The Second Generation of Strategic Energy Management Programs

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Abstract

Growing numbers of energy efficiency program administrators in regions throughout the US and Canada are supporting the implementation of Strategic Energy Management (SEM) technologies and practices for their industrial customers. From a program administrator perspective, SEM offers an opportunity for closer engagement with customers, deeper energy savings from capital projects, and access to new operations and maintenance energy savings streams. In addition to energy savings, effective SEM programs have demonstrated benefits including improved customer satisfaction, and enhanced productivity and competitiveness, often helping important utility customers to remain in their region, and supporting the local economy.

SEM program designs are maturing and expanding beyond the sectors for which they were initially developed, and many program administrators are facing new challenges: How do program administrators develop a deeper engagement with their industrial customers? How can technology best support SEM goals? What strategies will bring SEM to scale cost-effectively? This paper explores the strategies and challenges faced by three new SEM programs in the Midwest and Northeast. The paper also describes collaborative efforts among program administrators to standardize definitions and share learning. Lastly, it will examine ways in which SEM approaches are developing and being adapted to new regions, business and regulatory contexts, and customer segments.

Introduction

As an energy efficiency program design, SEM is still new—the earliest adopters in the northwest US and Canada launched pilots in 2009. When the Consortium for Energy Efficiency (CEE) first surveyed its members in 2011, only seven program administrators reported SEM offerings. Since then, the number of SEM programs and implementations has increased steadily. In 2014 CEE counted twenty-one program administrators with SEM offerings for industrial end users, and more than 420 industrial facilities that have participated in SEM programs.

In January 2014 a group of leading program administrators came together at CEE to define for their industry the minimum set of criteria that make up an SEM implementation and that distinguish the practice of SEM from other types of energy management and from traditional energy efficiency program designs. Their purpose in working together at CEE was to demonstrate a growing alignment among program administrators around effective approaches to achieve measurable, persistent, and cost-effective energy saving through the implementation of SEM in industrial facilities. This emerging program consensus, and the endorsement of SEM approaches by the energy efficiency program industry, would enable a broader group of program administrators to support SEM implementation by industrial end-users in their regions. These leading programs recognized the enormous opportunity of SEM approaches to achieve deeper energy savings and customer engagement with industrial facilities, and launched the CEE

Industrial SEM Initiative to accelerate the development of SEM programs, and to increase end user uptake of SEM practices and technologies throughout all regions of the US and Canada.

The definition established by program administrators as part of the CEE Initiative, the CEE SEM Minimum Elements, sets consistent expectations of what constitutes SEM and the types of support available to industrial organizations from SEM programs for program administrators, service and technology providers, and end users . The SEM Minimum Elements defines SEM as *a holistic approach to managing energy use in order to continuously improve energy performance, by achieving persistent energy and cost savings over the long term. It focuses on business practice change from senior management through shop floor staff, affecting organizational culture to reduce energy waste and improve energy intensity*. The Minimum Elements highlight three essential components of SEM: *(1) Customer Commitment, (2) Planning and Implementation, (3) a System for Measuring and Reporting Energy Performance*. SEM's uniqueness as a program design, and its manifold benefits for program administrators and industrial businesses, is in the interactions among these elements, as demonstrated by the three programs discussed in this paper.

The SEM Minimum Elements, and the program administrators that support the Minimum Elements in their program designs, send a positive signal to the providers of SEM services and technologies that the efficiency program industry supports SEM implementations, and offers dedicated resources to grow the market for their products. The SEM Minimum Elements simultaneously addresses the regulatory hurdles by placing the credibility of a broad and growing group of program administrators behind SEM as a robust approach to achieve measurable, persistent, and cost-effective energy savings. In this way the CEE SEM Initiative advances the energy efficiency program industry goal of increasing SEM uptake by industrial businesses and enabling broader program support for SEM implementation.

