Southeast 50001 Ready: Advisory Group Intro

Tuesday, July 9, 2019, 2:00-3:30 pm
The Southeast Energy Efficiency Alliance (SEEA) promotes energy efficiency as a catalyst for economic growth, workforce development and energy security. We do this through collaborative public policy, thought leadership, outreach programs, and technical advisory activities.

SEEA Serves the Southeast
Webinar-keeping

- You will be started on mute, please use the Q&A feature in your control panel to ask questions.
- Depending on participation, we may take people off mute for Q&A.
- The webinar will be recorded and all slides are available on request.
Agenda

▪ Overview and Background
▪ 50001 Ready Refresher
▪ 50001 Ready Tools and Resources
▪ Southeast 50001 Ready Technical Assistance and Training Cohort
Purpose

- To empower you with the information and resources you need to engage and enroll candidate end-users in the Southeast 50001 Ready Cohort
Engaging customers with 50001 Ready

July 2019, version 1.3

Advanced Manufacturing Office

50001 Ready Program for Utilities and Implementers
Engaging Customers with 50001 Ready

How to drive deep, sustainable energy savings through energy management

Presentation Sections:
1. What is an EnMS and why is it important?
2. The 50001 Ready Program
3. Options and resources for utility programs and implementers
EnMS, An Overview:
ISO 50001, SEM & CEI
An Energy Management System (EnMS)...

- Integrates active energy management into everyday business systems and procedures.
- Drives continuous improvement of a site’s or organization’s energy performance.
- Controls energy usage, achieves operating cost savings, and continuously improves energy efficiency.

An EnMS can be implemented in many different ways.

ISO 50001 is the international standard for EnMS and energy improvement.
ISO 50001

An EnMS defined by an international body

- International best practice for establishing, implementing, maintaining and improving an energy management system.
- Developed to promote consistency among national energy management standards.
- Shares same structure as existing management system models of continual improvement: quality (ISO 9001) and environmental management (ISO 14001).
- Published in 2011 and updated in 2018
  - 44 ISO member countries and 14 observer countries

ISO 50001 is not a utility program design. It does not prescribe how to achieve the requirements.
Multiple 3M & Schneider Electric sites showed a 2x improvement vs internal business as usual.

ISO 50001 sites show greater energy savings that increase over time compared to non-ISO 50001 facilities.

Data analysis conducted by 3M and Schneider Electric.
EnMS defined by CEE’s Minimum Elements

• Developed to create consistency between emerging utility and implementer SEM/CEI programs across North America

• Published in 2014
  – Created by CEE’s Industrial SEM working group, which included utilities with existing SEM programs

• Describes the minimum conditions an industrial company or facility should have in place to continuously improve energy performance.

• CEE Minimum Elements is not a utility program design. It does not relay how to achieve the conditions.

Most SEM programs are designed to help customers go well above and beyond the minimum conditions
ISO 50001 and SEM/CEI

ISO 50001 and SEM Minimum Elements are complementary documents with different goals

• CEE’s SEM considers minimum elements- as defined by NA utility programs
• 50001 considers a comprehensive system- as defined by an international body
• In addition:
  – 50001 requires additional “elements” that are not required by CEE
  – Most elements in both documents are similar but use different language
• Those elements that are required by both documents are complementary

Many Implementers and Utility programs are moving towards ensuring their programs are ISO 50001-compatible, whether or not they require all of the ISO 50001 “elements”
Bridging the Gap: The DOE 50001 Ready Program for utilities and implementers
How does 50001 Ready help utility programs?

