

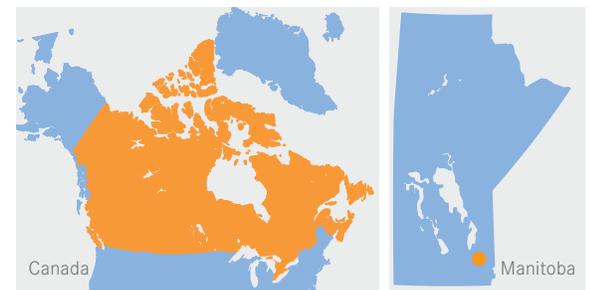
STANDBY POWER

HUTTERITE COLONY DEPENDS ON POWER FOR MANUFACTURING AND LIVESTOCK OPERATIONS

NEW GENERATOR BOOSTS CAPACITY DURING FREQUENT UTILITY OUTAGES



- // **Who:** Springfield Colony
- // **What:** 750 kW Series 2000 generator set from MTU Onsite Energy
- // **Why:** Provide standby power for colony's woodworking and agricultural equipment, including critical livestock ventilation system
- // **Where:** Anola, Manitoba, Canada



The Springfield Colony, one of 105 rural Hutterite communities located throughout Manitoba, is home to 113 men, women and children as well as the agricultural and manufacturing activities that support the community. The colony farms more than 6,000 acres, manages a 600-sow hog operation, keeps 8,500 laying hens and raises more than 20,000 broilers every eight weeks. In addition, Springfield Colony is noted for high-quality woodworking—cabinets, countertops, doors and office furniture—that it sells to customers in Manitoba and northern Ontario. All of these activities are critical to the colony and require dependable standby electric power generation in the event of utility power failures.

When Springfield Colony's electrical loads outgrew its old standby generator, the colony turned to a higher-capacity unit from Katolight by MTU Onsite Energy. Besides meeting all of the colony's current power needs during an outage, the new generator set and accompanying control equipment have helped make seamless transitions from utility power to standby generator power.

Named after preacher Jacob Hutter, the Hutterites trace their origins to the 16th-century Swiss Anabaptist movements. Hutterites found their way from Europe to the United States and eventually to Canada, where today they live a biblically rooted communal lifestyle in small colonies scattered throughout the prairies. Primarily dependent on agriculture for their livelihoods, most Hutterite colonies produce crops and raise large numbers of livestock. To supplement this income, many colonies, including Springfield, also engage in successful manufacturing activities.

Why standby power is important

Far from a luxury, standby power provides a critical lifeline for manufacturing and livestock production as well as the day-to-day livelihood of the colony members. The potential for loss of life and productivity is high, particularly in the hog barn where electricity keeps the ventilation fans running. Without electric power, "hogs would start suffocating within half an hour," says James Kleinsasser, the colony's electrician. "We could lose millions of dollars in just one hour."

Standby power is also critical for the colony's high-tech manufacturing operation (the colony's main power user), which includes computerized equipment such as electric saws, milling machines and a paint booth. Other agricultural processes that depend on electricity include the feed mill and the grain-handling system.



The 750 kW generator from MTU Onsite Energy is installed in the equipment room along with the switchgear, while the radiator is installed outside to reduce heat buildup.



Dependable electric power is essential for running the colony's computerized woodworking equipment.

Normally, electricity is provided by the local utility. There are times, though, when utility power isn't available. The colony experiences frequent power outages and once lost power for 17 hours, reports Kleinsasser. For a long time, the colony relied on a 400 kW standby generator to keep the manufacturing and agricultural equipment running. But as the colony's manufacturing operation grew, the old generator was no longer able to supply all of the colony's electrical loads when the utility failed.

The standby power shortage was magnified when the colony changed its dairy operation into a cabinet manufacturing facility. Without enough power to go around during utility outages, "we had to limit the load," Kleinsasser recalls. At such times, for example, no power would be available for grinding feed for the barns.

New generator upgrades standby system

Rather than live with this situation, the colony eventually decided to replace the old generator with a higher-output unit. After considering a number of possible replacements, Kleinsasser selected a Series 2000 generator from MTU Onsite Energy. Powered by a 12-cylinder MTU diesel engine, the Series 2000 generator has a rated capacity of 750 kW, which is more than enough to keep electricity flowing to all of the colony's equipment and homes during a utility power outage.