In 2014 CEE collected detailed information from member programs about SEM program designs, delivery strategies, and results, in the CEE SEM Program Case Studies Report. The Case Studies Report demonstrates a range of programs with respect to geographies, experience, and investment. For instance, five SEM programs launched in 2014 and were supporting their first cohorts of SEM participants, while two others had at least five years of SEM program experience, and had together supported SEM implementations at more than two hundred industrial facilities. The contributors to the SEM Program Case Studies Report wanted to understand questions such as: what does the SEM program landscape look like six years after the launch of the first pilots? What has been the impact of SEM programs, binationally, over these initial six years? And what key program experiences can we see reflected in changes that have emerged in program design and delivery?

Table 1: SEM Program Expansion in the US and Canada, 2011-2014

	Number of Programs	Customers Served	2013 Budgets	2013 Electric Savings
2011	7	< 100	N/A	N/A
2014	21	>430	$18.2M[1]	273 GWh

Data: Consortium for Energy Efficiency

[1] Budgets and Savings values represent 8 programs reporting these data types for 2013. The remaining 13 programs did not claim energy savings in 2013 or did not report these savings to CEE.

Together with survey data CEE collected going back to 2011, the SEM Program Case Studies Report captures the shift from a promising but regionally isolated approach to a widely supported, increasingly important part of industrial program portfolios. Table 1 demonstrates this growth over time, from 7 programs and fewer than 100 customers served in 2011, to 21 SEM programs and more than 430 customers served by those programs in 2014. And it appears that SEM programs will continue to expand their footprint: at the time the SEM Program Case Studies Report was published, four additional CEE member programs reported that they planned to launch new SEM offerings in 2015.

The rapid spread of SEM programs across the US and Canada indicates a growing recognition on the part of program administrators and industrial businesses that very significant energy savings are achievable if motivated companies are supported with the information, technology, and personnel resources corresponding to their needs. A summary of the AEP Ohio, Efficiency Vermont, and National Grid SEM programs is provided in Table 2. Informed by their own contexts, program maturity, and goals, these three programs apply the Minimum Elements of SEM—commitment, planning and implementation, a system for measuring and reporting performance—using their own tools and targets. The detailed program discussions below address the drivers, delivery strategies, program interventions, and results these programs have achieved, and how these were shaped by each program's regional context.

Table 2: Three New SEM Offerings

Program	Launch year	Customers Served (2014)	Intervention Duration	Intensity Reduction Goal	Savings target
AEP OH	2012	90	12 mo (18 mo)	3-5%	45 GWh
Efficiency VT	2014	9	24 months	7.5%	-
National Grid	2014	7	2-3 years	3-5%	8 GWh

Efficiency Vermont: Redefining the Relationship

In business, trust and relationships matter. As regulated energy goals continued to rise in Vermont's mature energy efficiency landscape, Efficiency Vermont's relationships with its largest customers have become even more important. Efficiency Vermont has engaged its largest customers since 2000, but in 2008 the program decided to redefine what this engagement should look like.

Historically, energy efficiency programs like Efficiency Vermont used technical energy consultations with their business customers to increase the number of efficiency projects. Over time, Efficiency Vermont has shifted its emphasis from these consultations to active selling of energy efficiency projects, similar to the way one might sell a product or service. However, using technical staff for sales-related business discussions placed a resource burden on the program's ability to conduct equally necessary technical analyses. So Efficiency Vermont created an Account Management department to develop relationships with business customers, and identify and drive energy savings for customers with the largest energy loads.

Among its strategies was the 2011 Efficiency Vermont Energy Leadership Challenge (ELC), which encouraged large energy users to reduce consumption in their facilities by 7.5% within two years. Efficiency Vermont helped each participating business create a comprehensive, long-range energy savings plan, and provided technical and financial assistance to help the participants meet their goals. The Challenge primarily addressed capital projects. This approach

allowed energy efficiency projects to be guided by customers' existing capital and maintenance budgets. The familiarity with a customer's budgetary thinking led Efficiency Vermont staff to participate transactionally with the customer in making energy improvement decisions, and to be aware of the sequence of next steps for facility improvements. The two-year Challenge successfully drove significant energy savings projects at many of the participating businesses and produced many energy efficiency leaders in Vermont.

