



# Peaking power

## > Case History

Sete Lagoas, Anápolis and São Paulo, Brazil



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### **Where:**

At major utility substations near the cities of Sete Lagoas and Anápolis, and at a building complex in São Paulo, Brazil

### **What:**

A total of more than 113 MW from 77 diesel generating units and three lean-burn natural gas generators at three separate locations

### **Purpose:**

Peaking power for Brazil's power grid to augment hydroelectric power

### **Primary choice factors:**

Ability of Cummins Power Generation-Brazil to provide clean, efficient generating units, project management and financing

## **Cummins Power Generation Inc. delivers peaking power solutions throughout Brazil**

SÃO PAULO, BRAZIL, SOUTH AMERICA — In 1999, Brazil was the world's second-largest producer of hydroelectric power behind Canada. But after years of low rainfall that had lowered reservoirs, the country's ability to produce electricity was severely curtailed. In 2001, the Brazilian government was forced to launch a program promoting energy conservation and the construction of emergency generating plants on a major scale. Because of the costs involved and the short timeline for getting the power plants online, the government encouraged partnerships between energy companies, generator manufacturers and independent power producers.

Cummins Power Generation-Brazil has emerged as a leading supplier to the Brazilian power initiative, not only providing efficient and clean state-of-the-art diesel and natural gas engine generator systems, but also delivering project management and financing. Cummins has financed and commissioned three power systems for the Brazil initiative totaling more than 113 MW. All the projects were part of the strategic emergency energy plan of the Comercializadora Brasileira de Energia Emergencial (CBEE), the Brazilian government's emergency energy agency for power plants.



The Anápolis generating station features 33 Cummins Power Generation diesel generating units with a total continuous power rating of 44.3 MW.

The Brazilian projects are an example of Cummins Power Generation's growing focus on delivering total energy solutions to its customers, rather than just providing generating equipment.

#### **Sete Lagoas gets 64 MW of emergency power**

According to Alexandre Daher, Latin America project manager for Cummins Power Generation, the first emergency power plant brought online was the 64 MW Sete Lagoas project in the city of Sete Lagoas, state of Minas Gerais. The project was commissioned in September of 2002 with a contract period that ran through December 2004. The system consisted of forty-four 2000 DQKC PowerCommand® diesel generator sets, each prime-rated at 1500 kW. Partners in the project included the local Cummins distributor, DCML Distribuidora Cummins Minas S/A.

#### **Anápolis' 44 MW diesel facility ready in four months**

The second emergency plant brought online was a 44 MW diesel generating facility in the city of Anápolis that was financed and constructed by Cummins in partnership with Engebra, an independent power producer (IPP) in Brazil.

The Anápolis plant was commissioned and tested in early December 2002, only four months after the agreement between Cummins and Engebra was signed.

The plant featured sixteen 2000 DQKC PowerCommand generating sets, each providing 1600 kW of continuous power, and seventeen 1500 DFLE PowerCommand generating sets, each supplying 1100 kW of continuous power, for a total of 44.3 MW. The energy generated during power emergencies fed the electrical grid of the CELGelg (Companhia Energética de Goiás, Energy Utility Company) in the state of Goiás in west-central Brazil.



In the city of São Paulo, this compact standby facility contains three low-emissions Cummins Power Generation 1750 kW lean-burn natural gas engine generator sets.

The Anápolis project was contracted with the Brazilian government for a 38-month period, but only generated power when there was a declared power emergency, says Daher. "The region's peak demand period normally occurs in July and August," he says. "It was during that time that these plants were needed most."

*"Because the Sete Lagoas and Anápolis plants are designed for standby, they normally do not generate power on a daily basis," says Daher.*

Enatec-Benco, a Cummins Power Generation engineering partner in Brazil, designed, developed and installed the Anápolis site, as well as the fuel tanks, the fuel distribution pipelines and the safety protection systems for the project.

#### **São Paulo site to provide peaking power for next 15 years**

The third project is located near the city of São Paulo and consists of three 1750 kW PowerCommand QSV91G lean-burn gas engine generators. The installation was commissioned in September of 2003 and will operate as a peaking facility for the next 15 years. Partners in the project include Enatec-Benco and the local Cummins distributor, DCSP (Distribuidora Cummins São Paulo).

Rainfall in Brazil varies considerably from region to region and from year to year. With electricity consumption in Brazil predicted to increase at an annual rate of 3.6%, it is expected that emergency power facilities as well as ongoing conservation measures will be needed.

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

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