Standby power

> Case History
Ajax Water Supply Plant, Canada

Cummins Power Generation

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Where:
Water treatment and distribution plant for two cities in Ontario, Canada

What:
Two 1500 kW and one 350 kW Cummins Power Generation generator sets with PowerCommand digital paralleling and master control

Purpose:
Standby power for uninterrupted plant operations processes

Primary choice factors:
Ability to conform to specification, performance and pricing requirements

PowerCommand® on-site power generation helps provide uninterruptible water supply

ONTARIO, CANADA — The Ajax Water Supply Plant treats and distributes water for the town of Ajax and the city of Pickering in the Durham Region of Ontario. The operations staff of 25 also manages two other treatment plants that supply the city of Oshawa and, through a remote system, the town of Whitby and a dozen pumping stations, reservoirs and elevated tanks in the region. The Ajax plant requires approximately 2 MW of continuous power during peak water demand to supply the 150,000 customers it serves.

Although local utility power is reliable, standby generators are mandated by the provincial government. The Ontario Ministry of the Environment (MOE) requires standby power for all newly constructed water and sewage treatment plants.

Plants like Ajax have reservoirs and elevated storage for backup water supply. However, when the utility power is interrupted, it creates problems in the plant and system. Peter Cameron, district supervisor of plant operations, cited examples: “Water hammer occurs, caused by the flow stoppage and reversal. This can

Ajax Water Supply Plant serves 150,000 customers in two communities.

The standby system from Cummins Power Generation includes one 350 kW and two 1500 kW generator sets.

damage water mains and result in customer complaints due to disrupted service. At the control center, you get a tremendous influx of alarms, which can distract attention from conditions that require more immediate action. The entire plant can be disrupted."

Paralleling was an important component

Following MOE regulation, proposals and drawings, including the paralleling system design, were submitted for approval by plant design engineers prior to construction. Once the MOE granted approval for plant construction, bid specifications were submitted to three suppliers. The bid from Cummins Power Generation was selected for product design, performance, integrated switchgear and an ability to provide the entire package exactly as specified.

Cummins Power Generation, together with local distributor Cummins Ontario, delivered a 350 kW and two 1500 kW generator sets fitted with all the required modifications.

> *"If we had standard transfer switches, with blips and time delays from power going off and on, it would complicate operations. This paralleling system has been a real benefit."*

Barry Pretty, diesel technician with the Region of Durham, said the installation was routine. "I dealt directly with Cummins Ontario. They know how we want things done and they do them, so the installation was trouble-free."

Special network configuration requested

Network installation was equally trouble-free. For security reasons, facility management wanted the network from the gensets to provide read-only monitoring at the control room; Cummins configured it as requested. Regional officials are particularly pleased with that function, as it prevents inadvertent changes or accidental command execution during emergencies.

Input from the Cummins Power Generation team was integral to the design of the system. They continue to provide technical support on the programmable logic control (PLC) system, while Durham Region maintains the rest of the power generation system.

The Ajax plant is running smoothly and prepared for future expansion. It is also ready for peak-shaving and discretionary operation under diesel power. However, as Cameron said, "Our operating agreement with the utility does not allow us to do that, nor does the MOE, which restricts us to running the gensets between 7 A.M. and 7 P.M., unless utility power goes out."

Cameron added, "With the complexity of this plant, being able to provide continuous service is a tremendous advantage. If we had standard transfer switches, with blips and time delays from power going off and on, it would complicate operations. This paralleling system has been a real benefit."

The Ajax plant was designed to allow twice its current capacity, and it has room for more generator sets. According to Cameron, the design of the building incorporates room for two more gensets and additional fuel storage.

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

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