

Q&A

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Centralized Data-Driven Energy Management Powers Sustainability

Energy management systems that collect and analyze usage and performance data down to the site and equipment levels provide retailers with a real-time, enterprise-wide view of energy costs, identifying both problem areas and savings opportunities.

by Adam Blair, contributing editor

With hundreds of locations and multiple internal departments responsible for different aspects of facilities management, retailers face big challenges in achieving energy-related sustainability. Mark Straton, SVP of marketing at GridPoint, believes a centralized energy management system (EMS) provides the big-picture view retailers need to stop wasting energy dollars now and to make more sustainable decisions for the long term.

Where does sustainability start, and what verticals/departments within a retail company does sustainability have the greatest impact on?

Straton: There are many facets to sustainability management, from supplier and material selection to manufacturing and building management. From an energy management perspective, the focus starts with optimizing energy efficiency and lowering overall consumption, expense, and carbon emissions. However, it takes a team effort to maximize energy efficiency and sustainability goals, requiring the close collaboration of a diverse set of stakeholders. The CFO and finance, procurement, and accounting departments need detailed consumption information to validate utility bill accuracy, select optimal rate plans, and compare energy and sustainability project options and site performance across a fleet of stores. They need to know if utility consumption usage charges are accurate, or if an LED or HVAC variable frequency drive (VFD) retrofit would provide the best return on investment.

Next, the energy management team needs to understand equipment and site energy consumption to analyze, benchmark, and optimize efficiency. They need to know what is causing two identical sites to have different energy usage patterns and how to identify and replicate best practices. Sustainability management also requires the ability to convert energy usage into carbon emission equivalents for regulatory reporting. Facility managers need intelligent dashboards and alarms to manage day-to-day operations and customer comfort. Finally, operations needs historical usage data to optimize site and equipment design. For example, a major retailer utilizing an EMS was able to scale back the size of store transformers and the number of HVAC rooftop units they needed for new sites, significantly reducing capital investments.

While all of these stakeholders use information differently, they all have a common need for a single source of granular, real-time energy consumption and environmental monitoring data down to the site and equipment level. Relying on months-old information provided by the utility company to validate billing accuracy or make necessary real-time changes to reduce consumption cannot achieve this the way an EMS can.

How can an EMS impact sustainability goals and affect the customer experience?

Straton: Government tax incentives, regulatory compliance, and program goals for ENERGY STAR, Leadership in Energy

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and Environmental Design (LEED), the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), the International Standards Organization (ISO), and others can be achieved through energy management. Such recognition increases brand value as corporate sustainability and citizenship goals are met and communicated to customers. Additionally, consumer comfort is enhanced through continuous monitoring and optimization of store zone temperatures, humidity, and CO₂. Have you ever entered a store or restaurant on a hot, humid summer day wearing shorts and a T-shirt, only to find yourself shivering in a few minutes? A data-driven energy management system solves this problem while lowering energy consumption, carbon emissions, and expenses by optimizing environments zone-by-zone based on local weather and site data.

How can an EMS break down vertical barriers in order to create a viable sustainability program companywide?

Straton: While high-intensity industrial energy consumers have specialized and expensive tools, it is only recently that innovations in affordable, cloud-based energy management system software and intelligent hardware have made these savings opportunities available to multisite retailers. Our EMS systems have demonstrated savings with national retail chains of anywhere from 5 percent to 27 percent with investment payback periods of less than 24 months across their enterprise fleet of stores. In real-world operations at 7 of the top 10 U.S. retailers, the benefits prove to be substantial in lowering store energy expenses, carbon emissions, equipment maintenance expenses, and capital investments. Real-time detailed data on equipment-level energy consumption allows for optimal equipment sizing and maintenance planning, which in turn lowers operational and capital expenses.

What are some of the informational and decision challenges retailers face in improving sustainability in the energy management area?

Straton: Today's energy and energy-related sustainability management faces three significant barriers: lack of granular data in real time, fragmented energy usage monitoring and management systems, and absence of energy and carbon data visibility, analytics and reporting capabilities customized for site-specific needs.

For example, when enterprises rely on utility billing data instead of an EMS, they can neither determine their energy consumption on a detailed level for individual sites nor can they validate whether or not their bills are accurate. Because utility company bills are, at best, reporting data from one month in the past, enterprises cannot use them to effectively identify and adjust problem areas. As if that weren't bad enough, more than 3,000 utility companies exist throughout the United States, each with unique rate plans, which makes multisite management all the more difficult. Without real usage data from a single, independent source, retailers are unable to validate utility bill accuracy or gain visibility into how they consume energy.

In addition, most medium- and large-sized commercial and government enterprises have multiple sites and buildings located in a number of geographic regions, which makes energy data collection and management complex, expensive, and labor-intensive. The various stakeholders tend to use their own systems and databases, making management and data reconciliation challenging. Sustainability managers may use a dedicated carbon tracking database, while energy and facility managers use building management systems with limited capabilities, and the finance department outsources to third-party services firms for bill payment and analysis. Utilizing a "single source of truth" database built from real-time, asset-level energy data allows these stakeholders to collaborate more efficiently to save time, money, and carbon. ■

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