

STANDBY POWER

WHEN FLOODING CUTS PRIMARY POWER, GENERATORS KEEP TOWN “GLOWING” BACKUP SYSTEM MEETS ELECTRICITY NEEDS WITHOUT BUSTING BUDGET

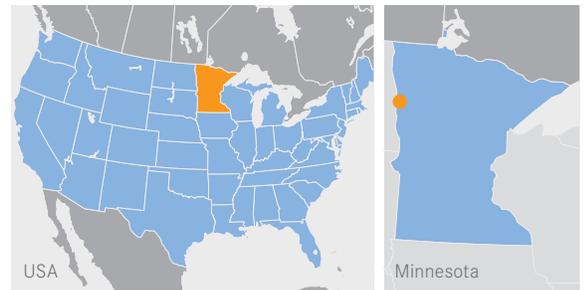


AP Photo / Carolyn Kaster

// **Who:** Halstad Municipal Utilities

// **What:** Two 2,000 kW diesel generator sets totaling 4 MW of power, switchgear and two 3,500-gallon fuel tanks

// **Where:** Halstad, Minnesota, USA



Regular flooding is a harsh fact of life in Halstad, a small Minnesota town located along the Red River. But even during the worst floods, which pack a big enough punch to knock out power for miles around, Halstad can keep the lights on and essential businesses operating thanks to new standby power generation and control equipment from MTU Onsite Energy.

Besides providing electricity to Halstad residents during extended flood-caused outages, the equipment was economical enough to be squeezed into a budget so tight that it threatened to choke off efforts to maintain the town's vital backup power system.

Halstad Municipal Utilities serves more than 300 electric customers in a city of about 600 people. Starting in 1939, the company ran a plant that for many years served as the primary power source for both Halstad and the surrounding area. Eventually, however, the city began buying power from the Western Area Power Administration. Today, Halstad is a member of the Northern Municipal Power Agency, which owns 30 percent of the 427 MW Coyote Station in North Dakota and a portion of the Minnkota Power Cooperative transmission system.

Nevertheless, Halstad still maintains its own generating plant, which now serves as a backup

to the city's main power supply. Backup power is needed due to the annual threat of flooding caused by spring runoff and the town's proximity to the Red River. Severe flooding can cut Halstad off from its primary power source for extended periods.

Tapped many times over the years, Halstad's standby power was particularly important during the devastating flooding that occurred in the Red River Valley in the spring of 1997. During that flood, Halstad and a large surrounding area lost power, but the town was saved from a lengthy outage by its backup generators. "The whole world was black, but Halstad was glowing," recalls Dave Meyer, superintendent of Halstad Utilities.

Among other things, power generated by the Halstad plant allowed the local grocery store and gas station to remain open, providing a vital source of food and fuel for people throughout the



An emergency backup power system from MTU Onsite Energy is especially important to Halstad residents and businesses during spring flooding, when the main power supply can be offline for extended periods.

Photo by Steve Downer

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// // Dave Meyer, superintendent, Halstad Utilities

MTU Onsite Energy Company

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area. “Every farmer from 25 miles around was coming here for gas to run their generators and pumps,” Meyer says.

For many, this episode confirmed the wisdom of maintaining the local plant as a source of backup power. Still, doubts about the plant’s future arose in 2005, when one of the facility’s engines exploded during a test run. Though there was widespread support for the idea of installing new generation equipment, the Halstad Utilities Commission and staff weren’t sure the company could afford the project.

Making a deal

The utility’s fate depended on what kind of a deal could be made for new generation equipment. So representatives of the company held in-depth discussions with four equipment manufacturers.

The low bid was submitted by MTU Onsite Energy, which was also the only manufacturer able to deliver the equipment in the time frame requested by Halstad Utilities.

After reaching an agreement with the supplier, Halstad Utilities replaced its old engines with two 2,000 kW generator sets that together provide 4 MW of power. Two 3,500-gallon fuel tanks allow the engines to run at maximum load for 26 hours or three-quarters load for 38 hours.

In a nearby switchgear building, operators can monitor and control the engines using state-of-the-art electronics, which were also supplied by MTU Onsite Energy. In addition to providing a great deal of operational flexibility, the new controls can automatically “soft load” Halstad back onto the utility grid after the grid has stabilized for 30 minutes.

In a recent test of the new equipment, when power was cut from Halstad’s outside source, the new standby generators automatically started in less than a minute, went online and successfully carried the load.

As a result of the agreement hammered out with MTU Onsite Energy, the generators and control electronics cost Halstad Utilities less than \$1 million. With payments for electric generation capacity coming in from the Minnkota Power Cooperative, the estimated payback period for the project is 10 years.

The successful completion of the project means a new lease on life for Halstad Utilities, which got enough standby generation capacity to meet local needs at a price it could afford. So while future floods do their worst and a black world surrounds the tiny Minnesota town on the raging Red River, Halstad will continue to glow.

Information for this article provided by Steve Downer, Minnesota Municipal Utilities Association.



MTU Onsite Energy is a brand of Rolls-Royce Power Systems AG. It provides diesel and gas-based power system solutions: from mission-critical to standby power to continuous power, heating and cooling. MTU Onsite Energy power systems are based on diesel engines with up to 3,400 kilowatts (kW) power output, gas engines up to 2,150 kW and gas turbines up to 50,000 kW.