Efficiency Vermont's investments in each participating business were commensurate with both the customer's level of engagement and the energy savings opportunity at that facility. A high level of engagement could mean weekly meetings between the customer and the Efficiency Vermont account manager and energy consultant. It also enabled investments in submetering infrastructure to further explore savings opportunities. Such investment in key energy management infrastructure positioned some customers to manage their energy consumption down to the end use equipment level.

As the ELC began to sunset, it became clear that Efficiency Vermont needed to introduce a new program to continue engagement with these large energy users. Coincidentally, utilities in the Northeast were becoming keenly aware of the significant results that utilities in the Northwest were achieving through their Strategic Energy Management (SEM) programs.

The ELC showed the value of bringing businesses together to share their experiences and challenges in achieving better energy management at their facilities. This value was very similar to that achieved by the cohort approach in SEM programs in the Northwest. However, the ELC did not use facility-wide energy tracking and management, even though it had introduced customers to deeper sub-metering of particular equipment. The next logical step was to introduce a higher-level view of energy use at the facility level.

Efficiency Vermont's new Continuous Energy Improvement (CEI) model goes far beyond capital upgrades, and applies innovative strategies to achieve process improvements, update maintenance cycles, and increase employee engagement. This holistic, long-term, data-driven approach enables businesses to fully understand how they use energy, and to generate a "roadmap" for effectively managing this critical component of production costs.

With the introduction of the CEI program, Efficiency Vermont has asked its customers to participate in a shared effort for examining the role of energy across their businesses, and to engage their staff in consistently improving how that energy is used. Many business customers now understand that they need to manage energy, just as they manage quality or safety, in a process involving every employee. At most Vermont facilities, however, everyone consumes energy, but only a few are accountable for its costs and potential improvements. The CEI program engages customers, through a cohort peer exchange, to integrate energy efficiency and conservation within business cultures, and to make energy performance a priority for everyone.

This priority is an essential objective for both the customer and Efficiency Vermont. So Efficiency Vermont is now working with each participating customer to create an Energy Management Information System (EMIS) for managing energy use at the facility level. EMIS is a valuable tool for clearly understanding, tracking, and communicating trends in energy consumption, demand, and intensity. Most CEI customers in the first cohort have signed on with a third-party EMIS software service. A secure server captures and enables the analysis and presentation of customer-specified information, including power use and production data, to the customer and Efficiency Vermont. EMIS provides Efficiency Vermont account managers and energy consultants with sufficient data to inform discussions with customers about performance

and processes in real-time. Further, EMIS-quantified savings offer a powerful way for Efficiency Vermont to support operations and maintenance energy savings claims to regulators.

Results from the first year of Efficiency Vermont's CEI pilot have been positive. The second year of the pilot will prove the data methods. Although it is too early to report on energy savings achieved, it is easy to demonstrate that customer engagement has significantly increased. Customers have placed an increased trust in the program by sharing their production data and other drivers of energy use to develop their regression models. In addition, they are allowing energy consultants to dig into energy-intense process systems to identify new opportunities. These customer relationships have been built on trust, and are developing into true partnerships.

National Grid: Proving the Concept

National Grid has been providing energy efficiency services to all its commercial and industrial customers for more than two decades in three jurisdictions: MA, RI and NY. In 2011, the program undertook a market potential analysis of its industrial customers. From this study National Grid learned that participation by industrial customers lagged behind rates for commercial businesses, despite typically greater cost-effective savings potential. The barriers to program participation mentioned most often were lack of capital, business priorities focused on production and safety rather than energy, and limited technical support or project management capacity. The study also revealed that industrial customers viewed National Grid programs as rebate programs for lighting and other prescriptive measures, with little recognition of the more in-depth offerings. Based on this study the program decided to change three things: to achieve higher participation from industrial customers, to shift customer perception of National Grid from rebate provider to a trusted energy advisor, and to meet program savings and cost-effectiveness goals for the industrial portfolio.

