

Energy Management System Suppliers Build On Proven, Money-Saving Technologies

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NATIONAL REPORT—In one respect, comparing guestroom energy management systems today is apples to apples with each system basically doing the same thing—using a sensor or sensors (or a key card) to turn off the HVAC system entirely or to allow the thermostat setting to drift to an energy-saving level. As similar as most systems are, however, each vendor offers something unique—whether it be the technology by which systems communicate within the hotel, the robustness of the reporting features, the ability to integrate with local or Web-based systems, or the extent to which lighting and other electrical items can be controlled within the guestroom.

Minimizing the run time of HVAC systems is of course incredibly smart. Hoteliers can reduce energy costs—in some cases by as much as 50 percent but typically by at least 15 percent—and also extend the life of HVAC equipment. Some systems allow one to monitor the minutest parts of HVAC equipment remotely, reducing labor costs and helping to ensure a guest is not inconvenienced by an inoperable system. Keeping lights and TVs off and drapes closed is also important and this can be accomplished automatically by some of the guestroom energy management systems. Most vendors offer financing options that make it easy to save money from day one; without financing, one can usually expect a return on investment in less than two years.

To make it easier for lodging owners and operators to understand where guestroom energy management technology currently stands and where it is going, Green Lodging News spoke with representatives of 10 of the industry's leading vendors. The following is the result of those conversations (companies listed alphabetically).

New Kid On the Block

[ASSA ABLOY Group](#)—This company known for its door locks and in-room safes is one of the more recent entrants into the guestroom energy management system space. Energy Management Solution: Orion by VingCard Elsafe, which won an Editor's Choice award at last fall's International Hotel, Motel + Restaurant Show, allows hoteliers to manage guestroom temperatures via a local online network or Web-based server. The RF-online (radio frequency) wireless energy management system (Zigbee based) can be set up independently, in conjunction with a dashboard that provides many types of performance, occupancy and maintenance reports, and/or together with VISIONLINE by VingCard wireless online electronic locks. The hard components of Orion by VingCard Elsafe include a thermostat, motion sensor and door switch.

"We are the only company that manufactures the lock and the EMS, the software, the network, and the communication platform," says David Nowak, director EMS, sales & business development, ASSA ABLOY Group.

Nowak says Orion by VingCard Elsafe interfaces with Stanza, a light control system manufactured by Lutron Electronics Co.

"When the room is unoccupied, our system tells the Lutron system to go into an energy-saving mode," he says. "It's a sophisticated lighting control system. We can fine-tune the interface and customize it for every hotel."

Orion by VingCard Elsafe software allows front desk personnel to initiate the heating or cooling of the guestroom upon guest check-in. Hotels can also use it as part of a guest loyalty program to establish guest preferences for room temperature.

Setting Scenes with Suite Systems

[Control4](#)—This company, with its Control4 Suite Systems, has gone beyond just HVAC system management to giving hoteliers the ability to create “scenes” once the guest enters the room. In a scene a certain number of events occur: lights come on gradually, drapes open, TV turns on, and temperature adjusts to guest comfort mode. The scene can be set using the hotel’s property management system (PMS). Guests can also control these with a single remote or tabletop touch screen. Guests can opt out of linen changes using Control4 Suite Systems. Upon checkout, guestrooms are placed into unoccupied mode from the front desk using the Web Management Console. The HVAC system powers down and the TV and lights turn off. Available for wired and wireless installations, Control4 Suite Systems’ Suite Controller is the “brains” of the system. Control4 Suite Systems works on several different standards-based communication protocols.

Glen Mella, president and COO of Control4, says Control4 Suite Systems can incorporate occupancy sensors to add further control of guestroom heating and cooling.

“Almost every one of our sales begins or ends with how this will fit into an energy management system,” Mella says.

[Energy Eye, Inc.](#)—Energy Eye’s EYEPOWER Solution incorporates a thermostat, controller/receiver unit, wireless door sensor and one or more wireless radio frequency sensors to determine occupancy. Once occupancy is determined, the guest has control of the thermostat. The energy savings come when the guest has left the room for the day. EYEPOWER, according to Phillip Kopp, COO of Energy Eye, works with all types of HVAC systems.

