Overview

Energy management is a journey. Retailers must understand where they are and where they're headed in order to maximize operational efficiency, reduce costs, and optimize energy performance across a building portfolio.

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Enterprise Energy Management Best Practices Guide

Introduction

Energy management is a journey. Each retailer is at its own place on that journey, and each requires a well-defined strategy to increase energy efficiency and profit from energy savings opportunities. However, while energy efficiency is a goal, it is also a moving target. Whenever efficiencies are discovered, more remain, waiting to be found. Accordingly, Enterprise Energy Management (EEM) solutions must be holistic, empowering organizations to continuously improve upon and sustain energy performance.

EEM solutions are in a perpetual state of progress and change, with new technologies emerging each and every year. Historical challenges have given way to present day solutions, making Enterprise Energy Management more powerful than ever before.

Understanding today's EEM solutions can help the retail industry leverage sustainability challenges into increased operational efficiency, reduced costs, and better energy performance.

Challenge: Disparate, disaggregated data sources.

From meters, to building control data, to utility bills, to the weather, there is no shortage of data when it comes to the factors that drive energy consumption and costs. However, at many facilities, the only readily available and accessible energy data consists of a solitary monthly data point: the utility bill. A utility bill, on its own, makes it virtually impossible to implement a 360° EEM strategy.

Solution: Automated data collection.

The first step in the energy management journey is automating the collection of critical data sources. An enterprise must have timely, accurate data in order to make intelligent decisions regarding energy supply and demand management. Some of the most critical data sources for an EEM solution include: demand meters, building control systems, energy bills, weather data, and schedule information. Accessing and automating the collection of these disparate data sources makes the EEM solution into a centralized platform for energy monitoring and analysis, and allows users to spend less time looking for data and more time extracting value from that data.

Key Challenges

- ▶ Disparate, disaggregated data sources
- ▶ Contending with unknowns
- ▶ Overcoming data deluge
- ▶ Capturing and analyzing data

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As we look toward the EEM future, businesses can expect to see an increase in the automation of critical data through software gateway technology. Increasingly, the time and expense of hardware solutions have become prohibitively high for large, geographically dispersed enterprises such as retailers. By contrast, solutions that leverage software gateway technology to connect to an enterprise's data sources can drastically lower the time and cost required to implement an EEM solution.

Challenge: Contending with unknowns.

From unseasonable weather patterns, to shifting schedules, to fluctuating occupancy, there are many "contextual" factors that impact energy consumption. In fact, it is these contextual factors that often have the greatest impact on consumption and costs.

Solution: Integrated, real-time contextual data.

The second step in a holistic EEM strategy is identifying and integrating contextual data that impacts an enterprise's energy consumption and costs. Doing so not only increases efficiency, it also improves planning and cost projections, and ensures consistent building comfort.

Take weather, for example. Using an EEM platform that integrates real-time weather data and/or forecasts, Energy Managers might be alerted of a heat wave in a region. In turn, this might prompt the pre-cooling of affected sites in order to avoid high peak demand charges. In short, contextual data arms Energy Managers with the information and insight needed to drive better decision-making across an enterprise.

Challenge: Overcoming the Data Deluge.

Once data sources are aggregated into a single location, the next challenge is employing the correct tools to effectively analyze data across a large portfolio of locations and systems. Without intelligent tools, energy managers might feel like they are "drowning" in the thousands or millions of data points available.

Key Solutions

▶ Automated data collection

▶ Integrated, real time con textual data

▶ Define your analytics ap proach

▶ Visualization

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Solution: Define your analytics approach.

The third step in the EEM journey is defining an analytics approach. Once relevant data sources are automated and available, benchmarking and modeling of energy and performance data provide the foundation of an EEM solution's analytics. Benchmarking energy data through the use of standard key-performance indicators (KPIs), such as kWh/square foot, simplify building-to-building comparisons and enable fast identification of top- and bottom-performing buildings.

Energy modeling methods account for exogenous variables such as weather, occupancy, and schedule, which impact how a building consumes energy. These models range from simple regression models using degree-day data for basic weather normalization, to multivariate regression and neural network models that accurately contextualize energy performance in real time and predict future consumption patterns.

In today's economy, consumption and budget predictability could be the single most significant reason to implement and/or re-evaluate EEM strategies.

Challenge: I'm capturing and analyzing data. Now what?

Today, enterprises must engage users across their organizations in energy management strategies – from the C-Level to the store level. Spreadsheet-driven data analysis is fast becoming a thing of the past, giving rise to visual reporting suites that give users the information they need quickly and efficiently.

Solution: Visualization.

The final element of a holistic EEM solution includes advanced reporting, analytics and visualization of energy data. EEM reports should use the benchmarked and modeled energy data to simplify presentation and interpretation for users, making it easy to spot inefficiencies across a large enterprise. Analytical and business intelligence tools provide functionality to take static reports and rapidly slice the data across different time periods, groups, locations and other parameters. And visualization methods allow users to see the data in the format that makes the most sense to them. So executives can view an interactive dashboard the focuses on financial data, analysts can work with analytical reports that include several years of historical data, and maintenance personnel can see exception data algorithmically collected from building control systems.

Conclusion

Holistic EEM solutions allow an enterprise to take the next step on their energy management journey regardless of where they are today. And by following the best practices defined in this article – beginning with automated data access and working towards advanced energy models, analytics and visualization – retailers can realize significant energy and maintenance savings.

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