

Case Study

USNCWW-651.001

IXOM
WATERCARE

Long-Term Energy Savings Can Add Up Substantially

Increasing energy costs are a major concern for wastewater systems.

Topics: wastewater, energy savings, aeration, mixing

Location & Contact Information:

Further information may be available upon request. Please contact Ixom Watercare by phone at +1 866-437-8076 or by e-mail, watercare@ixom.com

System Overview: This is an activated sludge wastewater system serving a small municipality of approximately 16,000 residents. The North Basin is the main reactor basin where aeration is supplied for mixing.

- Surface Area: 1.74 acres
- Operating Depth: 13.5 ft.
- Influent: ~3 MG per day
(80% municipal, 10% industrial, 10% raw water)
- Average Detention Time: 4 days

Pre-Deployment Conditions: The North Basin utilized 240 horsepower (hp) of aeration to keep total suspended solids (TSS) in the 3,000 - 4,000 mg/L range. Excess aeration to keep sufficient TSS created dissolved oxygen concentrations unnecessarily high at 6-7 mg/L (instead of a more appropriate concentration of around 1-2 mg/L). The oxygen transfer rate is almost zero at these levels, yet the aeration could not be turned down because TSS concentrations would drop too low. As a result, the municipality had very high energy costs.

Objective: Reduce high-horsepower aeration system operation time for energy & cost savings.

Solution: One (1) SB10000v18 wastewater mixer deployed in June 2009. Two (2) additional SB10000v18 wastewater mixers were deployed in September 2010.

Results: The initial SolarBee deployment reduced aeration runtime 25% from 240hp to 180hp while maintaining the required TSS levels and keeping DO concentrations in the 1-2 mg/L range.



Over \$500,000 in energy savings since deployment!

Because of the realized economic benefits of the initial deployment and their ongoing efforts to save energy, the municipality installed two (2) additional SB10000v18 wastewater mixers in September 2010.

The result was a total energy reduction of ~120hp savings and a 1-2 year payback for the entire project!

The customer is very happy with the energy and economic savings achieved with this project as well as with the ongoing after-sale technical support and customer service they receive.

Update (2022): The customer reported they continue to experience ~120hp of energy savings still to this day. That amounts to over \$500,000 in total energy savings in 11+ years. And counting!