“What is unique about our system is the ability to determine the occupancy of the room,” Kopp says. “We don’t use sensors that are fixed on the thermostat.”

In March, Energy Eye intends to launch a networked system that can be integrated with a PMS called EYECOMMAND that can be locally or Web based. It will offer hoteliers the ability to monitor HVAC systems, occupancy, room temperature and more.

Also unique to Energy Eye is its energy savings guarantee that is backed by an insurance company. If a hotel fails to save what is promised, it will receive a check from the insurance company for the difference.

Evolve Expanding Product Line

[Evolve Guest Controls](#)—Many companies have shied away from key card-based guestroom energy management systems but Evolve Guest Controls has proven they are a very viable option with proven energy savings. Guests simply insert their key card in a key card reader after entering the room. This initiates a scene whereby lighting comes on, the power for the TV is activated, and the HVAC system is put into occupied comfort mode. Guests have full control of the guestroom while they are there. As guests leave, they remove the card which then initiates the turning off of lights and TV, as well as the temperature setback of the HVAC system. The company’s Standard System includes a card reader, lighting and device controllers, plug-in controller module, thermostat, and controlled wall outlet.

EvolveNet is Evolve Guest Controls’ software that gives the front desk and engineering the ability to monitor and control the lighting and temperature of each room, wing, floor, or the entire facility remotely. Every system component included in the Evolve system can be controlled. Numerous types of reports can be generated from EvolveNet, including HVAC run time and card reader low battery reports.

Evolve Guest Controls recently expanded its product line with the introduction of its Director Series of wireless controllers for the wall or table top. These feature control buttons for items such as HVAC, lighting, drapes and shades.

Leonard Horowitz, president of Evolve Guest Controls, says that by June or July his company will be introducing a sensor-based system.

Knowing the 'Brains' of a PTAC

[Goodman Company, L.P.](#)—Well known for its popular Amana brand PTACs, the Goodman Company has also had significant success with its Amana Brand DigiSmart wireless, RF energy management solution. It combines the company's best PTACs with its energy management software that integrates with most property management systems. The components of DigiSmart include a wireless occupancy sensor, wireless remote thermostat with a secondary PIR sensor, and wireless antennae/router that installs inside the PTAC and is powered by the control board. As with other systems, DigiSmart acts to reduce HVAC system run time by determining whether or not a guest is in the room.

Unique to the DigiSmart system is a Web-based DigiSmart Controller that allows for real-time monitoring of all of the PTACs in a building. According to Tom Guffey, vice president of the PTAC sales division for the Goodman Company, more than 100 data points on each PTAC are monitored. One can check everything from compressor run time to costs per kilowatt-hour. Energy savings estimates can be provided as frequently as every five minutes. Daily e-mail reports of operational information are generated daily and sent to selected site or management staff.

"We know just about everything that is happening within the PTAC," Guffey says. "We are developing the software that will allow you to see how a unit is working compared to the others at the property. This will identify units that are having heat transfer issues and consuming more energy than they should and allow staff to target maintenance and cleaning to reduce energy usage."

Guffey says his company is looking into offering hotel owners a PTAC oversight service in 2011.

An Evening Occupancy Mode

[Green Energy Products](#)—This company is a provider of the eNviro iQ system from Verdant Environmental Technologies. The system incorporates a thermostat with a built-in occupancy sensor that incorporates motion and thermal sensing technologies. Unique to the Verdant system, according to Donald Olsen, vice president, Green Energy Products, is its night occupancy mode which keeps room temperature the same during hours when a guest is likely to be sleeping. (Some poorly designed systems can miss guests in the room and mistakenly put HVAC systems in unoccupied, energy saving mode.) Unique to the thermostat is its ability to include digital messages for guests. Olsen says at least one property has even sold ad space on the thermostat.

Verdant's Web-based software, OverSee iT, allows one to monitor and adjust thermostats from the Internet. Data on room temperature, energy consumption, hot and cold set points, humidity, battery power and more can also be accessed using OverSee iT. The software will also e-mail alerts when there is a problem with the HVAC or energy management system.

