

Peaking power

> Case History

Graettinger Municipal Light Plant, USA



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Where:

Graettinger, Iowa, USA

What:

Standby and peaking power for the city of Graettinger, Iowa, and the Corn Belt Power Cooperative

Purpose:

Supply power during peak electrical demand during the summer and fall, and supply power to the city of Graettinger during planned and unplanned outages

Primary choice factors:

Cummins Power Generation provided the lowest-cost solution and the most extensive system automation to reduce the duration of outages and simplify monitoring

Graettinger's diesel power plant provides standby and peaking power for the city and co-op

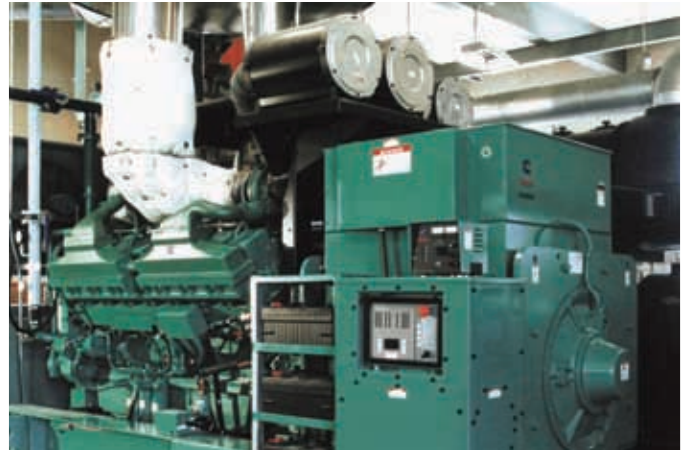
GRAETTINGER, IOWA, USA — In central Iowa, the annual electrical peak demand can occur in the fall during the crop-drying season, or during extremely hot summer days. That's when Corn Belt Power Cooperative of Humboldt, Iowa, may call on peaking power from the Graettinger Municipal Light Plant, a newly updated diesel power plant owned and operated by the community of Graettinger, Iowa.

Graettinger augmented its aging diesel plant with a 2 MW PowerCommand® diesel generator from Cummins Power Generation Inc. Now, with a total generating capacity of 3.35 MW, the Graettinger plant can provide peaking power for Corn Belt Power Cooperative and easily supply the power needs for the 900 inhabitants of Graettinger.

“The capacity that Graettinger installed benefits Corn Belt Power Cooperative by having peaking units available for their total system needs,” said Richard Hegna, chief system supervisor, who oversees the generation and transmission cooperative's control center. When needed during high electricity demand



The Cummins Power Generation standby system installed by the city of Graettinger provides power for residents if grid power is lost.



Corn Belt Power Cooperative buys peaking power from Graettinger during crop drying and hot summer electricity peak periods.

periods, the Graettinger plant is contacted by phone. In a normal year, the plant operates less than 100 hours to supply the peak demand. However, when Corn Belt has to do work on the 69 kV transmission line that serves the town, Graettinger can now provide all of its own power needs during maintenance or storm outages.

“Before, we couldn’t meet our peak load in a standby situation. Now, if there’s an outage, we can generate all we need and provide any excess power to the grid.”

“One of the greatest problems we have in this region during the winter is ice storms. If the 69 kV line to the town were to go down, the diesel units would come on and pick up the load for Graettinger,” said Hegna. “In that way, the municipal plant provides reliability to their customers in the event of either a planned or emergency outage.”

Graettinger is one of 12 municipal members of the North Iowa Municipal Electric Cooperative Association (NIMECA), which, in turn, is a member of Corn Belt Power Cooperative. As a cooperative member, the city of Graettinger is also part owner of Corn Belt’s transmission system and part owner of the Neal #4 coal-fired generating plant in South Sioux City, Iowa.

System upgrade adds power and control

The Graettinger plant originally had two standby diesel generators, which together produced 1.5 MW — not enough for its peak demand of 2.3 MW but typically enough to cover the daily average at other times of the year. However, according to plant manager Scott Tonderum, the plant’s generation system was less than optimal.

“We had two older, manually operated generators for standby and peak demand that took 30 to 45 minutes to bring online,” said Tonderum. In addition to updating its generating system, the municipality wanted to automate plant operations. With only two employees, who both had other duties outside the plant, relying on the older, manually operated generators meant outages could last up to three hours.

Graettinger hired an engineering firm and researched generators from Cummins Power Generation and another supplier. The engineering firm and Tonderum developed the specifications and followed a formal bidding process with the two suppliers. Cummins Great Plains, the distributor in Des Moines, Iowa, was the low bidder, ultimately providing the entire power system, including a 2 MW generator set, PowerCommand digital paralleling, master control, network and software to automate operations.

Standby and peaking power in place

Tonderum is ready for the next peak demand or line outage. “Before, we couldn’t meet our peak load in a standby situation. Now, if there’s an outage, we can generate all we need and provide any excess power to the grid. The system is set to start automatically, four seconds after disruption of power.” The PowerCommand network allows Tonderum to monitor and control all the functions and to view generator status directly on his PC. “It eliminates a lot of the walk-through monitoring that we have to do with the older generators.”

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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