

Welcome to Today's Webinar

50001 Ready! A Tool to Pursue an Energy Management System

October 10, 2019

10:00 am – Noon EDT

Presenter in Partnership with Advanced Energy

Brought to You By



Today's Agenda

- Welcome, Logistics and Polls
- Introductions
- Presentation
- Resources
- Q&A Session



Webinar Housekeeping & Questions

- Technical Difficulties:
- If You Lose Audio:
- Resource Slides and Recording:
- **How to Ask Questions**: Use the Question Box to ask questions to be answered at the end.
- Poll Questions:

Featured Presenter

Mike Stowe, P.E. Advanced Energy



Bio Highlights:

- Senior Energy Engineer with Advanced Energy in Raleigh, NC.
- Has over 30 years experience in manufacturing with roles as a production manager, maintenance manager and plant engineer.
- Worked with many industrial processes and all types of plant facility systems.
- Industrial energy efficiency expert, consultant and trainer.
- Holds ISO 50001 certifications and is a DOE recognized instructor for 50001 related topics.

Looking for Sustainable Energy Treasures?

50001 Ready
is the Map



Thursday, October 10, 2019

10:00 a.m. - 12:00 noon

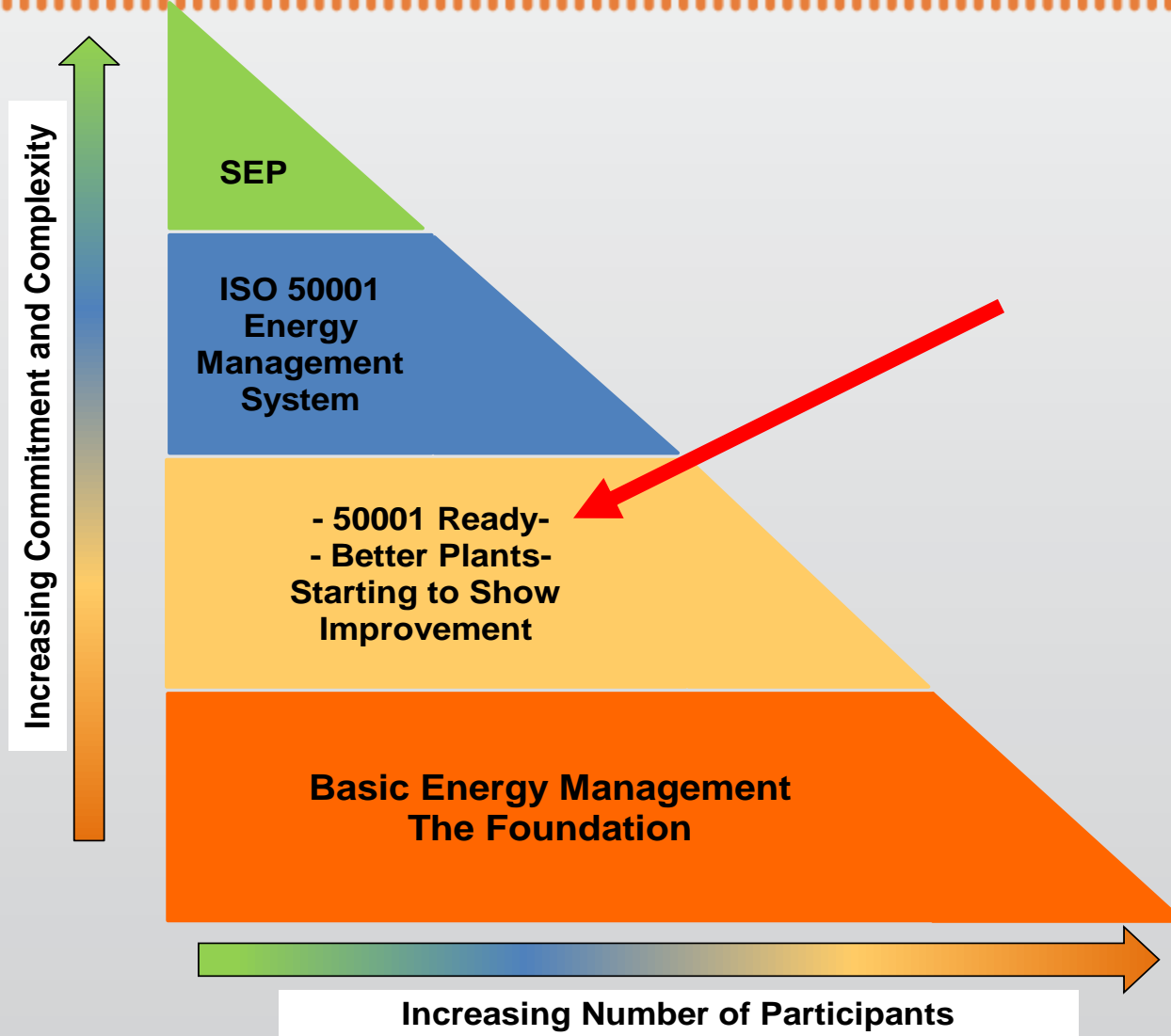
A *50001 Ready* Overview Webinar

Topics and Learning Objectives

- Why Strategic Energy management (SEM)?
 - The SEM Continuum
- Why 50001 Ready?
 - The business case
- Overview of the 50001 Ready Navigator Tool
 - The Commitment
 - The 25 tasks
 - What resources are available?
 - What are the outcomes?
 - References
 - Key contacts
- Let's get started
 - The cohort model
 - Next steps

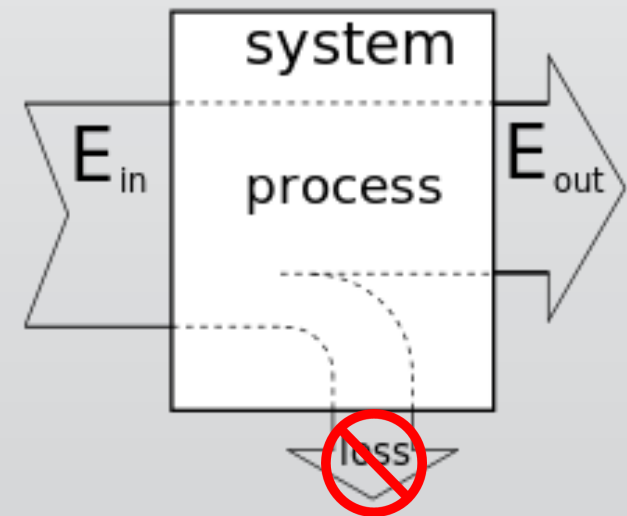
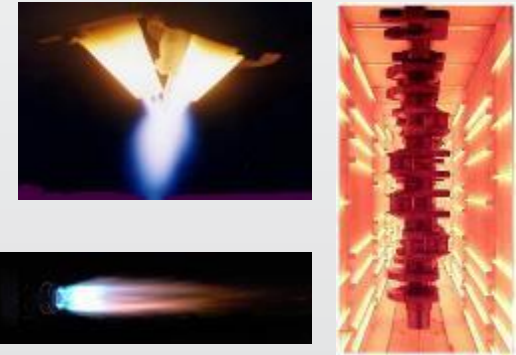


