

POWER PROFILE

Customer: Shawnee Heights USD 450

Location:

Tecumseh, Kansas

Customer Business Issue:

Maintain power to data center

Solution:

Cat® DG150-2 gas generator set
Remote Asset Monitoring
Customer Value Agreement (CVA)
Extended Service Coverage (ESC)
Temporary Connection Box

Cat® Dealer:

Foley Equipment



Shawnee Heights USD 450 is served by a centralized data center that supports academic programs and other systems.

POWER NEED

Shawnee Heights USD 450 is a unified suburban school district located in southeastern Shawnee County, Kansas. Headquartered in Tecumseh, the public school district encompasses the communities on the southeast edge of Topeka, including Tecumseh, Berryton, and nearby rural areas.

The district has a combined total of 3,600 students from pre-kindergarten to 12th grade and includes four elementary schools, a middle school, and a high school. The high school has three computer rooms and an award-winning media center. According to *U.S. News & World Report*, the graduation rate at Shawnee Heights High is 97 percent—well above the state average.

The district is served by a centralized data center that hosts academic programs for both classroom and remote learning, as well as supporting HVAC, door access and VoIP systems, and fire alarms.

In 2010, the data center was expanded in order to support additional academic programs for students and staff. For the next decade, an uninterruptible power supply (UPS) unit powered by 48 batteries served as the primary backup source to ride through power outages.

But after 10 years, it was determined that the school district needed to have a more robust source of backup power, said Blair Anderson, director of information technology for the Shawnee Heights School District.

“We were experiencing outages from storms and grid failures,” Anderson said. “We needed something reliable that would keep the power on during an extended outage without overly taxing our battery backup system and not requiring IT personnel to shut down systems to conserve battery usage.”

SOLUTION

Following a bidding process where it evaluated various brands, the district opted to install a Cat® DG150-2 generator set fueled by natural gas. With help from its Cat® dealer, Foley Equipment, the genset was installed in December 2019.

“We evaluated different generators as part of the bidding process, but we had heard really good things about Caterpillar,” Anderson said. “So, we ultimately decided upon the Cat brand. And we also wanted to do business with Foley Power Solutions. They’re located just a couple of miles from our district, and that was important to us.”

In the past, if the Shawnee Heights School District experienced an outage, typically the UPS battery backup system would run for two hours or longer, Anderson said.

“With the 150 kW Cat generator that we have in place now, the battery backup system only runs about 15 to 30 seconds before the generator kicks on. So, beyond the added reliability that having a dedicated standby generator provides, it saves us money by not having to replace the batteries on the UPS nearly as often.”

Shawnee Heights chose a natural gas generator set over a diesel version primarily for no-hassle maintenance. The main advantage is that diesel fuel does not have to be delivered and stored on-site—not to mention the added responsibility of maintaining the quality of diesel fuel.

“We wanted something that was easy to maintain because we have a small IT and maintenance department,” Anderson said. “So, it was important that it didn’t require a lot of maintenance and fuel monitoring on a regular basis. And we already had natural gas in the area, so it was easy to run the gas line over to the pad behind the school where the generator was placed.”

Because school districts don’t always have trained personnel who can operate and maintain generator sets, this role is left to highly trained technicians and product support representatives from the Cat dealer.

Not only does Foley Power Solutions play an essential role in maintaining the generator at Shawnee Heights, but the Cat dealer was there from the beginning, providing guidance with generator selection, installation, and commissioning.

“Foley helped us select the generator that matched our needs,” Anderson said. “They worked with our maintenance department to make sure that the concrete pad it rests on was poured correctly. And they worked with the natural gas company to make sure the gas line was there and that we had the volume of gas that was required to support it.

“And when it came to installation and commissioning, they were here the entire time to make sure that everything went successfully.”

To lock in long-term dealer support, Shawnee Heights opted for a five-year Customer Value Agreement (CVA). Technicians from the Cat dealer perform all scheduled and unscheduled maintenance on the genset. Routine services include semi-annual and annual inspections, as well as annual load bank testing.

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A CVA offers resources for maintenance planning, repairs, rebuilds, and upgrades. It also provides diagnostic and troubleshooting support, as well as expert dealer advice and training options.

"They're always available to answer our questions and provide training and just make sure that our generator is operating efficiently," Anderson says.

Additionally, a CVA provides S-O-SSM fluid sampling, genuine Cat parts delivered on time, as well as flexible service options to best suit a customer's unique application.

To ensure complete coverage without interruption, the district also purchased 10-year Extended Service Coverage (ESC), which offers the following benefits:

- Coverage for parts and labor expense on covered components.
- Avoid unexpected repair costs caused by unscheduled repairs.
- Ensures repairs are done right the first time, with factory-trained technicians using genuine Cat parts.
- Returns electric power systems to their original operating specifications, meeting all requirements for safe use and environmental compliance.

By combining Extended Service Coverage with a Customer Value Agreement, Shawnee Heights receives complete maintenance and repair protection.

"Combining ESC coverage with a CVA is a good practice for all school districts," says Charles Moffet, a product support sales representative for Foley Power Solutions. "This not only gives them the peace of mind that they won't have any unexpected bills, but it also helps ensure their generator set is covered by the Caterpillar Extended Service Coverage."

Not only does pairing a CVA and ESC guarantee performance and uptime, but it also provides cost certainty in the school district's budgeting process.

"When they are putting together a budget, it lays it all out for them over the next five or 10 years, Moffet says. "That way they know they won't have any unexpected costs."

RESULTS

When it is needed, the 150 kW Cat generator activates and starts providing power to the data center within several seconds.

Shawnee Heights chose to add Cat Connect Remote Asset Monitoring because it gives staff the ability to monitor the generator from any type of device from any location.

Remote monitoring gives the customer and the Cat dealer the ability to prevent generator failure by sending immediate notification of issues when they occur.

"When a problem occurs with the generator, it will send a notification to your e-mail and/or a text message," Moffet says. "So, if it is a low coolant temperature alert, that tells us right away that you probably have a block heater issue. And if it's a low voltage alert, then you could either have a battery charger failure or maybe even a faulty battery."

With remote monitoring, Shawnee Heights staff can make sure their generator is running on its scheduled weekly run time, even if they are not watching live, because all run time is logged.

"We want to know when that generator has an issue or if it is running, especially during severe storms that occur at night," Anderson says. "We want to make sure that it kicks on. Having the ability to do remote monitoring is something that influenced our decision to go with Caterpillar."

The archived log also tracks when annual, semi-annual, or quarterly scheduled maintenance is performed. The bottom line is to ensure that the generator runs at peak performance.

For good measure, Shawnee Heights purchased a temporary connection box from Foley Equipment. Also known as a tap plate, the connection box is permanently mounted on the exterior of a building and electrically connected to an automatic transfer switch or manual transfer switch. The tap plate makes it easy for the Foley technicians to hook up when they conduct an annual load bank test with the generator.

"One of our goals as a district is to make it easy for the Foley technicians because it's a partnership and we wanted them to have the resources that they need when they're on site," Anderson says.

The partnership between the school district and its Cat dealer is highly valued by Anderson and Shawnee Heights staff.

"The service that we receive from Foley is top-notch," Anderson says. "They are available 24/7 to answer any questions or concerns that we have. The technicians that come on site really care about the customer and our needs. They want to make sure we are satisfied and all of our issues are addressed before they leave."

"We see them as a partner because without them we would not have the ability to provide power to our data center to support instructional learning."



The district opted to install a Cat® DG150-2 natural gas-fueled generator set for reliable backup power.