Strategic Energy Management for C&I Customers: Best Practices Research for Program Design & Optimization

Toben Galvin, Director
Navigant Consulting Inc.

Jay Luboff, Associate Director
Rebecca Legett, Managing Consultant
Vijeta Jangra, Managing Consultant
Robert Firme, Senior Consultant

February 15, 2017
Today’s Presentation

Strategic Energy Management (SEM) is a focused process to work in-depth with Commercial and Industrial (C&I) customers to identify and implement low-cost / no-cost energy efficiency savings opportunities over a long-term cycle.
Commercial SEM Programs and Best Practices

SEM IS A HANDSHAKE (with utility incentives) TO SAVE ENERGY OVER A LONG-TERM CYCLE THROUGH LOW-COST / NO COST ACTIVITIES BETWEEN A PROGRAM ADMINISTRATOR AND A BUSINESS or ORGANIZATION’S OWNER/OPERATOR

“We’ll focus on O&M and any capital improvements we can identify!”

Process/O&M improvement project

- Turning equipment off when not needed
- Fixing compressed air leaks
- Compressed air system optimization
- Production scheduling optimization
- Formalizing equipment shutdown procedures
- Improving process yield and associated
- Capital Improvements
Three Common SEM Program Models

Market research informs the choice of program model.

- **Cohort**
  - Ideal for a market made up of many, equally strong customers or similar non-competitors; participants share ideas, work collaboratively
  - Mid-sized Commercial Real Estate/Offices
  - Schools
  - Colleges/Universities

- **Flagship**
  - Ideal for a market with fewer customers but whose customers have multiple facilities; “Showcase” and “Replicate”
  - Hotels
  - Grocery chains
  - Convenience Stores
  - Large-Sized Real Estate Companies/Offices

- **Top-Down**
  - Ideal for a market with few customers who are highly centralized
  - Hospitals
  - Tech Companies
  - Government Buildings
## Customer Profile of SEM Participants

### SEM Industry Types Most Commonly Targeted by SEM Programs

<table>
<thead>
<tr>
<th>Customer Type</th>
<th>AEP Ohio</th>
<th>Efficiency Vermont</th>
<th>Energy Trust of Oregon</th>
<th>Focus on Energy</th>
<th>NEEA</th>
<th>NEEA</th>
<th>Xcel Energy</th>
<th>PSE</th>
<th>Puget Sound Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conv. Center</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Grocery</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Hospitals</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labs</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Offices</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Restaurant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Schools</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>University</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Operations and Implementation: Sector Comparison

**COMMERCIAL**
- More business-oriented
- More data-management complications
- Property management issues
- Geographically dispersed
- Individual facilities have lower opportunity
- Homogenous

**INDUSTRIAL**
- More Technical and process-oriented
- Customer owns site
- Geographically isolated
- Individual facilities have higher opportunity (more process-based)
- Unique

Affects Cost-Effectiveness

Less SEM program spend

More EE Opportunity
Best Practice SEM Elements

1. PEOPLE ENGAGEMENT
2. CUSTOMER SEM POLICY AND GOAL SETTING
3. FINANCIAL INCENTIVES
4. PROJECT PLANNING AND IMPLEMENTATION
5. MEASUREMENT AND VERIFICATION
6. MARKETING AND CASE REPORTS
## Best Practice Insights: Initiation and Recruitment

### SEM Initiation

<table>
<thead>
<tr>
<th>Relationship Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leverage existing networks or establish new ones</td>
</tr>
<tr>
<td>If lacking in-house resources/experts, recruit experienced Third-Party Implementer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Market Reconnaissance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research the market, identify customer needs</td>
</tr>
<tr>
<td>Understand customer’s organizational structure (e.g., command-and-control vs. collaborative)</td>
</tr>
</tbody>
</table>

### Recruitment

#### Accessing Customers
- Utilize Account Managers
- Leverage Channel Partners or Professional Associations
- Engage Customer Executives (If Top-Down SEM model)

#### Selecting Customers
- Identify the low-hanging fruit
- Be Selective
- Customer Eligibility Criteria Are Flexible
Don’t Rush Recruitment and Enrollment

Laying the organizational foundation can be difficult and time-consuming

Rigorous customer selection should filter out the customers who do not have the commitment or SEM requirements in place. Reserve the right to reject customers who aren’t committed or institutionally ready.

Use existing resources such as built-in data software, energy management system, and/or pre-existing curriculum.

Lack of Executive Commitment can seriously impair a program.

Executives should have a role in SEM so they can see the value and provide buy-in.

