



HOW DOES IT WORK?

Biogas is the by-product of a biological process called anaerobic digestion – the collection and decomposition of organic matter in an oxygen free environment. Biogas is captured throughout the anaerobic digestion process. Biogas is predominately methane and can be used as a replacement for natural gas for use in a boiler or a generator.

Bioenergy systems have been used around the world for decades and the process is well proven and understood. It is a simple and valuable method of capturing the carbon energy within the waste stream, allowing the separation of the energy from the essential nutrients, enabling the nutrients to be reinstated as fertiliser and the energy to be used for heat and power.

To support our engineering experience, we are expecting to commence a fast tracked research project with CSIRO shortly. This project will provide the necessary scientific detail to adapt the use of the fertilizer to Australian conditions.

PARTNERSHIP CAPABILITY STATEMENT

Energy360 | Wiley | Ökobit: A powerful alliance

Energy360 | Wiley teams over a century of experience in major project delivery, with a unique suite of experience in food processing, waste treatment and renewable energy systems. We each combine our unique engineering capabilities to de-risk the project, fully integrating the turnkey system to provide seamless project execution.

Currently we are working together on a bioenergy system for one of Australia's largest red meat processors. This project will deliver approximately 350kW of electricity to the plant 24 hours a day.

Energy360 | Ökobit have partnered together to bring the best of German bioenergy engineering experience to Australia. Ökobit have over 200 bioenergy plants in Germany and have committed to work with us in Australia to adapt these systems to Australian conditions.

Together we provide a unique offering to our clients in response to:

- › Food manufacturers calling for cheaper energy and battery like capability for power and gas
- › Food manufacturers, councils and agriculture calling for a method to cheaply dispose of organic waste and water trade waste
- › The Australian public calling for renewable energy solutions

AFTER SALES SERVICE AND SUPPORT

Energy360 provides local after sales service and support for all elements of a bioenergy system. Remote monitoring for all elements is a recommended option to enable a timely response.

NEXT STEPS

Contact us, Energy360, to take the first steps to increasing your profitability by decreasing your electricity or gas costs, waste disposal cost and CO₂ emissions. We look forward to speaking with you soon.



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power up
your
waste



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POWER UP YOUR WASTE



PARTNER WITH US FOR LOWER UTILITY COSTS, IMPROVED WASTE TREATMENT AND LOWER CO₂ EMISSIONS.

Utility cost reductions, improved waste treatment processes and lower CO₂ emissions can be achieved with an Energy360 bioenergy system. Energy360 and partners will take care of the design, installation and operation of this non-core plant and equipment so you can focus on delivering improved outcomes for your customers.

Energy360 delivers turnkey bioenergy systems as an integrator in partnership with two leading engineering firms. Our Australian designed and supported system is guaranteed and delivers simple capital paybacks of approximately 6 years – a significant improvement on paybacks offered by our competitors.

For the turnkey system, we can offer funding models as an alternative to capital purchase.

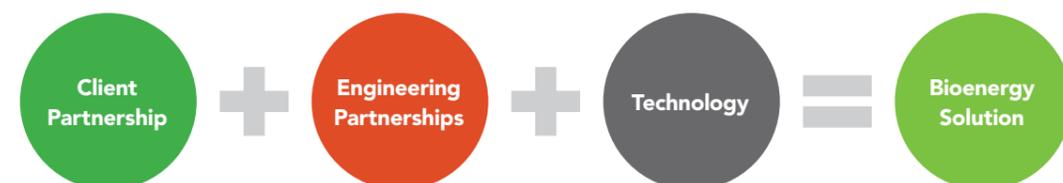


REDUCE & IMPROVE

Food processing plants have high utility costs and low profit margins. Their waste streams have a high biological load and are often costly to dispose of. A bioenergy system will reduce the biological load in the final waste stream, generate biogas and provide your business with renewable energy.

The renewable energy will substantially offset natural gas or electricity requirements. Current clients are achieving energy savings of over 25% per annum with capital payback periods of approximately 6 years using onsite generated bioenergy. Energy360 works with clients to design a quality, site specific system which will maximise each individual renewable energy opportunity.

For seamless delivery, Energy360 has partnered with industry leading companies, Wiley and Ökobit, to bring you the complete, turnkey solution. This is our point of difference in the marketplace. We will deliver the entire project enabling you to focus on your business.



FINANCIAL BENEFITS

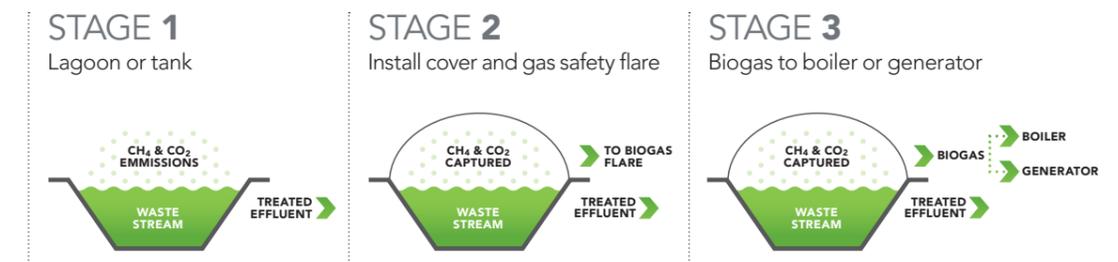
The financial benefits of your bioenergy system are quantifiable, peak use flexible and behind-the-meter.

Behind-the-meter generation gives you more control of your energy usage and provides a means to offset a portion of your grid demand for either gas or electricity. Control of the energy enables flexible power generation in peak demand periods, similar to capabilities offered by batteries, without the high price tag. For example, the biogas can be buffered during low power demand times and released to generate electricity and heat in periods such as shoulder peak between 6pm and 10pm when solar power is limited or during hours of darkness to power irrigation pumps.

In addition to electrical generation, bioenergy can also be used directly in a boiler, replacing natural gas to generate heat or steam. This is the most capital cost effective method for using bioenergy. A current boiler needs a small modification and the ongoing boiler maintenance profile remains virtually the same.

ANNUAL COST SAVINGS

A bioenergy system consists of three elements. If required, each can be implemented in separate CAPEX stages.



The capital expenditure for each element depends upon the quality and quantity of the waste stream. A low input quantity available from a food manufacturer, equates to approximately 25t to 40t of organic matter per week. A mid-range quantity for a red meat processor equates to approximately 800kL of wastewater per day. Below are example customer solutions.

STAGE	EXAMPLE CAPEX	Low quantity (+/-30%)	Medium quantity*
1	Lagoon or tank	\$0.6M	\$2.3M
2	Install cover and gas safety flare	\$0.3M	\$1.3M
3	Biogas to boiler or generator (*boiler less \$0.5M)	\$0.3M	\$1.3M
TOTAL EXAMPLE CAPEX		\$1.2M	\$4.9M
Example power generation (variable between waste streams)		90kW	400kW
Example annual cost savings (power @ \$0.25/kWh, waste saving \$1.5K and \$5K per week)		\$0.24M	\$1.0M
Example simple payback		5.0 years	4.9 years
Example CO ₂ e abated		1,612	8,598

* Biogas from a mid-range bioenergy system to a boiler would provide heat of approximately 8.7GJ/hr for 12 h/day, 7 d/wk for a natural gas saving of \$400k p.a., at \$16GJ equivalent, plus waste saving.