



Commercial energy management software meets building intelligence, energy solutions and the smart grid

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Since the 1980s, waves of innovative energy efficient equipment have rolled through commercial real estate. The initial thrust focused on retrofitting such big-ticket assets as lighting, magnetic ballasts, constant speed motors, pumps and fans, restroom fixtures and even glass to consume fewer resources. Subsequent efforts involved occupancy/vacancy sensors, exotic light sources like LED and induction, behavior modification and ever more stringent codes and standards.

Increasingly sophisticated property management software in the 2000s gave rise to an emphasis on generating data that could help reduce consumption and save money by assessing a building's energy performance. Armed with deeper insight into how energy was used—and possibly wasted—and the effectiveness of conservation projects, providers brought new equipment, software and monitoring devices into the marketplace.

These efforts did a commendable job of raising awareness of energy consumption patterns and promoting sustainability. But, in an era of shifting energy consumption patterns and ever-increasing internal and regulatory sustainability initiatives, they were hardly the last word.

Over the past 20 years more efficient equipment has proliferated within the building, at the same time, the electricity generation side of the equation has been changing as well. Today, commercial buildings draw less of their energy from central power plants and more from a complex matrix of on-site or local solar, wind, fuel cell and co-generation sources. This trend from central to distributed generation has given rise to a new major trend in commercial energy management: a "smart grid" strategy that extends beyond a building or even a portfolio to engage the entire power grid in a holistic approach. Toward that end, energy management solution providers have developed new technologies that harness building intelligence and system level control algorithms to create a new paradigm for efficient HVAC equipment operation, automated demand response, price response, and system-level analytics.

Meeting peak electricity demand, which occurs only six to 12 days each year, is the biggest problem facing an overstressed grid and the consumers who depend on it. Interestingly, one might assume that the peak demand problems are caused by increasing demand, while in reality, demand in the U.S. has remained relatively flat in recent years as efficiency gains have taken root. The grid stress we are experiencing is the result of numerous centralized power plants being retired, with fewer new plants coming on line to replace them. Add to that the disrupted flow of electrons due to local and on-site renewable generation, and you need a grid that is fast and flexible in dealing with shifts in supply and demand.

Here's an example of meeting a smart grid need with commercial building intelligence. A smart energy management system—truly automated intelligence that leverages hundreds of thousands of data points and sophisticated algorithms to control the HVAC system, the largest electrical load in

the building can reduce electricity use on demand by about 1 watt of electricity per s/f in response to peak demand events. To put this in perspective, a single 500,000 s/f office tower can provide 500 kW of peak demand curtailment during a two-hour demand response event, a curtailment equivalent to more than 200 residences turning off their air conditioner and pool pumps for the same period.

Enerliance has been at the forefront of smart grid strategies with our Load Based Optimization System, or LOBOS, an intelligent HVAC platform that reduces energy consumption in large buildings and campuses while providing automated demand response functionality. LOBOS joins energy solutions and building intelligence at the hip by monitoring cooling, heating and air handling systems in a building or across a portfolio while automating demand response and providing building managers and tenants with real-time feedback on current and historical performance.

Enerliance's recent acquisition by Yardi represents the next quantum leap in the intelligent management of commercial building energy consumption. The deal promotes automated system optimization by extending Yardi's suite of front office and back office solutions, which include utility billing, energy management, business intelligence and regulatory compliance, to controlling the very physical infrastructure of a building. Commercial property management clients will be able to save money and increase efficiency by leveraging automated system optimization and system-level analytics with their commercial property management software. This combination of automated system optimization, system-level analytics and business intelligence is unprecedented in the commercial real estate industry.

The ongoing merger of technology and energy consumption produces nearly limitless exciting opportunities for innovation. Of course, I have a very personal reason for looking to the future with enthusiasm. I'm certain that we'll see new industry best practices in energy consumption, cost savings and sustainability initiatives that haven't even been imagined.

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