

Xylem Treatment System Optimization

LEVERAGING THE POWER OF ARTIFICIAL INTELLIGENCE TO OPTIMIZE TREATMENT PLANT PERFORMANCE WHILE LOWERING ENERGY AND CHEMICAL COSTS

Benefits of Xylem Treatment System Optimization:

- Optimized plant operations result in a drastic reduction of situational peak energy consumption
 - Virtual sensors help plant operators accurately estimate influent concentration to efficiently operate the aeration process
 - As much as a 26% reduction in aeration energy usage, or 1.1 million kWh annually
-

Improve treatment plant operations to prevent peak energy consumption

Optimizing the treatment plant to give operations the ability to leverage data to improve processes and reduce energy is now more important than ever. [Xylem Treatment System Optimization](#) helps utilities to improve treatment plant efficiencies to save energy, minimize chemical inputs and deliver better water and results at optimized cost and effort.

Deployed as a real-time decision support system, Xylem Treatment System Optimization uses a real-time digital twin to simulate the most complex biological and chemical processes taking place within sewage treatment facilities. This provides utilities with data-driven suggestions for optimizing plant performance – without new infrastructure.

What You Can Expect

Xylem Treatment System Optimization utilizes a Sense-Predict-Act methodology (similar to [Xylem Wastewater Network Optimization](#)), merging real-time data and plant models, augmented with artificial intelligence, to create a real-time decision support system that helps optimize complex sewage treatment systems. By combining cutting-edge digital intelligence with the operational expertise of plant operators, utilities can optimize energy usage, chemical consumption, and ensure regulatory compliance at less cost.



SENSE: Xylem helps utilities integrate historical and real-time SCADA and LIMS water quality data, weather data, and other relevant data points into one centralized system. This **“turns on the lights”** to their treatment plant and provides a simple, transparent and continuously updated view of current operations.

PREDICT: The data is then used to create a [digital twin](#) of the plant that accurately forecasts operating conditions, which then using an optimization algorithm to recommend the optimal treatment conditions for the current wastewater flow and composition.

ACT: These powerful analysis tools, combined with automated controls, give operators one system with all the information they need to **make real-time operational decisions and optimize the treatment process.**



Xylem Treatment System Optimization regularly achieves between 20% and 30% energy reduction in wastewater treatment plants.

Get More From Xylem Treatment System Optimization

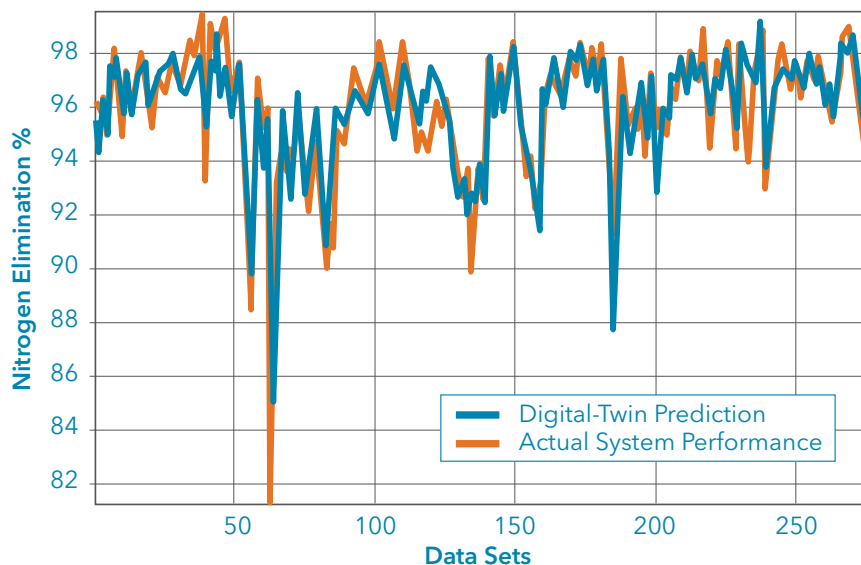
A system built for continuous learning – Flows into the treatment plant are inherently variable, both in terms of flow rate and water quality, due to wet weather, seasonal changes, and diurnal patterns. Xylem Treatment System Optimization enables the plant to continually adapt itself to provide the optimal treatment conditions at the lowest cost for the full dynamic range of flows.

A glass box, not a black box – Digital solutions often operate as “black boxes”, offering little transparency into their processes. Xylem gives utilities direct insight into the functionality of its data collection and integration process. This means that, whether a utility is forecasting biological and chemical oxygen demand (BOD and COD) forecasts or identifying ideal aeration inputs to achieve regulatory standards for effluent water quality, they have full visibility from start to finish which empowers operators with a high level of confidence in the quality of data being gathered and the operational decisions being made.

Combined data acquisition and analytics – The power of Xylem Treatment System Optimization does not come from simply integrating and collecting data, but from the ability to provide utilities with insights derived from that data. From monitoring compliance to threshold values to optimizing the aeration process to minimize energy expenditure, Xylem’s approach is designed to integrate with a utility’s existing systems and provide a wide array of state-of-the-art visualizations and analyses.

Harness the Power of Decision Intelligence to Optimize Plant Performance

- Lower concentrations of pollutants in effluent
- Ensure compliance with legal threshold values
- Reduce chemical consumption
- Optimize aeration energy consumption rates
- Increased security from an automatically controlled system
- Faster recognition of problems in the plant
- Faster response times to equipment failures
- Better understanding of complex plant processes
- Increased transparency on how performance metrics are achieved



Xylem Treatment System Optimization predictions of wastewater treatment plant performance compared against actual system performance.

Xylem Treatment System Optimization in Action

EWE WASSER GmbH (EWE) – Cuxhaven, Germany

Project Highlights

- 30% reduction in aeration energy usage, corresponding to 1.2 million kWh annually
- Optimized plant operation resulted in a drastic reduction of situational peak energy consumption
- Virtual sensors helped the plant operator accurately estimate influent concentration to efficiently operate the aeration process

[Read the full case study](#)

With Xylem, utilities can count on a digital transformation solution that helps the water industry operate more effectively, safely and affordably. For more information on how we can help you, contact us at: decisionintelligence@xylem.com or [visit our website](#).



www.xylem.com

United States

1 International Drive
Rye Brook, New York USA 10573
Tel: +1 (914) 323-5700
info@xylem.com

Canada

5055 Satellite Drive Unit #7
Mississauga, Ontario Canada L4W 5K7
Tel: +1 (905) 624-1040
Fax: +1 (905) 624-4777
info@xylem.com

Europe

Edifício de escritórios JONOBAS,
EN 247, Sala 3, 2º Piso.
Ribamar, Santo Isidoro
Portugal 2640-027
Tel: +351 (261) 863-159
info@xylem.com

Asia Pacific

3A International Business Park
Tower B, ICON@BP, #10-10/18
Singapore 609935
M: +65 8292 8392
info@xylem.com