The Northwest Industrial Strategic Energy Management Collaborative: A Roadmap for Regional Cooperation, Thought Leadership and Diverse Stakeholder Engagement

John Wallner, Northwest Energy Efficiency Alliance (NEEA)

ABSTRACT

Historically, states, utilities and national organizations implemented industrial Strategic Energy Management (SEM) initiatives in an uncoordinated approach—each planning and developing their own programs in separation from each other. The Northwest is taking a different, more collaborative approach. For nearly a decade, the Northwest Energy Efficiency Alliance (NEEA) has developed and implemented energy efficiency initiatives in industrial SEM (in particular, with the food processing industry). With the success of those initiatives, other organizations in the Northwest region such as the Bonneville Power Administration (BPA) and the Energy Trust of Oregon (ETO) began piloting and implementing SEM programs that leverage NEEA's efforts in food processing and in other industrial sectors.

Recognizing the opportunities to further leverage regional resources, NEEA convened a workshop in March 2012, bringing together a wider array of regional and national organizations, such as the U.S. Department of Energy (DOE), the American Council for an Energy-Efficient Economy (ACEEE) and the Consortium for Energy Efficiency (CEE), and funding partners in the interest of defining a common vision and market strategies for industrial SEM for the next 20 years. The product of the workshop, "The Northwest Industrial Strategic Energy Management Collaborative" (The Collaborative), is based on the simple idea that the region can do more to further industrial SEM together than can any single utility, organization or association.

The paper summarizes the process of conceptualizing, preparing and holding the workshop, aligning on vision and strategies, developing workgroups and action items, and finally, beginning implementation on the actual nuts and bolts of market transformation for the region. The paper comments on the strategic value of regional collaboration in the design and delivery of efficiency programs and offers key learnings and insights into how other regions could expand and adapt the Northwest experience as a model for their own industrial SEM efforts.

Introduction

Since 2005, NEEA has developed and implemented energy efficiency initiatives in the food processing industry and in industrial SEM. With the success of those initiatives, other organizations such as BPA and ETO piloted and implemented SEM programs that leveraged NEEA's efforts.

In 2010, NEEA helped author a paper describing the Northwest region as a leader in developing and delivering programs that help industrial facilities integrate energy management into their operations, leading to reduced costs and increased profitability (Jones T. et al. 2010). Success in the region did not occur by accident, but rather as a result of close communication, collaboration and learning across energy efficiency programs and their partners. More broadly,

the paper commented on the strategic value of regional collaboration in the design and delivery of efficiency programs.

Today, the BPA and ETO industrial SEM programs are a critical component of those organizations' energy efficiency strategies and have proven to be successful. Because of that success, there is now an opportunity to define the next phase of the industrial SEM category and refine NEEA's role in supporting and designing solutions for current and future market success.

Current Industrial Market Landscape

The Pacific Northwest is considered a leader in industrial SEM, and many regions look to its work on SEM as a best practice and a model for collaboration. Since beginning with SEM, NEEA, ETO and BPA have saved over 94 GWh of energy.

However, even greater results can be attained. Pressure to deliver further savings is increasing, and many of NEEA's partners are focused on their own local savings targets. There is also a lack of internal and external energy management expertise within industrial companies. Current SEM solutions are difficult for many small industries to implement independently. Installing SEM can require full-time headcount support that many companies are not staffed to manage.

A key element currently impacting progress is the lack of a well-understood, long-term regional roadmap and broadly shared vision for SEM implementation going forward. Without these program components in place to facilitate choices on where and how to drive change, adoption and increased energy savings are slowed. NEEA has looked to leverage and extend its regional collaboration by establishing a more unified long-term plan that can steer market development and account for changes in standards, offering a more predictable route to attaining energy savings goals for the region.

To do this, NEEA can collaborate with key stakeholders in industrial SEM, both regionally and nationally, to:

1) Describe where industrial SEM is now
2) Define (create a vision of) where industrial SEM needs to be
3) Create an agreed-upon SEM roadmap to deliver to that vision
4) Define NEEA's role in conjunction with the roles of the key industrial SEM stakeholders

Northwest SEM Roadmap

To begin addressing the challenges listed above, NEEA embarked on a large-scale, regional and collaborative effort to develop a Northwest SEM Roadmap, beginning in early 2012, that would articulate a long-term vision for industrial SEM in the Northwest. This effort resulted in the development of a comprehensive outline for the region on the future vision of SEM in the Northwest, a Roadmap on how to get there and alignment from regional players on roles and responsibilities. This effort is truly unique as no other region in the country is yet approaching industrial SEM in the same way.

