



CK Power supplied a pair of Kohler standby diesel generator sets rated 2000 kW each to provide backup power for a new neonatal intensive care unit at SSM Health St. Mary's Hospital in Richmond Heights, Mo. The gen-sets were housed within a custom-designed Chillicothe Metal sound-attenuated enclosure.

BACKING UP THE BABIES

St. Louis hospital installs Kohler generator set system to support neonatal intensive care unit

Everyone knows that waking a sleeping baby is a bad idea. But when that baby is fighting for its life in a neonatal intensive care unit (NICU), it's way beyond just being a bad idea — it's unthinkable. Thus, with modern neonatal care reliant on an uninterrupted supply of electricity, standby diesel generator sets have to be ready to pick up the load within seconds of any service interruption.

Meeting both demands was just part of the challenge facing CK Power in St. Louis, Mo., when the company won the contract to supply a pair of 2000 kW standby diesel gen-sets as part of the addition of a neonatal intensive care unit at SSM Health St. Mary's Hospital in Richmond Heights, Mo.

"The project manager explained that these gen-sets replaced three existing units and the paralleling gear which added considerably to the overall complexity of the project," said Clayton Costello, vice president of Marketing & Strategic Planning at CK. "In addition, all of the equipment had to meet IBC seismic certification and FMG approval requirements, include fire suppression systems and meet

a noise specification of 57 dB(A) at 23 ft. Then everything had to be installed in a very limited footprint in the middle of a fully operational hospital."

CK Power supplied a pair of 2000 kW Kohler 2000REOZMD gen-sets for the project. Each unit is powered by a 16-cylinder, 65.4 L Mitsubishi S16R-Y2PTAW2-1 turbo-charged diesel engine rated 2923 bhp. The engine is cooled by a 97 gal. radiator system with an 81 in. diameter fan.

The engine drives a four-pole, rotating-field Marathon permanent magnet brushless alternator that delivers 1988 kW and is designed to provide both short-circuit protection and strong load response. The alternator can accept 100% loads in one step, has an unbalanced load capability of 100% of rated standby current and can sustain short-circuit current up to 300% of its rated current for 10 seconds, providing ample time for downstream circuit breakers to trip without collapsing the alternator field, CK said.

A Kohler Decision-Maker 550 controller completes the system, designed to provide advanced control, system monitoring and system diagnostics, as well as remote monitoring



Along with the gen-sets, CK also supplied switchgear and Kohler's Decision-Maker 550 controller designed to provide advanced control, system monitoring and system diagnostics, as well as remote monitoring capabilities.

capabilities. A digital display and keypad facilitate local data access and the unit can communicate via a PC network or modem. The controller is also designed to support the Modbus protocol and provides integrated $\pm 0.25\%$ voltage regulation and alternator thermal overload protection.

The gen-sets are UL 2200 listed at 60 Hz and meet NFPA 110, Level 1 requirements when properly equipped and installed, CK Power said. They are EPA Tier 2 certified for stationary emergency power applications.

The systems supplied by CK Power were mounted on a 1400 gal. subbase tank housed within a Chillicothe Metal custom-designed, sound-attenuated enclosure. Each generator was shipped in three pieces and the trucks had to back down a residential street and avoid overhead wires.

"Because of the strict acoustic requirements we had to put the gen-sets inside a second enclosure to further attenuate the sound," Costello said. "The 'penthouse' was fabricated for us by Chillicothe Metal. It contains a second

silencer as well as additional fans, baffles and insulation needed to meet the 57 dB(A) requirement.

"Everything was assembled and tested at Chillicothe and then loaded on seven trucks and shipped to the jobsite where they were reassembled."

CK Power also supplied the Kohler paralleling gear package and that was installed prior to the generators. That enclosure also included a fire suppression system.

From start to finish, CK Power was able to install and commission the backup power system in approximately four months. "Everyone went above and beyond to make this project successful," Costello said. "They all knew we had to get it done and meet stringent requirements for sound levels, limited footprints and minimal disruptions to the community and on time for the new NICU opening in January 2018 — which we did." **dp**

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