The 50001 Ready program is designed to provide implementers and utilities with support that is not currently available, including:

1. Program design guidance
2. Resources, templates, samples
3. Tools
4. Attestation
5. Recognition

No matter what type of program the utility or implementer currently runs or wants to add to their portfolio.
**50001 Ready Process for customers**

1. Implement ISO 50001 principles
   - Complete 25 Tasks in US DOE’s 50001 Ready Navigator free, self-guided online tool

2. Present energy performance
   - Submit energy performance data. May use EPA’s Portfolio Manager, DOE’s EnPI Lite or other energy reporting data systems

3. Self-attest to 50001 Ready
   - Sign-off by management of 50001 Ready implementation and commitment

**Company Name**
Is recognized for instituting global best practices in continuous energy improvement

Recognized by the U.S. Department of Energy

Dr. Kathleen Hogan
Deputy Assistant Secretary for Energy Efficiency

**STEP 4 (non-DOE program)**
Pursue ISO 50001 Certification if desired

- Move to achieve ISO 50001 Certification
  - Decide on facility or enterprise level
  - Organize submissions of policy, framework fulfillment and performance
  - Work with external auditor & certification body to receive ISO 50001 Certification

DOE and others recognize 50001 Ready achievement

energy.gov/50001Ready
50001 Ready Summary of Tools

The **50001 Ready Navigator**
Free online step-by-step guide.
The core tool for EnMS development, benchmarking, and assessment.

**Plan**
**Energy Footprint Tool**
Track energy consumption and determine significant energy end-uses

**Act & Check**
**Register of Implemented Energy Performance**
Organize & track actions to implement an EnMS. Bottom up check

**Do**

**M&V**
**EnPI Lite**
Top down regression. Establishes baseline, energy performance indicators, tracks progress & savings

**EnPI**
Added functionality for accounting for variables and more robust regression analysis
### Planning
1. Scope and Boundaries
2. Energy Policy
3. Management Commitment
4. Energy Team
5. Legal Requirements

### Energy Review
6. Data Collection
7. Data Analysis
8. Performance Indicators (EnPIs)
9. Significant Energy Uses (SEUs)
10. Relevant Variables
11. Baselines, Objectives and Targets
12. Improvement Opportunities
13. Improvement Projects

### Continual Improvement
14. Monitoring
15. Measurement
16. Operational Controls
17. Corrective Actions
18. Energy Consideration in Design

### System Management
19. Documentation and Records
20. Communications
21. Training
22. Procurement
23. Internal Audit
24. Calculate Energy Savings
25. Management Review
50001 Ready Tools

50001 Navigator Tool

✓ Online tool, with simple, step-by-step approach to ISO 50001 implementation
✓ 25 tasks divided into 4 sections
✓ Ability to assign tasks to team members
✓ Extensive guidance available in each module

navigator.lbl.gov/
50001 Ready Tools

50001 Navigator Tool

- Guidance broken into straightforward sections, including:
  - Getting It Done – what specifically needs to be accomplished
  - Task Overview – how does this task connect with ISO50001
  - Full Guidance – comprehensive guidance about the task
  - Optional Transition Tips – from other ISO management systems

- Track and update task progress
- Form teams and assign tasks
- Download guidance
- Create multiple projects
- Access over 100 related resources
- DOE 50001 Ready Recognition!
DOE Energy Footprint Tool

Developed to support manufacturing, industrial and commercial facilities that are implementing energy management plans.

Organize Data to Easily track and analyze:

- **Energy consumption**
  Electricity, natural gas, etc.

- **Relevant variables**
  Production levels, degree days, operating hours, occupancy rates, etc.

- **Energy Uses**
  i.e., Application of energy

- **Calculates energy-related greenhouse gas emissions**

energy.gov/eere/amo/downloads/energy-footprint-tool
DOE Energy Performance Indicator Tool (EnPI Lite)

Navigator’s companion tool for facility-level energy performance

- Enter or upload energy use data and account for mitigating factors (e.g., production levels, occupancy changes, weather)
- Top-down regression analysis calculates energy change from baseline year
- Accepts input from DOE Energy Footprint tool and ENERGY STAR Portfolio Manager
- The EnPI Lite Output file is one option for reporting energy performance for DOE recognition

enpilite.lbl.gov/
The Register assists with implementation of an EnMS including, but not limited to ISO 50001.

Energy savings over the reporting period are reflected; typically, this will be annual savings.

The Register summarizes key details of each EnMS action’s implementation:
- Action description
- Actual energy savings
- Source of energy savings determination
- Responsible party.