Working with a consultant team to aid in facilitation and implementation, NEEA created a framework for which to conduct this effort, which included a three-phased approach:

1) Data Gathering (January – March 2012)
2) Regional SEM Roadmap Workshop (a one-day workshop held in Portland, Oregon on March 21, 2012)
3) Implementation (April 2012 to present)

Data Gathering

The long-term success of industrial SEM depends on a large and complex network of organizations that is currently loosely interconnected. As part of the upfront planning of the Roadmap development process, NEEA identified the major players in the Northwest for the development and implementation of industrial SEM. This network includes:

- Northwest energy efficiency organizations
- National energy efficiency organizations
- Utilities, BPA and ETO
- Industry groups and Northwest industrial firms
- Northwest energy efficiency consultants

To kick off the Roadmap process, NEEA conducted a series of informational interviews with representatives from each of these key organizations to gather initial findings and observations of the marketplace, which ultimately helped inform the structure of the Regional SEM Roadmap Workshop. A total of 12 stakeholders (a sub-set of the Regional SEM Roadmap Workshop attendees) from around the region were interviewed. NEEA asked questions on key themes including: *What does 2030 look like with regard to SEM in industry? Does your organization have current or planned activities that support this point of view? What else is required to achieve this vision of 2030? What barriers exist?*

Leveraging the interview findings, NEEA mapped out the key themes that emerged from stakeholder's responses, which provided context and a shared understanding of the market landscape and various concerns as the group approached the Roadmap Workshop. Some of the key themes common throughout the interviews were:

- Economic Shifts – down economy
- Social Climate – increased preference for "green" products and companies
- Political Influence – policy decisions in support of energy efficiency
- Increased Governmental Regulations – carbon, greenhouse gas (GHG), Integrated Resource Planning (IRP) requirements for utilities
- Global Marketplace – increased pressure to compete with countries that have stronger energy efficiency requirements
- Supply Chain – energy supply shortages, large customer sustainability requirements (i.e. Walmart)
- Technology Trends – controls and metering, smart grid, real time tracking, integration of information systems across all manufacturing sites
- Industry Needs – e.g. integration of energy with other information systems, increased workforce capacity
- Uncertainties – climate change, water shortages, utilities' role in energy efficiency in the future

Regional SEM Roadmap Workshop

In March 2012, NEEA convened 23 people from 20 different organizations to hold the first of its kind, Northwest SEM Roadmap Workshop – a one-day working session to begin the development of the SEM Roadmap effort. Held in Portland, participants from all across the nation attended, including representatives from the following organizations:

- American Council for an Energy Efficient Economy
- Bonneville Power Administration
- Cascade Energy, Inc.
- Consortium for Energy Efficiency
- Cowlitz County PUD
- Ecova, Inc.
- Energy Trust of Oregon
- EnerNOC, Inc.
- Environmental Protection Agency – ENERGY STAR
- Georgia Institute of Technology
- Idaho Power Co.
- NEEA
- NW Food Processors Association
- NW Power and Conservation Council
- Oregon Department of Energy
- Puget Sound Energy
- Rocky Mountain Power & Pacific Power
- Triple Point Energy, Inc.
- U.S. Department of Energy
- Washington State University Extension Energy Program

Working with these key stakeholders, the Roadmap effort aimed to achieve the following four goals:

1. Leverage combined strengths to move Northwest industrial SEM forward
2. Create a vision of where industrial SEM is heading
3. Build a roadmap to get there
4. Align on roles (who should be doing what around the region)

To begin the day-long workshop, the group set out to agree upon a vision statement for the SEM Roadmap effort through a brainstorming exercise. This exercise provided the opportunity for the group to align right off the bat on what the collective vision for industrial SEM is for the Northwest. Through a facilitated exercise, the group agreed upon the following vision statement, which helped set the tone for the rest of the workshop:

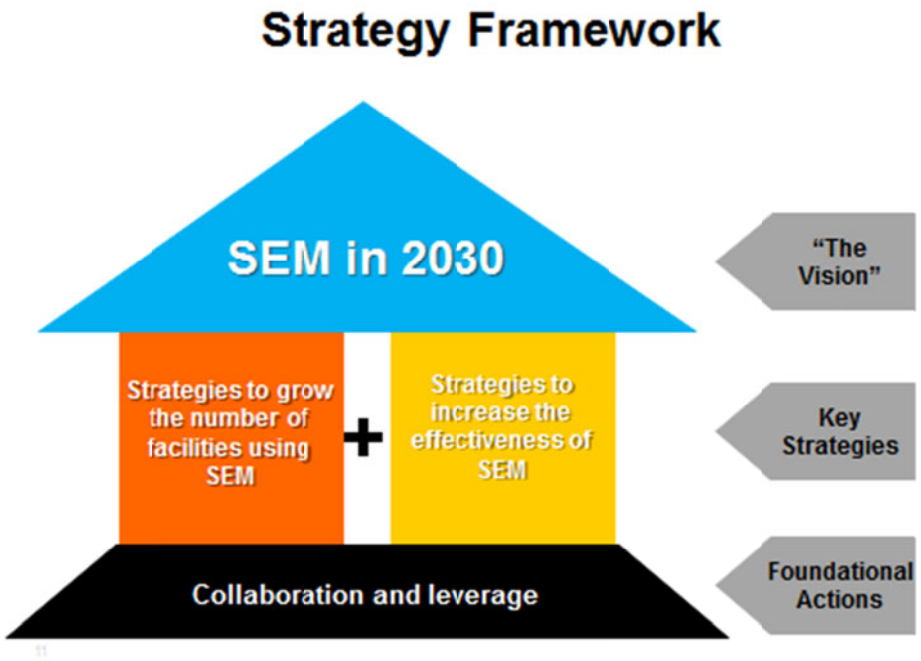
> *Northwest Manufacturing is a global powerhouse of the new economy: clean, lean, innovative and competitive.*

The group then identified three major themes for the vision of the Roadmap effort. Although these themes were not specified exactly in the vision statement, they were important to recognize as the group continued its collaborative work on the Roadmap. These themes would help serve as the foundation for the nuts and bolts of the Roadmap strategies:

1. Business Integration – SEM is completely integrated into Northwest industry's business practices, like quality or safety
2. Technology – Industry manages energy in real-time – SEM practices combined with new technologies and controls

3. Sustainability – SEM is embedded in industry's sustainability practices

Once the themes and vision were agreed upon, the group set out to define the SEM Roadmap's strategy framework. With collaboration and leverage serving as the foundation of the framework, two key strategies would ultimately lead to achieving the Roadmap vision for SEM in 2030 – grow the number of facilities using SEM and increase the effectiveness of SEM. At the highest level, these would be the foundational, guiding principles for the Roadmap effort. The framework is shown in the diagram below.



Now that the framework for the strategy had been defined at its highest level, the group began to drill down to a more detailed look at what and how things needed to start happening in order for the region to make progress towards the vision. This next level of detail included specifying the following:

Market Descriptors – What markers would we see if we were making progress toward the vision?
Strategies and Plans – How will we plan to achieve progress?

Market Descriptors

A large focus of the day's work was spent brainstorming a comprehensive list of market descriptors that could be used to measure progress towards the vision for each year dating back to 2005 and through to 2030. Descriptors were classified into seven categories – Industry, Supply Chain, Consumers, Policies, Standards, Capabilities, and External View of the Northwest. Nearly 100 market descriptors were identified through the pre-workshop and workshop activities. As an example, the descriptors for 2016 are as follows:

- *Industry* – SEM begins to be integrated into data and management systems
- *Supply Chain* – Common platform emerges for web-enabled energy data management and monitoring system (low cost)
- *Consumers* – Consumers recognize product price for energy
- *Policies* – Regulators begin to require utilities to have SEM programs
- *Standards* – ISO 50001 is valued and has market demand
- *Capabilities* – SEM is offered in executive business training
- *External View of the Northwest* – SEM programs receive international recognition

