

Application Solution

Reducing Energy Consumption in Hotels

Hotels Have Unique Opportunities to Save Energy

According to hotel industry statistics, **utilities make up 30% of the average US hotel's operating costs**-a huge percentage with a major impact on the bottom line and the environment. Inefficient use of lights, heating, and air conditioning is one of the major culprits in this waste of resources. A single guest room's HVAC unit can cost over \$1,000 per year to run, depending on local energy costs and climate (see chart on p.3). **Spinwave's wireless sensors can play an important role in reducing energy consumption in hotels.** The potential savings are impressive: according to one EnergyStar estimate, cutting energy usage by just 10% could save nearly \$300 million for the industry as a whole.

A Simple, Commonsense Route to Reducing Energy Costs

Effective use of a wireless occupancy sensing system connected to a hotel's HVAC controls can dramatically reduce energy usage. **By automating usage during the day, when guests are out, a wireless sensing and HVAC control system can enable hotels to realize considerable energy savings without impacting the comfort of their guests.** Indeed, one of the great advantages of an automated system is that it works without involving guests at all, so they can enjoy their stay without having to think about their energy consumption.

Turning down the heat or air conditioning and turning off the lights when guests are out of their rooms is a simple but hugely effective way to reduce a hotel's energy consumption.

Yet, relying on guests or staff to remember to save energy has had mixed results. Busy vacationers often have little time to read in-room notices asking them to conserve energy. And in their rush to go out and enjoy the local sights, often the last thing on their minds is turning off the air conditioner.

Involving staff in conservation is more effective, but automating the energy-saving system eliminates the chances of employees forgetting to turn off lights and turn down the temperature controls.

Using a wireless sensor based, automated system eliminates the need for occupants to constantly bear in mind the need to conserve. **The system saves energy automatically, with guests and staff barely aware that it's working in the background.**



Solution

Spinwave's occupancy sensors placed in all guestrooms detect movement in the room, to determine whether guests have just arrived, or just left. If the sensors detect that the room is empty, the lights are switched off and the air conditioning or heating is turned down, but only by a few degrees at first. This way, if guests have only stepped out for breakfast or a swim, they will scarcely notice any temperature difference when they return to their room.

If no one comes back to the room for an hour or so, the climate controls are set back an additional few degrees. This system enables energy usage to be reduced during the day without guests being affected. The minimum and maximum temperatures for the rooms can also be set to a level that is still comfortable-for instance, 60 degrees-so that even after being out all day with the energy saving system working, guests don't return to a room that is too hot or cold.

If the sensors detect that people have just entered the room, the lights come back on and the air conditioning or heating is immediately turned back to the level last set by the occupants. At any time, the temperature controls can also be set manually. Lights can be controlled manually as well. **Guests have full control over the set temperature in their rooms, ensuring that a great stay is fully compatible with energy savings.**

Application Solution

Wireless Solutions Enable You to Install Systems without Disrupting Your Business: A Spinwave wireless system is much quicker to install than a wired system. You don't have to shut down your hotel for renovations, and you don't have to inconvenience your guests. Your business can go on uninterrupted during the installation.

Works with Your Existing Structure, and Your Existing Heating, Cooling, and Lighting System: Spinwave's wireless sensors are fully integratable to any open-protocol building automation system. And because they are wireless, they can be installed in any building with no disturbance of the existing structure.

Retrofit a Historic Hotel, Preserving Its Unique Features: If your property is historic, sensors that require no wiring are a must. You can install occupancy sensors without having to drill into walls with historic wallpapers or fragile plastering. The sensors take up only a small amount of space and can be placed in a non-obtrusive position above a door, preserving the visual character of each room.

Wireless Networks are Cost-Effective: Installing Spinwave's wireless sensor networks can save over half of your installation costs compared to wired deployments. With no wires to pull, the system can be put together with much less intensive labor, adding up to significant savings on top of the savings that can be realized through the energy management program itself.

No Wires Means Greater Flexibility: Wireless sensors can be placed virtually anywhere, so that you can place them at any workable, convenient location. If you renovate your property, it's easy to move your existing sensors and to add new ones to any additional rooms. You can also add sensors to any room in your property-not just guestrooms, but laundry areas, fitness rooms, the lobby-anywhere that an automated energy use reduction system can help control costs.

