Market Segment: Utility

POWER PROFILE

Customer: Heber Light & Power

Location:
Heber City, Utah

Customer Business Issue:
Working with Caterpillar in field-follow studies to show that gas gensets save businesses money when grid prices are over gas prices.

Solution:
Cat gensets: two G3516C, three G3520C, two G3516A, one G3516H, one G3520H, one G3520

Cat® Dealer:
Wheeler Power Systems

Heber Light & Power tests Cat equipment pre-market.

POWER NEED

Heber Light & Power, a customer-owned utility based in Heber City, Utah is a long-time Caterpillar Electric Power customer with a variety of Cat generator sets including two G3516C, three G3520C, two G3516A, one G3516H, and one G3520H with a total capacity of 13MW. Heber Light & Power is an inter-local government entity owned by Heber, Midway, and Charleston, Utah. They have a defined service territory in Wasatch County Utah powering about 12,000 end-use customers.

For many years, Heber has strategically partnered with Caterpillar by testing their electric power equipment during fieldfollow studies before the gensets become available for purchase in the marketplace. "The purpose of field-follow studies are to accumulate endurance hours on our equipment to ensure performance is meeting our stringent standards before making products available for purchase," said Shane Minor, utility, governmental, international sales representative at Wheeler Power Systems, Heber's local Cat dealer.

Because the large-scale standby electric power industry has seen a turn toward natural gas gensets, Caterpillar Energy Solutions has been researching and developing new solutions in this space. Their latest genset is the G3520, which is the first ever U.S. EPA Certified natural gas generator set at 2 and 2.5 MW power output. Heber Light & Power has been running this generator on their site for the past year during its field-follow study.

SOLUTION

"We've tested many units for Caterpillar and work closely with their engineering group," said Jason Norlen, general manager of Heber Light & Power. The G3520 was installed last year, and since then we've run over 5,000 hours on it. It's running extremely well at 2.5 MW at 1 g/bhp-hr NOx emissions. One of the benefits of our arrangement with Caterpillar is getting to see innovative new products like this one before they're even on the market. I've never seen a gas unit perform like this one. It's torquey like a diesel, and it's very comparable to a diesel unit with how fast it responds and takes load on."

"The Heber utility is located at 5,600 feet altitude," said Norlen. "This altitude level would normally take a natural gas engine and knock its performance in the dirt, but this G3520 has pulled 2.5 MW from the moment it came in – which is impressive."

"One of the huge benefits of testing gas generators at the Heber location is subjecting them to some extreme conditions during the field follow," said Minor. "The units ran at 103 F temperatures in the summer and at 10 F in the winter at various humidity levels, and the performance of this generator set has not been impacted. It also runs in the same engine room as other units. When heat radiates from other units, it can create a more challenging environment, but that has not been an issue with this unit either."

While field-follow hours for this unit were performed at a utility site, it's ideal for emergency, legally required, or optional standby systems, as it was designed with quick-start enabling technologies and starts in 7.5 seconds The G3520 is suitable for office buildings, data centers, retail complexes, schools, government buildings, universities, and research as well as industrial facilities.

With an updated package design, the G3520 is modeled after the standby diesel solution to minimize installation costs and commissioning time on-site. A high-power-density 20-cylinder engine offers market-leading load acceptance and transient response. "This generator was designed for reliability," said Minor. "It's built upon a robust diesel 3500 platform with a proven track record, which is critical for our customers who use these generators during utility outages."

RESULTS

Heber Light & Power uses Cat gas generator sets to offset high utility costs as they fluctuate. When deployed for peaking support and other strategic purposes, gas generator sets deliver high efficiency, increase the diversity of the power generating portfolio, protect power quality, and shield against market power price volatility. These factors help utilities like Heber Light & Power

POWER PROFILE

Customer: Shawnee Heights USD 450

improve their financial position, differentiate their service to customers, and support community economic growth.

"We're constantly evaluating the cost of electricity from the grid versus the cost of natural gas," states Norlen. "We evaluate whether or not to run the gas engines daily, when the cost of natural gas is lower than electricity from the grid, we run the gas engines. Using the gas generator sets when the cost of power increases drives down overall wholesale power cost for the utility, it's such a small piece of the portfolio, but it's the top-end piece." On average Heber saves several hundred thousand dollars a year when power prices are higher than gas prices.

Caterpillar is a leader in the power generation industry with market leading power systems engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness. With parts and service available globally, Caterpillar offers worldwide product support through its comprehensive service and dealer network, where technicians are trained to service every aspect of the equipment.

The G3520 is a high-power density 20-cylinder engine offering market leading load acceptance and transient response.

LEXE0254-04 April 2019