

OPTIMIZING ENERGY PERFORMANCE IN HOTELS: A DEMONSTRATION OF BEST PRACTICES, INVESTMENT PRIORITIZATION, AND LOW-COST OPPORTUNITIES

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Overview

Hotels present one of the most unique and challenging settings for energy management. Hotels are open all day, every day of the year. There are often language and turnover barriers among hotel staff. Additionally, hotel guests typically expect to consume more energy than they would at home. The lodging industry is also particularly sensitive to the state of the economy, national disasters, terrorism, and international health crises. Finally, the travel and tourism industry is one of the largest employers in the U.S., responsible for one in every 8.4 jobs in 2004.

Lodging was the second hardest hit industry (after airlines) in the aftermath of 9/11. In the months preceding 9/11, the industry was already experiencing financial declines. This national crisis prompted declining revenues to abruptly worsen. Business travel, family vacations, and tourism from abroad steadily declined. The industry was forced to mobilize and deploy numerous profitable and cost-cutting strategies to improve its competitiveness and profitability. After instituting necessary security measures, many in the lodging industry pursued factors that they *could control* – including energy management. More recently, skyrocketing energy prices have elevated energy management significantly more so.

Drawing primarily upon experience gained from supporting the US EPA's ENERGY STAR and utility-sponsored programs extended to the hospitality industry, and through best practices comparisons, this paper aims to provide a brief insider's view as to how hotel operations have become more efficient, how leading hotels have identified and overcome barriers, and how the average business traveler or hotel guest can get involved.

Effective Strategies for Performance Improvement

Many leading hotel companies are finding that three elements of an effective energy management plan are of key importance: 1) ascertaining buy-in from the highest executive-level manager possible; 2) instituting a continuous approach that tracks and measures progress; and 3) establishing one champion in the company who can coordinate and implement the plan. Below, we describe an organization that has successfully incorporated all three elements into its plan.

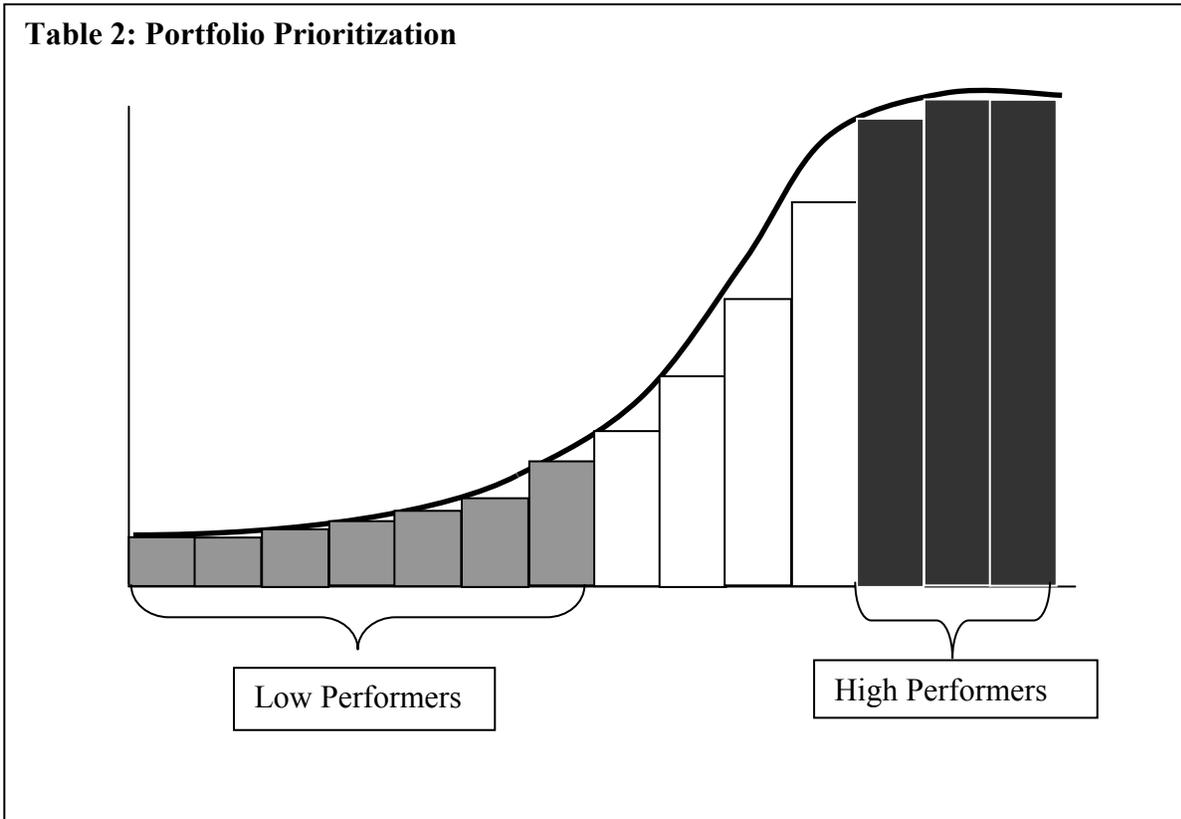
At Saunders Hotel Group, a family-owned hotel company headquartered in Boston, MA, energy management initiatives have been instituted since the 1980's. Saunders Hotel Group is well known in the industry as a pioneer of eco-tourism and environmentally sustainable travel. In 2005, EPA recognized Saunders Hotel Group as an ENERGY STAR Partner of the Year for its energy management initiatives implemented throughout 2005. Prior to that banner year, Saunders Hotel Group generated an additional 11% of energy savings, primarily through low-cost improvements in 2004.

