

## CASE STUDY | Hotels

### Overview

Hospitality comprises the third largest retail industry in the United States. On average, hotels spend \$2,196 per available room each year on energy, an amount that represents approximately six percent of all hotel operating costs. The varied nature of the physical facilities, and the activities that they host, can make energy management especially challenging, whether the facility is a large convention hotel, part of a large national chain, or a small independent inn or motel.

"The US Hospitality industry spends \$3.7 billion a year on energy. Electricity accounts for 60-70 percent of the utility cost of a typical hotel. Guests lighting accounts for 30-40 percent of hotels' electricity consumption. Typically hotels use 218 gallons of water per day per occupied room."

*Building Design + Construction* (2006 "Green Building and the bottom Line")



### **WESTIN RIVERFRONT RESORT & SPA AT BEAVER CREEK MOUNTAIN**

**Location** Beaver Creek, Avon Colorado

**Building Size** 535,000 sq ft

**Building Type** Hotel Commercial Building

**Services** Level II Energy Audit-Energy Survey and Analysis

This energy audit presented an opportunity to assist in reducing the Westin Riverfront Resort & Spa's expenditures on energy through measures such as lighting upgrades in guest rooms, lobbies, and hallways; occupancy-based guest-room energy controls; and the installation of energy-efficient water measures, while still providing benefits for hotel guests, owners, operators, and shareholders.

SAVINGS SUMMARY PROJECTIONS			
Total savings from IMPACTenergy recommendations	1,027,374 Kilowatts	87,489 therms of natural gas	5,351,608 Gallons of Water
Percentage reduction in utility & water consumption	18.5%	14.5%	19%

**IMPACTenergy Recommendations:**

ENERGY EFFICIENT MEASURES	WATER EFFICIENCY MEASURES	EDUCATION
<ul style="list-style-type: none"> <li>▪ Lighting upgrades to LEDs and CFLs</li> <li>▪ Lighting controls: photo sensors, occupancy sensors, bi-level switching</li> <li>▪ Plug load reduction: i.e. vending machine miser</li> <li>▪ HVAC control measures: optimize guest room occupancy / unoccupied setbacks</li> <li>▪ HVAC system upgrades: reset the supply water temperature for chiller</li> </ul>	<ul style="list-style-type: none"> <li>▪ Low flow hardware and fixtures</li> <li>▪ Linen and towel reuse program</li> <li>▪ Heat recovery system for laundry room</li> </ul>	<ul style="list-style-type: none"> <li>▪ Management and staff training on energy management system</li> <li>▪ Housekeeping energy management procedures</li> <li>▪ Maintenance log and tracking program</li> </ul>

**CUSTOMER BENEFITS**

- Met Starwood Hotels & Resorts Worldwide, Inc. goal of "30/20 by 2020" – Starwood's overall goal to target 30 percent energy savings and 20 percent water savings by 2020
- Total energy saved: 33 percent
- \$181,812 annual savings = 18 percent
- Potential yearly savings of 30 percent energy reduction per available room
- Potential yearly savings 20 percent water reduction per available room