

## SHOWCASE PROJECT: HILTON AUSTIN CONVENTION CENTER

### SOLUTION OVERVIEW

The Hilton Austin Convention Center is a city-owned mixed-use complex consisting of an 801-room, 24-floor Hilton hotel, the Austin Chamber of Commerce (12,000 sq. ft.), and 99 leased condominiums. As a major city landmark, the Hilton Austin Convention Center has received continuous support on energy efficiency upgrades from the City of Austin, which owns the building. The Hilton Austin opened in 2003 and features 80,000 square feet of meeting space, a heated outdoor pool, in-house spa, two restaurants, a coffee shop, and 24-hour room service. There is also a 5-story underground parking garage; the hotel is responsible for three of the garage floors.

One of Hilton Austin's barriers to reducing their energy consumption and costs was metering the 1,300,000-square-foot space to better understand the hotel's energy and water consumption. Although all entities within the building are responsible for their own utility bills, chilled water consumption was not submetered. Instead, chilled water cost and consumption was allocated based on total floor area for each entity. Submeters were installed to measure both water and chilled water for the hotel, individual condos, and the Chamber of Commerce, allowing for the accurate allocation of expenses by BTU consumption rather than square feet. This led to improved consumption and billing accuracy for both the hotel and the condos. The condominiums and Chamber of Commerce are already responsible for their electricity and gas.

### SECTOR TYPE

Commercial, Local Government

### LOCATION

Austin, Texas

### PROJECT SIZE

1,300,000 Square Feet

### SOLUTIONS

After getting clarification on their energy and water consumption data, Hilton focused their efforts on implementing energy conservation measures (ECMs) that improved their bottom line without disrupting guest experience. Starting in 2010, Hilton Austin implemented the following ECMs to achieve 31 percent energy savings:

#### Guestrooms

During guestroom renovations, Hilton Austin installed new thermostats that were connected to an occupancy sensor and the door lock. These new thermostats turn off lights and decrease HVAC use when the room is unoccupied, as triggered by the door lock and confirmed by the occupancy sensor. There is also a bedside controller connected to the system, so the guest can control the lights and adjust the thermostat, increasing their comfort. The thermostats are connected to the front desk system and have pre-set temperatures for when a guest checks in or out of a room (73°F at check-out and 70°F at check-in). This new system has reduced energy consumption and reduced filter.

## Common areas

Finding efficiencies in the meeting space is a challenge, since it is in use nearly 24/7. The Hilton Austin team developed a weekly schedule of meeting space reservations in the building automation system (BAS) and uses it to schedule periods of HVAC setbacks for the week, optimizing HVAC use in all meeting areas. The BAS was upgraded to track more data points, allowing for greater control and evaluation of the building systems. The boilers were upgraded from ignition boilers to forced air boilers.

In 2012, Hilton Austin conducted lighting retrofits throughout the 5-story parking garage, replacing HID 150-watt bulbs with 55-watt T-5s. Common area and restaurant lighting has been upgraded to LEDs wherever possible, and more LED projects are planned for guestrooms, the convention center space, corridors, and other areas.

## Kitchens

The Hilton Austin installed Melink hoods in one of the restaurant kitchens, which utilize [demand control kitchen ventilation](#) to automatically change the level of exhaust depending on the need, and upgraded the HVAC system in kitchen areas to ensure appropriate air balance with the new hoods. This sophisticated approach ensures that the minimum amount of conditioned air is leaving the building through the hoods, reducing HVAC and fan power, and that correct air pressure exists between the kitchen and other spaces. Kitchen equipment is also replaced with more efficient appliances as-needed. These upgrades significantly improved both operational and energy efficiency.

## Laundry

To improve the performance of Hilton Austin's On-Premise Laundry (OPL), in 2016 a new industrial water softener system was installed and the steam boilers, which provide hot water and steam for the kitchen and laundry, were re-tubed. The new system significantly improves the efficiency of the steam boilers, reducing both electric and natural gas consumption. Additionally, the OPL exhaust system lacked demand response capabilities, which drained energy significantly through unnecessary exhaust of conditioned air and fan power. By installing variable frequency drives, the system can now control exhaust based on peak load and run the 350-pound dryers much more efficiently. Hilton Austin also uses ozone in wash cycles, decreasing both hot water consumption and drying heat demand per load. These optimizations cut average drying time nearly in half, amounting to substantial gas and electric savings.

## **OTHER BENEFITS**

Beyond reducing the hotel's energy consumption by 31 percent, many of the efficiency projects had a positive effect on hotel processes and guest experience. For example:

- Automating temperature setbacks improved consistency and eased pressure on staff by no longer relying on busy housekeepers to reset guestroom thermostats during cleaning.
- Installation of occupancy-driven thermostats and longer-lasting light fixtures reduced guestroom maintenance, decreasing interruptions and improving comfort for guests.
- Laundry is completed more quickly and efficiently with less wear and tear on towels and linens.
- Lighting upgrades in the parking garage improved visibility and safety for guests.

## Annual Energy Use

Baseline(2010)  
220 kBtu/sq. ft.

Actual(2015)  
152 kBtu/sq. ft.

## Energy Savings

31%

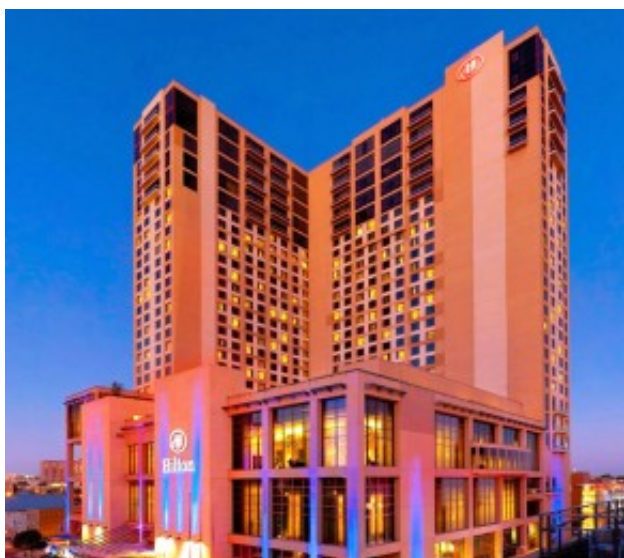
## Annual Energy Cost

Baseline(2010)  
\$2,600,000

Actual(2015)  
\$2,200,000

## Cost Savings

\$400,000



The Hilton Austin Convention Center



Water Softener Addition



Forced Air Raypak Boilers



Ozone System