

POWER PROFILE

Customer: Cape Fear Valley Medical Center

Location:

Fayetteville, North Carolina

Customer Business Issue:

Reliable emergency standby power for a hospital

Solution:

Four Cat® 3516C 2500 kW generator sets

Cat® Dealer:

Gregory Poole Power Systems

POWER NEED

Cape Fear Valley Medical Center, a regional medical center located in Fayetteville, North Carolina, specializes in heart care, cancer treatment and surgical services. The facility also has a full-service Family Birth Center and a Level-III Neonatal Intensive Care Unit. And even though Fayetteville is located nearly 900 miles (1,450 kilometers) from New Orleans and 90 miles (145 kilometers) inland from the Atlantic Ocean, in 2005, Hurricane Katrina had a significant impact on this hospital and its facility management team.

Not only was Hurricane Katrina one of the five deadliest hurricanes in U.S. history, it was the costliest natural disaster ever. At least 1,836 people lost their lives in the actual hurricane and the subsequent floods, and total property damage was estimated at \$81 billion. More than 100 deaths occurred in New Orleans-area hospitals and nursing homes after Hurricane Katrina, when many emergency backup power systems failed.

“We call it the Katrina Effect,” said Pat Kear, assistant engineer for Cape Fear Valley Medical Center. “We have always been proactive when it comes to emergency preparedness, and have always improved and updated our systems, but we had never stepped back and looked at our emergency preparedness at the Katrina level and asked ourselves, ‘What if?’ ”

SOLUTION

When the team saw the devastating impact Katrina had on healthcare facilities in the New Orleans area, they knew they had to do something to be sure they never faced a similar situation.

“When Katrina hit, we saw, from hospital to hospital, facility to facility, pictures of things you couldn’t imagine,” Kear said. “We saw the nightmare that those facility managers faced.”

Kear credits his boss, Director of Engineering Fred McMillan, for championing the need to upgrade the facility’s emergency backup power

system. McMillan presented information to the medical center’s board of directors, and the board agreed the system should be upgraded for safety reasons.

In 2008, the medical center purchased four Cat 3516C 2500 kW diesel generator sets and paralleling switchgear from Cat dealer Gregory Poole Power Systems to meet the essential emergency power needs for the Valley Pavilion, Patient Services Tower and the Central Energy Plant. The four generator sets were paralleled, producing 10 MW of power.

Each generator set is powered by a Cat 3516C diesel engine rated at 3266 hp. The system is controlled by a paralleling board with a dedicated SCADA system, which provides an intelligent control system, monitoring the generator sets and all normal and emergency circuits.

“This system has the ability to read digital generator output and alarms, and all of the power input and output for each transfer switch and for the system as a whole,” said Len Clark, territory manager for Gregory Poole. “This allows the customer to do testing that meets all of the joint commission standards for testing emergency power systems.”

Fuel for the generators is stored in two 30,000-gallon (113,560 liters) underground storage tanks. Under normal load conditions, that’s enough fuel to operate the generators for 114 hours. In a long-term emergency, the medical center has made arrangements for two tanker trucks of fuel to be brought in, or delivered by air if the roads are impassable.

The overriding goal of the upgrade was to ensure the hospital could get power restored quickly, completely and for as long as necessary in the event of a natural or man-made disaster.

“Reliability and service are the two biggest reasons we chose Cat products for our power needs,” Kear said. “I sleep better at night knowing Cat generators are on the job.”



After witnessing the devastation of Hurricane Katrina, the facility management team at Cape Fear Valley Medical Center re-evaluated their emergency power capabilities.

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RESULTS

The purchase of the four Cat generator sets served to reinforce Cape Fear Valley Medical Center's ongoing relationship with Gregory Poole Power Systems. Gregory Poole played a large role in another major project, a \$100 million expansion of the medical center begun in 2007. That project involved construction of a new, six-story patient tower, renovations of the outpatient center, a hemodialysis unit, human resources, a five-level parking deck and other facilities.

During construction, Gregory Poole brought in rental generators, including a 1600 kW generator set and two 1000 kW paralleling generator sets, to supply onsite power, according to facility electrician Ken Eason.

"Because of those generators, we didn't have to move any patients or shut any operations down during the construction," Eason said. "We were able to keep everything online with the use of the rental generators."

Cape Fear also relies on Gregory Poole for regular preventative maintenance on the four emergency standby power generator sets. The maintenance agreement includes quarterly service calls as well as semi-annual analysis and conditioning of the coolant, oil and fuel.

"What I've noticed with Gregory Poole documentation is that it's thorough, bullet-by-bullet, so you know exactly what has beendone and what's being covered," Kear said. "It's complete."

Kear added that he finds comfort in knowing Cape Fear Valley Medical Center has the expertise of Gregory Poole and Caterpillar at its disposal. "In our business, seconds count. If I get a call — anytime, anywhere — that something's happening and we need help, I know I can call Gregory Poole and someone will be there for us," he said. "That's important when you're dealing with a hospital environment. Emergency power doesn't get a second chance at saving someone's life."

For more information, please visit cat.com/powergeneration



Four Cat® 3516C diesel generator sets produce 10 MW of power to provide essential emergency power needs for the Cape Fear Valley Medical Center's Valley Pavilion, Patient Services Tower and Central Energy Plant.