“In order for an SEM to be successful, figure out how the energy piece fits into the customer's world, instead of trying to fit the customer into the energy world. Communicate operational cost savings from energy to revenue equivalent.”
- NEEA H&H Program Manager
### Best Practices in People Engagement, Customer Policy and Goals, and Financial Incentives

#### People Engagement
- A handshake with Organization Management, Champions, Internal Energy Teams is critical
- Maintain ongoing contact and encourage energy teams to include employees at all levels

#### Energy Policy and Goals
- Set Energy Goals as Targets for Executive Oversight and Energy Team Focus = more $ savings
- Support Goals and Policies development for later Program Administrator Progress Tracking

#### Financial Incentives (Three Types)
- Energy Savings Incentives at ± $0.02/kwh and $0.20/therm
- Measure-Based Incentives use incentives for specifically defined SEM projects
- Lump-Sum Incentives provides large monetary amount to meet SEM/ISO50001 standards
Best Practices in People Engagement, Customer Policy and Goals, and Financial Incentives

Project Planning and Implementation
- **Establish a system** for customers to identify and implement savings opportunities
- **System planning** needs to be ongoing not just focused on low-hanging fruit

Measurement and Verification
- **Establish long-term data collection** to determine savings persistence
- **Estimate savings** based on at least 12 months of savings to capture seasonal effects
- Account for changes in economics, etc.

Marketing and Case Reports
- **Publish case studies** to use to advertise the value of SEM for recruitment
- **Use past contacts** and **direct approaches**, which are also used effectively by some programs
- AEP OHIO achieved SEM savings at a cost of $0.11/kWh (first year savings) in 2014. TRC ~2.7
SEM Operations and Implementation

Think organizationally; work with all parts of the customer’s shop

Keep focused on continuous improvement opportunities and new needs

Contract out (if needed) or learn and then run program

Provide interactive support with other customers (cohort)

Be dynamic: evolve around customer needs

Common SEM Steps:
1) Energy Management Assessment
2) Energy Map
3) Metrics and Goals
4) Project Register
5) Employee Engagement
6) Implementation
7) Reassessment

Source: CEE
Operation Lifecycle of SEM Programs

Pre-Existing Program

Market Reconnaissance

Program Ideation and Initiation

Early-Market Maturity Phase

Mid-Market Maturity Phase

Mature Market Maturity Phase

Market Transition

Potential Third-Party Implementer/Contractor Enters

Potential Third-Party Implementer/Contractor Exits

Years from Conception

0

3-4

8+

11+

SEM Program design/ customer recruitment ~1 year
Projects initiated: ~2-6 months after enrollment.
What About Potential Role of 3rd Party On-Site Energy Managers?

**Interest in On-Site Energy Manager**

- 2.5 days/wk (50%)
- 1 day/wk (20%)
- 0.5 days/wk (10%)

**Willingness to Pay for EM**

- 2.5 days/wk (50%)
- 1 day/wk (20%)
- 0.5 days/wk (10%)

**Willingness to Pay (with 50% subsidy)**

- 2.5 days/wk (50%)
- 1 day/wk (20%)
- 0.5 days/wk (10%)

Legend:
- 5 - Very likely
- 4
- 3 - Somewhat likely
- 2
- 1 - Absolutely Not
Summary Conclusions: Best Practice SEM Program Design

Identify Internal and Market Barriers

**Internal**
- Lack of SEM policies and goals
- Lack of resources for SEM planning and implementation
- Challenges conducting EM&V
- Limited qualified contractors with SEM knowledge and expertise

**Market**
- Lack of Awareness of benefits
- High upfront project costs
- Lack of customer motivation
- Uncertainty of savings realization

Select Strategies to Overcome Barriers

**Strategies**
- Marketing and case reports
- People engagement
- Customer SEM Policy and goal setting
- Financial incentives
- Project planning and implementation
- Measurement and verification

Choose Activities to Implement Strategies

**Activities**
- Publish SEM articles and case studies
- Target high-potential committed customers
- Utilize account managers and trades association to recruit SEM
- Establish energy teams and internal champions and meet regularly
- Organize or sponsor trainings
- Support customers developing policies and goals and savings opportunities
- Provide energy based or performance based incentives
- Use standard M&V protocols, provide tools and software as needed
Conclusion

• Be selective and careful on program design and participant recruitment

• Encourage energy teams to include employees at multiple levels and from various departments, especially facilities and management.

• Provide a dedicated point of contact between the program administrator and the customer, whether this is an account manager, engineer, energy advisor, etc.

• Facilitate communication with and among customers through regular meetings.

• Be flexible. Evolve your SEM program strategy overtime, to best serve emerging needs of participants.

• Engage with your EM&V team early in the program design, launch process to confirm approaches and methods to verify savings.
Questions

Toben Galvin
Director
Navigant Consulting Inc.
+1.802.526.5112
toben.galvin@navigant.com