricity usage by 60 per cent in the first year and save more than \$250,000 a year. The biogas facility will also reduce carbon emissions by up to 1,000 tonnes a year and methane emissions by over 6,000 tonnes of CO<sub>2</sub>e a year.

The CEFC provided finance of \$950,000 for the \$2.86 million, with co-finance from NAB for nearly half the project cost and an Australian Government Clean Technology Food and Foundries Investment Program Grant of \$333,823.





### Major renderer cuts energy costs through biogas upgrade

A J Bush & Sons, Australia's largest renderer, is adding 1MW of purpose-built biogas engines at their processing plant in Beaudesert, Queensland. The engines will maximise the use of on-site biogas resources and avoid 23,000 tonnes of CO<sub>2</sub>-e direct emissions.

The upgrade is expected to reduce A J Bush's grid electricity consumption and the associated carbon emissions by 35 per cent. Local air quality and amenity will also be improved as the additional anaerobic digesters will be covered.

The CEFC provided finance to Quantum Power for half the \$1.2 million project cost.

"The CEFC has already partnered with Quantum Power to accelerate two projects – an anaerobic digester for an egg producer and a biogas plant upgrade at a major rendering plant - that reduced reliance on grid electricity by between 30 and 60 per cent."

**Oliver Yates**  
CEO, Clean Energy Finance Corporation

## BIOGAS & BIOENERGY POTENTIAL

Bioenergy currently generates an estimated 2,400 gigawatt hours (GWh) of electricity in Australia a year – which is about 8 per cent of the country's renewable energy generation or just over one per cent of Australia's total energy generation. This compares with around 10 per cent of the world's primary energy consumption.

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, carbon abatement and improved waste management. Agriculture and meat processing industries alone could abate over two million tonnes of greenhouse gas emissions a year for a capital 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.

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.





### **BUILD, OWN, OPERATE, MAINTAIN (BOOM) FINANCE MODEL**

Quantum Power builds, owns, operates and maintains (BOOM) the biogas collection and power generation plants, using joint venture partner, RCM International's, digester technology.

The biogas facilities are installed on a client's site and the client enters into an agreement to purchase the power generated.

Typical equipment acquired and installed include biodigesters, generators, control gear and connections, and gas scrubbers and pipework. These installations also include new waste water treatment systems with reduced environmental impact.

The main advantages of the BOOM finance model are:

- The client business doesn't require upfront finance
- The client is not responsible for operating and maintaining the power facility and can focus on its core operations and areas of expertise; and
- The client obtains reliable, cost-effective, on-site power that reduces their energy costs and assists their waste management.



**Quantum Power Limited** is Australia's leading biogas company, having designed and constructed more biogas-fuelled power stations in Australia than any other provider. The group is a developer, owner and operator of power stations generating electricity and co-generated heat primarily from biogas.

Quantum Power provides complete turnkey solutions and also offers its unique build, own, operate and maintain model to provide its customers with the benefits of anaerobic digestion systems and biogas fuelled power stations without the need for upfront capital.

The Clean Energy Finance Corporation (CEFC) invests using a commercial approach to overcome market barriers and mobilise investment in renewable energy and lower emissions technologies. These investments are improving energy productivity and lowering energy costs for businesses across Australia, and helping to develop local industries and new employment opportunities.

In 2013, the CEFC's investments of \$536 million mobilised on average \$2.90 of private sector investment for every \$1 of CEFC investment and will achieve abatement of 3.88 million tonnes of CO<sub>2</sub>e per annum. These investments will deliver a positive return to the CEFC, with a cost of abatement in the order of negative \$2.40 per tonne CO<sub>2</sub>e.

The CEFC operates under the CEFC Act 2012. More information is available on our website [www.cleanenergyfinancecorp.com.au](http://www.cleanenergyfinancecorp.com.au)

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