Facilitator — February/March 2016

The Age of Smart Energy

Frank Menocal

How peak energy management can increase restaurant profitability and prevent equipment failure

As the saying goes, the cheapest kilowatt-hour is the one you never use. Short of raising the temperature and dimming the lights in your restaurants, how can facility managers reduce energy consumption and still maintain indoor comfort for valued customers? Some restaurateurs are exploring peak energy management (PEM) as a way to lower utility costs, while also extending the useful life of their entire cooling and heating system.

PEM is emerging as the most efficient way to maximize energy management returns. When done correctly, PEM can allow restaurant facility managers to drastically reduce energy spend on a monthly basis by curtailing the amount of energy used during peak demand hours, when energy costs can skyrocket up to 100 times their standard rate.

Restaurant chains with existing energy management systems (EMS) may already be equipped to leverage increased functionality available on some load-bearing systems and, more importantly, posess the enhanced capability to help identify when energy prices are at their highest point, in real time. This is the basic concept for PEM: reducing energy load when utility companies charge maximum rates for energy used.

Cost Savings

One cost saving option is to participate in a demand-response (DR) program. In simple terms, a DR program provides incentives for utility customers to reduce energy usage during certain peak energy usage periods. A kilowatt-hour of electricity costs more to produce in July, during the middle of a hot day, when cooling systems are running at maximum output than it does in the evening of that same summer day. Utility customers participating in DR programs help the utility keep its electricity production costs down during peak periods while benefiting from the program incentives. Facility teams should identify DR programs in their area and coordinate efforts with their utility providers to understand the incentives and potential savings.

Demand-response technology that supports automated DR event signaling is usually coupled with OpenADR-certified EMS platforms that enable energy reduction strategies. This allows facility managers to make minor changes that can significantly reduce their energy usage during those peak times of operation. Energy reduction strategies for HVAC operation include the ability to prevent or adjust the operation of higher energy functions or limit the concurrent operation of RTUs during peak times.

Another cost-saving option is a best-in-class PEM platform, which can coordinate the operation of each HVAC system across all facilities. A company can achieve energy reductions of 10 percent kWh using a non-aggressive PEM strategy, while not affecting comfort in its facilities. There is the potential to reduce energy usage by up to 35 percent or more during peak demand hours, saving potentially thousands of dollars and extending the life of HVAC systems.

EMS and CMMS Work Together

According to Susan Spring, Senior Director of Client Success for Corrigo, a leading CMMS provider, an EMS and CMMS are particularly powerful when working together.

“Data from the EMS can be used to troubleshoot temperature-related problem reports,” she said. “For instance, ‘It’s too hot in the kitchen at Restaurant No. 31.’ An EMS may identify that a particular AC unit is problematic. This information is useful when assigning a technician to resolve the issue. Knowing which unit is the likely culprit can shave troubleshooting time on site.”

“EMS-CMMS integrations can be built to alert workers or automatically create work orders if temperature settings go outside user-established ranges. This type of intelligence and automation can speed up the resolution of inefficiencies and avoid costly downtime,” Spring added.

Managing the Data

A drawback to legacy EMS can be the sheer amount of data they generate. In response, several leading companies have developed additional capabilities for peak management customers, known as Energy Management as a Service (EMaaS). EMaaS combines an enhanced EMS platform with a dedicated team of data support specialists who proactively monitor the large volume of data generated across a restaurateur’s extended portfolio, every hour of the day.

In order to provide peak management optimization, these companies also assign a dedicated internal resource to proactively monitor energy usage and make intelligent decisions about which systems to shut down to reduce usage and save money.

EMaaS can also effectively track energy usage over time, thereby establishing trend patterns, so that the facility team can best leverage peak demand data to identify portfolio trends and assess the effectiveness of the peak management optimizations

Facilities managers who want the benefits of a peak management system can configure their EMS/EMaaS to monitor their electricity rates and set thresholds. When electricity costs rise higher than predetermined thresholds, the EMS automatically reduces energy usage. The team can “stage” the way its systems turn on, as well as cut back on air conditioning or heating, lighting or other selected loads. These cutbacks can be done by specific time of day so that certain systems, such as lighting, aren’t turned off during certain hours. Another option and growing trend is to have the EMaaS data team monitor the rates and call the facilities team to get authorization before energy usage is reduced.

As energy costs continue to rise, and as corporate sustainability objectives continue to pressure facility teams to reduce their restaurants’ carbon footprint, facilities managers should rely on these new technologies, which are demonstrating significant cost savings while making store operations more sustainable.

Frank Menocal is EnTouch’s technical leader with more than 25 years experience in software development and IT organization management. He has been instrumental in building out EnTouch’s award winning EnTouch 360™, which is a business intelligence platform that provides a dedicated team of energy experts who utilize leadingedge software, best-in-class hardware and real-time analytics to improve operational efficiencies, significantly reduce energy consumption and maximize energy savings for multi-unit restaurateurs.