To address these barriers and customers' concerns, National Grid began with a pilot initiative in Rhode Island, where the program has a smaller footprint than in Massachusetts or New York. National Grid determined energy savings goals of the pilot and set a target of five large customers. The 2011 market potential study helped the program identify sectors where there was maximum potential for savings—fabrication metals, machinery, electronic and rubber-plastics came as top categories for electric, the type of end uses that had maximum potential, and the customers with the greatest potential for savings. This data helped the program identify target customers and develop a project pipeline.

For the industrial pilot National Grid also introduced a new delivery mechanism for energy efficiency services to these select customers. The program hired an industrial energy expert team to provide customized energy efficiency solutions to National Grid's select industrial customers in Rhode Island, by working closely with each customer to understand their business and unique needs. Initial results to date have shown promise. The contractor clearly understands the customer segment and has many years of experience working with manufacturers from an energy efficiency perspective.

As part of this effort, National Grid worked with seven of Rhode Island's large industrial customers. The goal for this pilot was to reduce the selected customers' energy usage between three to five percent of their current usage. Facility technical assessments were provided at no cost to the customer. Project incentives were based on the needs and financial criteria of each customer, with additional on bill repayment support available if needed. The aim of providing customized financial assistance to each customer is to enable program participants to leverage capital or operational funds to support project implementation.

The initial pilot of seven customers achieved the goals of deeper engagement and identification of cost-effective energy savings. Based on the success of this small scale initiative in RI, the program is currently being rolled out to National Grid's industrial customers in Massachusetts with an expanded scope and scale. As in the Rhode Island pilot, the program will provide energy advisors that will serve as technical sales and project managers, experienced in industrial energy efficiency solutions, including process improvements.

Key strategies include targeting large customers, high use market sectors and high potential industrial systems like HVAC, refrigeration and compressed air. An element of this initiative is funding for a staff position at participating facilities, to oversee the implementation of the energy management system and particular projects.

The outreach to industrial customers will be tailored to the specific needs of the individual customers. For customers with demand over 500 kW, National Grid industrial energy advisors will provide:

- Credible technical assistance
- Support for development of energy teams and KPI tracking
- Metering to capture system energy use and load profiles
- Opportunity assessment
- Support with program paperwork
- Project tracking

As a customer demonstrates interest in working together with National Grid to improve their energy performance, the program will layer on additional services, including regular check-ins with energy champions or teams and ongoing project management support. National Grid will use a gap analysis tool to assess SEM and other customer needs. For customers interested to pursue SEM, the program makes available a further suite of services, including:

- Best practice fact sheets and guidebooks for specific segments
- Customized energy management trainings
- Support via segment specific trade allies and industry associations
- Incentive support tailored specifically to the customer's needs and financial criteria

Scaling up this initiative from a small pilot has raised important questions for program designers. What engagement and program delivery approaches will continue to meet the objectives of increased participation and deeper engagement with each customer, while keeping cost under control? How can innovative financial offerings be structured to support the investment in higher levels of energy efficiency? What tactical approaches can be employed to gain the engagement of senior leadership and individual contributors in optimizing industrial energy systems? What role can trade allies play to support SEM program delivery and results? National Grid is addressing these questions through the expanded offering, to enhance program effectiveness and customer outcomes.

AEP Ohio: Taking SEM to Scale

AEP Ohio developed the Continuous Energy Improvement Program (CEI), a version of SEM, to specifically depart from the traditional capital project approach to energy efficiency and to focus on low cost/no cost operational and maintenance savings that are typically not captured by conventional programs.

The AEP Ohio CEI program is unique in the Midwest and one of the first in the US in that it is a holistic treatment of energy use in large industrial facilities, hospitals, and universities. The focus

is entirely on low cost/ no cost operational and maintenance savings that are generally unnoticed as manufacturing process rarely deviates from informal rules developed over decades of operation. These measures can include but are not limited to, compressed air leak programs, optimization of shutdown procedures, shutting off idling equipment, HVAC optimization. In 2015, the AEP Ohio CEI program was recognized as a premier energy efficiency program by winning the Inspiring Efficiency Award from MEEA (Midwest Energy Efficiency Alliance).