### ACTIONS

<table>
<thead>
<tr>
<th>ACTION</th>
<th>Type (Select from the List)</th>
<th>Date Initiated</th>
<th>Date Completed</th>
<th>Energy Types Impacted</th>
<th>Primary Energy Conversion Factor</th>
<th>Change in Energy Consumption During the Reporting Period (MMBtu)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Anticipated</td>
</tr>
<tr>
<td>1</td>
<td>Motor replacement (Example)</td>
<td>Equipment</td>
<td>1-Oct-2014</td>
<td>Electricity</td>
<td>3</td>
<td>Gross Implemented</td>
</tr>
<tr>
<td>2</td>
<td>Repair steam leaks (Example)</td>
<td>Operations</td>
<td>10-Sep-2014</td>
<td>Natural Gas</td>
<td>1</td>
<td>Gross Implemented</td>
</tr>
<tr>
<td>3</td>
<td>Switching electric steam boiler to waste heat to steam boiler (Example)</td>
<td>Processes</td>
<td>1-Dec-2014</td>
<td>Electricity</td>
<td>3</td>
<td>Gross Implemented</td>
</tr>
<tr>
<td>4</td>
<td>Eliminating Inappropriate Use of Compressed Air (Example)</td>
<td>Behavior</td>
<td>1-Jan-2014</td>
<td>Natural Gas</td>
<td>1</td>
<td>Gross Implemented</td>
</tr>
</tbody>
</table>

[energy.gov/eere/downloads/automated-register-implemented-actions](energy.gov/eere/downloads/automated-register-implemented-actions)
Strategic Energy Management: 50001 Ready Cohort Activity

Tuesday, July 9, 2019
2:00 – 3:30 p.m.
Southeast 50001 Ready Advisory Group Webinar
Today’s Topics

• Why SEM?
• Advanced Energy’s Experience with SEM
• What is a cohort anyway?
• I am in a cohort, now what?
  – What participants will receive
  – What participants will be expected to provide
• Cohort Outcomes
Why SEM?

• 33.63 Quadrillion BTUs

• Make more with less
  – Lean Principles

• Reduce energy intensity
  – LESS MMBTU/ton
  – LESS MMBTU/linear yard
  – LESS MMBTU/widget
AE’s Experience with SEM

• Certifications:
  – 50001 Certified Practitioner in Energy Management Systems (50001 CP EnMS)
  – SEP Performance Verifier (SEP PV)
  – EPI ISO 50001 Lead Auditor Certification (WIP 75%)

• 50001 EnMS Qualified Instructor
  – Co-delivered two INPLNT trainings on 50001 Ready

• 50001 CP EnMS Scheme Committee Member
  – Help to write the criteria and exams for certifications
AE’s Experience with SEM

• Two full DOE Cohorts
  – Mixed Manufacturing
    • Coach for Cummins Rocky Mount Engine Plant
  – Water and Wastewater Treatment
    • Instructor for three phases of training
    • Completed five internal readiness audits

• ISO 50001 Gap Analysis

• 50001 Ready Implementation

• Delivered a variety of trainings
AE’s Experience with SEM
COHORT: /ˈkōˌhôrt/

1) An ancient Roman military unit, comprising six centuries, equal to one tenth of a legion

2) A group of people banded together or treated as a group
What is a Cohort Anyway?

- Five to seven companies with similar SEM goals and experience levels
- Ideally, non-competing companies
- Willing to openly share info and best practices
- STRONG management commitment is essential
  - Allow time for participation
  - Allow time for homework
  - Provide resources needed to succeed
  - Provide resources for travel to trainings
What is a Cohort Anyway?

• Previous experience with other ISO management systems is definitely a plus:
  – ISO 9001 for Quality
  – ISO 14001 for Environmental
  – OSHAS 18001, now ISO 45001: for Occupational Health and Safety
I am in a Cohort, Now What?