The Bottom Line

Reducing energy consumption in hotels can be achieved with little to no impact on guests, thanks to energy management solutions using wireless sensors and controls. By connecting wireless occupancy sensors to the building automation systems controlling a hotel's HVAC system, energy consumption is minimized when guests are not present, while at the same time allowing guests to set temperatures to their own comfort level when they are in their rooms. A wireless sensor and control solution from Spinwave Systems brings numerous benefits:

- Reduced energy and operating costs
- Optimum guest comfort
- Less impact on the environment



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Application Solution

Energy for Room HVAC Units: One of the Single Largest Expenses for the Hospitality Industry

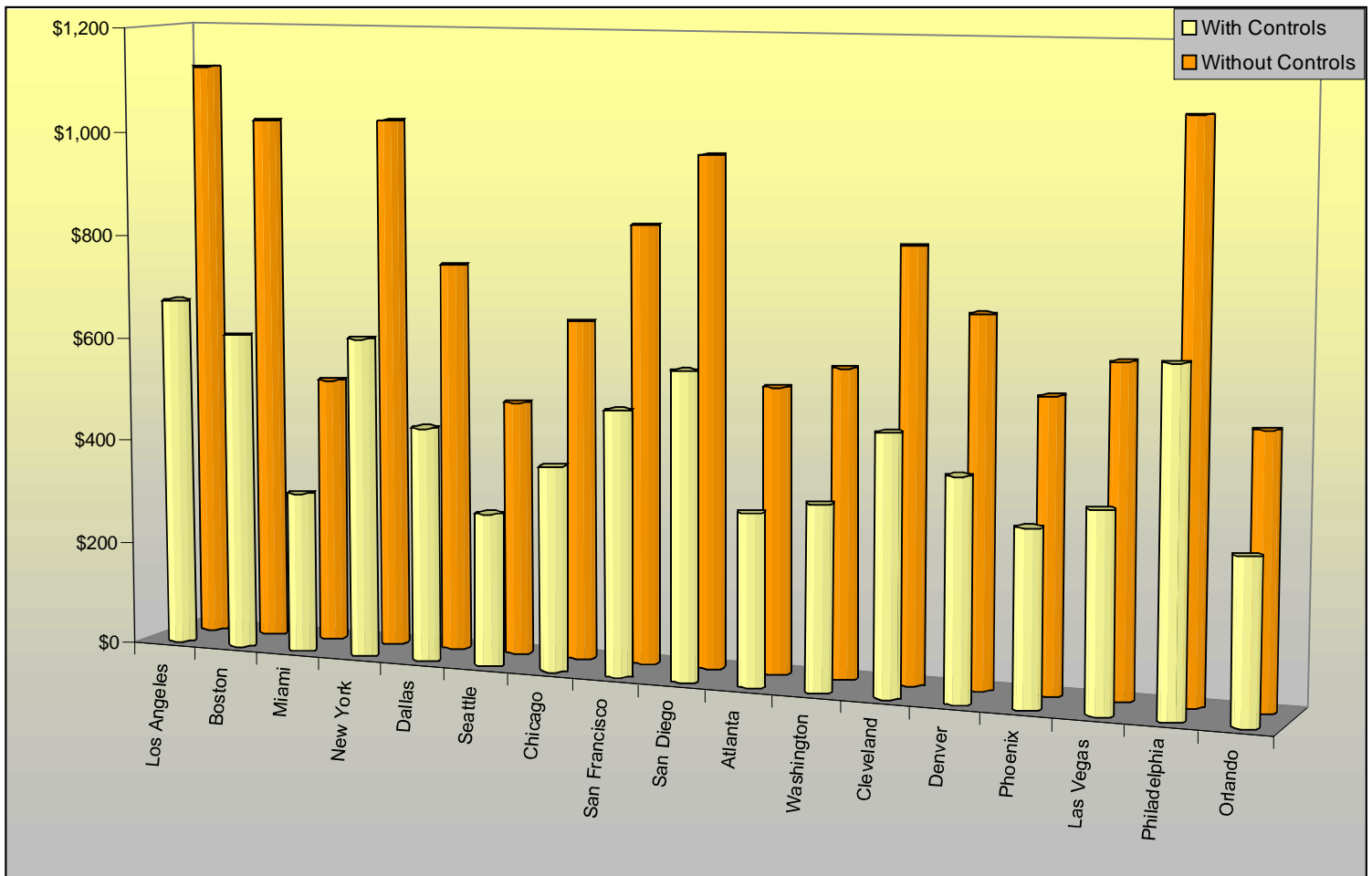
Typical energy usage by single-room hotel HVAC units varies by location, depending on local conditions, including climate, energy sources and costs, tourism patterns, and building structures. In all areas, however, costs are high, with average usage for a single HVAC unit exceeding \$400 in most major cities.

Lack of Automated Controls: A Significant Factor in High Operating Costs

Without automated controls, hotels must rely on staff and guests to reduce the use of energy. Guests frequently leave HVAC units on. With normal energy management practices relying on cleaning staff to turn down controls once they arrive to do a room, HVAC controls often remain on at full usage for hours, wasting thousands in energy and needless carbon emissions.

Comparative Annual HVAC Costs for a Single Guest Room With and Without Occupancy Control

(assuming 40% savings - actual savings typically range from 30% to 60%)



Average Cost per Year Without Controls = \$752

Average Cost per Year With Controls = \$451