The program is developed around an energy team that includes: an executive sponsor, an energy team led by an energy champion and a developed energy model that ties energy use to specific industrial output. Groups of customer energy teams called "cohorts" go through an organized program that trains the teams to identify and implement low cost/no cost savings. As the savings occur, the participating customers are required to have employee engagement meetings to highlight the savings and encourage the entire facility to focus on ideas for energy saving. The goal of this approach is to ingrain energy into the corporate culture of an organization.

The CEI program uses a regression energy model for predicting energy use, and thereby determining energy savings attributed to the program. Energy savings calculations require interval meter data and relatively granular production data. The interval meter data is used with independent variables to determine the weekly energy intensity for each site. The variables used in the model are determined by understanding the customers' process, and applying rigorous analysis and testing of how variables correlate with energy usage. The initial energy modes were assessed by an independent evaluator and determined to be valid method for measuring energy savings.

The 12-month CEI program duration allows participants to ramp up efforts, overcome barriers and encourages them to develop long term practices leading to lasting cultural change. Important CEI program elements include:

1.) Creating a foundation for change through executive support and formation of an energy team led by an energy champion.

2.) Developing and maintaining an energy tracking model, based on energy intensity, which quantifies savings and provides feedback on energy use.

3.) Engaging the entire organization to provide ideas and support changes aimed at energy reduction.

4.) Using resources to plan and maintain a structured, consistent approach to energy management.

The cohort structure allows companies meeting together to share best practices and develop friendly competitions to exceed the expected average three to five percent savings the program typically yields on low cost/ no cost measures. Finally, after the energy teams work diligently on low cost/no cost improvements, their understanding leads to the more conventional capital projects and energy savings that typically match the three to five percent low cost/no cost savings.

The end results are large use companies that have saved an average of four percent in first-year energy savings, and have an energy policy, an executive sponsor of an active energy team and employees that understand the difference between using energy and wasting energy in the manufacturing process. Additionally, the have an energy model that can quickly identify changes to energy utilization so corrections can be made to maintain savings.

Since 2013, AEP Ohio has launched six cohorts throughout the state, consisting of 70 participating customers. Many companies demonstrated interest in the program which quickly

completed the recruiting process within three months of program launch. The first of four cohorts, reaching 36 companies, have completed the workshops and have saved over 40 GWH of energy in first year, exceeding the original 27GWh target. Ongoing cohorts in the program continue to attend the workshops and work at energy savings, with the original four cohort groups still actively working on their second year persistence and additional energy savings. Two additional cohorts will begin by the third quarter of 2015, for a total of eight cohorts and an estimated 110 participants.

Table 3. AEP Ohio's CEI Results from 2013–February 2015

	Months in program	Number of participants	Segment type of participants	2014MWh Savings	2015MWh Savings to date	Total MWh Savings to date	Average Savings as a % of load
Cohort 1	24	14	Large Manufacturing	21,100	20,700	41,800	8.6%
Cohort 2	20	7	Large Manufacturing	7,000	10,000	17,000	7.5%
Cohort 3	17	7	Large Manufacturing	4,000	2,600	6,600	4.2%
Cohort 4	16	9	Large Manufacturing	8,000	4,400	12,400	2.4%
Cohort 5	4	14	Large Manufacturing	-	-	NA	NA
Cohort 6	1	22	Hospitals and Universities	-	-	NA	NA
Cohort 7	Recruiting	NA	Mid-Size Manufacturing	-	-	NA	NA
Cohort 8	Recruiting	NA	Mid-Size Manufacturing	-	-	NA	NA

As evident in Table 3, AEP Ohio's CEI program quickly ramped up to full scale as the number of customers interested in participating in the program continues to rapidly grow. AEP Ohio provides direct outreach to qualified customers through Account Managers and strategic partners (such as the Ohio Manufacturers' Association, Ohio Hospital Association, Central Ohio Hospital Council and the Association of Independent Colleges and Universities of Ohio). On-site visits ensure that the customer fully understands the commitment and benefits of the program before enrollment is completed. Two years after the first launch of the program, customers that have previously participated in the program are showcasing their success with the CEI program through case studies, big check ceremonies and presenting at local conferences. This type of "earned marketing" has been successful in encouraging more customers to participate.

