



Focus on Chiller Plant Optimization

OPTIMIZES THE ENTIRE PLANT, NOT JUST THE CHILLER

Following the successful evaluation of a Siemens chiller plant optimization technology at the Frank Johnson Courthouse in Atlanta, Georgia, GSA deployed the system in eight additional chiller plants. The technology improves plant efficiency at part load and minimizes total power consumption by aligning pressure and temperature setpoints with real-time system dynamics while controlling pump and fan speeds. Darrell Buchanan, a building management specialist in the National Capital Region, tracked the installation of the optimization system at the LBJ Department of Education in Washington, DC. He was impressed by the performance. "I'm a controls guy," says Darrell, "and I believe in functional performance testing. I had them change set points while I watched the meter. The system maintained a chiller efficiency of around 0.37 kW/ton at all loads, while plant efficiency hovered around 0.60 kW/ton [corroborating GPG's M&V findings]. And Delta-T was at 15°, even at 25 percent part-load." Darrell thinks the technology is a good fit for GSA's portfolio. "This is a set-and-forget technology," he observes. "It takes care of itself and it can work for all O&Ms, even those who aren't that engaged with system optimization."

GPG recommends considering chiller plant optimization for all plants with loads that are greater than 3 million ton-hours.

The technology monitors and controls five interdependent systems: cooling towers, chillers, condenser pumps, chilled water pumps, and air handler units.

"The advantage of this technology is that it optimizes the entire chiller plant, not just the chillers. Once it's commissioned, you don't have to manage it."

– Darrell Buchanan, Building Management Specialist, GSA National Capital Region (R-11)

Chiller Plant Optimization

- 35% cooling savings; average plant efficiency of 0.64 kW/ton
- Improved part-load efficiency, with Delta-T between 8° and 18°
- Better visibility and control for plant operations
- Requires VFD drives on pumps and fans but not on the chiller itself
- < 5-year payback

RESOURCES

Learn More About Chiller Plant Optimization

[GPG Findings 028 & Report by the National Renewable Energy Laboratory »](#)

[Webinar Recording, 06.08.17 »](#)

[Webinar Presentation Slides »](#)

For more information about GSA's Proving Ground program and the technologies it evaluates: contact Michael Hobson michael.hobson@gsa.gov or go to www.gsa.gov/gpg



Emerging Building Technologies' two programs, GSA Proving Ground (GPG) and Pilot to Portfolio (P2P), enable GSA to make sound investment decisions in next-generation building technologies based on their real-world performance. www.gsa.gov/gpg