SEEA

SOUTHEAST ENERGY EFFICIENCY ALLIANCE

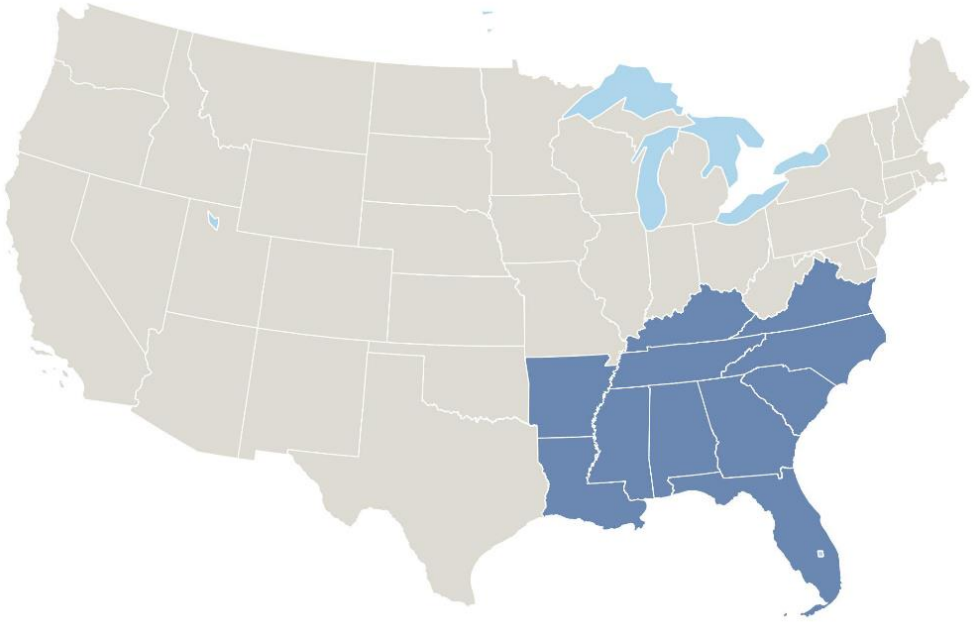
WEBINAR SERIES

Southeast 50001 Ready: Advisory Group Intro

Tuesday, July 9, 2019, 2:00-3:30 pm

SEEA Serves the Southeast

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.



Regional Energy Efficiency Organization

Eleven-state footprint

Non-profit, non-partisan

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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.

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Agenda

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

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Purpose

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

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Advanced Manufacturing Office

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

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

EnMS – What is it?

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.

A management system is:
- ✓ Say what you do
- ✓ Do what you say
- ✓ Prove it
- ✓ Improve it

