NYSERDA Research and Development

Helping innovative technologies in the **Water and Wastewater Sector come to life.**

North Tonawanda Wastewater Treatment Plant, Niagara County, New York

Water and wastewater treatment facilities in New York State consume more than three billion kWh of electricity each year, enough energy to power approximately 500,000 average-sized homes. Some of these treatment facilities have been in operation for over 100 years and continue to use energy-intensive equipment and processes.

Many of the state's facilities are nearing the end of their useful lives. Most require some degree of upgrade or replacement to achieve currently mandated treatment levels and increasingly stringent proposed regulations. Due to strained budgets and the desire to implement aggressive sustainability initiatives, municipalities are looking for ways to reduce their costs and environmental footprint.

Optimizing energy use at water and wastewater treatment facilities through better energy management, including installation of innovative technologies and on-site renewable power production, is proving to be extremely valuable. Some of these technologies include:

- High-efficiency motors, blowers, and pumps
- Anaerobic treatment technologies and on-site use of biogas
- New ultraviolet disinfection and solids dewatering technologies
- Various on-site power production systems

Improving Facility Energy Management

Through a variety of cost-shared technical assistance, research, development, and demonstration programs, as well as outreach, NYSERDA encourages municipalities in New York State to adopt innovative technologies that improve facility energy management. This support provides municipalities with the tools to upgrade or replace these facilities, creating energy efficient systems that save money, meet regulatory requirements, reduce the overall environmental impact, and improve the health of the state's waters and residents.

Featured Examples

Eliminating Wasted Spending

MFT Pilot Demonstration at City of Oneida Wastewater Treatment Plant

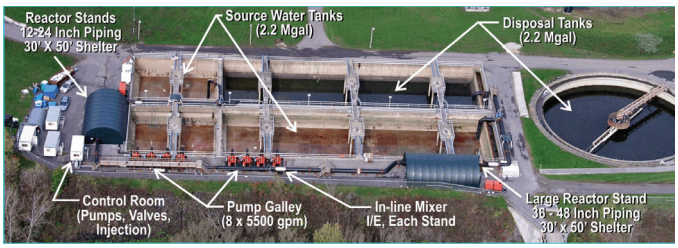
NYSERDA provided funding to AnAerobics, Inc., now Ecovation, Inc., a subsidiary of Ecolab, to demonstrate Mobilized Film Technology (MFTSM) for treatment of high strength organic wastewaters. Ecovation, Inc.'s innovations have **generated more than $50 million in revenue per year from five plants across New York State** and **saved 440,000 gal/month** of sludge hauling to landfills, and **186 MW/month** of electricity.

Thinking Local Attracts Global

Automated, Fine Bubble Aeration System

The Gloversville-Johnstown Joint Wastewater Treatment Facility (GJJWTF) partnered with NYSERDA to study the energy efficiency of the plant's aeration system. As a result of the study, GJJWTF made a variety of initial energy efficient upgrades, including the installation of fine bubble diffusers and efficient blowers, which resulted in **energy savings of $100,000 per year**. Subsequent improvements focused on the plant's on-site combined heat and power (CHP) production system. These upgrades, and the plant's successful operation of their anaerobic digestion (AD) facilities, attracted the interest of two new businesses to an adjacent industrial park – a feta cheese manufacturer, Euphrates, Inc. and a Greek yogurt manufacturer, FAGE USA. The addition of high strength wastewaters from these facilities **enabled the facility to increase generation of biogas from the plant's AD facilities, reducing GJJWTF's electricity expenditures by $480,000 per year**. Perhaps most important, the new cheese and yogurt manufacturers pay nearly a million dollars annually in property taxes in the region and employ 160 people.

Centered Around Clean Water



UV Validation and Research Center of New York

The Ultraviolet (UV) Validation and Research Center in Johnstown, NY, provides direct, full-scale testing and performance verification of UV disinfection technologies so that they can be used to safely and efficiently disinfect drinking water. NYSERDA's support of the Center has enabled it to become **the largest of only four such facilities in the world**. More than 70 validation reports have been completed by the Center for a diverse set of UV systems, including the new 2.2 billion gallon per day system currently being installed by the New York City Department of Environmental Protection. The Center advanced the use of UV technologies at public treatment facilities, while mitigating the use of chemical disinfectants. The Center has also assisted with the developing and testing of innovative technologies such as those using UV light emitting diodes (LEDs) and dyed microsphere actinometry.

Learn more at nyserda.ny.gov

NYSERDA, a public benefit corporation, offers objective information and analysis, innovative programs, technical expertise and funding to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce their reliance on fossil fuels. NYSERDA professionals work to protect our environment and create clean-energy jobs. NYSERDA has been developing partnerships to advance innovative energy solutions in New York since 1975.

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