The largest non-energy impact was the dramatically improved customer satisfaction and customer relationship with our largest customers. During the cohort process, AEP Ohio customer account managers worked with the energy teams to achieve savings results. AEP Ohio was transformed from a faceless provider of a commodity to the role of trusted energy advisor and viewed as a company that was genuinely interested in helping customers control costs in their businesses.

Customer survey results and testimonials, specific to the CEI program, reflect the enormous amount of positive feedback AEP Ohio has received regarding the program value. Survey results reflect an average score of 4.4 out of 5 on written materials, presentations and workshop usefulness. Customer testimonials include the following quotes:

- "CEI has also given us metrics we have not had before. In the past all we had is our bills and now we have a model to predict our usage."
- "I appreciate the discussion from different companies. Very open, and we all realize we are on the same journey."
- "Looking forward to working with AEP on engaging management & staff to realize additional energy savings."
- "A great process for developing our Energy Management Program."

This model is replicable for any utility that has a large industrial footprint. There are several parameters, such as cohort engagement period and incentives that can be adjusted according to the customer and program needs. An example of this is our extension of the program for 2015 and 2016. AEP Ohio has expanded the eligible customer segment to include hospitals and universities, with an increased intervention period from twelve months to eighteen months.

Discussion

AEP Ohio, Efficiency Vermont, and National Grid are leaders in SEM program development within their regions. As regional leaders they are testing approaches that may never have been tried with local industries and regulatory-policy contexts. In the experience of these programs we can observe experimentation and optimization—across program interventions, delivery strategies, incentive structures—within the SEM framework established by the program industry in the binational CEE Industrial SEM Initiative. By supporting the CEE Initiative, these programs gain access to the combined credibility and impact of a growing number of other SEM programs across the US and Canada.

The CEE SEM Minimum Elements identifies three core aspects of effective SEM: (1) customer commitment, (2) energy planning and implementation, (3) a system for measuring and reporting performance. The programs discussed in this paper apply many different specific interventions to serve their SEM customers' needs and meet their program goals, while supporting the SEM Minimum Elements, demonstrated in Table 4.

Table 4: Program Interventions and the SEM Minimum Elements

Program	Customer Commitment	Energy Planning and Implementation	Measurement and Reporting
AEP OH	Enrollment agreement, No requirements to remain in program	Energy map, Kaizen event, Opportunity register	Energy baseline model based on interval meter data, shared monthly with customer; energy model maintenance responsibility of the customer
Efficiency VT	Customer MOU, on-going participation required to continue in the program	Energy management assessment, Energy map, Opportunity register	Energy baseline model based on meter data, shared daily with customer via EMIS; EMIS also supports project tracking and savings estimation; Efficiency VT maintains energy model

National Grid	Customer MOU, establish an energy team	Energy map, project engineering analysis, opportunity register	Energy baseline model based on meter data

As Table 4 shows, certain interventions are supported by all three programs: development of an energy map and opportunity register, use of an energy baseline model based primarily on utility meter data. But several other interventions are supported by only one program in the group, including: an informal program enrollment agreement, energy management assessments, a Kaizen event, and EMIS.

