ENCORP

Monroe County / Siemens Building Technologies

POWER NEED

Monroe County will save about $1 million in energy costs this year thanks in part to two new Caterpillar natural gas-fired combined heat and power (CHP) plants. The nonfor- profit local development corporation (LDC) of Monroe New Power Inc., located in Monroe County, New York, recently turned to Siemens Building Technologies Inc. to build the two new CHP plants. The plants, located at a county campus and a community college, will generate electricity for the two facilities as well as steam for the campus and hot water for the college.

The new CHP systems replaces a 75-year-old coalburning plant that provided steam to both facilities. "The old plant required a lot of upgrades to meet current regulations," explains Tim Berna, lead engineer for Siemens Building Technology. "Monroe County officials were looking for a way to save money on energy costs and approached us to help. We recommended two combined heat and power plants."

Monroe County, with the assistance of Siemens, established the LDC as a budget-neutral solution to the county's energy needs. The LDC financed the construction of the new plants through "take-or-pay" steam and electricity contracts from Monroe County. The county, in turn, purchases these utilities from the LDC at a rate much lower than what it is currently paying. Four Cat G3516B generator sets provide up to 5.4 MW of power at the Monroe County Community College site.

"This is the type of project we look for because it creates a win for everyone," says Pat McParlane, Siemens New York manager for Energy Services and Solutions. "Siemens wins a relationship with the county; taxpayers win with energy savings; and the environment wins with reduced demand on the electric grid."

Siemens Building Technology (SBT), one of Siemens' operating companies in the United States, is a single-source provider of facility performance solutions for the comfort, life safety, security and performance of some of the most technically advanced buildings in the world. In North America, SBT employs 8,500 people and provides local service from more than 100 locations coast-to-coast.

One of the SBT's areas of growth is cogeneration. "We have around 20 CHP installations in various stages of completion around the state of New York," says Berna. The projects range in size from nursing homes to large school districts. Most of the projects are unmanned and remotely monitored.

SOLUTION

Last year SBT built Monroe County's first CHP plant at the Iola health facility campus, which includes Monroe Community Hospital and Monroe County Health and Social Services. The new facility is built near the site of the existing steam power plant and has the capability of generating 4 MW of electricity, and up to 40,000 pounds of steam per hour. The plant incorporates three Caterpillar natural-gas G3516B generator sets with two heat recovery units.

The second CHP plant is located at the Monroe County Community College (MCC) and has the capability of generating 5.4 MW of electricity, via four Cat G3516Bs, and up to 20,000 gallons of hot water per hour. In addition to providing heat, the hot water is used seasonally to produce cooling through a 400-ton absorption chiller.

"The typical load requirement at Iola is around 2,300 kW; at MCC it's about 3,500 kW," says Berna. "There's redundancy built in for future needs as well as current dependability."

The Iola site incorporates three Cat G3516B generator sets. Future plans for the site peg it as the central monitoring facility for any unmanned cogeneration plants operated by Siemens.

Reliability is critical for both facilities, stresses Berna. "The Iola site supplies power for a 650-bed hospital," he notes. In an emergency the hospital's existing standby generators supply power for the hospital's critical life support systems and about a third of the hospital's total load. The new CHP plants are capable of handling the hospital's entire load requirements (as well as the load requirements of the Monroe County Health and Social Services) and long-range plans could include the facility going off-grid. In the meantime, the facilities remain parallel to the utility grid.

"We'll run all remote monitoring over the Internet via software we develop," notes Berna. Siemens has supplied both facilities with building infrastructure technologies such as HVAC controls, fire safety and security systems.

Caterpillar® is the manufacturer of choice for all new SBT cogeneration facilities. "The support we've received from our Cat dealer has been great — the local rep is really on top of everything and the service technicians are very knowledgeable," Berna stresses. Milton CAT currently handles all the PM work. "They have no problem showing us what needs to be done an how they do it," he adds. "So in the future we can handle the PM ourselves."

"All cogeneration projects we install in the future will be Cat powered," says Berna. "The Caterpillar name, reliability and service support — we've had great experiences."

RESULT

Projected financial benefits for both facilities are very positive. Siemens estimates that Monroe County will save about $1.5 million in electric power costs and $850,000 in steam costs per year.

"We plan to save the county a significant amount of money," concludes Berna. "As this project continues, more projects like it will filter down the pipeline. This benefits not only us, but other customers out there looking to save money on their electric power costs."