

Case Study

Fortune 100 Headquarters
LEED Gold Building

Houston, Texas
Two 1,000-Ton Cooling Towers



Cooling Tower Program

Results:

- ROI on Day 1
- 45% annual water savings
- 10% Energy Reduction
- Extended Equipment Life
- Real-time data monitoring

2.6 Million gallons conserved annually per 1,000 Ton Cooling Tower

Key Success Factors

- ✓ Water and Energy reduction with cost savings that pay for the monthly program cost
- ✓ Prevent scale & biofouling accumulation in the tower, piping and chiller
- ✓ Remove existing scale with electronic water conditioning
- ✓ IoT meters & sensors with cloud-based dashboard with analytics
- ✓ Optimized chemical program
- ✓ Extend service life of equipment, fill and piping

January 2019

Water Conservation as a Service

Delivers Cost Savings and Cooling System Efficiencies

A Fortune 100 LEED Gold certified headquarters in Houston, Texas contracted with HydroTech Solutions to imitate a Water Conservation as a Service program in April, 2016 that successfully continues.

Objectives included:

- Water Conservation (sewer and water cost reduction)
- Energy Reduction
- Reduced Repairs and Maintenance

The Challenge

The 2 headquarters buildings each have a 1,000-ton cooling tower on the rooftop and chillers in the basements. Water consumption for each building exceeded 500,000 gallons per month during summer.

The Facility Manager sought to safely reduce water and energy consumption, along with scale and algae reduction that the chemical program wasn't controlling.

The Total Water Management Service Includes:

- HydroFLOW electronic water conditioning for providing scale, bacteria and corrosion control
- IoT (Internet of Things) sensors & meters continuously monitor flow rates, temperatures, and water quality
- Cloud based platform that securely analyzes and displays data
- Side-stream filtration system removes suspended solids from water
- Monthly site visits to inspect equipment, water quality and operations, with monthly reports

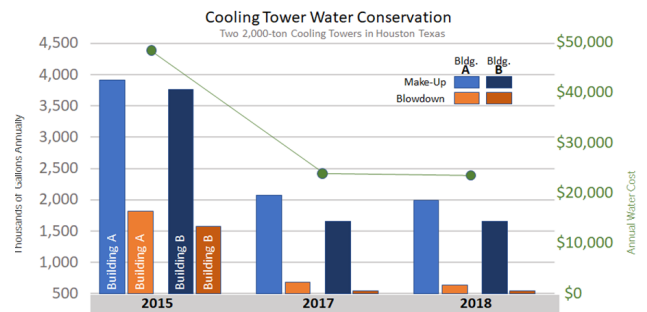


Water Conservation and Monthly Cost Savings

Annual Water Savings

		2015	2017	2018
Q1	Make-Up	485	290	234
	Blowdown	233	24	11
Q2	Make-Up	1,301	537	554
	Blowdown	620	28	42
Q3	Make-Up	1,421	920	913
	Blowdown	574	35	37
Q4	Make-Up	734	356	319
	Blowdown	362	17	20
Annual Cost Savings		*	\$18,150	\$19,001

2016 was the program transition period



Estimated Annual Energy Savings \$34,562

2017 was the first year the Total Water Management system was fully operational

Water Conservation as a Service Results

The program continues to deliver water, chemical, and energy cost savings monthly. Due to scale removal and prevention, energy savings greater than 10% are realized each month.

Water and Energy cost savings more than pay for the monthly program.

The secure dashboard is accessible by the customer 24/7 with analytics tools that improve operations efficiencies and identified unrelated leaks at the facility.

Each building conserves over 2 million gallons of water per year.

Comparing the scale and biological accumulation on equipment before and after the program implementation is conclusive; no scale or biological accumulation while operating at 8 Cycles of Concentration. (4,100 μ S)

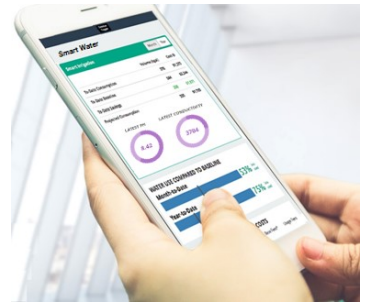
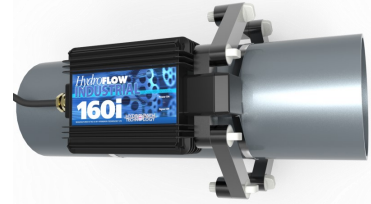
Total Water Management Results:

- Water consumption reduced over 45%
- Energy cost reduction >10%
- Leak detection with alerts
- Extra revenue through water and energy savings
- Reduced maintenance and repair costs: Extended Asset Life
- Real-time knowledge of water usage statistics and analytics for smarter and faster decisions
- Beneficial for the community. Reduced chemical and municipal wastewater impacts

"HydroFLOW significantly improved the operation of our cooling system, in terms of cost and maintenance.

The technology pays for itself with the monthly savings it achieves."

Fortune 100 Headquarters
Facilities Manager



The monthly fee is more than paid from water & energy cost savings

