Southeast Energy Efficiency Alliance | www.seealliance.org

WEBINAR SERIES

50001 Ready 101

Thursday, August 22, 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.
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.
Purpose

- To empower you with the information and resources you need to pursue completion of the 50001 Ready program for your or your clients’ facilities.
Strategic Energy Management: 50001 Ready Overview

Thursday, August 22, 2019
2:00 – 3:30 p.m.
SEEA Southeast 50001 Ready Overview Webinar
Today’s Topics

- Why Strategic Energy management (SEM)?
- Why 50001 Ready?
- Overview of the 50001 Ready Navigator Tool
- What is the commitment?
- What resources are available?
- What are the outcomes?
- References
- Let’s get started
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
Why SEM? - Energy Efficiency

• Make MORE with LESS:

This is what you pay for

This is value added
Why SEM? – EE & EI

INCREASE Energy Efficiency (EE)

TO

REDUCE Energy Intensity (EI)
Why SEM? - Transformation

• Transformation
Why SEM? - Process Block Diagram

Using the process block diagram:

- Energy sources
- Significant energy users
- Process versus Facility Support
- Intermittent loads
- Operational parameters
Why SEM? - Non-Energy Benefits

Non-Energy Benefits of Energy Projects

• Increase plant productivity
• Improve product quality
• Reduce scrap
• Break a process bottleneck
• Reduce overtime
• Improve worker comfort
• Increase available floor space
• Improve work flow
• Reduce emissions
• Improve safety
Why SEM? - Continuous Improvement

- Get on the Plant Floor
- Understand the Processes
- Follow Up
- Recommend Energy Solutions
- Step by Step Analysis

TRANSFORMATION
Why 50001 Ready? - Background

- From ISO 50001 to SEP to **50001 Ready**

  ![Diagram showing the relationships between ISO, U.S. Council for Energy-Efficient Manufacturing (U.S. CEEM), and 50001 Ready](diagram.jpg)
Why 50001 Ready? - Background

- **50001 Ready** is a recognition program based on the ISO 50001 Standard
Welcome to the 50001 Ready Navigator!

The 50001 Ready Navigator is an online application that provides step-by-step guidance for implementing and maintaining an energy management system in conformance with the ISO 50001 Energy Management System Standard. Join the 23,000+ facilities worldwide benefiting from an energy management system!
Why 50001 Ready? – Proven Results

- Companies with a formal SEM system have better energy performance improvement:
  - Schneider Electric
    - 19% average improvement with SEM
    - Versus 11.5% without
  - 3M
    - 10.5% average improvement with SEM
    - Versus 6.5% without
- 50001 Ready will help formalize your SEM
Why 50001 Ready? – Key Items

- Continuous Improvement - similar to Lean, Kaizen, 6 Sigma
- Company Culture Impact - Involve everyone in energy
- Commitment - Leadership driven, resource provided
- Data Driven - Collection & analysis of energy performance info
- Performance Driven – Actual improvement is proven
- Adds Value - Incorporates energy decisions into all operations
Why 50001 Ready? – A Pathway

1. Complete the 25 Tasks
2. Self-attest to completion
3. Report energy performance
4. Receive DOE recognition

1. 3rd Party Audit
2. Receive certification
3. A prerequisite to SEP

1. Rigorous proven savings
2. 3rd Party Audit
3. 3rd party verified savings
4. Received certification

50001 Ready is part of a Pathway toward ISO 50001 Certification and (if desired) Validated Energy Savings in SEP
Overview of 50001 Ready

50001 Ready:

1. Recognition for self-attesting to implementation of an EnMS based on the structure of ISO 50001
2. No certification required from third parties
3. Open source software tools, designed to be adopted by implementers
4. Suite of resources to support continuous improvement in institutional, commercial and industrial facilities
5. Able to support ‘enterprise’ or multi-facility use
Overview of 50001 Ready

- Must show demonstrated energy performance improvement for 50001 Ready recognition.
Overview of 50001 Ready

• *50001 Ready* is an online, web-based 25 task process for energy management
Overview of 50001 Ready – The 25 Tasks

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

Legend: Plan Do Check Act
Overview of 50001 Ready

• 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
Overview of 50001 Ready

- Leverage experience with ISO 9001 and ISO 14001

Task 1: We have defined, documented and approved the Scope and Boundaries of our 50001 Ready energy management system

Current Status: Completed

Your roles for this task: Contributor

Detailed Guidance: Scope and Boundaries

- Getting It Done
- Task Overview
- Full Description
- Notes
- Resources

Full Description

- ISO 9001 and/or ISO 14001 transition tips
Overview of 50001 Ready

- Use the cross-reference to ISO 50001

Detailed Guidance: Management Commitment

Task Overview

The most critical key to the success of an EnMS is involvement and commitment by top management.

This guidance is relevant to sections 4.2.1, 4.2.2, 4.7.1, 4.7.2, and 4.7.3 of the ISO 50001:2011 standard.
Overview of 50001 Ready

- Use the task completion guidance

**Detailed Guidance: Energy Policy**

**Task Overview**

The energy policy is top management’s statement of performance. The commitments stated in the policy form the framework for using energy objectives and targets and communicated to personnel across all levels of the organization.