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

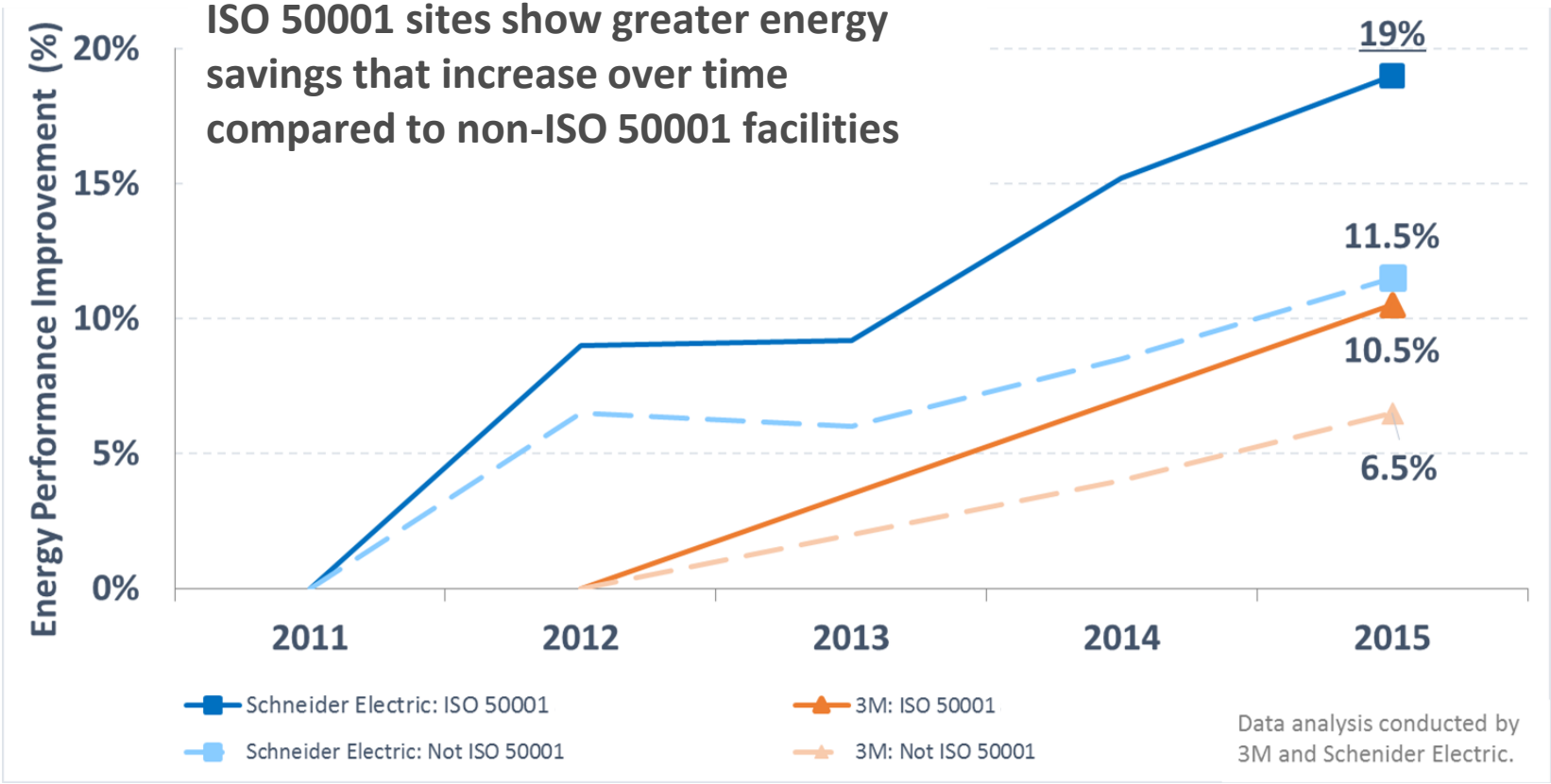
- International best practice for establishing, implementing, maintaining and improving an energy management system.
- Developed to promote consistency among national energy management standards.
- Shares same structure as existing management system models of continual improvement: quality (ISO 9001)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

ISO 50001
ENERGY MANAGEMENT

ISO 50001 is not a utility program design. It does not prescribe how to achieve the requirements.

ISO 50001: Increased Energy Performance

Multiple 3M & Schneider Electric sites showed a 2x improvement vs internal business as usual



SEM and CEI

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

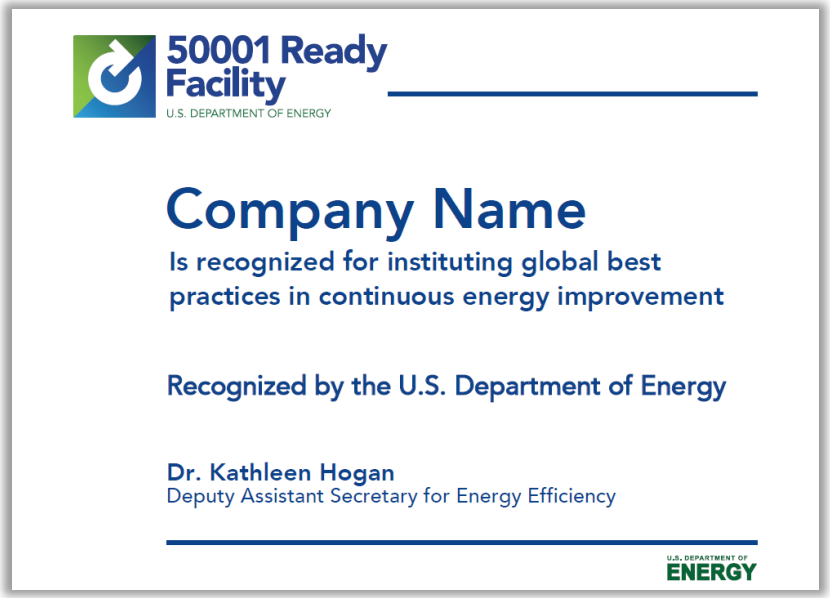
2. Present energy performance

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

DOE and others recognize 50001 Ready achievement



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*

energy.gov/50001Ready

50001 Ready Summary of Tools

The *50001 Ready* Navigator

Free online step-by-step guide.

