

Holyoke Gas & Electric Turns to Distributed Generation For Backup Emergency Power & Peak Load Reduction

To provide backup emergency power for the utility control center and help manage peak load demand, Holyoke Gas & Electric commissioned in late 2015 a PowerSecure distributed generation unit containing two natural gas engines in one sound-mitigating enclosure. Each engine has a full nameplate rating of 200 kW. The utility can operate its DG unit to the full rating of 400 kW, or as low as 50 kW, in standby backup power mode for emergency load following, per the requirements of the critical control center, utility operations, and the associated electric on-site requirements. Additionally, HG&E can run the DG unit in Limited Time Power (LTP) paralleling mode at up to 150 kW per engine for a total economic load reduction of 300 kW. The unit can come online fully within just a few minutes and is fully monitored and operated remotely from the utility's control center.

"As more substation and distribution assets have been placed on our SCADA system and are subject to automation, monitoring and/or control, it became necessary to provide backup emergency power to our main control center within the City of Holyoke," said Brian Beauregard, Superintendent, Electric Division. "While decommissioning a steam boiler back in December 2007, a contractor accidentally caused a fire throughout HG&E's Cabot Station facility, which is connected to the control center, operations and Holyoke Substation.



One of the follow-up action items from this fire was to perform several high-level assessments as to contingencies and backup plans associated with varying scenarios, one of which included a standby backup power source that is fed completely separate from the on-site Substation and local electric distribution feeders."



In addition to serving as a backup power source for the control center, the PowerSecure DG unit plays an important role in HG&E's load reduction program. According to Brian Beauregard, the primary mission of HG&E's load reduction program is to operate the DG unit during peak demand periods, or other times of electrical stress, within the ISO-NE region. The DG unit will react based on triggers

received from HG&E operators (obtaining signals from HG&E's analysts), which would be similar to how load provides either a market-driven demand response or a voluntary-requested load relief. However, these load reduction activities are deployed out-of-market and respond from a cost perspective, while additionally allowing other contingency ties to local distribution feeders.

Other times, HG&E operators shall turn on the unit(s) based on energy arbitrage analysis, looking at computed DG electric cost based on real-time natural gas cost to determine if the DG is more economical than the real-time market energy price, or alternatively, if there is a large enough spread between the day-ahead and real-time prices that would warrant running the DG to mitigate HG&E's exposure.

HG&E selected PowerSecure as its DG provider through a competitive bid solicitation. "PowerSecure was very professional and responsive to the entire follow-up due-diligence phase after bid opening," Beauregard said. "Only PowerSecure spent time to ensure and verify that all of HG&E's requirements and expectations were met or exceeded through the bid process, as generators of this size that are used for both emergency and paralleling mode are not overly common. As Massachusetts emissions requirements were stricter than Federal

requirements, PowerSecure took additional time to ensure that such facilities would be fully permittable and constructable prior to HG&E's awarding of them the DG bid."

Beauregard added, "The PowerSecure team was attentive to detail and overall project readiness. It is clear to the HG&E Team that PowerSecure takes extreme pride in their integration work and is looking at establishing long-term relationships with their customers, as they do not cut corners and take extra steps to enhance project quality. Like any decent size project, problems arise; however it is the approach that PowerSecure took to these problems that provided HG&E the comfort level that they would be addressed correctly and thoroughly."

Beauregard reports that after the first five full months of operation, HG&E successfully has utilized the DG device each month under its Load Reduction Program and with the ease of pushing a button to start and then again later to stop.

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