

BEEFING UP BIOGAS

Bindaree Beef, one of Australia's largest meat processors is using the methane from its waste to create electricity.



THE PROBLEM

Aussies love eating beef. In fact, our red meat processing sector is about 1.3% of our country's total gross domestic product. Unfortunately, however, producing beef means producing emissions. Methane is 21 times more potent a greenhouse gas than carbon dioxide, and meat production facilities require considerable energy to operate.

ABOUT METHANE — THIS GAS IS PRODUCED BOTH NATURALLY AND THROUGH HUMAN BEHAVIOURS, SUCH AS WASTE BREAKDOWN IN LANDFILLS, AGRICULTURE, AND COWS BURPING! METHANE IS 21 TIMES MORE POTENT A GREENHOUSE GAS THAN CO₂. HOWEVER, THERE IS OVER 200 TIMES MORE CO₂ IN THE ATMOSPHERE THAN METHANE.

For many years, Bindaree Beef, one of Australia's largest and most highly regarded meat processors, has relied on a coal-fired boiler to power their processing plant in Inverell (northern NSW). Until recently, this boiler used 7,000 tonnes of coal every year. For Bindaree, this simply wasn't acceptable. Known for their high standards in meat production and processing, Bindaree was determined to move away from coal and say find a more innovative energy solution.

THE SOLUTION

In 2011, Bindaree Beef got the go-ahead to develop a new, \$47 million biogas facility at Inverell. They were fortunate enough to receive from both the Clean Energy Finance Corporation (CEFC) and the Australian Government. This in itself is promising because even though biogas is strongly established overseas, it's still in its early development in Australia.

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The new biogas facility transforms organic waste into methane gas that is then used to create electricity. It includes a biodigester that produces the biogas, an electricity generation facility that uses the biogas as fuel, and a new and more energy efficient rendering plant to replace the existing coal-fired plant and eliminate the use of coal.

BIOGAS REFERS TO A MIXTURE OF DIFFERENT GASES (METHANE AND CARBON DIOXIDE) PRODUCED BY THE BREAKDOWN OF ORGANIC MATTER IN THE ABSENCE OF OXYGEN. BIOGAS CAN BE PRODUCED FROM MATERIALS SUCH AS AGRICULTURAL WASTE, MANURE, PLANT MATERIAL, SEWAGE, MUNICIPAL WASTE, GREEN WASTE OR FOOD WASTE.

The new equipment has halved Bindaree's power bills and reduced their annual carbon emissions by three quarters. This has made them more competitive, and has created the opportunity for them to boost their production. The new plant has also created a new business revenue stream through sales of organic fertiliser that is a by-product of the energy conversion process.

The old coal-fired boiler is now only used as a back-up resource.

MORE GOOD NEWS

The project has been a huge success in several areas. This includes:

Setting a new industry standard

The Inverell facility is the first of its kind in Australia to use biogas technology. The bio-digester manages all waste streams from the plant and uses this material to generate biogas to supplement power use, and to create solid fertiliser. The results from this project will help the CEFC to further develop the overall biogas sector.



Artists impression of the Bindaree Beef biogas facility - <http://meateng.com.au/bindaree-bio-digester/>

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Reducing costs

The new facility has allowed Bindaree to slash its operating costs, increase its profit margins and better compete on the global market. Bindaree has reduced its energy bills by 50% and eliminated 7,000 tonnes of coal use each year. By generating a significant proportion of its power needs on-site from organic waste products, Bindaree also now has greater control over its power costs and is less vulnerable to future electricity cost increases. They can also sell excess power generated back to the grid.

Reducing emissions

In total, the project reduced Bindaree's annual greenhouse gas emissions by a whopping 76%. This is due to reduced energy use, reduced methane emissions from effluent ponds, replacement of coal-fired boilers with renewable biogas fired boilers, and the replacement of grid-based electricity with renewable electricity. The new process even helps improve local air quality as it eliminates the smoke from burning coal.

THINK NOTHING CAN BE DONE ABOUT CLIMATE CHANGE? THINK AGAIN.

GENERATION YES.