



Monitoring & Partial Water Softening

Technology Overview

This chilled water plant monitoring and control system optimizes chilled water system performance by reducing the amount of “blowdown” water used to remove mineral build-up. The technology consists of two components—continuous programmable logic control (PLC) monitoring, and side-stream filtration. PLC monitoring calculates cycles of concentration and determines the optimum amount of blowdown water required to satisfy all water chemistry limits. Side-stream filtration removes suspended matter and improves biocide efficacy while precisely dispensing softened water to achieve optimal makeup water hardness.

Why is GSA Interested?

Chilled water plants consume approximately 23% of a building’s total water demand, and in some cases, where control is poor, substantially more. This system’s blowdown optimization promises up to 75% blowdown and sewer savings as well as improved monitoring and control of cooling tower water. Components of this technology exist within other technologies but their effective combination would be a significant improvement over the current state-of-the-art.

How Will Success Be Measured?

The test-bed design will verify two key claims: 32% blowdown/26% sewer savings, and payback under 5 years (Savings to Investment Ratio > 1). Measurement and verification (M&V) will also evaluate the level of effort required for installation and commissioning and the impact on operations and maintenance (O&M). The manufacturer estimates two days to install and commission the technology for one cooling tower and minimal O&M impact.

Deployment Potential

This technology is applicable to cooling towers in central plants, which are responsible for cooling the majority (~80%) of GSA floor space. If it were installed in 41% of GSA’s owned portfolio, 717 systems, it could save \$12 million annually.

GSA’S Proving Ground (GPG) program, in association with the National Renewable Energy Laboratory, is evaluating the real-world performance of a Monitoring & Partial Water Softening system in a cooling tower at the Lloyd D. George Courthouse in Las Vegas, NV. The technology will be provided by Aqualogix and coordinated with other ongoing evaluations of this technology.