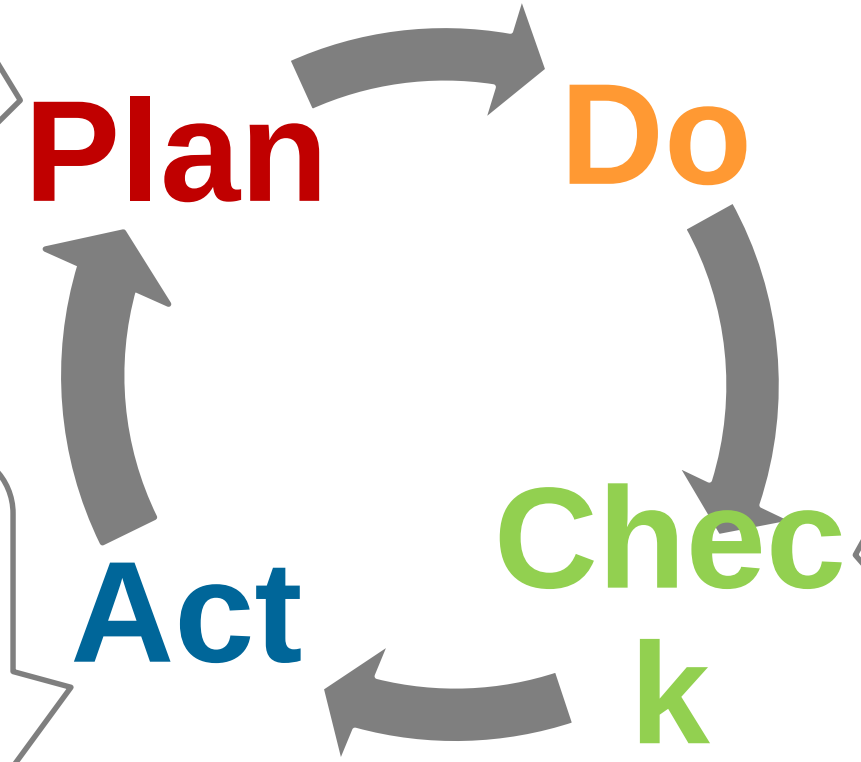
The core tool for EnMS development, benchmarking, and assessment.

Additional Tools to Support ISO 50001

Plan

Energy Footprint Tool

Track energy consumption and determine significant energy end-uses



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

Act & Check

Register of Implemented Energy Performance

Organize & track actions to implement an EnMS. Bottom up check

50001 Ready Navigator Steps

50001 Ready
U.S. DEPARTMENT OF ENERGY

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

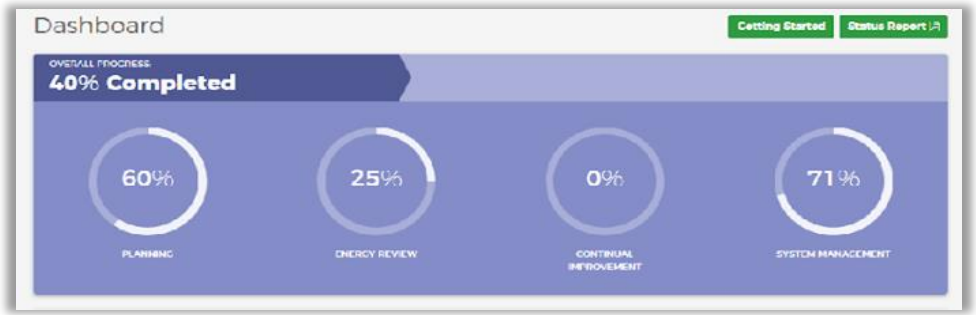
14. Monitoring
15. Measurement
16. Operational Controls
17. Corrective Actions
18. Energy Consideration in Design

