

The Information Age

Energy management tools and incentives help companies reach their goals and exceed standards

by NATALIE BRUCKNER-MENCHELLI

When it comes to energy savings, a great deal of focus has been placed on technologies that will help us go above and beyond existing standards. However, unless the owner or operator of a building has an in-depth understanding of how those technologies work, the people who would benefit could in fact be missing out on maximizing those energy efficiency measures.

This is a concern for many in the energy management industry and a reason why there has been a shift in focus onto the process of monitoring, analyzing, controlling and conserving energy.

Every business has a different energy profile and different operating needs, and with increasingly stringent regulations and revisions being made to existing standards, there is more demand than ever to better understand the role of energy management.

“Whether we are talking about new or existing buildings, what drives energy efficiency within the building comes down to how you operate it. You can have a building designed with all the best technologies, but it can end up using more energy than a building without. Documentation is key. Often all the information on how the building operates is in the building operator’s head. There is no documentation on how it is being operated, so it can be very difficult to improve your energy measures,” explains Curtis Loblick, senior project manager, Williams Engineering Canada.

Two critical aspects to energy management include establishing a baseline that allows an energy performance comparison before and after a change is made, and analytics to allow real-time monitoring.

“Green building programs have driven clients to begin documenting their energy to enable them to take on energy management themselves. As a result we are also starting to see a lot more metering and analytics companies becoming prevalent in the market place,” says Loblick. “What we haven’t seen so much of is sub metering occurring in the mechanical room. However, interest in this area is growing. Building owners are starting to install multimeters in mechanical rooms that can record how much energy the chillers, pumps and lights are using, as well as all the various components within a building.”

Another factor driving the energy management sector is changes to rules and regulations. Loblick takes the Alberta carbon levy, which came into force on January 1, 2017, as one example.

“Alberta is severely lagging behind other provinces in Canada with their energy management practices. When the cost of natural gas dropped in Alberta, so too did the demand for energy management. But now we are adding another utility cost into the mix, and as a result we are seeing many municipalities promoting

energy audits,” explains Loblick. “You can no longer shortcut on energy efficient technologies because of the new energy code; it’s not an option to opt out.”

Douglas Webber, WSP’s VP, Sustainability and Energy, agrees that energy management is increasingly important for owners and managers of existing buildings. “One trend we are seeing is deep retrofits of existing buildings. Historically much of our work was connected with property managers who, through incremental improvement, maintained their buildings as Class A. They saw a strong Energy Star score as part of that. Now there’s more of an interest from those same landlords to abandon the incremental approach and, through significant investment, improve energy by up to 50 percent,” says Webber.

He adds that some clients are interested in going as far as net zero and WSP is working on a number of pilot projects to develop a plan for this and test viability. WSP is currently engaged with a new client to work on real-time energy monitoring and web-based reporting for their portfolio. “We have been developing our approach to offer clients software that captures real-time data, that interprets the findings, and distills those findings into easy to digest information. We couple this analytics with customer service. We chair a monthly meeting with building operations teams to review the data and agree on action plans at each building. We’ve seen too many projects where an energy audit is completed, but the recommendations are never implemented. By providing better data and personal support, we can educate and guide building teams toward better energy management.”

With Ontario’s mandatory energy reporting coming into play and energy costs remaining top of mind, Webber says that WSP is seeing a change in conversation from energy to carbon reductions and management. Earlier this year, WSP partnered with EllisDon on the Carbon Impact Initiative. “The initiative was

driven by EllisDon who recognized that with the Ontario and Federal Government both focusing on carbon there is a vacuum to fill. Policymakers say that we collectively need to reduce carbon dramatically, but how that can be done isn’t clear yet. The initiative was created to show that we know the way. More for-profit companies are stepping up and presenting decision makers with solutions as to how their objectives can be achieved. We understand where they want to go, and we know how to get them there.”

The Independent Electricity System Operator (IESO) is actively working with Ontario’s 70-plus local hydro companies’ partners to deliver customers programs to assist with energy management. And like WSP and Williams, the majority of activity they are seeing today is with existing buildings due to the existing building stock, however the IESO offers incentives for both new build and retrofits.

For new buildings there are programs to incentivize building developers to go above and beyond the building code. “The more energy efficient equipment they can build into the facilities, over and above the Ontario Building code, the more energy efficient that building will be,” says Rob Edwards from the IESO.

Edwards adds that with a revision to Ontario’s Building Code that will be implemented in 2017 (requiring large buildings and small non-residential buildings to increase their energy efficiency by 13 percent compared to the December 31, 2011 benchmark), expectations for energy management are becoming increasingly more stringent.

