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Achieve Greater Sustainability with an Energy Management Program

10 Key steps to improve your company's bottom line and reduce your carbon footprint

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Retailers spend $21 billion annually on energy, with nearly 90% of that cost for electricity. Most existing facilities were built without sustainability as a priority, and retrofitting these buildings can prove quite costly and unfeasible for retailers who are trying to control costs and maximize profitability. Over time, energy usage in an uncontrolled building will increase 1 to 2% per year due to HVAC wear and tear, building deterioration and plug load growth. Furthermore, roughly 30% of a chain operator's HVAC fleet is in a state of disrepair or in need of service.

Rising retail prices are putting American shoppers in a state of sticker shock. On average, facility management and services, including janitorial services, building maintenance and security, account for 7-10% of the cost of goods sold. With consumer discretionary incomes shrinking, retailers cannot pass all of these costs along to the customer. How can retailers protect their slimmer-than-ever profit margins and improve the company's bottom line?

Changing consumer expectations and demographics – particularly among Millennials – are also becoming a driving force behind corporate sustainability initiatives. 2,800 consumers between the ages of 18 to 25 were surveyed in China, Korea, South Africa, Brazil, the US and the UK. 83% of young people in China, 55% in the UK and 57% US said they would be more loyal to a brand if they could see it was reducing its carbon footprint. Similarly, 60% of the Chinese respondents said they would stop buying a product if its manufacturer refused to reduce its carbon footprint, compared to 36% and 35% in the UK and the US respectively.

Chain operators need a proven solution that automatically and systematically reduces energy consumption without impacting the customer experience. Moreover, consumers are expecting proactive environmental stewardship out of the locales and businesses that they patronize and from the corporations or brands that they trust.

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Achieving sustainability through centrally-controlled energy management

Wikipedia defines corporate sustainability as a business approach built around social and environmental considerations. Energy management programs focus on improving the energy efficiency of operations. Both corporate sustainability and energy management programs lead to organizational efficiency, as they are both based on a foundation of continuous improvement. Both programs also require executive buy-in, input from a cross-functional team, and measureable goals to achieve success.

While corporate sustainability programs have a compelling ROI, such as increasing sales and overall financial performance, an energy management program offers the highest return on investment and delivers an immediate impact, making it perhaps the most important piece of the overall sustainability picture.

When properly implemented, an Energy Management System (EMS) can reduce energy consumption, generate revenue, and increase profitability. With an EMS, primary savings are achieved through reduced energy bills.

Peripheral functions, such as HVAC mechanical diagnosis, provide additional gains throughout the life of the system. Return on investment is targeted for less than two years with many installed customers seeing payback in a shorter period.

For example, a 10% reduction in energy costs for the average full-line discount retailer can boost net profit margins by as much as 1.55% and sales per square foot by $25.

A fully integrated, centrally controlled EMS identifies abnormalities and improves the efficiency of the highest energy-demand equipment in a facility:

- Heating/Ventilation/Air Conditioning (HVAC)
- Indoor/Outdoor Lighting and Signage
- Walk-In Refrigerators/Freezers

10 Steps to greater sustainability and profitability

Whether you are trying to improve the bottom line, or perhaps feeling the pressure to reduce your company's carbon footprint, implementing an energy management program can produce sustainable savings when the following key steps are taken.

1. Designate an Energy Manager.

A single person should be responsible for the planning and operation of energy production and consumption for the corporation. The requisite organizational structure for energy management differs by industry, however. For example, a pharmaceutical manufacturing company may do well to point a single person to be in charge of each individual building envelope. Conversely, a national retailer with 1,500 stores may appoint an energy manager at corporate headquarters, and designate energy captains at each store.

2. Identify an Executive Sponsor.

Energy management is a cross-functional discipline. As such, it often yields discussions that highlight conflicting objectives. The most successful energy management programs maximize the opportunity for success in identifying and promoting the executive sponsor. Three prominent candidates are individuals in Finance, Operations or in Real Estate/Facilities.

3. Measure Energy Consumption and Cost.

While many metrics are utilized, British Thermal Units (BTUs), demand (kilowatt-kW) consumption (kilowatt hours-kWh) and cost ($/kWh) are the most common. It is critical to gain access to the utility data, synthesize it, and devise consistent reporting metrics that make the most sense for your company, and to disseminate reports detailing performance in those metrics at a regular frequency, often monthly. For instance, many national retailers report revenue in whole numbers and by square foot. By extension, it is quite common for the industry to report consumption and cost in the same way: kWh/sqft/mo and $/kWh/sqft/mo.

4. Perform Energy Audits (or Surveys).

There are multiple types, but in general, an energy survey is a detailed examination of how a facility uses energy, what it pays for that energy and specific recommendations in operating practices or changes to energy-consuming equipment that yield savings to the company. Different facilities and different geographic regions may have different needs. For corporations with few yet complex buildings and equipment, a site visit to all facilities may make the most sense. For multi-site entities, use the analyses in step 3 to identify the outliers (say the worst 10% of sites) and survey them first.

5. Generate Economic Analysis.

They surveys will generate more opportunities for improvement than your organization will likely be able to absorb. Some will be design-related; some specific to original equipment manufacturers; but most will be to address mechanical or service-related failures of specific systems (such as a specific HVAC unit or motor). It is critical to then synthesize this information, generate cost estimates and value of addressing the root causes of inefficiency, and to prioritize each project.

6. Create an Energy Management Plan.

An equally critical strategic consideration for leading national retailers is defining and executing a plan that adequately supports the deployed EMS with their limited resources. Properly implemented, an EMS support structure not only maintains the initial savings garnered, but also yields incremental energy savings annually. Determine the energy management approach you wish to employ based on your energy and facility management business models – from in-house to third-party vendor augmentation to a fully outsourced function.