To facilitate the operation of the genset, the colony also purchased MTU Onsite Energy's digital genset controller. Reliable, cost effective and easy to use, this unit features advanced microprocessor technology that controls both the generator and the transfer switch.

The generator set and controller were supplied by Manitoba-based PalmLite, the local MTU Onsite Energy distributor that provides equipment and services for agricultural, industrial and residential applications. PalmLite also helped with the generator startup and worked with the factory's engineers on programming the controller.

While the other generator options considered would also have provided the necessary power, the MTU Onsite Energy/PalmLite proposal was extremely competitive and delivered the greatest value to the colony, according to Kleinsasser. Another factor that persuaded the colony to select MTU Onsite Energy was the 24-hour

emergency service offered by PalmLite. "That was absolutely crucial for us," says Kleinsasser, adding that he has the cell phone number of a PalmLite technician. "So over the weekend, say, if the power goes out and something goes wrong with the generator, I just call him and he comes."

Remote radiator offers advantages

Springfield Colony's new standby power generation system is installed in a well-designed equipment room, "like you would expect to see at a municipal or healthcare facility," reports Mike Dauffenbach, sales application engineer for MTU Onsite Energy. One unusual feature of the installation is that the generator is cooled with a remote radiator. Though the genset was purchased with the radiator mounted, Kleinsasser removed it and put it on a stand outside the equipment room. In addition to preventing heat from building up inside the room, this arrangement makes engine cooling easier. "If the radiator had been inside the building, I would have needed 40,000 cfm of air movement to cool off the engine," Kleinsasser explains. "But with the radiator outside, I only need 10,000 cfm for engine cooling."

Outside along with the radiator is a cooling fan, which is driven by an electric motor rather than the diesel engine. Operating on instructions from a program written by PalmLite, the DGC-2020 controller communicates with a variable frequency drive (VFD) fan motor to set the proper speed as the engine temperature changes. The higher the temperature, the faster the fan turns, explains Louis Quasso, a PalmLite sales representative.

Transitions go smoothly

With the new standby power system, electric power is restored throughout the colony in less than 10 seconds after an outage. By contrast, the old system took "a good 30 seconds" to restore power, according to Kleinsasser. The old process took so long that all of the colony's metal halide lighting went out and stayed out for 10 minutes until the lamps finally reignited.

"The colony is full of yard lights, so the whole place was dark," says Kleinsasser, adding that he also lost all lighting in the hog barn at such times. With the new system, however, the power transfer is "seamless," he says. "During periodic testing for maintenance, it just starts up and transfers power, and you don't even notice the transfer."



Sold under the Springfield Woodworking name, custom kitchen cabinetry is just one of the products of Springfield Colony's manufacturing operation.

Unlike the old equipment, the new standby power system features a closed-transition transfer switch that helps make a smooth transition from the utility to the generator when the power goes out and back to the utility when power is restored. "This protects electrical motors and controls when the generator takes over from the utility," Quasso notes. Also helpful in this regard is the design of the unit's alternator, a permanent-magnet synchronous unit with a digital voltage controller. When the generator starts, this design smooths the transfer of the load to standby power.

Another useful feature of the new power system is remote monitoring via the Internet. Colony personnel can check on the status of the standby generator no matter where they are. "Now when [Kleinsasser] is away, he can check on his operations using his laptop," Quasso notes.

As for generator set maintenance, Kleinsasser performs it himself. Maintenance requirements are minimal, consisting mainly of replacing the air filters, checking the oil and changing it on a regular basis.

During the two years Springfield Colony has been using its MTU Onsite Energy generator set, performance has been "very good," Kleinsasser reports. What's more, the colony no longer has to decide what equipment does and does not get electricity when there's a utility power failure. For all of the colony's electricity-dependent activities, "I've got backup power when the main power is out," he says. "That's the important thing."

MTU Onsite Energy Corporation/100 Power Drive/Mankato, MN 56001/USA/Phone: +1 800 325 5450/www.mtu-online.com



MTU Onsite Energy is the brand name under which the Tognum Group markets distributed power generation systems. The product range encompasses standardized and customized diesel generator sets for emergency standby, base and peak load applications based on diesel engines rated up to 3,250 kW, as well as compact cogeneration modules powered by gas engines with up to 2,150 kW or gas turbines up to 45,000 kW for the generation of both heat and power.