In order to help building owners/operators achieve this goal, the IESO is working closely with consumers to allow them to delve deeper into their projects. “The old adage that you can’t manage what you don’t measure is so true; we have incentive programs to assist businesses to install metering equipment and monitor their use and make changes on the fly,” explains Edwards.

In addition to the Save on Energy Retrofit incentives (which promotes technologies such as LEDs, VFDs, and metering and monitoring equipment), the IESO also offers incentives for eligible participants to take the Building Operator Certification (BOC) program; an eight-module, nine-day competency-based training and certification program, which offers facilities personnel the improved job skills and knowledge to transform workplaces to be more comfortable, energy-efficient and environmentally friendly.

“This has really taken off in Ontario with large commercial real estate organizations who are signing up their building operators to participate in the program,” says Edwards. And it’s not only gaining traction in Ontario. “We had a couple of companies from Ontario



who wanted their staff in Alberta to take part, so they went ahead with the training without the incentive as they are out of province. Two organizations got together and held a session. We were surprised and very pleased.”

For the IESO, it’s not just about training, but about providing ongoing support. The IESO’s Energy Manager Program and Multi-Site Customer Energy Manager Program, which provide up-front payment annually upon hiring an energy manager, have been particularly successful. To date there are around 100 energy managers in the province.

Looking ahead, Edwards says he is excited by the goals outlined in the Ontario Legislature’s Energy Law Statute Amendment Act (Bill 135), which entails long-term energy planning and conservation, as well as the IESO’s Energy Performance Program, which was started in December and is a holistic approach to energy management savings. “This is the next level for those consumers who want to take the next step in energy management. The model is based on an incentive no matter how that energy is reduced. A baseline is established, we revisit the site and pay out at the end of the year depending on how much energy is saved.”

Over on the West Coast, FortisBC has also been actively promoting energy management with a particular focus on the role of the energy manager.

The Sustainable Energy Management Advanced Certificate (SEMACE) program – a partnership between BC Hydro, FortisBC and BCIT, with initial funding support from the Natural Resources Canada’s Office of Energy Efficiency – is a program designed to support employment opportunities in the emerging field of sustainable energy management, with focus on the

energy demands of commercial, institutional, industrial and community facilities.

And like WSP, Williams and IESO, FortisBC has placed increasing emphasis on energy management in building retrofits. “More than 80 percent of B.C.’s rental apartment buildings are older than 35 years and may not be as energy efficient as they could be. With a few simple changes to your building, you can save money, energy and water,” says FortisBC in a press release. As part of the Rental Apartment Efficiency Program, participants receive a building energy assessment to identify energy-efficiency improvements and upgrades and ongoing professional assistance to guide them through the process of making larger energy upgrades.

“During the building energy assessment, our engineering consultants will identify additional no- and low-cost energy-saving improvements, as well as opportunities to save through our rebate programs for upgrading to high-efficiency space and water heating systems,” says FortisBC.

BC Hydro has always been one step ahead when it comes to energy management and also offers a wide range of conservation programs for residential, commercial and industrial customers to help keep energy costs low and promote the advantages that come with energy management.

As evidence of increasing interest in this area, BC Hydro’s New Construction program has been very successful. “Thanks to the strong interest we received from developers throughout B.C., we have reached program targets for fiscal 2017,” explains Kevin Aquino, media relations and issues management. “Since 2007, the program has produced energy savings of 116

gigawatt hours annually – that’s enough to power more than 10,000 homes in B.C. a year.”

Within the New Construction program there has been an increase in the information available for both the utility and customers. More communication tools and technologies are also available to help customers make smart energy choices.

These tools include smart metering infrastructure, building management systems such as energy dashboards, energy management information systems and energy performance reporting. To help customers make good energy management choices, the program will educate and embed control and data communication systems in the early design phase, which enables customers to leverage energy information tools after the building is complete.

BC Hydro has long been a strong proponent for reducing the energy of the existing building stock. Up until March 31, 2017, Energy Study funding is still available to key account customers with BC Hydro-funded energy managers, after which the funding will be available to key account customers with a BC Hydro-funded Energy Manager involved with strategic energy management.

Providing customers with the support necessary to better understand energy management has also been at the core of BC Hydro’s energy savings strategies. Under its Continuous Optimization program, which is a partnership with FortisBC, participants are provided with funding for 100 percent of the cost for a re-commissioning consultant to study their building and recommend energy efficiency improvements, provide training of the building operators and conduct follow-up coaching sessions. **A**



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