Peaking Power

Case History

Cummins, USA

Interruptible facility generates peaking power and savings for Cummins

Where:
Cummins, Fridley, Minnesota, USA

What:
Four 1100 kW prime (1250 kW standby) rated sets operating at 13,800 volts with on-board autonomous microprocessor-based PowerCommand® Control for paralleling and protection, which run in an extended parallel with the utility and soft-ramp the loads on and off.

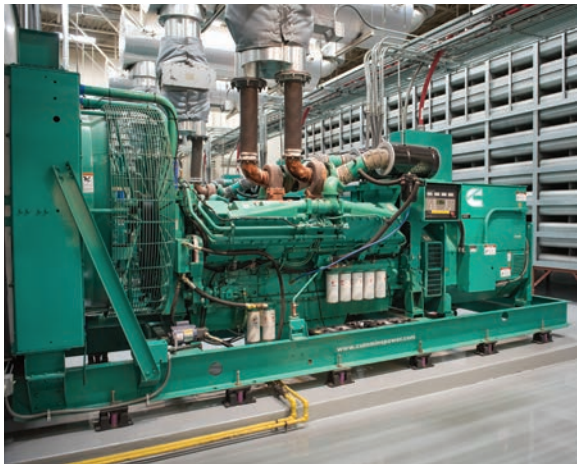
Purpose:
Provide standby and interruptible power to qualify for discounted utility rates and offer 100 percent standby backup power capability

Primary Choice Factors:
Ability to reduce energy costs with interruptible service, availability for customer demonstrations

Facility owners and operators looking for opportunities to reduce electrical power cost and improve power system reliability often can install on-site power generation equipment for interruptible and standby duty. Cummins Inc., a world leader in the design and manufacture of power generation equipment, power systems and power electronics, has operated an on-site interruptible facility since 1992. This facility serves as a demonstration for savings that can be achieved by using on-site power in extended parallel with a utility for interruptible service. It also shows the function and capabilities of an isolated power supply for standby service.

The plant engineering manager, said, “Even at Cummins, financial concerns were an important factor in deciding to add an interruptible power system to the facility.” For anyone considering an interruptible system,

In addition to providing interruptible and standby power, the Cummins 5 MW power system is used for customer demonstrations



Cummins' on-site power system generates corporate savings between $250,000 and $300,000 per year

he said, it is critical to involve a utility representative from the start, so there is a clear understanding of what rate options are available from the utility.

Spotlight on the Cummins facility

The Cummins interruptible power system serves 650,000 square feet of Cummins' manufacturing, engineering and general office areas. The system includes four 1100 kW prime power-rated generator sets that provide the capability to assume 100 percent of the facility's loads at any time. The generator sets operate at 13,800 volts and are connected directly to the main power distribution system for the plant. As a result, Cummins can show how digital paralleling controls allow complex functions, such as those required for interruptible applications, to be achieved reliably and cost-effectively.

The system also includes a DMC8000 which is a system level controller designed to interface directly with the PowerCommand® paralleling generator sets control. The DMC8000, in conjunction with PowerCommand generator set controls, is a fully automatic, logic controller suitable for unattended applications, which allows for a simpler, more reliable installation and eliminates single point of failures.

Oneline diagram of the facility power system: four generator sets, two utility mains and two generator mains

Even at Cummins, financial concerns were an important factor in deciding to add an interruptible power system to the facility.

Capabilities mean savings

Cummins participates in a contract with the local utility, Xcel Energy. The contract requires that the system be operable for up to 150 hours per year, most often during the months of June, July and August. In exchange, Cummins receives a peak-controlled, tier one rate from the utility, which generates corporate savings of between $250,000 and $300,000 per year. In addition, the first year in which Cummins signed the Xcel contract, there was a one-time rebate for the generator sets. That meant the system earned additional first-year savings of $522,000.

The plan also works in favor of Cummins because, in reality, the utility has not often exercised its interruptible option. Maintenance and operating costs have been low to date. The longest run requirement since the facility's inception has been 106 hours in one calendar year.

The 100 percent standby power capability will prove essential in the event of a utility power failure. However, more savings have been generated with the consistent usage of utility extended paralleling. So, while demonstrating capabilities for customers, the interruptible operation has truly generated maximum savings from the investment.

For more information about peaking power systems or other energy solutions, contact your local Cummins Sales and Service representative or visit power.cummins.com

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