



Commercial and Industrial Session: Framing Energy Management as a Program Opportunity

CEE Winter Program Meeting
Wednesday, January 13, 2010
1:00-3:00pm



Breakout Session Objectives

- ▶ Introduce energy management and continuous energy improvement program approaches, including their benefits
- ▶ Identify common elements and considerations as the basis of an energy management program framework
- ▶ Identify opportunities to develop and maintain program support for energy management centrally.

Session Agenda



▶ Setting Context

- Energy Management Standards
- Energy Management Program Offerings

▶ Program Panel

- John Sandin, Northwest Energy Efficiency Alliance
- Todd Amundson, Bonneville Power Administration
- Francois Rongere, Pacific Gas & Electric

▶ Next Steps

- Identify core needs and interests of CEE members
- Discuss opportunities to support member energy management programs centrally

Before we begin...

- ▶ What is your relationship to energy management?
 - New to you; here to learn
 - Researching program designs
 - Designing a program
 - Implementing a program (pilot or full scale)



Setting Context

- ▶ Typical Efficiency Program Design
- ▶ Potential Benefits of Adding Energy Management to Programs
- ▶ Energy Management Standards
- ▶ Energy Management Program Elements

Typical Industrial Program Objectives

- ▶ Contribute toward energy savings goals
- ▶ Identify and implement projects that result in verifiable and cost-effective energy savings

Typical Industrial Program Design

- ▼ Customer Outreach, Education and Training
- ▼ Audits/Assessments
 - equipment, systems, process, and facilities
- ▼ Design Assistance
- ▼ Project Incentives
 - Deemed Incentives
 - lighting, motors, refrigeration, food service
 - Calculated Incentives
 - drives, fan and pump system upgrades, process
 - Custom Projects
 - Everything else
- ▼ Delivery
 - Downstream, Upstream, or Both

Typical Industrial Program Model

- ◀ **Problem:** Savings targets are outpacing the flow of projects coming in the door
- Need to accelerate and deepen projects on a more consistent basis
 - Need to capture energy, demand and renewable, self generation opportunities
 - Need to lower transaction costs associated with one-off projects.

Accelerating Energy Savings

End-Use Focus

- ▼ Motors, Drives, Lighting
- ▼ Compressed Air
- ▼ Pump Systems
- ▼ Fans & Blowers
- ▼ Refrigeration
- ▼ Steam, Boilers
- ▼ Process Heating
- ▼ Process Controls
- ▼ Mechanical Pulping
- ▼ Co-Generation

Management-Based Initiative

- ▼ Commitment to energy mgmt.
- ▼ Establishing energy champions and energy teams
- ▼ Assessments - technical, business
- ▼ Developing measurable key performance indicators
- ▼ Action planning using KPIs
- ▼ Supporting internal energy awareness and training
- ▼ Project implementation
- ▼ Recognizing Achievements
- ▼ Re-assessment of KPI's

Market Sector Focus

Energy Management Models

ENERGY STAR Energy Management Guidelines



Management System for Energy (ANSI/MSE 2000-2008)



Management System for Energy (ANSI/MSE 2000-2008)

- ▶ Specifies requirements for a management system for energy (MSE) that enables an organization to take a systematic approach to continual improvement in energy
- ▶ This framework encompasses both management and technical elements of energy management
- ▶ While relevant to programs, not a program design

What is inside an EM standard?



- ▶ Management Responsibility
- ▶ Energy Management Planning
- ▶ Implementation and Operation
- ▶ Checking and Evaluation
- ▶ Management Review

What is inside an EM standard?



- ▶ Management Responsibility
 - Management Commitment
 - Energy Policy
 - Responsibility and Authority
 - Strategic Planning

What is inside an EM standard?



◀ Energy Management Planning

- Energy profile
- Key performance indicators (energy, production and financial data)
- Goals, targets and project planning
- Utility tracking
- Energy assessments
- Significant energy uses

What is inside an EM standard?



◀ Implementation and operation

- Energy supply purchasing
- Design and selection
 - New facilities or major modifications
- Control of equipment, systems and processes
- Energy management project implementation

What is inside an EM standard?



