



Rental Power

> Case History

Emergency Prime Power Station, Zacatecas, Mexico

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Where:

Two substation sites outside Zacatecas, Mexico

What:

A 170 MW emergency prime power system installed and commissioned on a very short timeline

Purpose:

Replace temporary deficits in base-load hydroelectric power caused by record-low reservoir levels

Primary choice factors:

Rapid availability of multiple Rental Power units with high fuel efficiency, low maintenance and high reliability for short-term prime power production

Cummins Power Generation Inc. commissioned 170 MW emergency power plant in 41 days

ZACATECAS, MEXICO — Cummins Power Generation commissioned a 170 MW emergency power station in just 41 days. Built on two sites near the city of Zacatecas, Mexico, the project was contracted by the Comision Federal de Electricidad (CFE), the state-owned power company.

Supplementing hydroelectric power

Water levels in major hydroelectric dams in Mexico were at record lows, and the expected rainfall was not likely to provide enough hydroelectric power to meet the country's electricity demands.

“CFE gets about 23 percent of its power from hydroelectric facilities,” said Steve Knaeble, director of power and engineering, Cummins Power Generation, Mexico. “At 9,600 megawatts, this is second only to the power produced by gas and oil-fired power plants. When production from the hydroelectric facilities drops due to low water levels in the reservoirs, potential severe electrical shortages can occur.” For this reason, the CFE requested bid proposals for emergency power totaling 500 MW.



The 170 MW emergency power plant in Zacatecas, Mexico, used the large Cummins Power Generation North American Rental Power fleet.



Each Rental Power unit was a stand-alone power station.

“Demand for electricity in Mexico was growing at a rate of about 5 percent, depending on the region,” said Knaeble. “Power producers expected programmed outages for industrial customers due to insufficient transmission capacity and two consecutive years of low rainfall that reduced hydroelectric production. CFE opened an international tender to construct emergency generating facilities at five sites: two near Zacatecas, one in Veracruz, one in Guadalajara and one in Guerrero. Cummins Power Generation won the two in Zacatecas.”

Cummins Power Generation was able to complete the project quickly by using its large North American fleet of Rental Power units. Diesel-powered units offered immediate availability, high fuel efficiency and excellent reliability.

In prime power applications, fuel consumption can be the major expense, and fuel-efficient generators can significantly reduce the cost of power.

Stand-alone power stations with digital controls

The 170 MW prime power facilities at the Zacatecas sites consisted of 150 trailerized Rental Power units: 75 2-MW units and 75 1.5-MW generator sets, all manufactured by Cummins Power Generation. Each Rental Power unit was a stand-alone power station that included a diesel-powered generator, PowerCommand® digital controls, a cooling system, a fuel tank, paralleling equipment and the necessary step-up transformers to connect to the grid. This gave plant operators the flexibility to operate just a few units in parallel with the grid or all 150, depending on power needs.

190 days, 16 hours a day

This project, the largest Rental Power project for Cummins Power Generation so far, was in place for 190 days. The units, designed for prime power production, ran at least 16 hours a day and could run 24 hours a day if needed. Cummins Power Generation was able to meet all the technical, legal and economic requirements to win the bid. A key factor was the fuel economy of Cummins Power Generation Rental Power units. In prime power applications, fuel consumption can be the major expense, and fuel-efficient units can significantly reduce the cost of power.

CFE works closely with local distributor

More than 200 people from Cummins Power Generation and Cummins Mexico worked with local contractors 24 hours a day to complete the plant installation just six weeks after the contract was signed. Technicians from local Cummins Power Generation distributors in Mexico maintained the units, and Cummins Power Generation personnel were always on site for emergency generator service. Extra Rental Power units were also brought in for backup in case there was a problem with any unit. The diesel fuel was supplied by CFE, the utility.

For more information about Rental Power or other energy solutions, contact your local Cummins Power Generation distributor or visit www.cumminspower.com/rental.

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