Program delivery approaches and incentive structures also vary in important ways between these programs. National Grid worked closely with individual customers to understand their businesses, and their financial criteria for capital projects. This deep, one-on-one engagement enables the program to tailor the SEM implementation to each customer's needs. Efficiency Vermont also engages its SEM participants one-on-one, through its key accounts staff. However the SEM program uses a cohort approach to deliver education and training, bringing SEM participants together for events with trainers and other experts. The cohort approach reduces program costs for trainers, and creates a colearning environment for customers to motivate and learn from one another. AEP Ohio's program engaged industrial, institutional, and health care facilities in several concurrent SEM cohorts, enabling the program to scale up quickly and deliver impressive energy savings.

Table 5 captures program incentive structures and energy savings achieved. Of the three programs discussed in this paper, only AEP Ohio offers a set incentive amount for energy savings achieved: two cents per kilowatt hour saved during SEM implementation, and an additional two cents if that kWh savings is maintained in years two and three, for a total of six cents per kWh saved and maintained over three years. By contrast, Efficiency Vermont's CEI pilot does not offer financial incentives to participants, instead focusing program investment on training, technical assistance, and EMIS. National Grid varies its program incentives to meet the needs and financial criteria of each customer, within the constraints of cost-effectiveness.

Table 5: SEM Program Incentive Structures and Energy Savings

Program	Incentive Structure	Energy Savings Achieved
AEP OH	$.02/kWh, paid for savings achieved in year 1, additional $.02/kWh paid for savings persistence in years 2 and 3; total available incentive over 3 years: $.06/kWh	48 GWh
Efficiency VT	No financial incentives in pilot, cost share provided for technical assistance, consulting services, sub-metering and EMIS	Not available
National Grid	Cost share for technical assistance, incentive amount based on customer's unique financial criteria, staffing grants and project financing	8 GWh

Emerging Models

SEM program designs, delivery approaches, and incentive structures vary across regions and industries, but model outlines are emerging as new programs learn from the experiences of early adopters. One approach that is utilized by approximately half of CEE member SEM programs is to gather participants into peer cohorts, using a one-to-many relationship to keep consultant or trainer costs down while fostering motivational and colearning benefits. Program support for an on-site energy manager position is another well known SEM program intervention. Energy managers are supported by about one third of CEE member SEM programs. The most consistently applied intervention CEE observed is the use of energy management assessments—assessments undertaken typically at the beginning of an SEM implementation to understand the current energy management policies and practices within an organization. Energy management assessments were a component of sixty percent of CEE member SEM programs in 2014. Recently a small group of programs have begun to support integration of EMIS to enhance SEM outcomes. Only one program offered EMIS as a core SEM program component in 2013, but that number increased to three in 2014 and appears likely to rise again in 2015.

With the support of the participants in the Industrial SEM Initiative who provide rich data about their SEM programs, CEE is analyzing current practices and emerging models in SEM program design and delivery, and plans to build on the program framework established by the SEM Minimum Elements with new information about SEM program models and significant components, to inform program designers, service and technology providers, and other stakeholders.

Conclusion

Increasing numbers of program administrators are providing consulting services, technical support, and incentives to support strategic energy management implementations at industrial and institutional facilities across the US and Canada. Working together with a common framework and definitions, these programs are demonstrating that investments in people and organizations—rather than strictly in technology—change can drive powerful results: enhanced visibility and operational control for industrial businesses, and deep, persistent, cost-effective energy savings. As the three programs discussed above show, through a combination of a proven framework and local innovation, SEM approaches can be effective across different regions and business sectors.

Previous papers have captured the development and spread of SEM programs in the Pacific Northwest and the Southwest. This paper contributes to that literature by describing the program objectives, designs, and delivery strategies of recently launched programs in the Midwest and Northeast. The paper also presents a snapshot of the US and Canadian landscape of energy efficiency program support for SEM in 2014: of a growing SEM program footprint by geography and businesses served, increasing investment, and strong results. The authors anticipate that as program administrators, service and technology providers, and industrial businesses gain experience implementing SEM, program design and delivery strategies will continue to evolve, to serve new segments and achieve greater results. Through the support of participants in the Strategic Energy Management Initiative, CEE will track these changes, and identify and develop new program models to inform program designers and other stakeholders.

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