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PROJECT BRIEF

On-Site Generation Ensures High Reliability at Green Mountain Coffee Roasters

Green Mountain Coffee Roasters (GMCR), a gourmet coffee roaster and packager, located in Waterbury, Vermont, had experienced several power disturbances a month, ranging in duration from less than a second to hours. Because the coffee roasting process cannot be interrupted, the outages had caused significant product loss.

GMCR needed a reliable back up power supply to prevent further loss. They contracted Northern Power Systems, who worked in conjunction with Niagra Mohawk Energy, to custom engineer and install the system. Since their process control devices could be disrupted by as little as a 20 cycle dropout, truly continuous power was required.

Northern custom designed this propane-fueled, combined heat and power system for Green Mountain Coffee Roasters.

Safety was also a priority, because the roasting process has an exothermic stage and can be a fire hazard if the machinery shuts down.

Northern addressed GMCR's needs through installing two grid-connected power sources that reduce utility power costs during peak use periods (peak-shaving) and provides highly reliable back up power. The system also incorporates the cost-saving function of heat-recovery for potable hot water and space heating. >>

AT A GLANCE...

Gourmet coffee roaster and packager, Green Mountain Coffee Roasters needed to ensure uninterrupted power for its roasting facility.

Northern's solution:
An ultra-reliable, efficient and cost-effective combined heat and power system.

SYSTEM OVERVIEW

Power Application	Cost saving, reliable back up power system
System Type	Propane-fueled generator
Location	Waterbury, Vermont
Customer	Green Mountain Coffee Roasters
Output	375 kW total

System Configuration

- One 95 kW Propane Waukesha Enginator
- One 280 kW Propane Waukesha Enginator
- Northern's Engine Control System
- Supplies 280 Volt 3 Phase power to a critical load panels

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Northern Power Systems designs, builds and installs ultra-reliable electric power system solutions for industrial, commercial and government customers worldwide. Since our founding in 1974, we have installed over 800 systems in 45 countries on all seven continents.

Green Mountain Coffee Roasters coffee bag production line.

The combined heat and power system consists of one 95kW and one 280 kW propane-fueled Waukesha Enginator®, providing 208 Volt 3 Phase power to critical load panels, which are also served by the utility. The genset operates full time during coffee production. In the event of an outage or anomaly as short as 2 cycles, the utility-side circuit breakers open and the critical electrical loads are seamlessly sustained by the generator.

Northern installed and programmed digital engine control and microprocessor-based utility-grade relay to provide system control and safety functions. The intelligence of the GMCR system is provided by Northern's Engine Control System, which utilizes a programmable Generator Power Control (GPC). The custom-designed control system provides the optimal mix of power from the on-site generators and the utility grid. A Local Operator Interface provides control of equipment, and a display of electrical parameters, equipment status, and system alarms.

Waste heat from the Enginator water jacket is sent to super-insulated tanks that preheat wash water for processing and other building uses. An air/water heat exchanger on the engine exhaust preheats water in the building's hydronic space heating system.

Paul Comey, Executive Director and Vice President of Facilities for GMCR stated, "The first generator carried the company through numerous power outages and power quality incidents, preventing considerable product loss and process downtime. The second generator is expected to do more of the same for our expanded roaster line."

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