Strategies and Plans

Taking a holistic view at the aforementioned vision, themes, strategy framework and market descriptors, the group set out to identify key strategies that could take the Northwest closer to achieving the SEM Roadmap vision asking questions such as: *What are the key strategies that would grow the number of facilities using SEM? What are the key strategies to increase the effectiveness of SEM? What are the key strategies that will need to be employed in order to achieve the market descriptors all the way through the year 2030?*

Through a facilitated group exercise, the following four strategies were agreed upon as the basis for all future regional work:

1. Scale and configure regional solutions for small and medium-sized industries
2. Standardize savings protocols across the region
3. Identify foundational requirements and pilot a program for new/improved information/data systems
4. Educate regulators on SEM

By the end of the workshop, much of the groundwork was established for the Northwest Industrial SEM Roadmap and documented in a condensed PowerPoint presentation. Although the work had only just begun, the region was on its way toward a more collaborative approach to the implementation of SEM around the region.

To wrap up the day's work, the group came up with a name (and eventually a logo) for the regional SEM work – Northwest Industrial SEM Collaborative (Collaborative).

Implementation

After the one-day workshop, there was still a lot of work to be done. Project planning needed to commence for each of the main strategies, a funding model needed to be outlined and the group would begin to discuss success metrics for the various strategies and plans.

One of the first things the group recognized the need for was further clarity on roles and responsibilities, as well as a governance structure to help guide the process as they began to work towards the Roadmap vision. The group acknowledged that with this large of an effort, the most efficient way to begin working on these strategies was to form regional workgroups that would allow smaller groups to focus on one strategy at a time. Then within each of those workgroups, there would be a variety of different roles and responsibilities that would need to be served.

There would be six workgroups formed to work towards the four main strategies:

1. Market Analysis and Planning
2. Large Industry Solutions
3. Energy Tracking and Protocols
4. Small- to Medium-sized Industrial Solutions
5. Training/Education
6. Regulator Outreach Support

Within each of those cross-functional workgroups, there would be eight distinct roles to be served:

Title	Role	Primary Responsibilities
Leadership Team Member	Provides overall leadership and guidance to achieve the industrial SEM vision and Roadmap	• Actively supports initiative (i.e. resource allocation, roadblock removal, communication) • Oversees Roadmap plans and aligns regional priorities • Provides communication and outreach to champions and new members
Project Definition Lead	Develops initial objectives and plans for the workgroups	• Completes the initial tasks to launch the work team, including selecting membership, outreach and communication, team charter development, and initial launch of team • Ensures a work team lead is selected for project implementation
Work Team Lead	Leads the work team on a day-to-day basis	• Drives work plans and results • Provides ongoing communication to Leadership Team, and as appropriate, Collaborative members
Work Team Member	Participates as an active member of the work team	• Carries out assigned tasks per the project plan
Collaborative Member	Provides feedback, promotes and supports the work teams	• Shares plans, practices, and learnings • Collaborates on common issues • Strengthens energy management approaches • Ensures stakeholder (efficiency program administrator population) uptake and success

Title	Role	Primary Responsibilities
Funder	Funds the work team	• Ensures appropriate level of funding available per the project plan
Advocate	Promotes, supports and endorses the initiatives	• Strategically, opportunistically and positively represents the work of the Industrial SEM Roadmap
Consultant	Partners with Leadership Team members to launch and stabilize teams	• Collaborates with leads to prepare for and conduct launches; coaches team in initial development of actions and charters

Due to the fact that some members of the Collaborative may serve various roles on several of the work teams, they would be launched in phases or rounds:

Round 1 Launch – August - October 2012

- Market Analysis and Planning
- Energy Tracking and Protocols
- Small- to Medium-sized Industrial Solutions

Round 2 Launch – planned 2013

- Large Industry Solutions
- Training
- Regular Outreach Support

Each of these work teams was tasked with compiling short-term (2012-2014), mid-term (2015-2020) and long-term (2020-2030) actions, which provided a basis for future project plans. The Round 1 Collaborative teams launched in August and developed their charters and team deliverables for the short-term actions identified in the roadmap. The teams also began developing standardized approaches and common terms, sharing best practices and key learnings, and collecting regional data.