At the completion of this task, you will have...

- Drafted the energy policy
- Approved the energy policy
Overview of 50001 Ready

• Use the downloads

![Detailed Guidance: Energy Policy](image)

**Resources**

<table>
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<tr>
<th>Name</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>Energy Policy Example</td>
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<td>Energy Policy Worksheets</td>
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<tr>
<td>ENERGY STAR Guidelines for</td>
<td>pdf</td>
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<td>Energy Management</td>
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</table>
Overview of 50001 Ready

- Use the EnMS Documentation Guidance Table

<table>
<thead>
<tr>
<th>REFERENCES</th>
<th>DOCUMENTS</th>
<th>RECORDS</th>
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<tbody>
<tr>
<td>ISO 50001-2011 Reference</td>
<td>What must be documented?</td>
<td>Notes/Comments</td>
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<tr>
<td>§ 4.1 b)</td>
<td>Task 1</td>
<td>EnMS scope and boundaries</td>
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<td>§ 4.5.4.1 a)</td>
<td>See also Energy Manual Guidelines</td>
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Overview of 50001 Ready

• To paraphrase, *50001 Ready* puts the Plan, Do, Check, Act process into simple, clear steps:
  – Say what you will do (PLAN)
  – Do what you said (DO)
  – Verify that you did it (CHECK)
  – Review and improve it (ACT)
What is the Commitment?

• STRONG management commitment is essential
  – Allow time for energy team participation
  – Allow time for EnMS development
  – Provide resources needed to succeed
  – Provide resources for travel to trainings, as needed
  – Provide capital funding for energy improvement
  – Communicate energy policy and its importance
  – Provide resources for internal auditing
  – Conduct meaningful management reviews
What resources are available?

Welcome to the 50001 Ready Navigator!

The 50001 Ready Navigator is an online application that provides step-by-step guidance for implementing and maintaining an energy management system in conformance with the ISO 50001 Energy Management System Standard. Join the 23,000+ facilities worldwide benefiting from an energy management system!
What resources are available?

Energy Footprint Tool

Easily track and analyze:

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

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

- **Energy Uses**

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

- **Easily exports to DOE EnPI Tool**
**What resources are available?**

**EnPI Lite**

Navigator’s companion online tool for facility-level energy performance

- Enter or upload energy use data and relevant variables
- 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
What resources are available?

Multiple Site Capability
What resources are available?

- **Training**
  - Full two-day detailed training on 50001 Ready
  - Covers the 25 tasks
  - Covers the tools
  - Lots of practical exercises to get you started
  - Hands on: bring your site data and use the tools

- **Help Desk**
  - [https://navigator.lbl.gov/contact?topic=50001%20Ready](https://navigator.lbl.gov/contact?topic=50001%20Ready)
What are the Outcomes?

• Gain an understanding of ISO 50001

• Use the **50001 Ready** navigator tool to complete the 25 tasks

• Gain DOE recognition for self-attesting to completion

• Increase energy performance improvement!

• Improve overall plant operations

![50001 Ready Logo](image-url)
What are the Outcomes?

**STEP 1**
Start Implementation of ISO 50001 principles

Use the 50001 Ready Navigator Online Tool
✓ The Navigator walks you through the process of implementing an energy management system and prepares you to be 50001 Ready.

**STEP 2**
Analysis of energy reductions

Adopt Valid Tool to Present Energy Performance
✓ DOE offers the EnPI Lite calculator for 50001 Ready.
✓ EPA’s Portfolio Manager can also be used
✓ Other tools can be approved by DOE

**STEP 3**
File for 50001 Ready recognition

Submit information to DOE for Review
✓ Self-attestation of completion of Navigator, executed by team leader and executive
✓ Submit energy performance data

DOE Recognizes 50001 Ready Completion
50001 Ready References

- 50001 Ready Program
  - https://www.energy.gov/eere/amo/50001-ready-program
- 50001 Ready Navigator
  - https://navigator.lbl.gov/
- EnPI Lite Tool
  - https://enpilite.lbl.gov/
- Energy Footprint Tool
  - https://www.energy.gov/eere/amo/downloads/energy-footprint-tool
- 50001 Ready at Better Building
  - https://betterbuildingssolutioncenter.energy.gov/better-plants/software-tools
• Key Contacts at DOE

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Summary: 50001 Ready

• Worth the effort
• An alternative
• Help for the weary
• A heavy lift needs leverage
• The right tools
• Step-by-Step
• Proven improvement
• Dashboard tracking
• Great resources
• Self Attesting
• Lots of FREE support
50001 Ready – Let’s Get Started

Verification Body Partners

Utilities

DOE Programs

SEM/ISO/SEP Consultants

DOE Resources

National Cohorts

Training Partner

Your Company

DEKRA

Georgia Tech

Enterprise Innovation Institute

Better Plants®

Advanced Energy

50001 Ready

Superior Energy Performance

U.S. DEPARTMENT OF ENERGY

U.S. DEPARTMENT OF ENERGY

U.S. DEPARTMENT OF ENERGY

SEEA
Questions

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Thank You

909 Capability Drive, Suite 2100
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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
Thank you!