

OPPORTUNITY

How much water do cooling towers use?

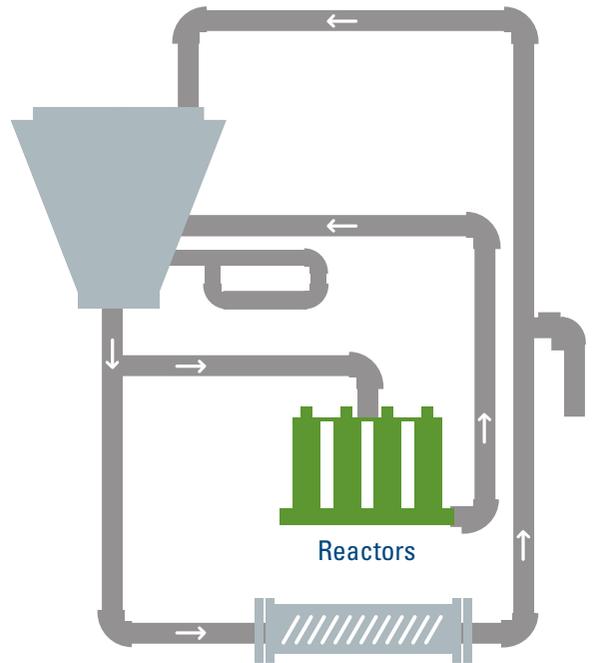
28% OF WATER IN COMMERCIAL BUILDINGS IS USED BY COOLING TOWERS OR OTHER HEATING AND COOLING SYSTEMS¹

TECHNOLOGY

How does electrochemical water treatment work?

ELECTROLYSIS SEQUESTERS SCALE IN REACTOR TUBES

AND CREATES CHLORINE, A NATURAL BIOCIDES



M&V

Where did Measurement and Verification occur?

NATIONAL RENEWABLE ENERGY LABORATORY (NREL) assessed an alternative water treatment (AWT) system provided by Dynamic Water Technology for two 150-ton cooling towers in Savannah, Georgia.

RESULTS

How did electrochemical water treatment perform in M&V?

32%
WATER SAVINGS

99.8% reduction in blowdown²

50%
MAINTENANCE REDUCTION

Small cost increase in annual O&M contract³

100%
CHEMICAL SAVINGS

Technology generates chlorine; reduced slime⁴

3.0
YEAR PAYBACK

@ GSA avg. utility rates⁵
water/sewer \$16.76/kgal
electricity \$0.11/kWh

Electrochemical Water Treatment Return-On-Investment

Rebates for AWT systems are available through some local water utilities

	Testbed (Before)	Testbed (After)*	GSA Normalized (After)*
Equipment (\$)	N/A	\$30,340	\$30,340
Installation (\$)	N/A	\$29,029	\$15,000
Maintenance (yr)	\$5,280	\$6,000	\$6,000
Water Consumption (Gallons/yr)	3,588,156	2,454,299	2,454,299
Water Savings (Gallons/yr)	N/A	1,133,857	1,133,857
Water Savings (\$/yr)	N/A	\$7,529	\$19,003
Technology Electricity Use (kWh/yr)	N/A	27,492	27,492
Technology Electricity Use (\$/yr)	N/A	\$2,749	\$3,049
Simple Payback (yrs)		11.2	3.0
Savings to Investment Ratio		1.3	5.0

* Savannah testbed water/sewer \$6.64/kgal, electricity \$0.10/kWh

* GSA average water/sewer \$16.76/kgal, electricity \$0.11/kWh

DEPLOYMENT

Where does the study recommend deploying electrochemical water treatment?

CONSIDER FOR ALL COOLING TOWERS

Most cost-effective in areas with high water costs or where water is excessively hard, has high pH values and/or large amounts of total dissolved solids

¹Electrolysis Water Treatment for Cooling Towers, Gregg Tomberlin, Jesse Dean, Jimmy Salasovich (NREL), December 2018, p.9

²Ibid, p.21 ³Ibid, p.23 ⁴Ibid, p.24 ⁵Ibid, p.26