March 2013 Update

Team Development

Using mostly volunteer time, the Collaborative has started to execute against the governance structure roles and responsibilities outlined above. The SEM leadership team has begun a regular set of meetings to help steer this effort and provide specific work team leadership and guidance. Planning in 2013 has included the development of a set of metrics to help measure the effectiveness of the Collaborative. These development metrics were created to support the Collaborative as it matures going forward. A high-level calendar was also created for the SEM leadership team to use through 2013. In late summer, there will be another face-to-face leadership team meeting to review work team efforts as well as plan out the next couple of years in the roadmap timeline.

Expanding the Collaborative

The Pacific Northwest has taken on a leadership position in industrial SEM and that leadership comes with a responsibility to share learnings. Organizations at the national level continue to develop and refine their SEM efforts and the Northwest continues to actively collaborate with them.

For example, CEE lead authored the ACEEE paper on Northwest SEM collaboration in 2011 and the industrial team has participated as a member of the Collaborative. CEE has a goal to provide its bi-national public benefit administrator membership with an industrial SEM program framework for member use in determining their local industrial SEM strategies/approaches. From spring 2012 forward, regular CEE meetings have included sessions focused on industrial SEM. The intention is that working together, the Collaborative can help support the SEM efforts of CEE.

Additionally, as participants in the Collaborative, the U.S. Department of Energy (DOE) has brought a focus on both ISO 50001 and the Superior Energy Performance program (SEP). As DOE refines their SEM strategy going forward, members of the Collaborative intend to support the national efforts.

Starting in summer 2012, BC Hydro and NEEA began some conversations on industrial SEM. BC Hydro had recently completed a review of their SEM program with ISO 50001 and had presented the findings at the CEE summer meeting in Boston. They were developing a long-range plan for industrial SEM and decided it might be useful to join the effort. BC Hydro brings significant industrial SEM experience to the project. They joined officially in late summer 2012 and have participated on both the SEM leadership team as well as three work teams. BC Hydro has been tapped to lead a 2013 work team.

Key Takeaways and Challenges

As the Collaborative continues, its work towards making "Northwest manufacturing a global powerhouse of the new economy," it will capture key learnings along the way. Some takeaways from the SEM Roadmap project thus far include:

- The selected group of stakeholders in the Collaborative is a good mix, with everyone bringing something different to the effort.
- The interview process prior to the workshop offered great insights and helped shape both the process and the content.
- There is a need for more standardized approaches in measuring SEM efficacy. This is crucial for the utilities looking to offer SEM as part of their respective offerings.
- A couple of regional utilities in the Collaborative have decided to offer SEM and are at various stages of engaging the supply base to help launch their respective programs to their industrial customers.
- The Collaborative needs to be flexible and fluid – not set in stone. Collaborative members must be allowed the flexibility to experiment with programs and techniques they feel will advance the cause of industrial SEM.

The Collaborative's efforts have not been without its unique challenges and setbacks. Some challenges include:

- The members of the Collaborative are all at different places in their SEM maturity. Some have stronger technical working knowledge of SEM, some have no capacity to offer SEM, and some are still studying SEM. Additionally, not all of the organizations represented in the Collaborative have the same goals, success metrics or resources. To address this, the Collaborative leadership has instituted an operating tenet that it will move forward at a deliberate pace—not adapting to the 'lowest common denominator' thinking.

- In a related challenge, the Collaborative must balance the volunteer time of the members with the speed of implementation across the Collaborative. Collaborative leadership must move the effort along without alienating well-intentioned members who may not have the time to commit to a long-term, time-intensive effort.

Conclusion

NEEA and the Northwest are taking a collaborative approach to industrial SEM. This effort is based on the premise that the region can achieve more working together than can any single utility or organization. By working collaboratively, energy efficiency program administrators can accelerate the adoption of SEM in the industrial sector.

The Collaborative is currently in the middle of a multi-year effort. The purpose of this paper is to outline a case study of putting together a large, multi-stakeholder, collaborative effort on a particular area of focus—in this case SEM. The effort is organic and in balancing stakeholder needs and priorities, cannot move as fast as a local effort. The goal is regional optimization of stakeholder return on investment in moving SEM from a nascent idea to something well-embedded in the industrial economy of the region.

References

Jones T., Kim Crossman, Jennifer Eskil, John Wallner. 2010. *The Evolution of Continuous Energy Improvement Programs in the Northwest: An Example of Regional Collaboration,* ACEEE Summer Study on Energy Efficiency in Industry.