

POWER PROFILE

Customer: City of Johnson City, Kansas, USA

Location:

Johnson City, Kansas, USA

Customer Business Issue:

Reliable backup power that meets stringent emissions standards while providing an opportunity to sell surplus power

Solution:

Two Cat® C175-16 diesel generator sets

Cat® Dealer:

Foley Equipment

POWER NEED

Located near the southwest corner of Kansas less than 20 miles from the Colorado border, the City of Johnson City, Kansas, is the Stanton County seat and home to about 1,400 residents.

While a large regional generation and transmission cooperative serves as the primary source of power for Johnson City, the municipality maintains and operates its own backup power capabilities for occasional weather-related outages.

“Through the years, these small municipal-owned power plants have been a very important part of life in rural communities in Kansas,” said Cliff Gamblin, territory sales manager for Cat dealer Foley Equipment. “We are still using these small power plants as a backup to keep the power on.”

In 2016, city officials were faced with the two-headed problem of rapidly aging backup power equipment – including one generator set installed in 1950 – and the imminent retirement of the last superintendent with the experience to perform the complex series of manual operations for starting the equipment quickly and safely.

Local officials considered eliminating the municipality’s own backup power capabilities, which would leave the city entirely dependent on the cooperative to restore power in the event of an outage, as well as several options for updating its capabilities.

SOLUTION

Johnson City officials ultimately decided to purchase two Cat C175-16 diesel generator sets through Foley Equipment. Delivering a total of 6 MW of power in standby applications, these generator sets were installed in new enclosures next to the previous power plant in May 2017, and then commissioned six months later.

Optimized for low fuel consumption and high power density, the Cat C175-16 generator set has been designed and tested to meet the National Fire Protection Association’s (NFPA) power restoration requirement for Level 1 systems and accept 100 percent block load in one step. It also meets ISO 8528-5 G3 requirements for steady state and load acceptance.

Johnson City officials chose Cat C175-16 generator sets that meet the U.S. Environmental Protection Agency’s (EPA) Tier 4 Final emissions standards, which allows them to operate up to 5,000 hours per year. By selecting this option, city officials were able to sign an agreement to sell surplus power capacity to Sunflower Electric Power Corporation on an as-needed basis to help offset costs.

Experts from Foley Equipment supplied system design, installation and ongoing maintenance for the project.

“We wanted a Tier 4 system to meet EPA regulations,” stated Tyce McMillan, public works superintendent for Johnson City. “And when we called Cliff Gamblin, he came to us immediately to work with us and determine our exact needs. He set us up for the future with a power system that’s going to last for a long time.”



The City of Johnson City, Kansas, maintains and operates its own backup power capabilities for occasional weather-related outages.

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RESULTS

The new Cat generator sets have proven to offer a vast improvement over the previous power equipment, starting automatically when grid power is lost. “We no longer have hands-on controls that require us to adjust the voltage and the frequency to parallel with the grid,” McMillan explained.

The system performed flawlessly for eight hours when Johnson City disconnected from the grid for substation maintenance.

“These generators have made my job so much easier. I tell the system what load I want, I hit start, and within a minute the generator sets are up and running,” said David Rohrenback, power plant superintendent for Johnson City.

“I can have power fully restored in town in less than five minutes, compared with the 25 to 30 minutes that was required for our old system.”

Representatives from Foley Equipment are trained and poised to provide the service and maintenance needed to help the residents of Johnson City get the most out of their investment.

“We’re replacing equipment that was 50 years old or more, and we will support the City of Johnson City for the next 50-plus years to ensure that this equipment is operational and providing the citizens here with clean power,” Gamblin said.

For more information, please visit cat.com/powergeneration



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