



Peaking power

> Case History

Port of Pecém, Brazil



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Where:

On the Atlantic Ocean near Fortaleza, Brazil

What:

Three lean-burn natural gas engine generators with a total generating capacity of 5.25 MW; plus a standby diesel generator with “black start” capability

Purpose:

To provide peaking power and reduce electric bills for the port; also, to provide backup power during a utility outage caused by an unreliable power supply, terrorism or a natural disaster

Primary choice factors:

Cummins Power Generation was selected for its reputation for power systems with high reliability, low maintenance and excellent fuel efficiency

The Port of Pecém relies on Cummins Power Generation Inc. for peaking and backup power

PECÉM, BRAZIL — As one of the largest ports in Brazil, the Port of Pecém sees 60 percent of the products exported from the Ceará region flow through its waters. Providing power for a facility as large as the Port of Pecém is a complicated task. In order to help provide electrical infrastructure, the Port of Pecém relies on an on-site power system from Cummins Power Generation for both peaking and standby power. The power generation equipment provides peaking energy to save money on electric bills, as well as backup power should there be a utility outage due to an unreliable power supply, terrorism or a natural disaster.

Reliable power

Located on the Atlantic Ocean, the Port of Pecém is primarily used for the export of shipping containers to Europe and the USA. The main products exported are steel and agricultural products, with an additional pier for loading and unloading petroleum derivatives.

In 2004, the Port of Pecém loaded and unloaded almost one million tons of cargo, a 35 percent increase over 2003. With further expansion expected, the port needed to find a way to effectively and economically meet its power demands.



The port's on-site system consists of three 1750GQP lean-burn natural gas generators with a total generating capacity of 5.25 MW.



The peaking power provided by the lean-burn gas engine generators keeps the busy shipping port operating while reducing energy costs.

"In Brazil, the power isn't always very reliable. There are often random power outages that can seriously interrupt international shipping," explained Marcilio Rocha, coordinator for the secretary of infrastructure of the state of Ceará. With that in mind, Rocha contacted Distribuidora Cummins Diesel Nordeste (DCDN) about finding a reliable power alternative. "DCDN and Cummins Power Generation worked together to install a system that has significantly improved the reliability of electricity supply to the port," said Rocha.

The port's on-site system consists of three 1750GQP lean-burn natural gas generators with a total generating capacity of 5.25 MW. The load on the generators varies depending on the level of activity in the port; however, it currently rarely exceeds 2 MW. "We use the generators to provide electricity for all the equipment at the port. By far, the largest load on the generators comes from the refrigeration for all the fruit, but we have the ability to power the entire load of the port, should the situation arise," explained Rocha.

"DCDN and Cummins Power Generation worked together to install a system that has significantly improved the reliability of electricity supply to the port."

In addition to the three gas generator sets, Cummins Power Generation installed a "black start" diesel generator set with the ability to start and run even when there is no outside power available. Additional Cummins Power Generation equipment at the Port of Pecém includes a DMC300 Digital Master Control for controlling the power plant, transformers and automatic transfer switches.

A cheaper source of power

The generator sets installed by Cummins Power Generation help lower operational costs by reducing the Port of Pecém's dependency on the local utility during certain times of the day. The lean-burn gas generator sets run at peak times, from 5:30 to 8:30 PM, Monday through Friday. "Power is very expensive in Brazil at those times," said Rocha. "The electricity produced with the generator sets costs about one-third of that produced by the local utility power."

Changes from 9/11

As a result of the terrorist attacks in the USA on September 11, 2001, all major ports around the world must be able to supply their own electricity to operate loading equipment and other machinery and to be independent from the local utility in the event of a crisis. The new law, known as the International Code for Protection of Ships and Port Installations (ISPS Code), was issued by the Brazilian State Commission of Public Security for the Ports, Terminals and Navigable Waterways (CESPORTOS).

On June 17, 2005, officials from CESPORTOS unanimously approved the Port of Pecém for compliance with the ISPS Code, making it the first port in Brazil to receive certification. "The capacity of the generator sets from Cummins Power Generation is more than is needed to be in compliance with the ISPS Code," said Rocha.

For more information about peaking power systems or other energy solutions, contact your local Cummins Power Generation distributor or visit www.cumminspower.com/energysolutions.

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