

DON'T LET ENERGY COSTS MANAGE YOU

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Why energy management systems are (finally) making inroads in the restaurant industry—and how to make the most of them

Of all businesses, restaurants—particularly restaurant chains— would seem the most logical adopters of an energy management system (EMS). After all, restaurants use as much energy per square foot as the typical commercial facility. Restaurant chains have widely dispersed portfolios of energy-hungry equipment and limited facility management resources. Moreover, energy typically ranks as the third highest expense category for a restaurant chain, accounting for 4 to 5 percent of total costs.

And yet, while energy management systems are ubiquitous in office buildings and big box retail—and restaurants have fine-tuned the art of managing their top two expenses, labor and food—restaurants have been very slow to adopt energy management systems.

Barriers to EMS Adoption

In fact, the reasons for this are pretty straightforward. Large office buildings and big box retail use traditional systems that are too expensive for a restaurant. While restaurants use more energy per square foot, the square footage of most restaurants is very small.

Data suggests that a typical restaurant spends about \$1 per month per square-foot on energy costs. For a 3,000-square-foot restaurant spending \$3,000 per month, it is pretty difficult to earn an acceptable return on investment given that a traditional EMS could easily have cost \$30,000 when they last looked for a system a few years ago. Along with the high price tag comes needless technological complexity; for example, the level of ventilation control required in a large building is simply not required in a facility with three 5-ton rooftop units.

Moreover, because they are designed for use by an on-site facility manager, these systems suffer from complex user experiences intended for energy professionals. But, in the restaurant business, a single facility manager likely manages the entire 100-unit enterprise—with little time to deal with the complexities of a traditional EMS.

As a result of these and potentially other factors, restaurants have adopted EMS at a much slower pace than other industries. Reliable statistics on EMS penetration in restaurants don't exist, but anecdotal evidence—and my experience working in this space for a number of years—would put the penetration well south of 10 percent.

EMS Basics

In an ideal world, an EMS offers powerful yet intuitive controls and analytics to reduce energy and equipment maintenance costs.

In truth, the term EMS actually means different things to different people. For some, it is synonymous with HVAC control, while for others it combines the control of HVAC with lighting and perhaps other equipment as well. In the restaurant world, refrigeration control is often part of the mix—if not the entire system.

Several EMS vendors focus exclusively on monitoring (or calculating) energy at the circuit level in order to analyze energy usage and identify potential equipment problems or other energy saving opportunities. Others monitor and analyze aggregate energy use at the meter. Still, other systems characterized as EMS, focus exclusively on capturing and analyzing utility bills.

The Shifting World of Energy Management

Several technology developments have contributed to a change in the very nature of an EMS. Internet connectivity and cloud-based software have dramatically changed the nature of a controls-focused EMS—and what it can accomplish:

- Low-cost sensors and wireless communications have significantly decreased deployment costs.
- The introduction of big data analytics and diagnostics around equipment performance has created a range of new value opportunities for an EMS to deliver.
- System and data aggregation at the enterprise level have provided visibility and value that did not exist before.

As a result, EMS systems are morphing into a new generation of solutions that I call EMS 2.0. Today's EMS may include many, if not all, of the capabilities outlined above. In most cases, these new systems are less expensive and complex than their predecessors; many times they are designed specifically for small commercial facilities such as restaurants.

In response to this, restaurant chains, which have a reputation for ignoring the entreaties of EMS providers, are slowly becoming more receptive to these systems, with deployment across entire chains in an increasing number of cases. For example, Arby's rolled out an EMS to all 800 of its U.S. corporate-owned restaurants.

The savings potential may vary substantially among the disparate systems, but an effective EMS will reduce energy spend and equipment maintenance costs and, as deployment costs come down and functionality increases, deliver clear ROI for restaurants.

The challenge for a restaurant chain looking to gain control of energy costs is to filter through the claims and confusion, and identify a system that best fits the specific operational needs of the company.

Factors to Consider

Restaurants are, in fact, a diverse set of businesses, and there is no one-size-fits-all solution out there. Consider these suggestions for what to consider in the search for an effective EMS:

1. Look for a system designed specifically for smaller facilities. Systems designed for smaller facilities are more likely to be a good fit, with right-sized capabilities that don't force you to pay for more than you need. Find out where it has been implemented and what the results have been.
2. Find a system with an upfront cost of no more than twice your monthly energy spend per location. At that price, a 10 percent decrease in energy costs would result in a payback of less than two years. And, be very skeptical of claims of 25-to- 30 percent energy savings. That is really hard to achieve—if at all feasible.
3. Look at systems that combine controls and analytics. Each has its place—and both can contribute to the bottom line. HVAC controls almost always make sense, but other controls may not. For example, lighting is a much smaller percentage of costs in a restaurant than in retail, so lighting controls may not always be cost-effective. (Tip: If you can first bring in a system that monitors lighting costs in a number of locations, you can determine whether controls make sense.)
4. Carefully review how easy the system is to use. Even if you expect the vendor to provide expanded support services, you want your team to be able to use the system without needing to call the vendor for everything.
5. Insist on a system designed from the get-go for browser and mobile device access. If that is a recent addition, the system is an older design and not likely to be optimized for contemporary use.
6. Be cautious of systems built on communication protocols like BACnet and LonWorks®. While these are well-established and effective protocols, they were designed for larger facilities and signal systems designed for that market.

7. Consider systems that can address utility costs other than electricity, such as gas and water. These are often major expenditures for restaurants.

8. Look for systems that integrate equipment asset management as a key part of the value proposition. You don't buy kilowatt hours of electricity and therms of gas because you want them; you buy them because they are needed to operate your equipment—equipment which, in the end, is what you really need to be managing effectively.

9. Finally, an EMS today needs to function at the enterprise level. If you operate 500 locations with 1,500 roof top units, you can't afford to be logging into 1,500 separate places to create, check or modify settings. And you cannot identify and take advantage of best practices without a system that helps you to uncover the differences among your locations and how they operate. Enterprise functionality provides a window for more effectively managing facilities—and mission-critical equipment assets.

Restaurant chains often have high energy costs spread among a widely distributed set of small facilities. This is a challenge—and one that results in reduced profits. In the not-so-distant past, a restaurant chain would have struggled to achieve ROI on an EMS investment. A newer generation of systems designed specifically for restaurants has changed the equation. The time has come to stop letting energy manage you—and to start managing energy.

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