- What participants will RECEIVE:
  - Kick-off cohort **webinar** to include:
    - Cohort introductions
    - The business case for SEM
    - Who, what, where, why and when of the program
    - Initial homework assignments
    - A list of things to download, review, and data to gather for the face-to-face training event
    - Review of roles and responsibilities
    - Goals and desired outcomes
• What participants will RECEIVE (continued):
  – **Face-to-Face** training event (1 to 2 days, TBD)
    • Review the fundamentals of ISO 50001 and the Plan, Do, Check, Act (PDCA) model
    • Demonstration of the basics of the *50001 Ready* navigator
    • Review the available tools associated with the *50001 Ready* navigator
    • Work through selected tasks within the *50001 Ready* navigator
I am in a Cohort, Now What?

• What participants will RECEIVE (continued):
  – Homework assignments and review
  – Monthly check in calls with each company
    • One on one
  – Quarterly full cohort check in calls with every company, combined
I am in a Cohort, Now What?

- What participants are expected to PROVIDE:
  - Attendance at all events
  - Proper preparation for all events
  - Proper completion of homework
  - Set up a 50001 Ready account
  - Download the tools
  - Play with the tools
  - Gather data
    - Monthly consumption for ALL site energy sources
    - Monthly production data (pounds, gallons, widgets, etc.)
Cohort Outcomes

- Gain an understanding of ISO 50001
- Use the 50001 Ready navigator tool
- Increase energy performance improvement!
- Gain recognition for self-attesting to completing the 25 tasks of 50001 Ready
- Improve overall plant operations
The Cohort - Review

 Verification Body Partners

 Cohort Member

 DOE Resources
 National Cohorts
 Training Partner

 SEM/ISO/SEP Consultants

 Utilities
 DOE Programs

 DOE Programs

 50001 READY
 U.S. DEPARTMENT OF ENERGY

 Superior Energy Performance
 U.S. DEPARTMENT OF ENERGY

 Better Plants
 U.S. DEPARTMENT OF ENERGY

 Georgia Tech
 Enterprise Innovation Institute

 SEEA
IEnMP Professional Credentials

• Focus on three skills:
  • EnMS implementation
  • ISO 50001 certification auditing (initially including SEP)
  • SEP Energy performance improvement verification

• Competence is determined by a combination of education, experience, and computer-based exam

• Exams
  • based on a job task analysis developed by a committee of peers
  • given at local test centers at candidate’s convenience

• Recertification every 3 years

• Per ISO/IEC 17024 requirements, DOE training is offered separately through Georgia Tech
50001 CP EnMS

50001 Certified Practitioner in Energy Management Systems (50001 CP EnMS)

Purpose:
- Defines market standard for identifying professionals with specialized EnMS implementation skills

What is it?
- Demonstrates competence in the implementation of ISO 50001:2018
- ISO/IEC 17024 accredited, internationally accepted certification
- Based on a combination of education, experience, and computer-based exam

Target Audience - all sectors
- Energy efficiency professionals
- Consulting engineers
- Large end users
- Management system auditors

114 certified professionals to date
50001 EnMS Practitioner in Training

• Purpose
  o Provides early-career recognition for expertise in ISO 50001 energy management systems

• Benefits
  o Provides market distinction and reduces by one year the qualifying work experience required for 50001 CP EnMS

• Eligibility
  o Open to any candidate with a four-year degree or higher in energy management, engineering, architecture, science or math.
  o Based on evidence of successful completion of the 50001 CP EnMS course with knowledge checks (online or classroom).
  o 4 years to complete experience requirements and pass 50001 CP EnMS exam
50001 CP EnMS Training

Two Options - Online and classroom

- Online – 10 weeks, weekly webinars & HW
  - ✔ Spring class starts March 25, registration open till March 11
  - ✔ Fall starts in September
- Classroom – 4 days with online pre-course
  - ✔ August 26-29

https://pe.gatech.edu/subjects#manufacturing

DOE Tools – 50001 Navigator, Energy Footprint, EnPI Lite
What’s Next

▪ Expect follow-up from SEEA in the next week.

▪ Conduct outreach to candidate end-users to enroll them in the Cohort.

▪ Contact Cyrus Bhedwar at cbhedwar@seealliance.org with any questions.
Thank you!