Millennial Net

What if Energy Waste had Line-Item Visibility in your Business?

Energy-Smart Businesses are exposing their energy waste and doing something about it

When business is booming, businesses tend to accumulate and cover inefficiencies in the rush to expand and reap profits. When the business cycle goes down, on the other hand, the response is to identify inefficiencies, make cuts, change processes, and invest in order to build strength for the next up-cycle. Many companies are presently trying to decide how to save money; reducing the workforce and shutting down plants, offices, and product lines are some of the most popular means businesses use to reduce costs. Yet ironically, in most commercial enterprises, energy waste continues unchecked regardless of how hard the company is hit by the economy. Why? Energy consumption historically has been taken for granted and its relationship to business operations is simply not well aligned.

Information technology is a proven way to affect a change in energy consumption across the enterprise. It is well understood that "if you can't measure it, you can't control it." Significant advances in wireless-mesh technologies for monitoring and controlling energy demand are now making it possible, on a truly broad scale, to understand how energy is being consumed on an economic basis in multiple buildings.

An Opportunity

There is a lot of talk today of energy efficiency and going green. But energy waste is like a thief in the night – wasteful buildings and operations are robbing businesses, consumers, and society of money, security, and sustainability, yet people remain unaware. Recognizing the problem is a first step. Thus, energy policy is a top agenda for governments, Federal to local, and for business, both large and small.

The lack of visibility and control over energy waste is as comparable and as detrimental to business survival and future performance as other deficiencies (i.e. financial, inventory, quality, and supply chain) addressed in prior business cycles. Governments and businesses recognize the opportunity at this challenging time to take a bold and measured step forward. In the future, we can envision a Smart Grid, renewable energy sources, and a radically different transportation infrastructure. There is, however, another vastly untapped resource we call Information Power.

Consider this analogy…Decades ago, the retail industry recognized that they had a problem: they had no idea what their customers bought. Their only metric was the cash in the drawer each night. So, they wastefully pushed the wrong product out to the market. This poor inventory tracking cut deeply into profits. Today, the retail industry uses Point-of-Sale registers and other technologies to reduce shrinkage and optimize their operations. In addition, they have gained a greater understanding of customer buying preferences and behavior to become more intelligent in targeting sub-markets.

Energy Information Gaps Hide Energy Waste

Unfortunately, today's consumers are blissfully unaware of how they consume and waste energy. Surprisingly, most commercial buildings have little to no system for managing energy; thus, regardless of occupancy or business hours, HVAC systems maintain the same room temperature set point while equipment and lights remain on. Monthly billing data provide too little information to elevate understanding and promote changes in usage patterns, so consumers need a new method of measuring the energy they consume.

Who would leave a car running in the driveway overnight? Nobody, of course! We are very aware of the cost of fuel when we fill up at the pump, certainly we would not allow the mindless waste of gas. However, when it comes to how we manage building energy, we don't supervise our spending as well.

Businesses cannot be Energy Smart with such information gaps.

What can be done about the gap in energy waste?

The Energy Smart Business needs to have a point-of-use capability for energy, like the point-of-sale capability adopted for retail. Energy consumption in buildings must be measured and controlled so that managers may become informed as to how they can operate smarter. For businesses consuming energy across many facilities, it is vital to establish energy policies, enable and enforce compliance, measure performance, and develop a culture of continuous improvement across the enterprise. This is a *change process* that many organizations currently use for quality improvements and IT governance.

Let's start by outlining a pragmatic and actionable strategy for the Energy-Smart Business:

1. Expose the waste. Enlighten consumers, managers, and cross-functional teams with detailed, accurate, and real-time energy consumption information from every room and major equipment (point-of-use).
2. Enable managers to rapidly and broadly establish a consistent and sensible energy policy in every building.
3. Elevate awareness and motivation through an enterprise dashboard to benchmark and compare buildings, even beyond organizational boundaries.
4. Empower decision makers with the quality of information necessary to make informed decisions about energy policy and guide investments for further improvements.

Best in class companies, guided by economic statistics that demonstrate substantial savings and payback within one to two years, are already moving forward to lower waste and expose rising energy costs. Utility and government incentive programs to improve energy efficiency and conservation make it even more attractive for businesses to take action. Guidance for upgrading existing buildings and equipment are provided by Energy Star and LEED programs.

