



Putting WaterSense® to Work

Georgia Hotel Saves \$1M Annually By Maximizing Mechanical System

Sector: Hotels; Focus: Mechanical Systems

Project Summary

With water and sewer costs in Atlanta, Georgia, increasing by more than \$20 per hundred cubic feet (CCF) of water between 2000 and 2013, Hyatt Regency Atlanta has made water conservation a priority, with a heavy emphasis on reducing water use in its cooling towers, water-cooled equipment, and chiller and boiler systems. As a result, the hotel used 35 percent less water in 2013 compared to 2000. Had Hyatt Regency Atlanta continued to use as much water as it did in 2000, the drastically increased water rates would have cost the hotel \$1 million more per year in water and sewer costs.

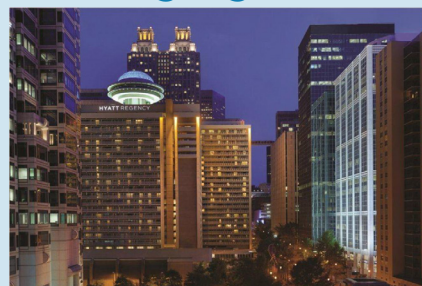
The hotel has also encouraged water savings by engaging staff and instituting a Green Team to help ensure that the systems put in place are effective. By making everyone in the facility a part of the process, Hyatt Regency Atlanta is able to promote water savings on every level. In addition to reducing water use through mechanical and heating, ventilating, and air conditioning (HVAC) best management practices, the hotel installed high-efficiency restroom fixtures in guest rooms; reduced exterior landscaping and supplemental irrigation; served water only on request in its restaurants; installed high-efficiency toilets and non-water urinals in public restrooms; and started a towel and linen reuse program. Through these efforts, Hyatt Regency Atlanta has managed to stay below the average utility cost per room among hotels in Atlanta and was awarded “Top Water Saver” by the Atlanta Better Buildings Challenge in July 2013.

Staying a Step Ahead Drives Savings

To stay at the forefront of water and energy efficiency improvements, Hyatt Regency Atlanta developed a long-term capital plan that keeps track of all future building system projects, such as chillers, HVAC, and boilers that might need to be replaced. When projecting equipment replacements, the hotel considers efficiency improvements into the life cycle of these projects so that the return on investment (ROI) can influence project timing. For example, if a chiller is nearing the end of its projected useful life, replacing it with a newer, more efficient model could translate to water and utility cost savings, influencing the timing of the replacement.

Hyatt Regency Atlanta also optimizes water efficiency and performance by operating all of its mechanical equipment through a