System Management

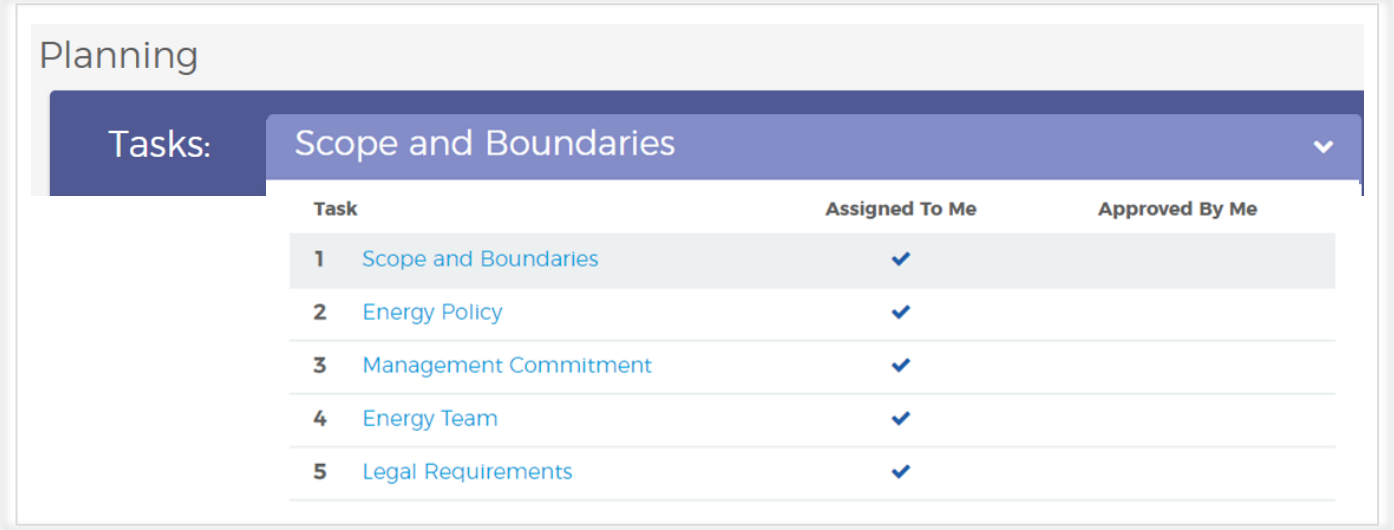
19. Documentation and Records
20. Communications
21. Training
22. Procurement
23. Internal Audit
24. Calculate Energy Savings
25. Management Review