[INNCOM International, Inc.](#)—INNCOM, with more than 800,000 guestrooms installed, offers numerous options for hotel owners and operators interested in saving energy in the guestroom. Its ecoMODE option on its thermostat earned the company a lot of buzz when it was introduced several years ago. The button activates the thermostat's energy-saving mode, expanding the range within which the temperature can move. The button can also be used by hotel operators to allow guests to opt in to other green programs.

With INNCOM's Integrated Room Automation System, one can limit HVAC system run time using a sensor built in to the thermostat or located elsewhere in the guestroom. INNCOM also offers lighting, drapes and amenities control options from wall or tabletop locations. Using INNcontrol II, server based and accessible via the Web, one can monitor HVAC equipment, control thermostats and generate alarm

reports when equipment malfunctions. According to John Tavares, vice president of marketing for INNCOM, INNControl III will be introduced by HITEC in June.

Lodging Technology Fine-tunes System

[Lodging Technology](#)—Now in its 31st year in business, Lodging Technology is continuing to build on its GEM System. GEM Link Wireless Energy Management consists of wireless passive infrared sensors, wireless balcony and entry door switches, and a transceiver connectable to any HVAC unit. GEM Link uses a wireless handheld Programmer Maintenance Module for easy programming of system features. The GUESTFIND Remote Occupancy Indicator, located at the front desk, shows which rooms are physically occupied at any given moment. Like many systems on the market, GEM Link communicates using IEEE 802.15.4 ZigBee protocol.

William Fizer, president of Lodging Technology, says one of the strengths of his company's GEM Link system is its ease of use. "It is easily programmed on site by the average maintenance person," Fizer says. "Troubleshooting can be done with the handheld."

Moving forward, Fizer says his company will continue to expand its wireless capabilities, focusing on how GEM Link will report room occupancy.

[Magnum Energy Solutions LLC](#)—Magnum offers both key card and sensor-based systems but, as Craig Opalich, vice president of Magnum, says, "We prefer the key card system." Unique to Magnum's Venergy Control System is how its components communicate using EnOcean technology. Wireless RF communication takes place using no batteries or wires. Energy harvesting—done through the simple act of inserting and removing a key card from its reader—is enough to power the reader. As with other key card systems, HVAC, lighting and other outlets can be controlled by the insertion or removal of a key card.

System Accessible Via Cell Phone

Magnum's Venergy Controls Front End System is browser/client based. It allows one to tap into the Venergy Control System using a cell phone. "Any information that can be sent to a desktop can be sent to an engineer's phone," Opalich says. Venergy Control System can also incorporate sensors and timers—to control blinds, for example. Video cameras can also be linked to the Venergy Control System.

[Telkonet](#)—Jeff Sobieski, COO of Telkonet, says his company is anticipating continued expansion of its Networked Telkonet SmartEnergy system (NTSE) in 2011. Similar to other systems, NTSE uses occupancy sensors, along with intelligent programmable thermostats or PTAC controllers, to adjust and maintain a room's temperature according to occupancy. Unique to Telkonet is its Recovery Time technology. Managers can select how long it will take for a room to return to the occupant's preferred temperature setting when the room is occupied. Calculations are constantly performed so the unoccupied room temperature will only drift far enough to ensure it can achieve the recovery time. Each room is evaluated independently in real time to determine its energy efficient temperature, or setback, based on many environmental conditions, such as room location, window placement, dry versus humid climate, varying weather conditions, the HVAC unit, and so on.

NTSE utilizes a ZigBee wireless mesh network that allows thermostats to communicate with one another. Via the Web-based portal, Telkonet CENTRAL, property owners have visibility of a property's HVAC system and its energy consumption. Owners can monitor occupancy status, make HVAC system adjustments and view many different reports on system efficiency. Alerts can be e-mailed to maintenance staff when there are problems—when temperatures are running too high or too low, for example.

What to Watch for in 2011 & Beyond

Expect suppliers to continue to improve upon their systems' ability to integrate with PMS, locking, building automation, and other systems in 2011. Vendors will also continue to expand their reporting capability and create applications for mobile phones—all while trying to keep overall system costs down. How systems communicate with one another will continue to be a hot topic this year as EnOcean technology gains ground on the wireless ZigBee technology that many vendors currently use. How

networked systems can connect to and benefit from smart grid or peak demand systems will also be another topic of discussion. “We think this is going to be the next wave of technology,” INNCOM’s John Tavares says. Radio-frequency identification (RFID) technology may also begin to find its way into guestroom energy management systems in the near future.