▼ Checking and Evaluation

- Monitoring and measurement
 - May require submetering
- Tracking and reporting

▼ Management Review

- Regular reviews to allow corrective actions and adjustments to the system
- Forward looking

Energy Management Program Design

Spectrum of program offerings intended to enhance customer participation in traditional program offerings and encourage continuous energy improvement

- ▶ Meter upgrades/Interval data
- ▶ Management assessments, planning
- ▶ Energy managers
- ▶ Operations and maintenance measures
- ▶ Monitoring, reporting, and tracking systems
- ▶ Comprehensive energy management
 - training and support to end users on how to implement energy management

Energy Management Systems
Management Responsibility
Management Commitment
Energy Policy
Responsibility and Authority
Strategic Planning
Energy Management Planning
Energy profile
Key Performance Indicators
Goals, targets and project planning
Utility tracking
Energy assessments
Identifying major energy uses
Implementation and operation
Energy supply purchasing
Design and selection
New facilities or major modifications
Control of equipment, systems and processes
Energy management project implementation
Checking and Evaluation
Monitoring and measurement
May require submetering
Tracking and reporting
Management Review

Energy Management Program Offerings
Comp. energy management
Management assessments
Energy managers
Energy managers
Energy managers
Management planning assistance
Meter upgrades/Interval data
Meter upgrades/Interval data
Traditional audits/assessments
Traditional program offerings
Traditional Design Assistance
Operations and maintenance measures
Meter upgrades
Energy management training

Why Members Are Adding an Energy Management Component to Programs

- ▶ A cost-effective approach to ramp-up savings in the C&I sector
- ▶ Can help initiate long-term relationships with customers
- ▶ Serves as a program platform to support multiple projects and to achieve multiple benefits (energy, demand, self-generation, renewables)

Challenges

- ▶ M&V approaches for EM programs
 - Attribution of energy savings
- ▶ Lack of technical capacity to support it
- ▶ Identifying suitable customers for EM
- ▶ Matching program offerings to customers
 - One size fits all
 - Organizational attributes, business objectives
 - Customer Situation Assessment, BC Hydro
 - *A Self Test of Organizational Aptitude for Managing Energy*, Chris Russell, ASE.

Additional Program Perspective

Program Panel

- ▶ John Sandin, Northwest Energy Efficiency Alliance
- ▶ Todd Amundson, Bonneville Power Administration
- ▶ Francois Rongere, Pacific Gas & Electric

Panel Topics

- ▶ Why have you embraced energy management?
- ▶ What do you hope to achieve?
- ▶ What metrics do you use to measure success?
- ▶ What are the biggest challenges in designing, implementing and evaluating EM programs?

Next Steps

- ▶ What can we do together to advance our common interest in energy management?
 - What common information needs do you see?
 - What common market barriers do you think need to be addressed?
 - Where would central, consistent, and coordinated program support for EM enhance program effectiveness?

Proposed Areas for Centralized Support

- ▶ Energy Management Program Guidance
- ▶ Sharing of Key Performance Indicators by customer types
- ▶ Identify Feature Sets for Monitoring Tracking and Reporting Systems
- ▶ Peer-to-Peer Exchange on Energy Management Program
- ▶ Other

1. Development of Energy Management Program Guidance

- ▶ Key terms, references
- ▶ Spectrum of programs approaches, offerings
- ▶ Evaluation techniques
- ▶ Expected benefits
- ▶ Target markets, customer profiles
 - Match program approaches to customer characteristics

2. Key Performance Indicators

- ▶ Develop a central resource for program administrators that lists KPIs developed for common customer types and to enable comparisons.

3. Monitoring, Tracking Reporting Systems

- ▶ To identify and categorize feature sets of M,T&R systems that are desirable from a program perspective, particularly from and M&V perspective
- ▶ Match M,T&R systems to customer characteristics
- ▶ To identify a minimum feature set for program support.

4. Peer-to-Peer Exchange on Successful Energy Management Program Adoption

- ▶ Share best practices in program design
- ▶ Share which companies are successfully adopting energy management
- ▶ Enable members to follow-up with plants in their service territory
 - Corporate office has made commitments nationally (DOE, EPA)
 - Plants have embraced EM outside their service territory.

5. Other

- ◀ What other areas might we pursue together in this area?

Don't Forget: Commercial Whole Buildings Committee

- ▶ Making sense of a crowded market for energy information systems
- ▶ The opportunity to use these technologies to achieve efficiency and demand response program goals
- ▶ Breakout Session: Thursday 1:00-2:30pm

Thank you.

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