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

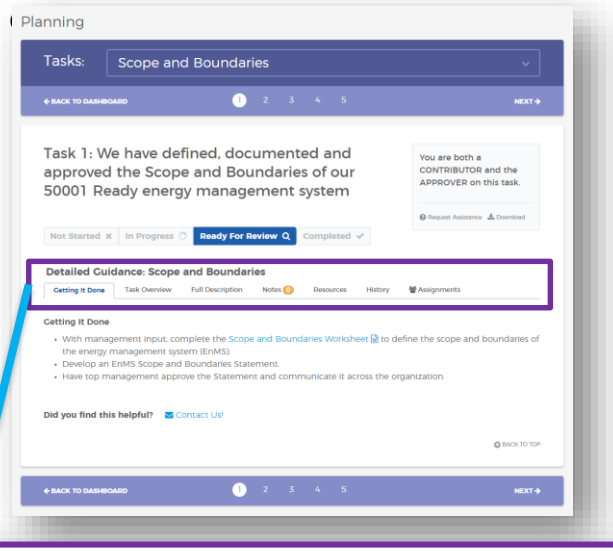


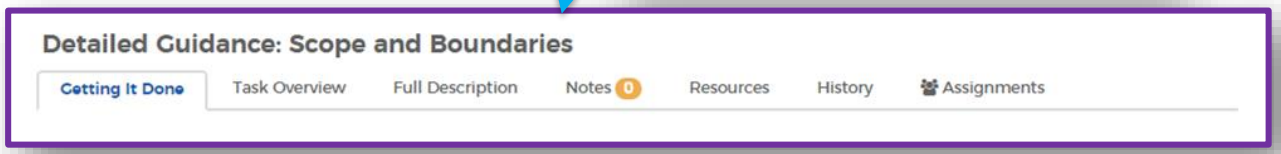
navigator.lbl.gov/

50001 Ready Tools

50001 Navigator Tool

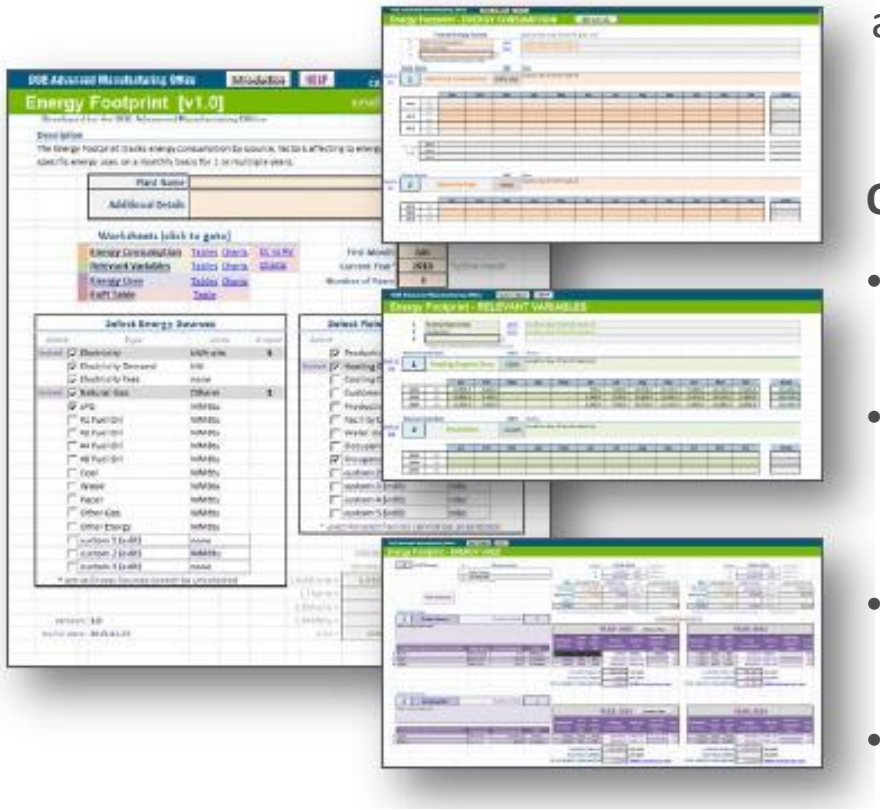
- Guidance broken into straight forward sections, including:
  - Getting It Done – what specifically needs to be accomplished
  - Task Overview – how does this task connect with ISO50001
  - Full Guidance – comprehensive guidance about the task
  - *Optional* Transition Tips – from other ISO management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





50001 Ready Tools

DOE Energy Footprint Tool



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

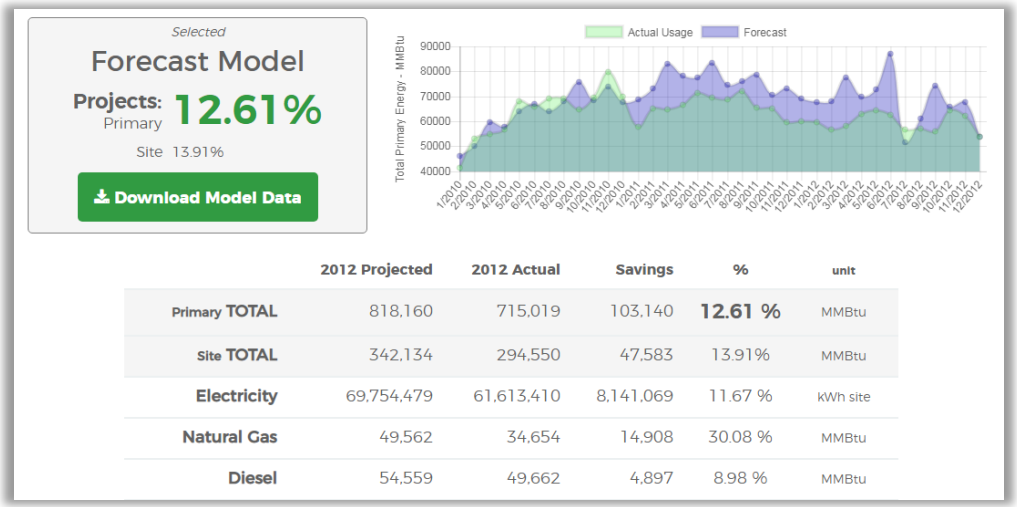
Organize Data to Easily track and analyze:

