

Anaerobic Digester and Cogeneration Facility Improvements



"When our facility considers any energy-saving project, our first step is to contact NYSERDA. The detailed technical analysis prepared by NYSERDA for both our Aeration and Digester Projects provided us with a decision making tool. With NYSERDA assistance we are confident that the NYSERDA analysis savings estimates agree with actual results."

George Bevington
Manager Wastewater Programs



Wastewater Treatment Plant

The Cities of Gloversville and Johnstown, Fulton County

Background

The Gloversville-Johnstown Wastewater Treatment Facility (WWTF) is designed to treat 13 million gallons per day (mgd) of wastewater using an activated sludge process with the capability for separate-stage nitrification. Two-stage anaerobic digestion is included in the solids processing operations. Two internal combustion engines (ICE), each with a rated capacity of 150 kW, generate electricity for on-site equipment using recovered digester gas.

Recommendations

An energy efficiency study was performed to identify opportunities for improved operating efficiency and energy conservation at the anaerobic digestion and gas conversion facility. The New York State Energy Research and Development Authority's (NYSERDA) FlexTech Program provided cost sharing on the project through one of its consultants, Malcolm Pirnie.

Results

The study recommended conversion of a damaged floating cover on the second-stage digester to a fixed cover with a separate low-pressure gasholder. The capital cost is estimated at \$600,000 but provides an annual energy savings of \$175,000 and a simple payback period of 3.4 years.

The study also provided three alternatives for improving the efficiency of the existing ICE generator, which the WWTF is considering at this time. The three alternatives are summarized below:

Improvement Alternative	Implementation Cost	Annual Savings	Payback (years)
Overhaul Existing Generators	\$41,400	\$21,575	2.2
Overhaul and Modify for Blended Fuel	\$139,930	\$68,745	2.2
Replace with Micro-turbines	\$952,200	\$166,087	5.9

NYSERDA's Technical Services program identifies opportunities for New York State businesses to increase competitiveness by using energy more efficiently and improving productivity. This project was funded under NYSERDA's, **New York Energy \$martSM** program, which helps utility customers take advantage of opportunities to save energy that are emerging as a result of the newly deregulated, competitive utility industry.

New York Energy \$martSM

All **New York Energy \$martSM** programs are funded by a System Benefits Charge (SBC) paid by electric distribution customers of Central Hudson, Con Edison, NYSEG, Niagara Mohawk, Orange and Rockland, and Rochester Gas and Electric. NYSERDA, a public benefit corporation established by law in 1975, administers SBC funds and programs under an agreement with the Public Service Commission.

New York Energy \$martSM programs are designed to lower electricity costs by encouraging energy efficiency as the State's electric utilities move to competition. The programs are available to electric distribution customers (residential, commercial, institutional, and industrial) who pay into the SBC.

For more information about these services, contact NYSERDA
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