A great starting point is to target a 5-year horizon. Primary elements by year are:

a. Goals (e.g. 5-7% kWh savings year 1)
b. Action items (a subset from your list in #5 above)
c. Costs (to implement a project; to maintain say new equipment; and personnel, either new or for training them)
d. Projected cost and consumption reductions
e. Monies from savings available for reinvestment.

7. Determine your Energy Management Approach.

There are different approaches to how to manage your company's energy. When an EMS is deployed, primary savings are achieved through reduced energy bills. The savings a company can achieve, however, is dependent on

the level of automation that is selected. The right energy management strategy will give you visibility and actionable data on every piece of equipment, at every one of your locations. Your approach to energy management is key to determining the outcome that you want to achieve. If you don't proactively attack your EMS, you will be missing broader opportunities that will maximize savings:

- **Traditional "set it and forget it" approach.** Installing an EMS without an above-site management process will yield savings initially, but savings will quickly diminish due to on-site overrides, unsupervised setpoint adjustments, undetected communication and sensor failures, and unauthorized changes by HVAC and lighting contractors.

- **Alarm-based "reactive" management.** In a typical EMS system, alarms are "pushed" to users from each individual Rooftop Unit (RTU) or other device. Since these alarms cannot be effectively processed or configured at an enterprise level, the sheer volume of incoming data overwhelms facility staff, causing them to abandon the system and lose visibility to equipment performance and savings opportunities.

- **Enterprise proactive management.** With a centrally controlled, cloud-based platform, energy and facility managers use KPIs and dashboards to rapidly and effectively identify and resolve true equipment problems or site issues across the entire chain. Taking action on the supplied data allows gains to be maintained and increased over time.

8. Implement Projects.

Here, rely heavily on the Executive Sponsor to assist the Energy Manager in drafting a business case for the specific projects identified as critical. Most programs will require extensive capital. As such, gain a good understanding of the corporate budgeting cycle and deadlines. Garner input from trusted vendors or go to market with a Request for Proposal (RFP) well in advance of your timelines. Present the business case using the financial metrics most considered by your organization. Common among these are payback periods (expressed in years) and return on investment (ROI, expressed as a percentage).

An EMS provides a unique strategy for retailers, with some companies curtailing up-front costs and offering pay-as-you-go programs. Try a pilot program and review the results each month. Conduct an in-depth Measurement and Verification (M&V) process using the pilot locations to capture an accurate representation of how much money your company could save by implementing EMS controls across their entire chain.

For example, chain stores that fully utilize the Site Controls™ EMS to help identify and diagnose outliers can generate additional savings on energy costs and improve asset life by up to 25%. The cost reduction opportunities on the facility maintenance budget provided by EMS can be substantial. One nationwide retailer conducted a year-over-year internal study to validate the maintenance impact of the asset management phase and documented cost reductions of 14% – more than $1,900 per store savings each year.

9. Measure Energy Conservation Efforts.

Measuring and communicating results of the program is critical to success. While it provides the foundation for subsequent investment in the multi-year Energy Management Plan, it also affords all the opportunity to highlight the impact of energy on the company in terms that have the most meaning to your stakeholders. For example, a national gym chain may choose to express the impact of an energy program in the equivalency of new members signed, as it is a well recognized and understood metric for the business. So rather than simply describing the impact of saving for instance 200 gallons of water per day, express it as the equivalent to signing 5 new members in the same timeframe. Doing so will certainly resonate with both Finance and Operations.

10. Generate Awareness.

Communicate goals, expectations and results with consistent frequency. Incent inclusion using your Executive Sponsor and the cross-functional department heads. Common vehicles may include: dashboards, newsletters, reward programs for top 3 performers, penalties for worst performers, designing and implementing new standard operating procedures, training collateral or classes (either for corporate team members or for field-based staff). Don't underestimate the importance of communicating your energy conservation program and reduced carbon footprint to customers and the community.

Summary

In today's competitive retail environment, retailers need to determine how to most cost-effectively deliver a great product or service while creating an experience that exceeds customer expectations.

Operators of most large chains find energy to be among their biggest expenses. An EMS is a cost-effective and straightforward way to curb energy consumption without a huge upfront capital investment or an intrusive, lengthy implementation.

Maximizing your energy management platform and tracking the metrics on savings will validate moving forward on sustainability initiatives. The cash that is generated from an EMS allows corporations to re-invest into expanding locations, reduce costs, increase profit margins, and minimize their carbon footprint.

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About Siemens:
At Siemens, acting sustainably means balancing the economical, ecological and social dimension – which is no contradiction but can even lead to new business opportunities. The goal should be to improve the quality of life everywhere in the world, while becoming more efficient and reducing the consumption of natural resources. In FY 2013, Siemens helped their customers cut CO2 emissions by 377 million metric tons.

By integrating sustainability into their company activities, Siemens has been ranked Industry Group Leader in the Dow Jones Sustainability Index with 93 out of 100 points in 2013.

Siemens is at the forefront of sustainable building products, technologies, and practices for existing building operations, maintenance, and renovations. Their retail and commercial systems help companies meet sustainability and energy management goals with solutions that support LEED® and ENERGY STAR® requirements.

The Siemens Site Controls™ EMS is a Web-based, energy and facilities management solution that is proven to cut costs by 15 to 30% across an enterprise. Designed for multi-site chains with over 100 locations, it allows corporate offices to manage their stores with minimal administrative overhead. This system generates savings for many Fortune 500 retailers and also keeps them prepared for future opportunities.

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