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January/February 2007

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Serious reductions in energy costs require gathering, analyzing data

By Larry Rygiel

It goes without saying that today's retail market is highly competitive. Retailers strive to design and maintain spaces that are highly attractive and inviting for customers. Alternatively, for most retailers keeping costs down is paramount, and in most cases, energy is the second-largest controllable expense, behind only payroll.

According to the **Environmental Protection Agency**, retail companies spend nearly $20 billion on energy each year. Drilling down even further, energy costs generally account for 25 to 40 percent of ongoing building expenses. However, it's often the least understood and managed portion of those expenses. It's not always easy to identify and make changes that improve energy efficiency and lower operating costs without negatively impacting the customers' experience.

Take lighting for example. Most stores have an abundance of well-lit displays and signage. Lighting alone can account for 37 percent of total energy use in a retail setting. However, eliminating light is rarely an option for storeowners.

The EPA also estimates that a 10-percent reduction in energy costs at an average supermarket can boost profit margins by as much as six percent. The bottom line is that it pays dividends to keep retail energy costs under control and manageable, but it's not always the easiest objective to achieve – at least not without the proper data.

The first step and perhaps the most important step toward establishing more energy efficient practices is collecting and analyzing energy usage data through power monitoring.

Solutions for power monitoring

Today's electrical manufacturers offer a wide variety of option-rich and customizable power monitoring solutions. Circuit monitors can accurately measure electricity and other utilities including gas, compressed air, water and steam. Furthermore, they can track kW and kWh and report other diagnostic information such as power factor, volts, amps and kVAR. To protect valuable equipment, they may have built-in alarm registers for events such as over/under voltage, current or phase loss. For organizations that maintain multiple facilities in different geographical locations, most advanced power-monitoring systems make the information available over a simple Web browser, allowing for remote monitoring and control.

Gathering in-depth energy data

Every retail owner or property manager gets a utility bill, which supplies basic energy usage data. Most just pay the bill without understanding the crucial factors that contribute to its make up. However, more recently, rising energy costs are driving retail owners and managers to take a closer look at those bills and explore new options for reducing consumption.

Power and utility monitoring help the retail owner and manager better manage their assets. From the single store to a multi-location enterprise, owners and managers must take the time to understand the simple things they can do to help reduce energy cost.

First, it's paramount to understand where current energy consumption lies, making utility monitoring and metering the logical first step. Generally, start at the main utility point of entry and gather interval data. The second step is move down into the system to the key energy consumption equipment like HVAC, compressors, chillers, lighting and refrigeration systems, and monitor individual consumption of those components.

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Increase energy efficiency

Once the proper power monitoring systems are in place to measure and record energy usage, it's important for retail owners and managers to analyze the data that's collected and gain a better understanding of their energy bill.

Advanced energy management software offers the ability to set key objectives that can drive energy savings across a corporation. It will also track the data and provide easy to read graphics and reports to support energy efficiency initiatives.

Accurate front-end data is critical to making comparisons and driving energy saving initiatives. With energy costs, managers must understand current usage, projected usage and verification that the changes made had the intended impact. Power monitoring also enables mangers to validate utility bill charges for all energy types for all properties.

Key questions that power monitoring data can answer include:

- When is the most energy being used?
- Where is the most energy being used?
- Why are we using so much electricity/gas/water/etc.?
- Are there simple process changes that can be implemented to save energy?

Energy saving solutions can be simple or complex depending on the magnitude of the utility costs. The installation or better utilization of programmable HVAC and automated lighting controls and occupancy sensors can be a starting point. Alternatively, by fully taking advantage of the power monitoring system, building owners can monitor, verify and benchmark energy performance. This allows the owner to drive maximum efficiencies.

Some newer, high-performance retail buildings have already been designed to be extremely energy efficient, and can require up to 50 percent less energy than comparable buildings. These buildings come equipped with such things as integrated lighting control systems with

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more efficient light fixtures and daylighting systems to reduce lighting and cooling loads.

Securing a lower utility rate structure will also have an impact on your monthly bills. Based upon your usage data, it may be appropriate to inquire about a demand-management program, which will lower utility usage rates for making a building available to reduce energy usage during peak times. In de-regulated markets, there are many ways to negotiate lower utility rates, but having accurate historical data to support your position is critical to avoiding a bad arrangement.

Sub-metering works

In retail settings where multiple panelboards are fed from the same transformer, it's especially important to have the proper sub-metering set up to enable better energy decisions. Effectively designed sub-metering will allow a building's individual tenants to capture and analyze their own energy usage and investigate new ways to reduce energy costs, improve reliability and minimize power quality issues. Building owners who are able to improve profitability through energy savings are more likely to keep those tenants long-term. This can also help attract higher value tenants since you have the ability to demonstrate actual lower operating costs. Additionally, building owners can use the data to recover utilities costs from tenants.

Continued improvement

After implementing new practices, power monitoring also provides the ongoing measurement tools to capture ROI. Power monitoring systems are the ideal tool for establishing a baseline for a buildings' energy performance, as well as measuring and verifying the true financial gains of energy conservation and efficiency projects, including performance contracts.

In the end, most changes implemented as a result of power monitoring will be back-room and should never touch the customer. So while the goal of saving money through increased energy efficiency may be realized, there shouldn't be a drop in customer satisfaction or sales.

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