



Filtering out excess energy use at the Erie County DSM

Case Study

Company Name:
Erie County Wastewater Facilities

Business Type:
Wastewater Management

Location:
Erie County, NY



Overview

The Erie County Division of Sewerage Management (DSM) has always valued efficiency. Established in the 1960s, the DSM's mission is to provide cost-effective, customer-oriented wastewater service that protects public health and enhances the natural environment. This is accomplished through the operation and maintenance of six wastewater treatment facilities, just under 100 pumping stations, five overflow retention facilities, and over 1,000 miles of gravity sewer pipe and force mains.

The largest of the DSM's wastewater treatment plants is the Southtown's Advanced Wastewater Treatment Facility. Electricity accounts for 9% of total expenditures at the Southtown treatment plant, and is similarly high at the DSM's other wastewater facilities.

“Energy is a big cost for our utility—and that energy is needed to power our pumps and other equipment that are critical to protect the environment and protect water quality. But also, there's other environmental aspects that we must consider: we also have to look at our carbon footprint.” — Joe Fiegl, Deputy Commissioner of Erie County's Department of Environmental Planning

So, in 2018, when the DSM was invited to join NYSERDA's Strategic Energy Management (SEM) program, they saw it as a natural fit with their mission.

NYSERDA and Strategic Energy Management

NYSERDA offers its Strategic Energy Management (SEM) program to wastewater treatment and industrial facilities located throughout New York State. The program is cohort- (or group)-based, which maximizes the opportunity for peer-to-peer learning. The cohort is comprised of eight state municipalities and nine municipal treatment plants. Each cohort member participates in a series of workshops, receives one-on-one coaching from wastewater experts, and participates in a “treasure hunt” and other

“What’s great about this strategic energy management program—it’s really a more holistic look, and it has brought energy into the consciousness of our staff, so we’re always looking at these low-cost, no-cost opportunities.”

Joe Fiegl
Deputy Commissioner of Erie County’s
Department of Environmental Planning



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onsite activities aimed at identifying low- and no-cost energy optimization opportunities. Additionally, DSM and other cohort members have access to:

- Tools to measure and track energy, to better understand where and how it’s used and to help inform strategic process operating decisions;
- Methods for establishing an energy team, promoting energy-focused behavior changes, and integrating continuous energy improvement into core treatment plant processes and operating procedures;
- Techniques to evaluate the impacts of energy optimization efforts and share this information municipality-wide;
- Procedures that support long-term energy performance improvements and energy, cost, and carbon savings.

Immediate results, lasting savings

The DSM is focusing their current SEM efforts on their Southtown facility. Strategic energy upgrades for Southtown include:

Improving process air, plant water, and VPSA (oxygen generator) systems

The process air system, consisting of two 100-hp blowers and associated ductwork/tubing, has been optimized by eliminating unnecessary uses of process air, repairing leaks, optimizing gravity thickeners, and adding variable speed controls to the blowers so they operate only when necessary.

Plant service water systems—employing three 75-hp HPSW pumps, one 30-hp, and one 5-hp LPSW pump—have been streamlined for greater efficiency with variable speed control and reduced pressure settings. Future upgrades will include replacing existing pumps with more efficient pumps.

Onsite oxygen production, use of a vacuum pressure swing absorption (VPSA) skid, a 300-hp blower, and a 15-hp compressor, will be optimized through aggressive dissolved oxygen (DO) set point control.

Converting incinerators from fuel oil to natural gas

Two oil-fired incinerators, used for sludge disposal, require more energy than any other process in the facility. Converting these incinerators to natural gas should cut operating costs, while also improving the incineration process. DSM is working with their natural gas supplier to explore the project.

Accelerated energy- and cost-savings, across the board

By participating in NYSDERDA’s SEM program, the DSM has uncovered, analyzed, and prioritized energy optimization opportunities that can be addressed strategically as part of everyday operations. This continuous, integrated approach is what makes SEM so powerful.

SEM allows organizations to identify and solve for the little things—the daily processes that are so routine they become almost invisible over time. It also helps facilities take a cross-sectional view of their processes, involving people from every area of the organization who might not otherwise communicate, let alone collaborate.

“I thought we were doing a good job before, but there were things we weren’t even looking at.” — Joe Fiegl