Table 1: Best Practices at Saunders Hotel Group (Boston, MA)

- ENERGY STAR qualified equipment throughout properties
- Use EMS, motion sensors, energy-efficient lighting, heat pumps, ozone laundry systems
- Efforts saved an additional 11% last year, after a decade of energy management initiatives

What is most impressive about their success is that although Saunders had implemented energy management projects continuously dating back over two decades, they continue to realize additional savings by chiseling away at new opportunities.

In 2001, a new tool was unveiled to the hospitality industry that enabled hundreds of hoteliers to benchmark energy performance and track progress. The US EPA's energy performance rating system has enabled general managers (GMs) and energy managers to identify high performing hotels, average performers, and those with the most greatest potential for improvement. While more sophisticated data tracking software programs available, no other program offers benchmark comparisons with weather normalization for five different categories of hotels, ranging from economy/budget to upper upscale. Subsequently, several data tracking companies have formed partnerships with the EPA to integrate the benchmarking capability into their own data tracking services. The output – a one to one hundred rating – has been an empowering piece of information in making the business case to improve energy performance or to quantify progress. Hoteliers have found this tool useful to benchmark their own energy performance, compare internally and externally, and apply for EPA's ENERGY STAR for those hotels operating in the top twenty-five percent. Furthermore, hoteliers who believed they were performing well (but may not have been) have often times taken a closer look at operations and identified new sources of energy savings. Regular tracking has also enabled effective portfolio prioritization. Investment focus is placed on those lower performing hotels, while best practices are pulled from those high performing properties. Taken across a portfolio, hoteliers can compare energy cost relative to energy use in order identify outliers and areas needing additional attention. Table 2 demonstrates this concept.



Hoteliers have used energy tracking tools to prioritize their portfolios by most energy intensive to least energy intensive and to identify properties with the most opportunity to identify and emulate best practices. improvement or those to study and emulate. Some organizations have fostered dialogue

among properties, including one high-performing and one low-performing hotel, regarding O&M or daily operational procedures that take place at each property and that make a difference. Ideally, organizations in this case also go back and ensure these practices are documented in some sort of corporate standard operating procedure to improve possibilities of longevity and passing from one employee to the next.

Identifying and Overcoming Barriers

Hotels face many challenges and barriers in energy management that are unique and different to most organizations, especially in America. The typical American vacationer expects to indulge, relax, and be pampered and treated. This means take long, hot showers, hang out in the room and relax, and often times enjoy fresh towels and linens each day. No where on that list does anyone see or want to see conserve energy. The challenge is to identify and target the areas in the hotel, in the back of the house, and in guest rooms to the extent the hotel guest experience remains the same or improves.

Below are a few opportunities for energy management listed by area of the hotel and suggestions on how to address the issues that have worked for hoteliers and/or are in the process of being evaluated for success. There are many additional opportunities not listed herein that may be described in the presentation, including combined heat and power in hotels. During the presentation of the paper, hotel case studies will describe more specifically the hotels, the challenges, and the ways the problems were overcome.

