

# Standby power

## > Case History

University of Regina, Canada



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### **Where:**

Regina, Saskatchewan, Canada

### **What:**

Three 1250 kW standby generator sets, a PowerCommand® digital master control and a switchgear pair for added redundancy and seamless connection to the load

### **Purpose:**

Provide 3.75 MW of standby power to 15 interconnected buildings on campus

### **Primary choice factors:**

A highly reliable and expandable standby power system that could accommodate future load growth and an existing 27 kV distribution system

## **University of Regina installs unique standby power system from Cummins Power Generation**

REGINA, SASKATCHEWAN, CANADA — The campus of the University of Regina in Regina, Saskatchewan, Canada, has 15 interconnected buildings that encompass about 232,000 square meters (2.5 million square feet). Due to the northerly location of the campus, winter weather can be a challenge when temperatures drop to minus 40 degrees C (-40 degrees F), and heavy snows sometimes cause power outages. Even during the summer, migrating birds can interfere with transmission lines and cause a loss of power to the campus.

The local utility, SaskPower, is quite reliable according to university officials, but even infrequent outages can pose safety concerns for 12,000 full- and part-time students and risk the loss of valuable data from the university's research centers. These concerns led the university to install a unique standby power system from Cummins Power Generation Inc. to keep critical campus activities operating even when local power sources fail.



The standby power system consists of three 1250 kW Cummins Power Generation generators producing a total of 3.75 MW.

### System provides 3.75 MW

The standby power system the university installed consists of three 1250 kW Cummins Power Generation generator sets, which are designed to run in parallel for a total of 3.75 MW. The units are housed in a special power building and feed an emergency power distribution loop connecting all the buildings on campus. This unique design gave the university a centralized standby power system that provides backup for the entire campus. The arrangement saves space and money by avoiding the installation of individual standby generator sets in each building. The central power building has two 1320-liter (300-gallon) diesel day tanks and two 60,000-liter (15,800-US-gallon) storage tanks that provide enough fuel for up to 72 hours of operation without the need for refueling during a utility outage. The power building is designed to accommodate up to three additional standby generator sets for an ultimate configuration of 6 MW as power needs grow.

*“The distributor took the time to educate us, inviting us to the Cummins Power Generation factory in Fridley, Minnesota, for informational workshops and to see the equipment...”*

### Centralized system improves reliability

Larry Couse, manager of maintenance and electrical services for the University of Regina, credits Cummins Power Generation with providing a uniquely efficient turnkey solution. “When we installed it, there was no other multibuilding facility in central Canada with a centralized emergency power system,” says Couse. “Rather than having eight small generators spread around a large campus, we have three larger generators at one location.”



The system employs a switchgear pair that parallels the generator sets and connects them to the 27 kV step-up transformer for distribution.

The local utility supplies power to the campus at 72 kV, which is stepped down to conform to the university’s 27 kV system. The standby power system generates at 4160 volts, and this is stepped up to feed the 27 kV distribution system. The standby system features ample redundancy to prevent any single point of failure. For example, the system employs a switchgear pair that parallels the generator sets and connects them to the 27 kV step-up transformer. Should one switch fail, the other would still transfer the load.

### Planning for excess capacity

“The university’s strategy for determining standby generating capacity is to always have one generator set more than is absolutely needed,” says Couse. “This is called N+1 capacity planning. We bought for the future, so we currently have some excess generating capacity.”

Couse credits the Cummins Power Generation distributor, Cummins Western Canada, for help in supporting the University of Regina as it faced unfamiliar technological challenges such as the 27 kV distribution system and the switchgear.

“The distributor took the time to educate us, inviting us to the Cummins Power Generation factory in Fridley, Minnesota, for informational workshops and to see the equipment. We were also there at the commissioning of our equipment, working right on the floor with Cummins Power Generation employees. Getting to know the Cummins support team was something you can’t put a price on,” Couse adds.

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

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