



Peaking Power

> Case History

Hydro Sherbrooke, Canada

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Where:

A critical municipal water pumping station in the city of Sherbrooke, Quebec

What:

A real-life test determined that a new closed-transition transfer switch operated safely and automatically to shed load during the utility's peak demand

Purpose:

Automate power transfers without manual intervention or disruptions and revitalize the utility's load-shedding program for its customers

Primary choice factors:

Cummins Power Generation proposed and financed the test of a newly redesigned closed-transition transfer switch with enhanced safety features; close cooperation between the utility and the local Cummins Power Generation distributor was key

Closed-transition transfer switch from Cummins Power Generation Inc. reenergizes peak-shaving program at Quebec's Hydro Sherbrooke

SHERBROOKE, QUEBEC, CANADA — Several years ago, Hydro Sherbrooke, a large municipal electric utility, began offering discounts to commercial and institutional customers who were willing to operate standby generators during periods of peak demand. The program was intended to save participating customers money and allow the utility to shed electrical load and reduce strain on its system.

The program never achieved its goals because the approved open-transition transfer switches caused short power interruptions whenever the customer switched from the utility to the generator set. Additionally, a technician was required to manually operate the transfer switch, adding to the inconvenience.

A closed-transition transfer switch was the solution to the problem. But the utility did not allow closed-transition switches due to the danger a running standby generator might inadvertently feed power back into utility lines that the utility thought were off. Cummins Power Generation sponsored a test of a



Hydro Sherbrooke's Pierre Frechet inspecting the new closed-transition transfer switch.

new closed-transition transfer switch to convince the utility that a redesigned closed-transition transfer switch could operate safely.

Closed-transition operates differently

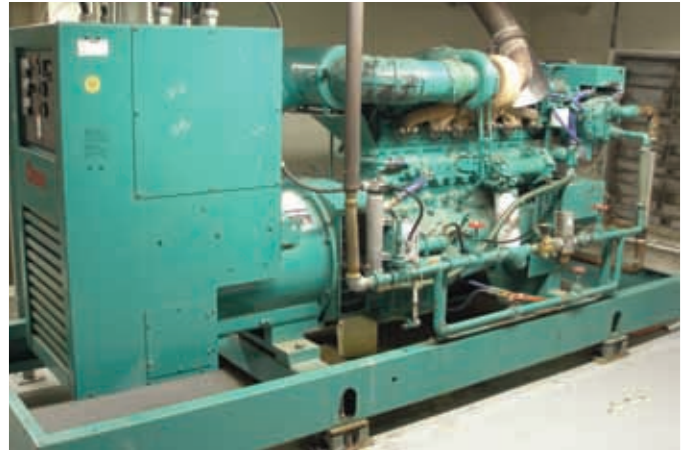
Open-transition transfer switches are commonly used in standby generator installations where the generator is only called upon to operate automatically when the utility power fails. When utility power fails, the switch senses the failure and breaks the connection between the utility and the building's electrical load and then sends a start signal to the generator.

"The new closed-transition transfer switch from Cummins Power Generation was installed because load shedding was not really practical with the open-transition switch."

A closed-transition transfer switch functions automatically in the same way as an open-transition switch when utility power fails, but responds differently on retransfer of power from the generator to the utility. The advantage of closed-transition is that under testing or load-shedding modes, customers can automatically or remotely shift from utility to generator-supplied power with no noticeable interruption in power to the load.

Cummins-sponsored test conducted at critical water-pumping station

To demonstrate the safety and reliability of the closed-transition transfer switch, Cummins Power Generation conducted a six-month test at a utility-owned pumping station. A 300 kW Cummins Power Generation diesel generator provided standby power for three 100-horsepower pumps in the event of a utility failure.



A 300 kW Cummins Power Generation standby generator provides power for the pumps during utility failures and peak demand periods.

"The new closed-transition transfer switch from Cummins Power Generation was installed because load shedding was not really practical with the open-transition switch," said Pierre Frechet, division chief of special projects for Hydro Sherbrooke. "We had to have someone at the facility manually transfer the pumping motors to the generator set."

Test included a guarantee

Cummins Power Generation agreed to buy back the new transfer switch if it did not work as promised during the six-month test and would pay to reinstall the original equipment. After six months of testing, Hydro Sherbrooke agreed that the closed-transition transfer switch operated reliably and safely in all modes without manual intervention. The transfer switch includes fail-to-open and fail-to-close monitoring for both power contactors involved in the transfer. Cummins Power Generation engineers demonstrated that in all conceivable modes of transfer switch failure, the switch would not fail in a closed position.

As a result of the test, Hydro Sherbrooke reinstated its load-shedding program, allowing closed-transition transfer switches with the reliability and protective features found in the Cummins Power Generation switch on customer power systems up to 600 kW.

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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