Case Study Highlights

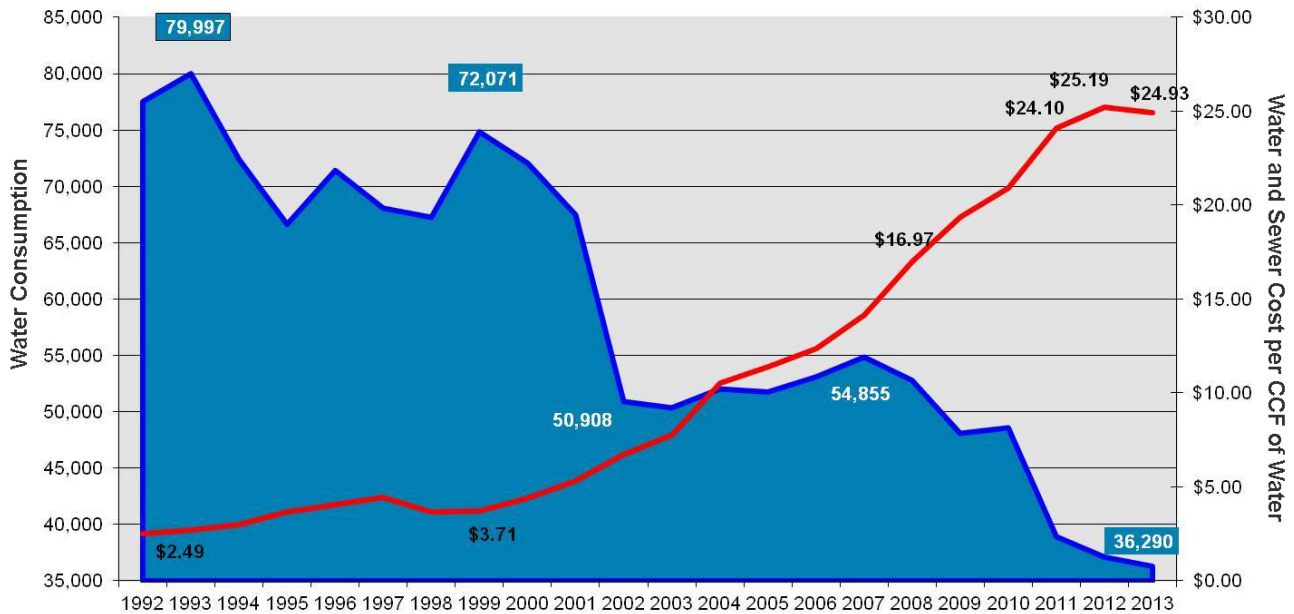


- **Hotel:** Hyatt Regency Atlanta
- **Location:** Atlanta, Georgia
- **Property size:** 1.5 million square feet
- **Number of guest rooms:** 1,260
- **Water savings:** Reduced water consumption by 35 percent between 2000 and 2013, saving 36 million gallons of water in 2013 alone
- **Cost savings:** Approximately \$1 million annually in water and sewer costs



Hyatt Regency Atlanta received the Atlanta Better Buildings Challenge “Top Water Saver” award.

fully automated Building Automation System (BAS). You can't manage what you don't measure, and the BAS allows the facility managers to see the operational parameters of all mechanical systems; track and trend system water and energy use; analyze system efficiency; and focus on areas for improvement.



As Atlanta water and sewer costs (indicated by the red line) have increased, Hyatt Regency Atlanta has reduced its water use (indicated by the blue graph). Elimination of single-pass cooling contributed to the major water use reductions through 2002, while cooling tower optimization, air handler condensate recovery, and chiller and boiler replacements contributed to the major drop in consumption between 2007 and 2013.

Eliminating Inefficient Systems

Single-pass cooling systems use water to remove heat and cool equipment and require approximately 40 times more water to remove the same amount of heat as a cooling tower. About 17 years ago, Hyatt Regency Atlanta replaced all 25 of its single-pass cooled ice machines with air-cooled models. Recognizing the amount of water wasted with water-cooled equipment, Hyatt Regency Atlanta eliminated the remainder of its single-pass cooling in the early 2000s, when the hotel removed two water-cooled air handlers.

Optimizing Cooling Towers Results in Payback

Hyatt Regency Atlanta and its water treatment vendor recognized that the most significant way to reduce water use in its six cooling towers was to increase the towers' cycles of concentration. To do so, the hotel's vendor uses conductivity metering and trace monitoring to automate blowdown when the total dissolved solids concentration reaches its set point, rather than initiating blowdown manually or on a timed schedule. Through this practice, Hyatt Regency Atlanta raised its cooling tower cycles of concentration from 5.0 to 8.0 over a 15-year period.

The hotel also decided to use "free water"—condensate generated by its air handler and fan coil units—to offset the total amount of potable water it needs to add to its cooling tower system. The condensate is naturally generated when hot, humid air passes over the cold coils in the air handler and fan coil units. By recovering condensate, the hotel is able to send approximately 1 million gallons of condensate water per year to its cooling towers. Simple payback for the \$12,000 condensate recovery system only took six months, driving the project's internal ROI to more than 200 percent. To further increase its water savings, Hyatt Regency Atlanta is considering adding a rainwater collection system to its property, which would allow captured rainwater to be used to offset the potable water demand on the cooling tower.

Boosting Efficiency in Chillers and Boilers

Between 2011 and 2013, Hyatt Regency Atlanta improved water and energy efficiency in its chiller and boiler plants, reducing energy use by 10.6 percent. Optimizing a chiller system for energy efficiency reduces the heating load on the cooling tower, which means that less water needs to be evaporated to dissipate the reduced heat load. Likewise, energy efficiency in the boiler system results in water efficiency. Optimizing these two systems allowed Hyatt Regency Atlanta to reduce water and energy use, contributing to its overall 36 million gallons of water savings in 2013 alone.



Between 2011 and 2013, Hyatt modernized and optimized its chiller and boiler plants.

Acknowledgements

The U.S. Environmental Protection Agency's (EPA's) WaterSense program acknowledges Hyatt Regency Atlanta Senior Director of Engineering Randy Childers for providing information for this case study.

Learn More

To learn more about water efficiency in commercial and institutional buildings, visit the WaterSense website at www.epa.gov/watersense/commercial to access *WaterSense at Work* best management practices, tools, case studies, and more.