The nine generator sets were installed on a 8 hectare property to ensure there is no sound or visual disturbance. The facility meets the U.S. Environmental Protection Agency's Tier 2 requirements for emission standards.

Nine 2 MW diesel-driven generators can feed power to customers from the opposite direction of the usual energy flow, helping to quickly restore power in the event of a failed transmission line.

PowerCommand Digital switchgear Model 300/MV allows the site to be reliably and remotely monitored from the control center five hours away in Elk River, Minnesota, U.S.A.

BACKUP POWER IN THE NORTH WOODS

CUMMINS POWER GENERATION

The north shore of Lake Superior in northeast Minnesota, U.S.A., is enjoyed by residents and visitors because of its remote location and secluded woods. But this remoteness can bring risk as harsh winds blow rough storms off the largest of the Great Lakes.

For the thousands of residents who live in the north shore region, the wooded area and frequent storms raise concerns over the reliability of their electric power service. Great River Energy (GRE) provides wholesale electric service to 28 distribution co-ops that cover approximately 60% of the state of Minnesota. All but one of the cooperatives is provided with power using a loop transmission system, which as the name implies is a system that circles through the distribution area and provides power from two directions. If power fails from one direction in a loop distribution, fast restoration is likely by feeding power from the other direction. But due to the geography of the north shore region, Arrowhead Electric Cooperative Inc. (AECI) receives power through a radial transmission line — a single-source line. When this one line is unavailable, all customers beyond the fault are without power.

AECI and GRE took actions to minimize the time their customers would be without power due to an outage by installing an emergency standby generating facility at the northernmost end of the single power transmission line, near the town of Colvill. This new plant, The Arrowhead Emergency Generating Plant, can feed power to customers from the opposite direction of the usual energy flow into the region. This helps AECI quickly restore power to more customers in the event of a failed transmission line.

Nine 2 MW generators and the PowerCommand Digital switchgear Model 300/MV supplied by Cummins Power Generation are installed at the Arrowhead standby generator site. A 697 m^2 building houses the nine generators that can support a total load of 18 MW.

According to Dan Biro, power generation sales at Cummins NPower, the switchgear at the Arrowhead facility allows the site to be reliably and remotely monitored and controlled from GRE's system control center five hours away in Elk River, Minnesota.

Because of the nature of the surrounding region, this site also needed to be neighbor-friendly. Site noise and appearance were two of the community's concerns that had to be considered while planning the facility's construction. The nine generator sets were installed on an 8 hectare property to ensure there is no sound or visual disturbance. The facility also meets the U.S. Environmental Protection Agency's Tier 2 requirements for emissions standards.

Built by Energy Alternatives, the facility also features a 132 489 L diesel storage tank to ensure the facility can operate for more than 24 hours without fuel delivery since so many of the roads may become impassible during winter storms.

With this new standby power site, residents of Colvill and other north shore communities can enjoy their surroundings and keep the lights on during a storm.

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