Guest rooms

- Desk and lamp lighting, foyer/entry way lighting
- Bathroom Lighting with motion sensor and nightlight
 - Bathroom lighting is very commonly left on overnight and used as a nightlight. Lawrence Berkeley National Labs recently conducted a study demonstrating the significant savings potential of using a strong enough nightlight so the guest can find the bathroom throughout the night.
- Energy-efficient products – televisions, set-top boxes, other electronics. Look for the ENERGY STAR, as these energy-efficient products can save, for example, 75% of energy in televisions when turned off.
- Towel/linen re-use programs. These programs save considerable water and energy through towel/linen reuse. Most Americans, of course, do not wash their sheets and towels every single day. This type of program empowers the guest to contribute. This Project Planet is a company specializing in messaging to hotel guests and training staff.

Housekeepers

- Language barriers can certainly cause a lot of miscommunication. Whenever possible, offer tip sheets that describe job expectations in different languages. ENERGY STAR offers an “at home and at work” tip sheet. The American Hotel & Lodging Association (AH&LA) offers tip sheets, including one in Spanish. If there is a head housekeeping liaison or a central coordinator that does speak English, be sure to keep this person regularly updated so that house keeper
- Towel/linen reuse programs have not always been successful due to language barriers with housekeepers, but also because if a housekeeper finds that there are no towels and bed linens to change and to launder, then the housekeeper’s job will be done much sooner. This means the work day will be over, and the number of hours eligible for pay will be less. Several companies are now working on initiatives to better estimate the number of guestrooms that truly request to

keep their linens and sheets each day, and redirect the housekeepers' efforts to other areas of the hotel such as the restaurant.

Commercial Kitchens

- Purchase ENERGY STAR qualified products, including commercial refrigerators, steamers, hot-food holding cabinets, and fryers.

Leading Hotels are Engaging the Guest

Leadership in energy management is one way leading organizations are demonstrating good corporate citizenship. Today, most hotel companies are engaging hotel guests in towel/linen reuse programs to save water and energy. Other companies are taking the idea a few steps further by offering ECO-channels, energy efficiency public service announcements on internal cable channels to their guests, or hotlines to take employee reports of in-house maintenance concerns.

An example of this type of outreach is Columbus Hospitality Group, headquartered in Columbus, OH. This organization provides in-room energy saving ideas for guests to consider, and provides a number hotel guests can call to make their stay more comfortable and enjoyable. Additionally, employees at this hotel take a course on energy management and ENERGY STAR. Following the course, each employee wears an ENERGY STAR pin on his/her lapel to demonstrate completion of the course. This enables employees to communicate with guests about the hotel's initiatives when asked what the pin signified, which happened regularly. A decrease in guest complaints, and improved operations resulted from the training.

Table 3: Energy savings at the Columbus Crowne Plaza Hotel

- Provides a "how to" for guests to contribute energy efficient action steps
- Provides employees a training course on ENERGY STAR and its partnership opportunities
- Communicates opportunities for guest involvement through in-room tent cards and PTAC

Summary

In summary, energy management continues to offer hoteliers a prime opportunity to improve profitability, guest experience, and good corporate stewardship. Even after pursuing years of energy-efficient opportunities, leading hotels continue to reap additional benefits from keen attention to proper operational procedures, low-cost improvements, and learned best practices from top-performing hotels.

Many resources are available at little to no charge to hoteliers, including those offered by EPA's ENERGY STAR program, utility-sponsored programs with incentives for demand reduction, and organizations with energy-efficient missions.

Additional Industry Case Studies

The following case studies are representative examples of sound hotel energy management on various companies from a variety of sources.

Case Studies

Starwood Hotels <http://www.hpac.com/member/feature/2003/0302/0302lembo.htm>

Hyatt <http://www.savewater.com.au/default.asp?SectionId=44&ContentId=84&Page=1&SortTag=41>

Hilton Hotels http://www.energystar.gov/index.cfm?c=hospitality.bus_hospitality_hilton

Columbus Hospitality Group

http://www.energystar.gov/index.cfm?c=hospitality.bus_hospitality_columbus

Fairmont Hotels

<http://oee.nrcan.gc.ca/publications/infosource/home/index.cfm?>

References

1. US EPA ENERGY STAR Program www.energystar.gov
2. Energy User News www.energyusernews.com
3. Hospitality Trends www.htrends.com
4. “Reducing Operating Costs Through Improved Energy Efficiency in Your Business – A Checklist” by the Florida Energy Extension Service
5. *Survey of Energy and Water Use in Hotels and Motels – 1987* The American Hotel and Motel Association, 1201 New York Avenue, NW, Washington, DC 20005
6. The World Travel & Tourism Council (WTTC) 2004 Economic Forecasts for US Travel & Tourism <http://www.htrends.com/researcharticle9635.html>