- **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



	2012 Projected	2012 Actual	Savings	%	unit
Primary TOTAL	818,160	715,019	103,140	12.61 %	MMBtu
Site TOTAL	342,134	294,550	47,583	13.91%	MMBtu
Electricity	69,754,479	61,613,410	8,141,069	11.67 %	kWh site
Natural Gas	49,562	34,654	14,908	30.08 %	MMBtu
Diesel	54,559	49,662	4,897	8.98 %	MMBtu

enpilite.lbl.gov/

- 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

Register of Implemented Energy Performance Improvement Actions

- "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

#	ACTION (Use multiple rows for multiple energy types impacted by the same action.)	Type (Select from the List)	Date Initiated (DD/MM/YYYY)	Date Completed (DD/MM/YYYY)	Energy Types Impacted	Primary Energy Conversion Factor	Change in Energy Consumption During the Reporting Period (MMBtu) Use "+" for savings and "-" for increased consumption — Anticipated: Measurement Method	Anticipated: Site	Anticipated: Primary	Actual: Measurement Method	Actual: Site	Actual: Primary
1	Motor replacement (Example)	Equipment	1-Sep-2014	1-Oct-2014	Electricity	3	Engineering Assessment	154,000	462,000	Calculated	120,000	360,000
2	Repair steam leaks (Example)	Operations	11-Aug-2014	10-Sep-2014	Natural Gas	1	Engineering Assessment	90,000	90,000	Calculated	90,000	90,000
3	Switching electric steam boiler to waste heat & NG boiler (Example)	Processes	6-Jul-2014	1-Dec-2014	Electricity	3	Engineering Assessment	97,000	291,000	Calculated	97,000	291,000
					Natural Gas	1	Engineering Assessment	(79,000)	(79,000)	Metered	(81,000)	(81,000)
4	Eliminating Inappropriate Use of Compressed Air (Example)	Behavior	1-Jan-2014	1-May-2014	Electricity	3	Other (Please describe)	1,257	3,771	Calculated	943	2,829

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

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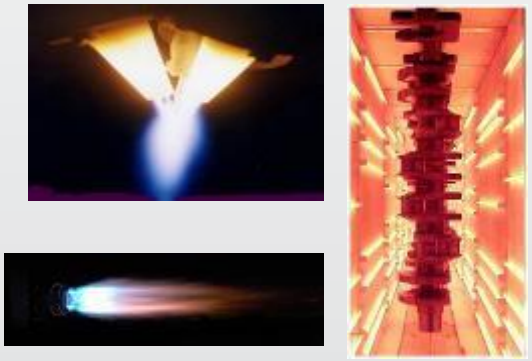
advanced energy

