by Phil Sprague

The top 10 energy-saving projects for a hotel

There are literally thousands of ways to reduce energy use and save money in hotels. The primary difference is that some of them are more cost effective than others. As a general rule, hotel owners and operators can obtain 80 percent of their potential savings at 20 percent of the cost while obtaining a return on their investment in well under two years, in most cases, by following this list of 10 prioritized projects.

1. There is no greater savings than 100 percent, which can be obtained by simply turning off unnecessary equipment. When PSA Hotel Energy Consultants conducts full-service energy audits, we almost always identify many energy-consuming items that can be turned off at key points during the day and night. The prudent hotel manager will insist that the chief engineer or facilities services manager identify air handling units, exhaust fans, lighting, air conditioners and any other item that can be turned off, and implement a manual program. For example, the kitchen exhaust hood and public restroom exhaust fans can always be turned off at night. Heating and cooling systems serving meeting rooms and ballrooms can be turned off during unoccupied periods. Game rooms in recreational areas and indoor pool equipment can also be turned off during closed periods. After these items have been identified, consider installing a seven-day or 24-hour time clock (approximate cost is $150) to control them automatically. If the hotel has a centralized energy control system, it may be cost-effective to add a time clock to the scheduling feature of this system. This is the single largest energy-saving idea that can be implemented in a hotel and can provide significant savings with very little capital expenditure.

2. Electronic compact fluorescent lighting should be used throughout the guestrooms and public spaces. Guestrooms should be provided with about 20-watt spiral type compact fluorescent lamps and recessed can lighting in public spaces should be provided with 28-watt “R” type compact fluorescent lamps. Guestroom lamps cost about $5 each and public-space lights are about $10 each. This will have a major impact on the demand KW on the facility and will typically provide a return on investment in less than six months. Managers should be sure to check with their utility provider for rebates, which can cover about 20 percent of the cost.

3. As mentioned in the last issue of TRC, verify that all guestroom showerheads consume less than 1.75 gallons of water per minute. Showerhead consumption can be tested by placing a bucket under the shower, running it for one minute, and then measuring the output. Low-flow pressure-compensating showerheads cost in the range of $15 and typically have a three- to four-month return on investment. This will have a major impact on water consumption and the energy needed to heat it.

4. The hotel manager or chief engineer should contact the property’s utility provider to verify that the hotel is on a Time-of-Day utility rate. If it is not, make the change. This simple effort can reduce the cost of electricity by 3 to 5 percent, depending on the utility provider’s ratestructure.

5. Verify that all standard four-foot and eight-foot fluorescent lamps are “T-8” type lighting with electronic ballasts. If a hotel is currently using “T-12” lighting, it can easily be converted to the new energy-efficient system and typically be eligible for about a 20 percent rebate from the utility. While this is a slightly more expensive energy retrofit, it is a very justifiable project in terms of savings. In areas where lights operate 24 hours a day, a typical return on investment is less than two years.

6. One of the most abused energy wasters in hotels is lighting that is left on in unoccupied areas. First, install light-switch motion sensors in areas such as housekeepers’ closets, storerooms and offices. These light-switch motion sensors typically cost less than $25, and can easily be installed by a maintenance engineer in less than five minutes. Depending on the nature of the application, the typical return on investment by using these devices is less than six months.

7. Ceiling motion sensors should be used in areas such as meeting rooms, conference rooms and public restrooms. These devices are more expensive and cost in the range of $200, but control a larger lighting load. Audits reveal that lights are frequently left on in these areas, even when they are unoccupied. Common sense should be used in the application of ceiling motion sensors; the return on investment for this upgrade is often less than three years.

8. Constantly encourage the engineering staff to implement and improve the ongoing preventive maintenance program for the entire hotel. The primary function of the engineering department is to provide a clean and efficient atmosphere throughout the facility. As discussed in the September/October ’03 issue of TRC, maintaining equipment properly can provide major savings ***and*** extend the life of the equipment. Housekeeping should also be encouraged to work with the engineering staff to identify potential energy-saving opportunities throughout the guestroom block.

9. Guestroom energy controls are becoming more reliable, easier to use and less expensive. These energy controls typically turn off or set back heating and cooling levels during unoccupied periods. New wireless models are less expensive to install and provide additional technical features. More information may be obtained from one of the many national vendors providing this product, but typically, the cost is in the range of $300 per room, with a two- to three-year return on investment, depending on the personality of the hotel being retrofitted. Limited-service transient hotels characteristically are the best application for this product.

10. Public-space global controls for the entire property are also becoming less expensive, more effective and easier to use. However, this will be a major capital expenditure, so this strategy should be considered only after all of the aforementioned tips have been implemented. Control systems of this type vary considerably in size, and as a rule of thumb can cost in the range of $50,000 to $150,000. This is a long-range commitment to energy conservation where the hotel will likely see a three- to five-year return on investment, depending on the application and the identified opportunities to save energy, and will require a partnership with a local reputable mechanical contractor. There are many excellent brands in the marketplace, though using a national vendor has several advantages. It may also be necessary for management to retain an energy consultant to help guide them through this process.

At PSA Hotel Energy Consultants, our experience has shown that these are solid, cost-effective ideas to save energy. There are literally hundreds more that managers can consider. When a hotel starts to implement these ideas, management should track energy cost and consumption to identify the net result. It is also a good idea to retain the services of an experienced independent energy consulting firm to help guide them through this process.

(Phil Sprague is a member of the AHLA Executive Engineers Committee and president of PSA Hotel Energy Consultants. Based in Minneapolis, PSA Hotel Energy Consultants assists lodging companies and individual properties to develop effective, cost-saving energy strategies by auditing and assessing all energy consuming devices and appliances, and delivering comprehensive, customized recommendations in an actionable format. They can be reached at 952-472-6900.)