EnergyIdeas Clearinghouse

Energy Efficiency FACTSHEET

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Energy Management Increases Tribal Casinos' Profitability

Tribal casinos have become a major source of entertainment for millions of Americans – and a major source of funding for Native American tribes. Because of the industry's rapid growth and the huge profits casinos produce, few managers have thought much about the cost of energy and its effect on the bottom line.

However, with recent big increases in the cost of energy and a saturation of the casino market in many areas, casino managers can look to energy management as an effective way to increase their operations' profitability.

It's a Sure Thing ...

Casinos are extremely energy-intensive commercial buildings – one can use more than five times as much energy per square foot as the average large hospital! High energy consumption is due, in part, to 24-hour, 7-day-per-week operation, the need to ventilate gaming areas for large numbers of smokers, large areas with widely varying occupancies and huge outdoor advertising signs. In many cases, casinos also defer maintenance of heating, ventilating and air conditioning equipment. The high level of energy use in casinos makes them excellent candidates for profitable energy efficiency improvements.

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OK – So, What is Energy Management?

"Energy management" is the process of controlling the quantity and cost of energy a facility uses. "Controlling" is the key word — energy managers work proactively to minimize energy waste and incorporate the most appropriate sources of energy (natural gas, electricity, propane, solar, wind, etc.) for the task, while considering environmental impacts.

Energy use can be controlled through programmatic or technological means – i.e. by changing the way the buildings are used and/or by incorporating energy-efficient technology (such as compact fluorescent lamps, which give the same light as incandescent lamps, but with one quarter of the energy). Other essential pieces of the energy management pie include:

- Purchasing energy at the most economical price – through fuel selection and altering schedules to take advantage of your utility's rate structure.
- Engaging and training staff – teaching all employees to identify ways to save energy through maintenance and operational improvements throughout the casino.
- Establishing an on-going program – continually improving energy efficiency.

The last point is very important. Energy management is an on-going program to save energy – not a one-time project to replace some obsolete or inefficient equipment. It should be a regular part of management's responsibility to maximize the owner's profits.

10 Elements of a Successful Energy Management Program

Early on you will need to develop a plan for your energy management program. The plan's structure depends on your organization – no single template works for everyone. It is necessary to work closely with management, engineering and maintenance departments, and operations (gaming) managers to create a workable plan. Get their input as you develop and revise the plan and implement it. Besides being a valuable source of information, involving employees in planning gives them the feeling of ownership, which helps build support for the plan throughout the organization.

In general, all energy management programs should include the following elements:

1. Secure Top Management Commitment

Top management must be committed to any energy management program. Management's attitude toward energy efficiency will have a significant effect on the energy plan's success. Management must be willing to provide both personnel and financial assets.

2. Appoint an Energy Coordinator

A coordinator should be appointed, with the primary duty of guiding energy management efforts. This person should have an energy background and energy management experience. For a smaller casino, this person could be from the maintenance staff. Just be sure they have adequate knowledge, training and commitment to the program's goals.

3. Involve Operations and Maintenance Staff in Planning and Execution

In most cases, the effectiveness of an energy management program is proportional to the effort and time the energy coordinator and the operations and maintenance staff spend on it. Recognize and support "brainstorms" from all levels in your organization. You will find that even non-technical people have feasible ideas to modify operations or the casino environment to save energy.

4. Conduct Energy Surveys

An initial energy survey, or energy audit, shows where and how energy is being used or wasted. An inventory of energy-using equipment should be prepared, showing the basic energy use data

(usually on equipment nameplates) and indicating typical running time and operating profiles.

The Washington State University Extension Energy Program offers a handy *Energy Audit Workbook* that will help you gather and organize the information you will need.

You can print the workbook (a pdf file) at *www.energy.wsu.edu/documents/rem/energyaudit/audit1.pdf*. Filling in the information will take a few hours, but will it give you what you need to move forward. Without this basic audit, it is impossible to tell whether equipment is operating unnecessarily or wastefully. The survey information also sets standards and measures the performance of an individual piece of equipment or a whole facility.

5. Organize Energy Data

To convince management of the value of energy management, you must make them aware of energy's impact on operations. High-energy costs may not be seen as a concern until energy costs are compared with other facility costs. For energy management opportunities to compete for resources within the organization, top level managers must understand the scope of the problem. A careful examination of utility bills is one way to develop this consciousness.

6. Analyze Survey Results

Once you finish the energy survey, look at all that data you've gathered. Start with the big picture. Add up total annual electric, gas and any other fuel use, convert it to BTUs (British Thermal Units) and divide by your facility's area in square feet to get the total "Energy Use Index" (EUI). This number is like the gas mileage for your car, but instead of miles per gallon, the units are BTU per square foot per year.

Comparing your facility's EUI with the EUI of other facilities will give you a good idea of your facility's relative energy efficiency. For example – hospitals are also in use 24/7, with lots of electrical loads, ventilation air and energy-consuming equipment. The average large hospital in the United States uses 225,100 BTU/sq. ft./year. Data shows some casinos use 1,200,000 BTU/sq. ft./year – nearly five times the energy consumption of the average large hospital!

7. Set Goals

Energy management programs typically set goals for specific reductions in energy use or cost. This may be difficult initially, but with experience it is possible to develop realistic goals. Goals are absolutely necessary to measure progress.

Top management should be involved at every step of the goal-setting process. They will be asked to commit money to reach the goals and including them in the process insures their support.

