Standby power

> Case History
Orange County Convention Center, USA

Cummins Power Generation

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Where:
Orange County Convention Center, Phase-V complex, Orlando, Florida, USA

What:
Remotely located standby power system for critical security and life-safety systems

Purpose:
Provide up to 6 MW of standby power in the event of a utility power failure

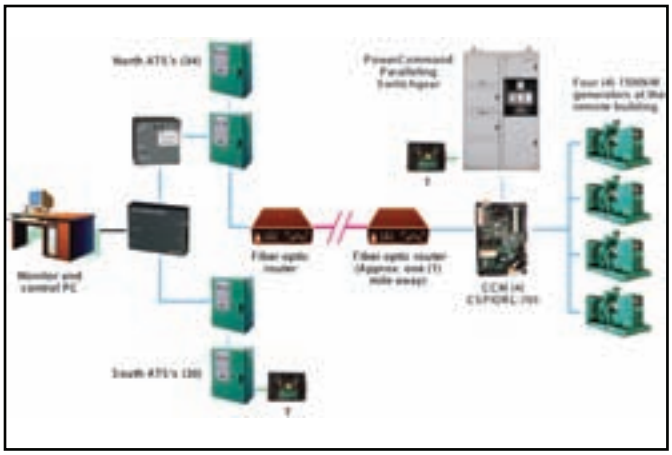
Primary choice factors:
Fully integrated and digitally controlled power system from a single-source provider that features remote operation and building automation system compatibility

"Unconventional" standby system powers Orlando's convention complex expansion

ORLANDO, FLORIDA, USA — In the heart of Florida's entertainment region, the Orange County Convention Center attracts hundreds of thousands of visitors to diverse events every month. Warm weather and multiple entertainment venues draw more events and visitors each year, causing the center to constantly expand.

The latest Phase-V expansion project consists of 2.8 million square feet of exhibit and meeting space, making it the largest public project in Orange County history. To ensure that the new addition had a reliable supply of standby power for lighting, security and life-safety systems, the general contractor for the project, Hunt Construction Group, Inc., turned to Cummins Southeastern Power, the local Cummins Power Generation Inc. distributor, for an "unconventional" solution.

The Phase-V building is an entirely separate structure with its own standby power system, and it is unique in several ways, according to Mike Sincavage, electrical manager for Hunt Construction. The most unusual aspect is that the standby power system is located in a separate building approximately one-half mile from the Phase-V building. The generators are connected



Control schematic shows the fiber-optic communications link with the system's 72 automatic transfer switches.

The standby power system is housed in a power building located one-half mile from the Phase-V facility.

by a high-voltage, underground power line (15 kV) to minimize line losses; and communication with the 72 automatic transfer switches is carried out over a fiber-optic cable system (see schematic).

Backup for lighting and life-safety systems

The standby power system in the Phase-V expansion consists of four 1.5 MW PowerCommand diesel generator sets from Cummins Power Generation, along with associated controls, switchgear and automatic transfer switches. In the event of a utility power failure, the 6 MW standby power system is designed to provide backup power for all of the lighting in the complex, ventilation fans, refrigeration in the four food service courts, elevators and security systems.

Hurricane Charley tests system

"The building was not hosting a show when the eye of Hurricane Charley passed directly over Orlando and knocked out a significant amount of power in the area. Although some buildings in the convention complex did not lose power, the Phase-V complex did, and the new standby power came on and operated as designed for several hours," said Brian Kennedy, assistant HVAC supervisor of the Orange County Convention Center.

Oversized for reliability, growth

With a current emergency load on the generators of only about 2 MW, the 6 MW standby system is significantly oversized. Citing that as a "good thing," Kennedy said that the larger system provides enhanced reliability in the event that one of the four generators fails to start or one of the units is down for scheduled maintenance. The off-site power building was designed to house an additional 6 MW of generation (for a total of 12 MW), should that be necessary for future growth.

According to Sincavage, the four 1.5 MW generators from Cummins Power Generation provided more generating capacity in a smaller footprint than a previous design involving six 1 MW generators. "With the PowerCommand digital controls built right into the generators, it simplified a number of control and communications issues."

"We liked the fact that the generators, transfer switches and digital controls were all pre-integrated and came from a single source. With the PowerCommand digital controls built right into the generators, it simplified a number of control and communications issues."

Building management system integration

"The standby power system is tied directly into our building management system (BMS)," explained Kennedy. "We have it set up so that whenever the generators start, the BMS issues an alarm condition that tells us that the generators are running and available for power. All of this can be supervised from our central energy control center across the street, which is manned 24/7."

To further enhance reliability, Kennedy said they have a two-year maintenance agreement with the local Cummins Power Generation distributor to perform all required maintenance on the standby power system.

The thousands of people who will attend events at the new Phase-V facility can take comfort in the knowledge that an "unconventional" standby power system is there to ensure that they'll have a great convention experience.

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

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