

# RUNREADY™



## FLOWER POWER

Grower rebuilds with new Cat® CHP plant

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**CATERPILLAR®**

# GLOBAL CONNECTION

**New Cat® energy plant  
part of Myanmar's efforts  
to modernize**

**A**fter five decades of isolation, Myanmar is in the early stages of opening up and integrating itself into the global economy. The government of the country formerly known as Burma has made a concerted effort to create a more conducive business climate, improve civil liberties and raise the overall standard of living.

With abundant natural resources, the country bordered by China, India and Thailand offers ample trade opportunities.

But fundamental infrastructure problems remain. With one of the lowest electrification rates in the world, Myanmar faced a major energy crisis in 2012 as hydroelectric power resources diminished. Energy consumption per capita remains among the lowest in Asia—at little more than 100 kilowatt-hours per capita—which is less than five percent of the electrical usage in neighboring Thailand.

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With less than a quarter of Myanmar's population of 55 million people connected to the grid, and frequent power rationing occurring in the summer months, many businesses must rely on their generators, which increases the cost of doing business.

To address the shortage of electricity, the Ministry of Electric Power chose four previously installed power plant sites for upgrades in Yangon (Rangoon), Myanmar's largest city. To facilitate the increasing need for power, which is growing at an annual rate of 15 percent, independent power producers (IPPs) were invited to invest in the locations.

Singapore-based UPP Holdings, Ltd. was chosen as the first fully foreign-owned IPP incorporated under a new law governing foreign investment.

"With the country opening up, there is a need to fast-track development and improve the economic and social well-being of the population," said Kooi Ong Tong, chairman and CEO of UPP Holdings. "Attracting foreign investments is a critical first step that will lead to increased employment and income levels, and the growth of a larger and more entrepreneurial private sector."

"Currently, the main hurdle affecting investments is the lack of power supply," Tong continues. "There is an urgent need to address the shortage of electricity supply in the country. For UPP Holdings, we hope to play a small part in Myanmar's economic development through this and future projects."

### Turnkey project

During the implementation phase, UPP turned to the Cat® dealer in Myanmar, Myan Shwe Pyi Tractor Limited (MSP Cat).

For the Ywama/Yangon facility, UPP Power (Myanmar) Ltd. installed a 50 MW gas-fired power plant that features 13 Cat CG260-16 generator sets. MSP Cat provided installation and civil construction services, including transformers, cable, electrical substation, fuel train, lighting and fire prevention equipment.

**"It was clear to us that MSP Cat and Caterpillar would be able to deliver the ideal solutions for our needs."**

**KEVIN KHOO**  
Managing Director  
UPP Holdings, Ltd.



In awarding the project, the government stipulated that the power plant become operational within an especially short timeframe due to the growing economy.

"Given the fact that a high-quality and high-performance power plant had to be constructed within a very short period, it was clear to us that MSP Cat and Caterpillar would be able to deliver the ideal solutions for our needs," said Kevin Khoo, managing director of UPP. "That is why we chose Cat products for the 50 MW power plant in Ywama."

In order to meet the demanding schedule, the gas generator sets and additional electrical and mechanical components were ordered in mid-2012.

However, since this was the first of four IPP projects in Myanmar, it took some time for UPP to obtain special approval for importation of the plant from the Myanmar Investment Commission prior to signing the Power Purchase Agreement (PPA).

Because of time constraints to complete the construction of the plant before the upcoming peak summer season, MSP Cat decided to ship the 13 generator sets from Caterpillar Energy Solutions in Mannheim, Germany to Singapore to be ready for shipment to Yangon as soon

### CUSTOMER PROFILE

#### UPP Holdings, Ltd.

Location: Yangon, Myanmar

Application: Independent Power Producer

Cat® Equipment: 13 Cat CG260-16 gas generator sets



as the import license was approved. Shipping of containers for the additional power plant components was put on hold until clearance for import was obtained.

"Due to this delay, logistics plans for staggered shipments were disrupted with the result of having to ship all goods at one time," recalled Heinz Ludi, the CEO of MSP Cat. "Some 200 containers arrived practically at the same time and a 'container tsunami' of all sorts formed at the construction site."

To accommodate the power requirements, UPP ordered a turnkey

system, including design, engineering, procurement and construction services (EPC). Caterpillar was responsible for the overall project management and MSP Cat performed the local portion of EPC for the project. A new building was constructed to house the generator sets.

**Cat dealer support**

The \$46.5 million project was completed on time and started operating in February 2014. The 50 MW plant is already supporting the national power grid, helping to prevent daily power outages.

When viewed in the larger context of Myanmar’s vast power needs, 50 MW of power is not all that significant. But measured in terms of the volume of electricity available throughout the country in 2012, the power plant in Yangon represented four percent of the country’s entire power supply.

Since the successful commissioning, MSP Cat has been running the plant

to fulfill a 30-year operating and maintenance agreement with UPP.

“We are very satisfied with the cooperation we have received from MSP Cat,” said Khoo, “and we hope that this is just the beginning of more projects to come.”

The Myanmar government is planning construction of additional power plants in the near future in order to expand the country’s continuously rising demand for electricity. The possibility of installing an additional gas generator power plant to increase electrical energy capacity is being evaluated.

“We aim to deliver a reliable source of power supply that is efficient and cost-effective to the government,” Tong said. “For us, this power plant is not just an investment in Myanmar. We see it as an opportunity to participate in the economic and social development of the country, and to build relationships with the community.”

**MYANMAR SNAPSHOT**  
**Southeast Asian country has abundant, untapped resources**

Myanmar is a largely rural, densely-forested country. The 261,227 square-mile country formerly known as Burma is the world’s largest exporter of teak and a principal source of jade, pearls, rubies and sapphires.



Rubies are the biggest earner; 90 percent of the world’s rubies come from the country, whose red stones are prized for their purity and hue. Thailand buys the majority of the country’s gems. Myanmar’s “Valley of Rubies,” the mountainous Mogok area, 120 miles north of Mandalay, is noted for its rare pigeon’s blood rubies and blue sapphires.

Myanmar also has highly fertile soil and important offshore oil and gas deposits. Other industries include agricultural goods—especially rice, which covers about 60% of the country’s total cultivated land area—and textiles, wood products, construction materials, metals, oil and natural gas.

Myanmar’s wealth of Buddhist temples has boosted the increasingly important tourism industry, which is seen as a likely sector for future foreign investment.

