



Standby power

> Case History
Adelaide Airport, Australia

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Where:
Adelaide, South Australia

What:
Fully integrated standby power solution incorporating two Cummins Power Generation (C1675 D5) generator sets individually controlled by PowerCommand® digital paralleling PCC3100 controllers; both generator sets are controlled by a DMC 300 master controller system

Purpose:
To provide a standby power system for the successful running of the complex functions within a capital city airport in the event of a power failure

Primary choice factors:
Cummins Power Generation's ability to provide a total system solution for the customer, including design, manufacture, installation, commissioning and ongoing maintenance/servicing

Adelaide's new airport depends on Cummins Power Generation for reliable emergency backup

ADELAIDE, SOUTH AUSTRALIA — Power system reliability is critical to keep any airport functioning smoothly, and Cummins Power Generation is helping ensure this is the case at the new Adelaide Airport.

In the event of a power outage, the new Adelaide terminal relies on a state-of-the-art standby power system engineered and installed by Cummins Power Generation.

The city has a new \$260 million airport terminal that is designed to be all things to all travelers with international, domestic and regional flights under the one roof.

The behind-the-scenes workings of any capital city airport terminal are a highly tuned affair with thousands of passengers each day requiring hassle-free check-in, boarding and luggage collection along with modern shopping and restaurant facilities.

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Opened late in 2005 for international flights and early in 2006 for regional and domestic services, the new terminal has the capacity to process more than 3,000 departing and arriving passengers an hour and accommodate up to 27 aircraft simultaneously.

"It is a complete turnkey system with Cummins providing the total system solution — design, manufacture, installation, commissioning and ongoing maintenance/servicing," says Ian George, Cummins Adelaide project manager and application engineer.

The fully integrated system utilizes standard Cummins Power Generation generator sets, two 1,340 kWe gensets which are powered by Cummins 50-liter KTA50G8 engines, individually controlled by PowerCommand digital paralleling PCC3100 controllers, along with a DMC 300 digital master control system.

Cummins also supplied two 20,000-liter underground fuel tanks, two 1,000-liter day tanks, the fuel control and monitoring system, and the stainless steel exhaust/muffler system and inlet and discharge noise attenuators.

When there is a loss of utility power, both generators start up, synchronize together and are online in a sequence that takes less than 12 seconds. The generators then run for a number of minutes during which time the system analyzes actual site load requirements. If the load is such that it can be handled by just the one genset, the other genset is automatically shut down. If additional load is added to the system, the second genset is resynchronized to the system and assumes a portion of the site load.



The Cummins DMC 300 digital master control system:

- responds to mains failure signals from three independent incoming utility supplies and operates all the required circuit breakers at the individual main switchboards;
- is capable of providing standby power to the switchboards either individually or as the combined multiple boards depending on the status of the utility supplies;
- seamlessly retransfers the building loads back to the three independent incoming utility supplies when they have become stable after a mains failure outage; and
- allows the generator sets to be seamlessly paralleled to any one of the three independent utility supplies for maintenance test runs. This ensures the generators can be regularly exercised without interrupting the building power supply. It also eliminates the need for a load bank to be installed.

The system also has peak-shaving capability, allowing the gensets to be brought online during peak demand periods so that power consumption from the utility to the site is reduced, thus lessening the impact of price spikes.

Keeping thousands of people traveling through a busy airport each day without inconveniences requires careful engineering and organization. Thanks in part to the Cummins Power Generation standby power system, the new Adelaide airport terminal is certainly good news for the traveling public.

For more information about integrated standby power systems, contact your local Cummins Power Generation distributor or visit www.cumminspower.com.

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