

Oswego Water Department



City of Oswego Water Department

City of Oswego • Town of Scriba

The City of Oswego took part in the New York State Energy Research and Development Authority's (NYSERDA) FlexTech Program to improve the energy efficiency of its water department facilities and operations.

Background

The City of Oswego Water Department provides potable water to the City of Oswego and the Town of Scriba for industrial, residential and commercial customers. There are approximately 18,000 residents in the City of Oswego and 7,300 residents in the Town of Scriba. The water is supplied from Lake Ontario and the City's water treatment plant has a daily capacity of 20.1 million gallons per day (MGD). The daily flow rate is between five and ten MGD and the water treatment process consists of chlorination, coagulation, filtration, and fluoridation. The water treatment facility consists of a raw water pumping station, the water treatment plant with a finished pumping station, three booster pump stations, and water storage tanks with a combined capacity of 11 million gallons. The six buildings total approximately 50,000 square feet and employ 20 people.

The annual electric cost is approximately \$500,000 and the annual natural gas cost is approximately \$50,000.

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Wendel Duchscherer performed the engineering work necessary to complete the FlexTech study. Wendel Duchscherer created several objectives for this study in order to develop recommendations that would be most beneficial to the City of Oswego Water Department. These objectives focused on certain aspects of the facility. These aspects included:

- Water pump variable speed drives, motor upgrades, and pressure optimization at the Water Treatment Plant
- Lighting and lighting control analysis at the Water Treatment Plant
- Operational and piping modifications at the Booster Pump Stations
- Boiler improvements at the Water Treatment Plant
- Tank and distribution system pressure optimization
- Raw water pump station variable speed drives

Recommendations

Recommendations included the implementation of a new automated control system, use of variable speed drives on pump motors, lighting and lighting controls upgrade, tank and distribution system pressure optimization, and the replacement of existing pumps and motors at the Booster Station. It was also recommended that two of the main pumps in the water treatment plant be replaced by more efficient pumps.

In addition to the main pumps there are smaller pump motors located throughout the facility. Many of these smaller motors are at least 50 years old and it was recommended that premium efficiency motors be installed in four of the smaller pumps, and that some of the larger pump motors be replaced with variable speed drives.

Results

The recommendations would result in an annual electric savings of more than 1,261,000 kWh with an annual energy cost savings of \$173,086. The implementation of the recommended measures would also reduce the peak-electric demand at the facility by 77 kW. The recommendation that pumps be optimized and powered by both variable speed drives and high-efficiency motors would annually save the facility 765,849 kWh, \$63,565 in energy cost savings, and \$60,000 in operational and maintenance savings.

