OPPORTUNITY

Why is GSA interested in alternative water treatments?

ANNUAL INCREASE IN GSA WATER RATES
In the past 10 years, water rates have increased more than 40%. Water is the fastest growing utility rate for GSA.

TECHNOLOGY

How does the blowdown recovery system work?

RECOVERS BLOWDOWN AND PURIFIES IT FOR REUSE
Incorporates sidestream filtration, demineralization, carbon filtration, reverse osmosis, and a control system.

M&V

Where did Measurement and Verification occur?

NATIONAL RENEWABLE ENERGY LABORATORY (NREL) assessed a blowdown recovery system provided by Aqualogix in three cooling towers at the Lloyd D. George Courthouse in Las Vegas, Nevada.

RESULTS

How did the blowdown recovery system perform in M&V?

53% BLOWDOWN SAVINGS
16% makeup water savings

O&M UNCHANGED
Works alongside traditional chemical treatment

MET GSA WATER STANDARDS
Monitors performance and sends alarms

3 YEAR PAYBACK
@ $16.76/kgal

Blowdown Recovery Return on Investment

@ 3-million ton target load and GSA 2017 average water cost of $16.76/kgal

<table>
<thead>
<tr>
<th>Equipment (200-1000 ton load)*</th>
<th>$35,403</th>
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</thead>
<tbody>
<tr>
<td>Installation**</td>
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<tr>
<td>Annual Maintenance***</td>
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<td>Annual Energy Increase (3,541 kWh @ $0.11/kWh)</td>
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* Includes startup; assumes $688 shipping and $1,473 for training
** Assumes no tie-in with Building Automation System
*** Includes $350 annual support; membranes replaced every 5 years ($125 per membrane)
**** Payback assumes target load at 3 million ton hours. Total paid for over 6.5 days per hour load @ $16.87 kgal

DEPLOYMENT

Where does M&V recommend deploying the blowdown recovery system?

CONSIDER FOR ALL COOLING TOWERS
Continues standard and familiar water treatment practices and may offer an easier and more failsafe deployment opportunity for GSA facilities.

1 Blowdown Recovery System for Cooling Tower Water Treatment, David Sickinger (NREL), July 2023; p. 3
2 Ibid, p. 2
3 Ibid, p. 3
4 Ibid, p. 3

The GPG program enables GSA to make sound investment decisions in next generation building technologies based on their real world performance. www.gsa.gov/gpg

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