

Madison Oneida BOCES Premium Power Cogeneration Upgrade Project

New CHP System

Madison-Oneida BOCES (MOBO) is one of 38 Board of Cooperative Education Services (BOCES). BOCES is a cooperative service organization that helps New York school districts save money by pooling resources and sharing costs. MOBO provides adult continuing education, printing and other services for ten component school districts and hosts regional events. MOBO has grown considerably over the past ten years. The facility is comprised of six buildings with 250,000 square feet of conditioned building space and a central heating/cooling plant.

The ability to "ride through" power outages, which occur several times a year, has become increasingly important. Because the student body includes a significant number of physically challenged and behavioral problem students, power outages are particularly disruptive because of the travel distance to the component districts. MOBO also houses the Mohawk Valley Regional Information Center (MORIC), a critical computer-networking hub for all component districts and municipalities that does not have sufficient battery backup to outlast a prolonged power outage (during an outage that lasted several days in 2004, the battery backup only lasted 10 hours). With the addition of an adequate backup power supply, MOBO would qualify to be the designated emergency shelter for the local Red Cross and for Madison and Oneida Counties.

MOBO has an outdated Combined Heat and Power (CHP) system that is only 300 kW and therefore undersized for current energy loads, cannot provide power during grid outages, lacks exhaust clean-up equipment, and is otherwise facing major repair expenses. Through this project, MOBO (Contractor) will replace the existing outdated CHP system with a new, clean and efficient 600 kW CHP system that will consist of six (6) newly-developed Tecogen Premium Power modules rated at 100 kW each. The Tecogen Premium Power modules are engine-driven generators which use inverter technology to simplify interconnection with the local electric utility grid for grid-parallel operation, and also feature stand-alone run capability. Tecogen, a 20-year veteran CHP equipment manufacturer, has developed the Premium Power module with support from the California Energy Commission; the first demonstration test is planned for California in late 2005, and this project will launch this new technology in New York State in the second quarter of 2006. The CHP system will operate in parallel with the local electric utility grid operated by Niagara Mohawk Power Corporation, and is also capable of operating in stand-alone mode during a grid outage.

The recovered heat will be captured in the form of hot water for comfort heating of occupied spaces, domestic hot water, and for operating the existing absorber (to be retained) for chilled water cooling. The campus operates a central heating and cooling loop that serves numerous buildings. Techno transfer and publicity will emphasize wide dissemination of the project results. This project is forecasted to provide peak load reduction of approximately 750 kW (the system, rated at 600 kW, can be boosted to 750 kW due to its variable speed capability, this 150 kW boost will be offered to the NYSISC Peak Load Reduction program), and result in over \$200,000 in annual net energy savings. It is forecasted that approximately 75% of the engine's input fuel will be beneficially utilized through electric power and heat.

Funding	Encumb to Date	Pending	Total Anticipated
Madison Oneida BOCES	\$1,202,838.00	\$0.00	\$1,202,838.00
NYSERDA	\$647,682.00	\$0.00	\$647,682.00
TOTALS	\$1,850,520.00	\$0.00	\$1,850,520.00

Manager	Levy, Dana
Contracts	STD-9181
Contractors	Madison Oneida BOCES
Technologies	Cogeneration
Cities	Verona
Counties	Oneida