As mentioned earlier, most vendors offer financing options and/or can at least point lodging owners and managers to utility rebate programs that can help cover the cost of guestroom energy management system installation. Be sure to ask about such programs.

For more information on saving energy in the guestroom, be sure to also check out these companies: [WattStopper](#), [Entegize](#), [Energex](#), [Onity](#), [Viconics](#), [Sensor Switch](#), [PSG Controls](#), [WiSuite](#), [Energy Technologies Group](#), and [Echoflex Solutions](#).

Guestroom Energy Management Systems Just Keep Getting Better

2/6/2011 By Glenn Hasek



In preparing my article this week on guestroom energy management systems, I spoke with representatives of 11 companies ([see article](#)). It is amazing how many companies there are now that either manufacture or distribute these types of systems (there are certainly more than 11). This space in lodging technology is very competitive. I had to chuckle several times when vendors, without naming names of course, took swipes at their competitors’ systems. “Key card systems are a flash in the pan,” one vendor said. Of course his company does not sell them. “The current sensor systems are not accurate enough,” said another vendor who sells key card systems. Don’t be surprised when you hear such banter when comparing the systems available today.

The truth is that there is a place for both key card-based and occupancy sensor-based systems. It can simply come down to a matter of opinion as to which is best for which situation. Would you put a key card system in a luxury hotel? Maybe not but they certainly have a place in a Comfort Inn, a Holiday Inn, etc. The “key” is not compromising the guest experience. There is certainly a case to be made for the ability of sensor-based systems to reduce energy consumption while remaining mostly hidden from the guest but with key card systems you can convey the message immediately that your property is committed to energy conservation and preserving the environment.

What I learned most while researching my article is how intelligent guestroom energy management systems have become—the amount of data some systems can provide on your heating and cooling system is astounding. Many systems will automatically e-mail alerts to your maintenance team when there are problems, preventing embarrassing guest complaints later on. Many systems can “talk” to one another from room to room, link to your property management system, be controlled over a local network or over the Internet, and be accessed from mobile phones.

‘Door to Drapes’ Solution

Some vendors now sell guestroom energy management systems as part of a “door to drapes” solution, incorporating the HVAC system, lighting and drapes or shades. Appropriate for more upscale properties, these systems are gaining acceptance but can cost more to maintain. How many buttons do you really want your guests (or their kids) to be pushing? “Too many buttons results in confusion by guests as well as housekeeping staff,” one designer wrote to me.

If you do a lousy job maintaining your HVAC system, it may be pointless to even consider purchasing a guestroom energy management system. According to Tom Guffey, vice president of the PTAC sales division for the Goodman Company, dirty filters can increase energy usage by up to 15 percent, dirty condenser coils will increase compressor watts by 25 percent or more, and furniture, drapes and exterior restrictions (plants, bushes, etc.) can further degrade PTAC efficiency.

Done right, guestroom energy management systems, as written here in previous columns, are what I consider to be “no brainers” when it comes to saving energy, reducing equipment run time, and saving money. Return on investment is quick—typically less than two years. And, if you do not have the money up front, most vendors offer financing options that make it possible for you to start saving money immediately. Who can argue with that?

Some Advice from INNCOM

I asked John Tavares, vice president of marketing for INNCOM International, what advice he would give to anyone shopping for a guestroom energy management system. This is what he said:

1. “Ask yourself: Do I want a provider that will be turnkey for me? There are companies that do it well or through partners or contractors. Some clients have on-site ability to manage this type of equipment.”
2. “Ask for a written estimate of the predictable savings.”
3. “Ask for references. Many companies will promise anything.”
4. If your property is part of a large brand, contact their headquarters; they usually have people in charge of these types of systems who can help you.”

Thank you to all of the supplier representatives who agreed to chat with me for my article. I wish I could have given each of them more coverage.

Have any comments you would like to share on your experience with guestroom energy management systems? Call me at (440) 243-2055 or e-mail editor@greenlodgingnews.com.