

# Hilton San Diego Bayfront Hotel, San Diego, California

Estimated Annual Utility Cost Savings:

**\$544,066**

Total Utility Incentive Rebate:

**\$419,425**

Energy Savings:

**3,227,759 kWh**

Project Implementation Costs:

**\$1,699,610**

Project Simple Payback:

**2.35 years**



## SUMMARY

The Hilton San Diego Bayfront Hotel is a full-service waterfront hotel in downtown San Diego, California. Constructed in 2008, the building consists of 1,007,120 conditioned square feet in a 30-story tower over a podium that houses the grand lobby and first and second levels; and an attached parking garage. With over 165,000 square feet of meeting and ballroom space, the hotel serves as a major convention center. Other facilities include an outdoor swimming pool, fitness center and a full-service spa. With a number of highly rated on-site restaurants and full room service for guests, the hotel serves 720,000 meals per year from several large kitchens on the property. Over 4.2 million pounds of linens are processed annually in an extensive on-site laundry facility utilizing a seven-chamber tunnel washing system. The entire complex is fully air conditioned, including the 1,190 guest rooms. A sophisticated central plant provides chilled water for cooling and heating hot water that is circulated throughout the complex.



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## GOALS AND CHALLENGES

### Peak Service without Peak Usage

In the 2010 calendar year, the hotel consumed 15.5 million kWh of electricity and 790,000 therms of natural gas, at a cost of over \$2.5 million. The hotel engaged Willdan in 2011 to identify and implement energy- and water-saving opportunities to reduce their utility spend while capturing available utility incentives to offset costs. Willdan conducted a detailed ASHRAE Level II audit and identified significant energy and water-saving measures throughout the facility. These measures included capital-intensive "ROI projects," as well as many simple upgrades and modifications with speedy paybacks.

## SOLUTIONS AND OUTCOME

**Solutions / Outcome:** 2014-15 comprehensive LED lighting projects saved over 1 million kWh with just over a 1-year payback.

**Solutions / Outcome:** Hotel has received multiple energy-related awards:

1. 2014 SDG&E Energy Star Champion in Hospitality
2. 2014 Association of Energy Engineers (AEE) International Energy Project of the Year

### A Holistic Approach to Conservation

The Hilton San Diego Bayfront Hotel has been truly exemplary in demonstrating its commitment to all facets of reducing its energy footprint.

Willdan worked with the hotel management and facility staff to implement a comprehensive upgrade to the building management system (BMS) and central plant operation. This project included implementation of chiller sequencing and optimization of the three 845-ton centrifugal chillers serving the building, two of which are equipped with a variable-frequency drive (VFD) on their compressor and one without. The BMS sequence was revised to operate the optimum combination of the chillers with VFDs, and eliminate the operation of the less efficient constant-speed chiller. Additional upgrades to the BMS included implementation of a chilled water supply temperature reset (based on outdoor temperature), elimination of throttling valves in the central plant chilled water distribution system, and utilizing the circulation pump VFDs for flow modulation and control. In addition to the comprehensive Central Plant and BMS project, the hotel implemented significant other measures including:

- Automated occupancy-based thermostats in the guestrooms to control the HVAC. Willdan conducted a detailed study of the property to evaluate two different solutions as well as conduct tests for any guest satisfaction issues. After a successful 6-week pilot, an advanced INNCOM system was installed so that when guests leave their rooms, the set point on the thermostat is automatically changed to minimize heating and cooling, and automatically resets to the temperature set by the guest the moment they return.

“ We have achieved close to a 20% reduction in energy use. As a result, we recently garnered the number one ranking for efficiency in the U.S. versus other properties in Hilton’s LightStay program. ”

—Tip Jozsa,  
Hilton San Diego Bayfront  
Director of Property  
Operations



The Hilton San Diego Bayfront was awarded the 2014 Energy Champion Award for the hospitality segment. Pictured from left to right are Chikezie Nzewi, Engineering Manager - Willdan Energy Solutions, Debbie Panciera, Senior Account Executive - San Diego Gas & Electric, Tibor Jozsa, Director of Property Operations - San Diego Hilton Bayfront, Scott Broder, Sunstone Hotel Investors, and Gwen Strickland, Senior Program Manager - Willdan Energy Solutions

- Implementation of a laundry water-recycle system that reduces fresh water usage and conserves energy by reducing hot water discharges at various cycle stages. This project reuses 20% of the heated water -- saving 900,000 gallons of water and 3,500 therms of natural gas monthly.
- Extensive lighting retrofits throughout the property including comprehensive upgrades from halogen and incandescent lamps to LEDs throughout the ballrooms, meeting rooms, lobby, corridors and common areas as well as changing 32W linear fluorescents to 25Ws.
- Installation of carbon dioxide (CO2) sensors in the ballrooms and meeting rooms to allow for demand-control ventilation.
- Implementation of a supply demand-controlled ventilating air temperature reset strategy at the air handlers, based on the VAV box zone demands.
- Kitchen hood exhaust fan control, which utilizes heat, motion, and infrared sensors to control VFDs on the exhaust fan motors. The control varies the exhaust airflow to ventilate appropriately, reducing fan power consumption when cooking is not occurring and increasing exhaust flow when cooking is taking place.
- Installation of new, high-efficiency laundry water heaters.

## Results

Working closely together, the Hilton San Diego Bayfront Hotel and Willdan developed an implementation plan that substantially reduced the baseline consumption, with no negative impacts to guests. Even with increased guest occupancy, meal service, laundry processing, and ballroom and meeting space utilization, **these measures collectively have produced over 15% energy reduction in nine months.** After completion of required measurement and verification (M&V), the hotel received significant cash energy incentives of over \$271,000. On May 13, 2014, San Diego Gas & Electric honored the San Diego Hilton Bayfront Hotel with its 2014 Energy Champion Award for outstanding conservation efforts in the hospitality segment—establishing the hotel as a recognized leader in the implementation of energy efficiency projects in the San Diego region.

## About Hilton Bayfront Hotel

Hilton Hotels & Resorts is the most recognized name in the hospitality industry, with over 92 years of service. The Hilton San Diego Bayfront is a 4-diamond hotel added to the Hilton family in 2008. The hotel’s 30 stories and 1,190 rooms and suites are located on a vibrant 4.3-acre public park along the waterfront in San Diego. The hotel was named 2014 Energy Champion by San Diego Gas & Electric and is recognized as #1 in sustainability among all Hilton Hotels in the United States. The Hilton San Diego Bayfront Hotel is owned by Sunstone Investors (75%) and Hilton Worldwide (25%).