Why SEM? - The Continuum



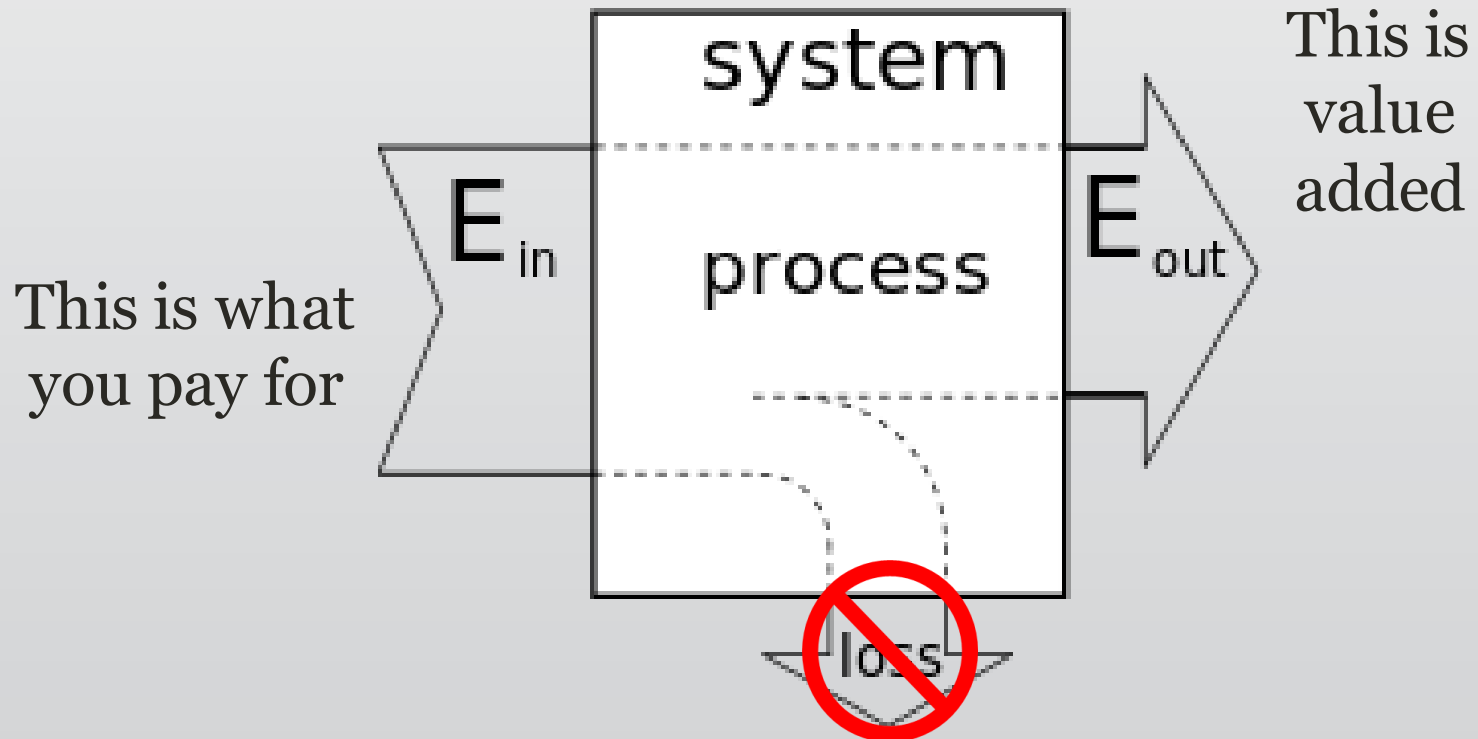
Why SEM?

- 33.63 Quadrillion BTUs
- Make more with less
 - Lean Principles
- Reduce energy intensity
 - LESS MMBTU/ton
 - LESS MMBTU/linear yard
 - LESS MMBTU/widget

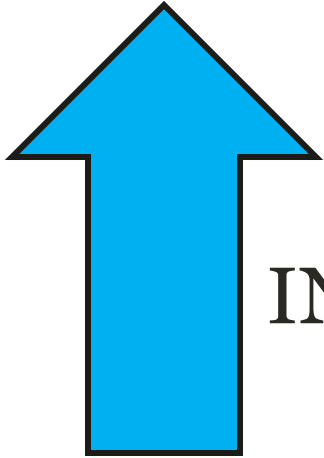


Why SEM? - Energy Efficiency

- Make MORE with LESS:



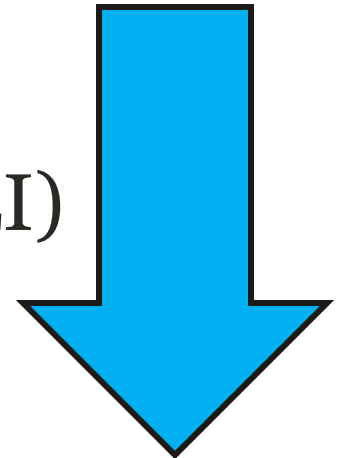
Why SEM? – EE & EI



INCREASE Energy Efficiency (EE)