8. Develop an Organization-wide Energy Management Plan

An energy management plan includes policies, goals, assignments, training needs, cost estimates, implementation schedules, reports, and potential and realized benefits such as energy cost savings, demand reduction, productivity and improvement in the indoor environment. As with any complex plan, you will want to include a description of feedback and reporting mechanisms.

Another decision that should be incorporated into the plan is whether to hire outside help with the technical aspects of elements 3 through 10. There are several ways to proceed, each of which has advantages and disadvantages. In general we recommend hiring competent professionals with demonstrated experience with buildings similar to yours, such as hotels. For a large casino, it may be worthwhile to hire an experienced energy auditor to perform the audit, manage implementation of energy efficiency projects and set up an on-going monitoring program.

9. Implement Engineering Changes

Start by looking for the low-cost and no-cost energy savers – picking the low-hanging fruit. Projects like turning off unnecessary equipment, closing off unused areas in the middle of the night or replacing incandescent lighting with compact fluorescent lighting can pay for themselves almost immediately. Since fluorescents lamps last much longer than incandescent lamps, the reduced maintenance costs can sometimes save as much as the energy savings – particularly for lights at the top of a 20-foot ladder. If you can complete at least some of these low-cost projects before contracting with an energy service company (ESCO), you will get the savings immediately and make the ESCO work a little harder for its savings.

Most utilities have rebate programs that will pay part or all of the cost of energy-saving projects. Get to

know the energy conservation people at your local utilities. They can help with funding and technical advice.

10. Monitor and Evaluate Results

Here is where you find out how you're doing. You will need to keep track of the use and cost of electrical, gas and other energy sources and compare them to pre-project levels. If you are dealing with an ESCO, an agreement on how savings are monitored should be part of the contract. Calculating savings is tricky because they are affected by changes in weather, energy costs and other factors you can't control.

Several software packages are available to help track your energy use. The ***Energy*Ideas Clearinghouse** provides a link to information on various software options: *www.EnergyIdeas.org/topics/subtopics/default.cfm?o=h,t,ts,ss&c=h,t,25,55&s_qob=title&s_qmr=20*

Now It's Your Turn

If you're still reading this, maybe you've recognized the wonderful opportunities to be both a bottom-line hero and an environmental hero. Every bit of energy saved today is energy that does not need to be produced or extracted tomorrow.

More than one way to do an energy audit

Here is a brief discussion of some of the pros and cons of different approaches to doing an energy audit.

Do-It-Yourself Using In-House Staff

If your staff has the time and expertise, you can save money and do the energy audit yourself. The money saved can be spent on the projects. There will be no energy savings, however, if your staff is too busy to do the audit and the project is delayed. Also, energy efficiency opportunities overlooked due to inexperience or time constraints mean lost savings and indirectly cost you money.

Hiring an Energy Auditing Firm

There are many companies that specialize in energy audits or technical assistance studies. Generally, they specialize in industrial, commercial or residential buildings. Finding a consultant with experience in casinos may be difficult, but it is probably worth the effort given the unique requirements of the facility. It is important the consultant understand the casino business – changes that make sense in a department store may be counter-productive in a casino. Both the casino's management and the consultant will need to be flexible in choosing viable energy conservation measures for a casino. Management must be willing to work with the energy consultant to make changes in operations, lighting, and HVAC (heating, ventilating, and air conditioning) systems. Trying small experiments to see if a change has any real effect on revenues may be a good idea. The consultant must be willing to work within the constraints of the casino to ensure that changes do not negatively impact operations.

Even if you contract with a consultant, your organization still needs to monitor the contractor's activities to ensure that the audit meets your requirements and stays within budget. Consider the following when deciding whether or not to hire an energy consultant.

A consultant can:

- Confirm and verify project feasibility.
- Obtain and use the latest technical and cost information.
- Use computerized building simulation models to estimate project feasibility more accurately.
- Identify technical problems before installation.
- Free up your maintenance staff.

Casino staff will still need to:

- Select a consultant by issuing a Request for Proposal (RFP) and a scope of work. Preparing an RFP can be very time consuming.
- Manage the consultant and review the energy audit.
- Resolve protests and conflicts from losing bidders and consultants.

Hiring an Energy Service Company

This is the easiest but perhaps the most expensive way to save energy. ESCOs provide energy efficiency improvements and energy management services to companies. Unlike most traditional vendors, ESCOs get paid out of the savings from improvements they recommend and install. Most ESCOs do not require

or expect any cash up-front for the projects they install for their clients.

Most ESCO contracts stipulate that they will get paid only if the energy efficiency projects deliver the savings projected. This makes ESCO projects especially attractive for companies with cash-flow concerns that make traditional financing difficult. ESCOs generally base clients' payment on the savings the company actually realizes, usually over a period of five to 15 years. Because this return is performance-based, the ESCO has a built-in incentive to maximize cost-effective savings through accurate surveys, good design and installation and maintaining the energy projects they install under contract.

Since ESCOs are not in the "free lunch" business, they generally cost more than you would pay a consultant and a contractor to perform the same work – sometimes much more. This compensates them for their risk in projecting energy savings and the up-front costs of doing the audit and implementing energy projects. Still, the simplicity of the approach is very appealing to building owners and often compensates for the additional costs.

Additional information

The *Energy*Ideas Clearinghouse provides information on a broad range of energy technologies for commercial and industrial customers of Pacific Northwest utilities. The *Energy*Ideas Clearinghouse provides a searchable website and has a team of energy specialists ready to respond to technical information requests by phone or email.

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