

Two Generators, Two Fuels, Many Benefits

Modular Bi-fuel System Provides Backup Power for Wastewater Treatment Plant

By Mike Carr, Manager of Marketing Communications, Generac Power Systems

The City of Whitewater is a prosperous university town in southeastern Wisconsin with a population of more than 14,000 permanent residents. When the University of Wisconsin – Whitewater is in session, 12,000 students are also there, making it a lively place. That influx of people puts a significant load on the city's sanitary wastewater processing plant, which routinely accommodates significant seasonal variations.

Keeping the process going and the wastewater flowing is of crucial importance. Like all such facilities, the water's smooth flow through the treatment system depends upon a number of high capacity industrial pumps that require considerable amounts of electricity. A power outage can be very disruptive and the longer a blackout persists, the greater the environmental risks. That makes backup power essential.

When it came time to replace four aging Waukesha natural gas standby generators, wastewater superintendent Brad Tuttle and his staff identified three key criteria — cost, flexibility and redundancy. After considering proposals for both single and multiple unit configurations, Generac's Modular Power System (MPS) was selected as the superior solution because it best satisfied all three requirements. Two 300 kilowatt MPS Bi-fuel™ gensets were chosen to replace the four Waukesha units.

"We did our MPS project for well under 50 percent of the cost of the alternate proposal and without major engineering," Tuttle says. "With the expertise we have among our own staff, we were able to handle the installation ourselves with the assistance of Pieper Power, our local electrical contractor, and **Wolter Power Sys-**



tems, the selling dealer."

The intelligent design of MPS is a key element in its affordability and flexibility. Every MPS genset has built-in paralleling capabilities, making it compatible with any other MPS unit regardless of output or fuel type. For many projects, Generac's onboard paralleling technology also eliminates the need for expensive, space-consuming switchgear, which results in considerable savings.

A look at the numbers proves the point. For this application, a large, single engine 600 kW natural gas generator from another manufacturer was quoted at a price of more than \$400,000. The 600 kW Generac MPS Bi-fuel system was delivered at a cost of around \$200,000.

"The Bi-fuel capability is an added benefit that gives us more flexibility," Tuttle

notes. Generac's Bi-fuel system is powered by a diesel engine that starts up on 100 percent diesel fuel, then introduces natural gas into the combustion air stream. Under load, the system operates on up to 90 percent natural gas and just 10 percent diesel, which greatly extends the running time per tank of fuel — a tremendous advantage in the event of an extended outage.

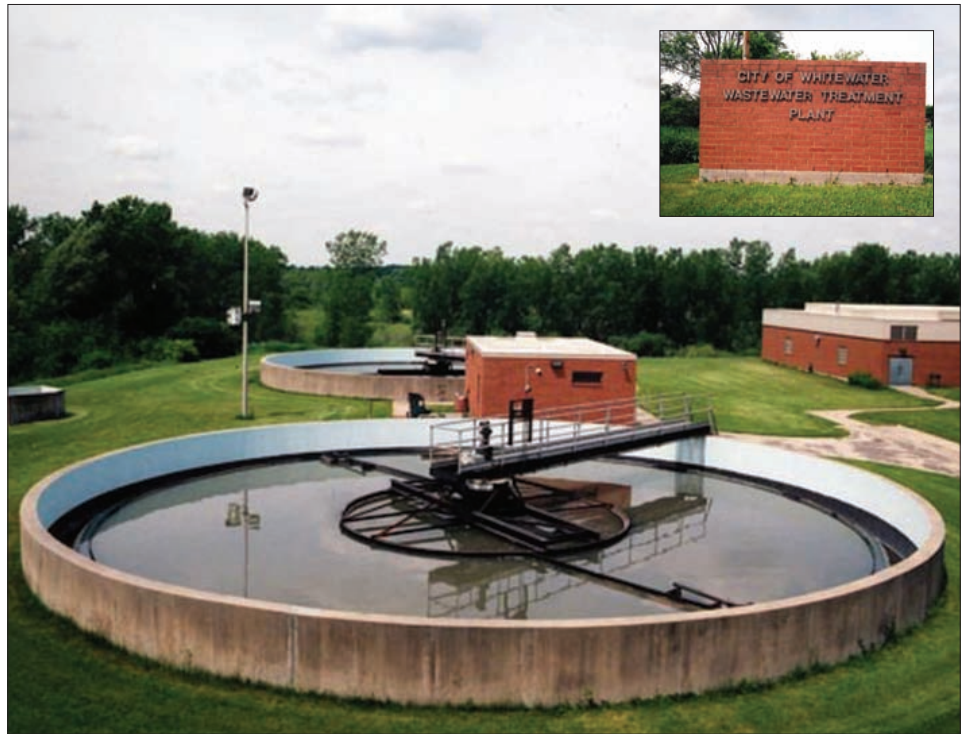
Each of the two gensets at the Whitewater plant is mounted atop a 36-inch high fuel tank with a 692 gallon capacity. If operating at 80 percent load on diesel alone, each 300 kW genset consumes approximately 20.5 gallons per hour and will run for about 33 hours. However, in Bi-fuel mode the genset uses just 2.4 gallons per hour, extending its total runtime to 288 hours, or 12 days. A facility like this, with a redundant (Continued on page 66)

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second unit, could stay operational for more than three weeks on generator power alone, if necessary.

“Our normal electrical load is about 260 kilowatts, so one generator is enough to operate the plant under most conditions,” Tuttle explains. “Our peak load is around 360 kW, but by shutting down less essential equipment automatically through our SCADA system, we can keep our demand at 260 kW or less and enjoy a better rate from the utility. During an outage, we shed the same loads, so we can operate on one generator and have the second one for redundant backup. Having 600 kilowatts of total output also gives us plenty of capacity to accommodate future growth.”

The Whitewater system was commissioned in January 2005 and soon proved itself. “We had a three-hour outage a few months after the generators were commissioned and came through it without any problems at all,” Tuttle says. □



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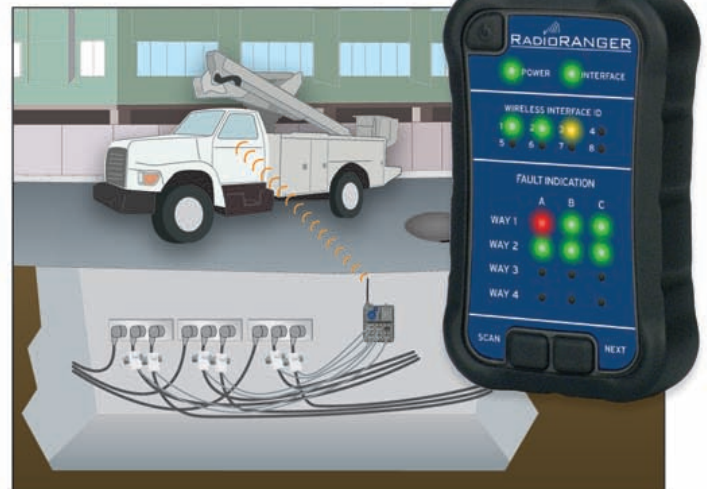


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