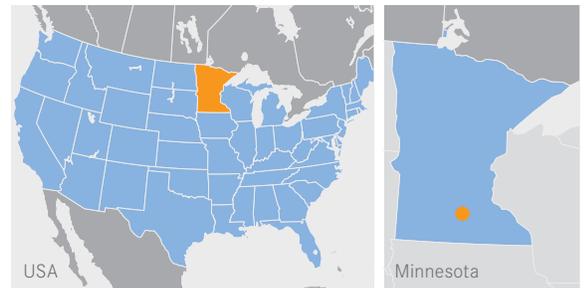


EMERGENCY POWER SYSTEM PLAYS DUAL ROLE FOR CRIMINAL JUSTICE CENTER LOAD-SHEDDING FUNCTION ALSO REDUCES THE FACILITY'S CARBON FOOTPRINT



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- // **Who:** Blue Earth County Criminal Justice Center
- // **What:** 2,000 kW MTU Onsite Energy generator set in a sound-attenuated outdoor enclosure
- // **Where:** Blue Earth County, Minnesota, USA



When Blue Earth County officials set about building a new jail and justice center, they had several goals in mind. First, the new facility had to meet compliance standards for staffing and inmate housing. Second, the facility had to house all offices under one roof.

The most challenging goal, however, was to create a public building that minimized its impact on the environment. That goal was realized when the Blue Earth County Criminal Justice Center became the first public LEED®-certified building in southern Minnesota.

The 168,000-square-foot building incorporates many energy- and water-saving technologies, and features the use of recycled and recyclable building materials. The emergency standby power system from MTU Onsite Energy also contributes to the building's green appeal. It is used not only for backup power, but also as an auxiliary power source to remove the building's load from the local utility during periods of peak electricity demand. The versatile power system was cited in the facility's LEED certification application as one example of its efforts to cut energy use and reduce its carbon footprint.

The Leadership in Energy and Environmental Design (LEED) Green Building Rating System is the nationally accepted benchmark for the design, construction and operation of high-performance green buildings. The efforts to reduce energy and water use in the new facility are expected to reduce CO₂ emissions by more than 16,000 tons annually and cut energy costs by 30 percent compared to a conventional building.

The Blue Earth County justice facility houses the sheriff's department; the county attorney's office; the county jail; the corrections department and the county courts; offices for judges, attorneys and public defenders; and a dispatch facility. The jail has accommodations for 150 people.

Design of the power system

"The 2,000 kilowatt emergency standby power system was sized to power the entire building," says Tim Edwards, physical plant director for the



The power system consists of an MTU Onsite Energy 2000 RXC6 DT2 Series 4000 generator set, a digital master control, automatic transfer switches and associated switchgear. The standby generator itself is located outside in a sound-attenuated enclosure that was necessary because the enclosure is located adjacent to a part of the building that houses the judges' chambers.

"This system makes the transition seamless between utility power and generator power during load shedding or system testing."

// // / Jerry Boggs, Interstate Power Systems

facility. "This includes our ground-water heat pump HVAC system, lighting and elevators. We also have three UPS systems: one for our data room, one to back up our dispatcher area and one in the jail central control area."

The 2,000 kW generator set was purposely oversized for the current building loads to allow for future expansion.

Soft-load transfer meets dual needs

"To meet the need for both backup power and load-shedding capability, the power system was designed with soft-load transfer," says Jerry Boggs of Interstate Power Systems in Bloomington, Minnesota, the local distributor for MTU Onsite Energy.

"This system makes the transition seamless between utility power and generator power during load shedding or system testing," he says. "For load shedding, the generator is started and paralleled with the utility after the generator set reaches speed and frequency. Then, the master control ramps the load off the utility onto the generator and opens the utility breaker, completely disconnecting the utility." When the utility curtailment period is over, the process is reversed.

Exercise and maintenance ensure reliability

To ensure reliable and worry-free operation, the generator set is exercised several hours every two weeks. The regular exercise also helps burn diesel fuel that could otherwise get old and cause fuel filters to clog. The soft-load transfer system is also ideal for testing the power system using the actual building load.

The new Blue Earth County Criminal Justice Center has met its initial new facility goals, including the vision of a building with minimal environmental impact. Helping to make that vision a reality is the flexible power system from MTU Onsite Energy, proving that diesel power can also be environmentally friendly.

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