Retrofitting Brings Flexibility

Organizations are very pragmatic and conscious of what the returns will be for their investments. Their approach is "you walk before you run" by attacking "low hanging fruit" and retrofitting buildings to gain visibility and substantial savings. To save money, most choose to leverage their infrastructure (facility assets) rather than spending the money necessary to replace existing devices. They can then change policies, adjust operating procedures, and upgrade facility assets as required…supported by the Power of Information.

Enterprise energy management solutions are well aligned with this approach. They combine wireless sensor networks (within a building) and web-based software (across the enterprise) as key enabling technologies. Wireless is ideal for retrofitting existing buildings, as wireless installations are simple and non-invasive. Web-based solutions offer secure access and visibility to managers at multiple levels (so energy information is not hidden in the boiler room and the monthly energy bill). This makes it possible to rapidly, consistently, and affordably deploy monitoring sensors and controllers across many buildings.

Some Best in Class Examples

An international retail chain implemented a broad energy management system by deploying wireless networks in over 300 buildings in multiple countries. Its goal was to determine and eliminate energy waste in order to better respond to peak energy demand and reduce CO_2 emission by 25% in the following 5 years. A different major retail chain, one operating hundreds of supermarkets, was motivated to quickly deploy a similar system. Today, many commercial real estate owners are looking to deploy wireless systems across their portfolio as a way to reduce the total cost to tenants and increase the value and attractiveness of their properties. Regional and national banks, restaurants, and retailers operate dozens to hundreds of branches and stores that can be benchmarked and monitored on a comparative basis using an energy management system. With the help of Millennial Net, private and public schools are able to gain valuable insight into the performance of their HVAC systems and free-up money for education by reducing energy consumption.

Prior to having energy management systems, those paying the bills and those managing costs relied solely on monthly consumption data to make

decisions, severely limiting their ability to analyze energy consumption. These retailers, schools, and others use Millennial Net®'s Energy Management Solutions to closely monitor, control, and analyze energy use within each site in order to reduce consumption.

Global and Pragmatic Approaches

Thousands of commercial and public buildings, businesses, and government organizations have the opportunity to save billions of dollars a year by retrofitting buildings with wireless energy management systems. Looking at a more practical level, within minutes after installing temperature, humidity, electrical, and many other sensors, they can be found online measuring and transmitting electric consumption and other vital data. Immediate benefits of the system include the ability to monitor current and historical energy consumption information in detail, aggregate, and comparison, including:

- Real-time status of each separate zone
- Electric demand spikes
- Historical trends of a particular period
- Comparison of consumption profiles that reveal differences in operational load and anomalies

As monitoring comes online and is trended over time, managers commonly realize that they waste an exorbitant amount of energy on cooling and heating unoccupied space, leaving lights on after hours, and operating non-essential equipment. Monitoring helps achieve greater compliance with energy policies and identifies areas for improvement. With an energy management system, managers can quantify excess energy consumption during off days and holidays in order to minimize consumption. Historical analysis immediately shows non-compliant zones, allowing facility managers to adjust operations and create performance metrics that save thousands of dollars per building.

Becoming Energy Smart

Continuous energy monitoring and performance metrics allow executives to see the real benefits of capital and operational improvements. When the effects of changes are recorded, real energy consumption savings are visible and more easily quantifiable. The wireless system can gauge the direct impact of raising a temperature set point policy, of implementing a demand shedding strategy, or of introducing green technologies. Wireless monitoring of green roofs can demonstrate the effectiveness of such building improvements. Measured results encourage energy conservation and help to better direct future investments.

Citizens, managers, investors, and taxpayers see value in taking action in ways that improve sustainability for both the planet and their budgets; therefore, energy savings are good for the community and good for business. However, to realize this goal, organizations need technologies that have been proven to work, can be easily deployed, and will be rapidly absorbed. An affordable and non-invasive wireless sensor network is an attractive solution, but it must be able to monitor and control as managers need while simultaneously being sufficiently scalable, robust, and reliable to operate in commercial and public building environments.

The bottom line is that exposing and reducing costs related to energy waste can help reduce the pressure to cut other necessary line items. General wastefulness and a non-essential load during peak periods is bad for business, bad for utility operations, bad for the general economy, and bad for the environment.

Opportunities to save energy abound, but most are hidden in monthly bills and basement control rooms. Isn't it time to bring that into the open so management can take action?

For more information, see
www.millennialnet.com/energy

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