Rapid Support for National Power Utility During Holiday and Harvest Seasons

Case History
JIRAMA Malagasy Electricity and Water

Where:
Toamasina, Madagascar

What:
Six C1250 D2R PowerBox generator sets totaling 6 megwatts (MW) of continuous power operating at sea level

Purpose:
Provide adequate power supply to the residents of Toamasina, Madagascar, during the overlapping Christmas holiday and litchi harvest season

Primary Choice Factors:
Ability to deliver generator sets on a reduced timeline; history of meeting similar power supply needs in the region; availability of stock and ability to modify to meet the region’s demanding weather conditions

Meeting the simultaneous power needs of the harvest and holiday seasons

Situated on the central east coast of the island of Madagascar, Toamasina is a densely populated city with a limited power grid. With close to 20,000 metric tons of litchi (aka lychee) exported annually, the community of approximately 180,000 residents depends largely on the harvest of the sweet, strawberry-red fruit for their livelihood.

For the national power utility, JIRAMA, the annual harvest is a strain on the local power grid that’s just manageable. In 2014, however, the government feared possible blackouts due to the overlap of harvest time with the Christmas holiday and urged JIRAMA to seek additional power sources.
While JIRAMA had initially reached out to a competitor supplier, they quickly eliminated them because they couldn’t meet the stringent demands of the project. Knowing that Cummins Power Generation had a track record of supplying more than 70 MW of power at a mine site in nearby Ambatovy, as well as a promise to not compromise on quality and integrity, JIRAMA contacted Madagascar Automobile (Madauto), Cummins’ regional dealer, to supply the necessary 6 MW of power in just five weeks.

Because of the truncated timeline, the project required close coordination among multiple Cummins international facilities, JIRAMA and Madauto. Cummins’ general manager for dealer development in South Africa, Darryn Scheepers, consulted with the South African project team and JIRAMA’s director of production for the best solution and recommended installation plans, including line diagrams, general arrangement drawings, correct balance of plant, electrical calculations and recommendations.

“We were all very excited about trying to do something so quickly,” said Scheepers. “Turning around a request like this would normally take 14 or 15 weeks. We were being asked to do it in less than half that time.”

On November 25, JIRAMA placed an order for a fully integrated solution that consisted of six C1250 D2R PowerBox generator sets with a delivery date of mid-December. With one unit immediately available in Madagascar, the team requisitioned five additional available units from the Dubai distribution facility that would need to be modified before delivery.

**Experience Beats Demanding Weather Conditions and Potentially Risky Transport**

In December, the region often sees hot, rainy days, with temperatures upward of 25 degrees Celsius (80 degrees Fahrenheit) and cool nights, with temperatures of 17 degrees Celsius (60 degrees Fahrenheit) with humidity around 85 percent — not ideal conditions for operating generators. To combat these conditions and ensure the generator sets operated reliably regardless of weather, the team quickly went to work making modifications. Working with the Kent, United Kingdom, plant for materials and modifications, the Cummins Dubai distribution facility installed alternator and engine coolant heaters to counteract the effects the humidity would have on the sets. Because Cummins was already familiar with modifying generator sets to operate in the region’s...
Inland transportation to Toamasina

tough weather conditions, they were prepared to make these modifications, even with the shortened timeline.

“This project was immensely challenging,” Scheepers said. “Conference calls were held daily among Cummins teams in South Africa, United Kingdom and Dubai to ensure nothing was lost in translation and everything ran according to plan. We couldn’t have done it without tremendous cooperation and collaboration among all involved parties.”

To meet the approaching delivery date, the generators needed to travel by air (rather than the usual sea freight) from Dubai to Madagascar’s capital, Antananarivo. To reduce the risk of leakage or sparks during air transport of the 16-ton generator sets, Cummins drained the fluids and disconnected the batteries, and packed them in special containers. Upon arrival, each generator set was then transported on its own truck the last 500 kilometers to Toamasina.

Even with a shortened timeline, special modifications to meet the local weather conditions and unusual safety issues due to air shipping, the generators arrived on time. They started producing power on Christmas Eve. The harvest season carried on as usual, and families celebrated the holiday season under the soft glow of twinkling Christmas lights.