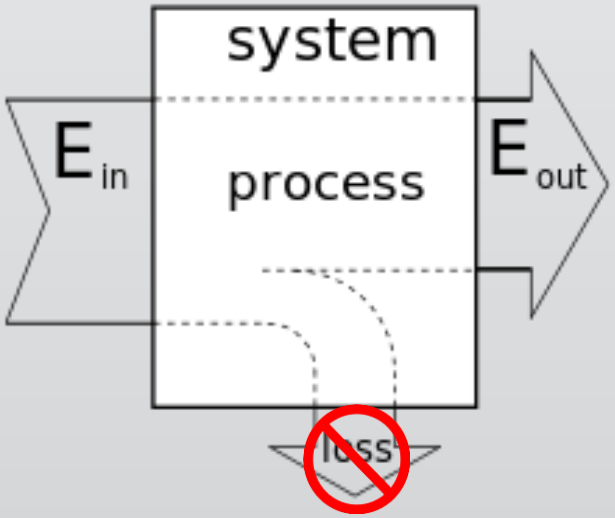
Today's Topics

- 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

Active Partner Referral | **Advanced Energy**

more information | cancel referral

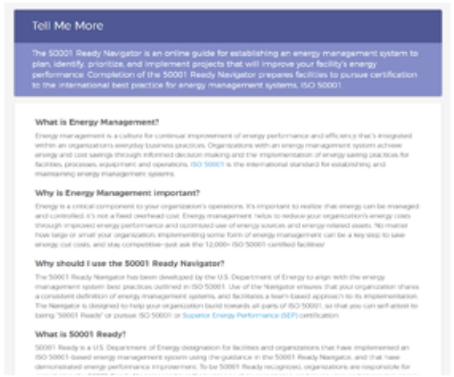
50001 Ready
U.S. DEPARTMENT OF ENERGY

Partnering with: advanced energy

Welcome to the 50001 Ready Navigator!

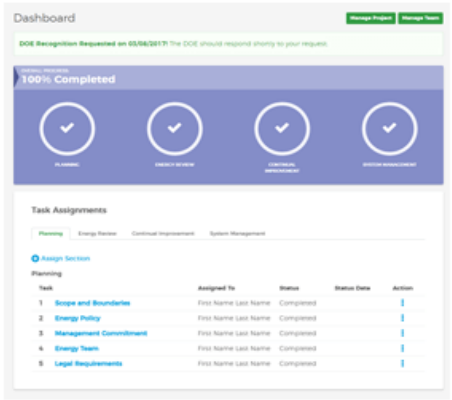
The 50001 Ready Navigator is an online application that provides step-by-step guidance for implementing and maintaining an energy management system in conformance with the ISO 50001 Energy Management System Standard. Join the 23,000+ facilities worldwide benefiting from an energy management system!

About the Navigator



- or -

Explore the Navigator



- or -

Create an Account *or*
Log-in to Get Started

EMAIL ADDRESS

ENTER PASSWORD

Log In

Forgot password?

advanced energy

What is a Cohort Anyway?

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

NISSAN	Smyrna, TN	17.7%
HARBEC	Ontario, NY	16.5%
Cummins	Whitakers, NC	12.6%
Coca-Cola	Dunedin, FL	12.2%
GENERAL DYNAMICS	Scranton, PA	11.9%
BRIDGESTONE Your Journey, Our Passion	Wilson, NC	15.1% / 10 yrs
OLAM	Gilroy, CA	9.8%
MedImmune A member of the AstraZeneca Group	Gaithersburg, MD	8.5%
CURTISS WRIGHT	Cheswick, PA	7.6%
LAND O'LAKES	Carlisle, PA	5.7%

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

I am in a Cohort, Now What?

- 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

DEKRA

Verification Body Partners

DOE Resources

Utilities

Cohort Member

National Cohorts

DOE Programs

Training Partner

SEM/ISO/SEP Consultants

50001 Ready
U.S. DEPARTMENT OF ENERGY

Georgia Tech Enterprise Innovation Institute

Superior Energy Performance
U.S. DEPARTMENT OF ENERGY

Better Plants
U.S. DEPARTMENT OF ENERGY

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Questions

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Thank You

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IEnMP INSTITUTE FOR ENERGY MANAGEMENT PROFESSIONALS

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

IEnMP INSTITUTE FOR ENERGY MANAGEMENT PROFESSIONALS

50001 EnMS Practitioner in Training

- Purpose
  - Provides early-career recognition for expertise in ISO 50001 energy management systems
- Benefits
  - Provides market distinction and reduces by one year the qualifying work experience required for 50001 CP EnMS
- Eligibility
  - Open to any candidate with a four-year degree or higher in energy management, engineering, architecture, science or math.
  - Based on evidence of successful completion of the 50001 CP EnMS course with knowledge checks (online or classroom).
  - 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

Classroom Version Offered onsite

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.

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Thank you!

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Georgia Power

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Georgia Institute of Technology


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