

# POWER PROFILE

## Nong Rai Farm

### POWER NEED

Nong Rai Farm was seeking a means of tapping its biogas resources to fuel electrical generators for on-site power. The farm partners with the CP Group, one of the largest food suppliers in Thailand, operates a feeder operation for more than 30,000 hogs in Rayong, Thailand. Nong Rai Farm consumes approximately 200 kW of power for blowers, drying systems, and other auxiliary needs associated with its operations. The manure produced by its hogs is piped into a digester pond, where it generates biogas that is used to fuel the generator sets. The generators produce power sufficient for all of Nong Rai Farm's electric power requirements.

Nong Rai Farm selected Caterpillar generator sets because of the anticipated long-term benefits of using their high-quality and reliable generator sets over other, low-cost gas generators, often modified from automotive engines. While Nong Rai Farms recognized that the initial investment in Caterpillar biogas-fueled generator sets would be higher, it was confident that the long-range savings associated with a reliable, durable platform would be significant. As the generator sets would be running continuously, it was important to work with a supplier that could provide guidance on engine care and also have parts available in a timely manner when necessary. Caterpillar was chosen because of its reputation for quality power generating equipment and extensive field validation of similar units operating on methane gas. Another consideration was its capability to provide local service and technical support for the installation through its factory-trained design and maintenance personnel at

Metro Machinery Co., Ltd, in Bangkok. In addition, the dealership possessed the experience and expertise necessary for both commissioning and maintaining power projects utilizing ag-biogas.

### SOLUTION

Metro Machinery Co., Ltd., installed two biogas-fueled Caterpillar generator sets at Nong Rai Farm. These gas generator sets are capable of producing a total of nearly 200 kW. In addition, control panels and automatic transfer switches were installed to ensure that the power generated is distributed reliably and efficiently. This project exemplifies sustainable development. It involves the capture of a waste gas, circumventing the harmful effects on the environment associated with methane migration. Furthermore, any energy created by the methane conversion in the generator set offsets the emissions that would be created if power was supplied by a standard coal-fired facility.

### RESULTS

Installation of the Caterpillar power system was designed to cut costs for electricity as well as utilize existing on-site biogas resources at Nong Rai Farm; it has met both of these goals. The Nong Rai Farm installation was completed in mid-2005 and has been operating successfully since it came online. Not only is the Nong Rai Farm power plant meeting all of the farm's electric power needs, it is saving the farm approximately 2.8 million baht annually that would have otherwise been spent purchasing electricity from the local power grid.



Nong Rai Farms

### CUSTOMER

Nong Rai Farm

### LOCATION

Rayong, Thailand

### CUSTOMER

### BUSINESS ISSUE

Continuous power generation for use by a feeder operation for hog production

### SOLUTION

- One Cat® G3406 gas generator set (105 kW)
- One Cat G3306 gas generator set (70 kW)

Design, installation, and commissioning of two generator sets and their control panels and automatic transfer switches, as well as periodic maintenance and overhaul services.

### CAT DEALER

Metro Machinery Co., Ltd.,  
Bangkok, Thailand.