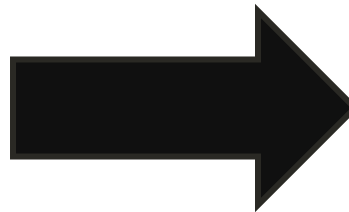
TO

REDUCE Energy Intensity (EI)



Why SEM? - Transformation

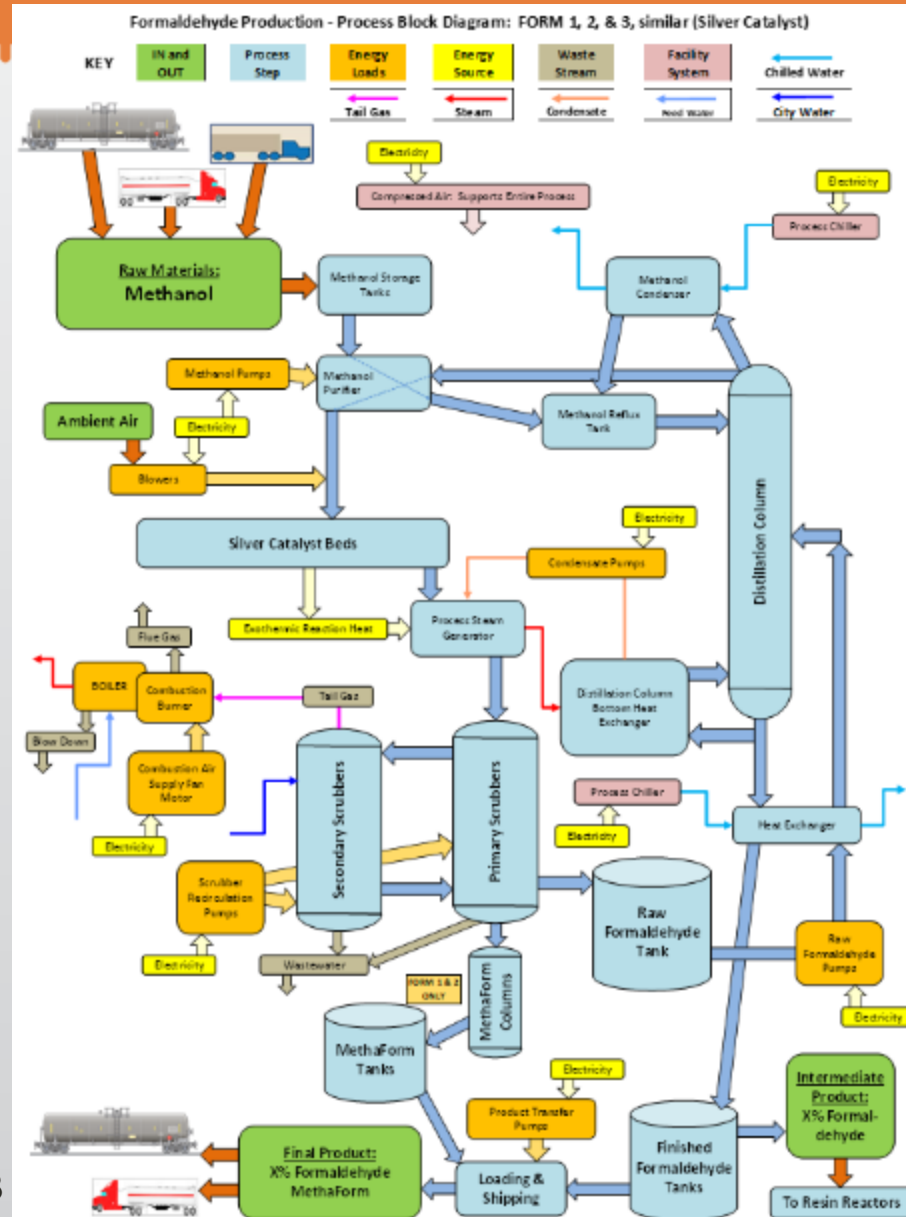
- Transformation



Why SEM? - Process Block Diagram

Using the process block diagram:

- Energy sources
- Significant energy users
- Process versus Facility Support
- Intermittent loads
- Operational parameters



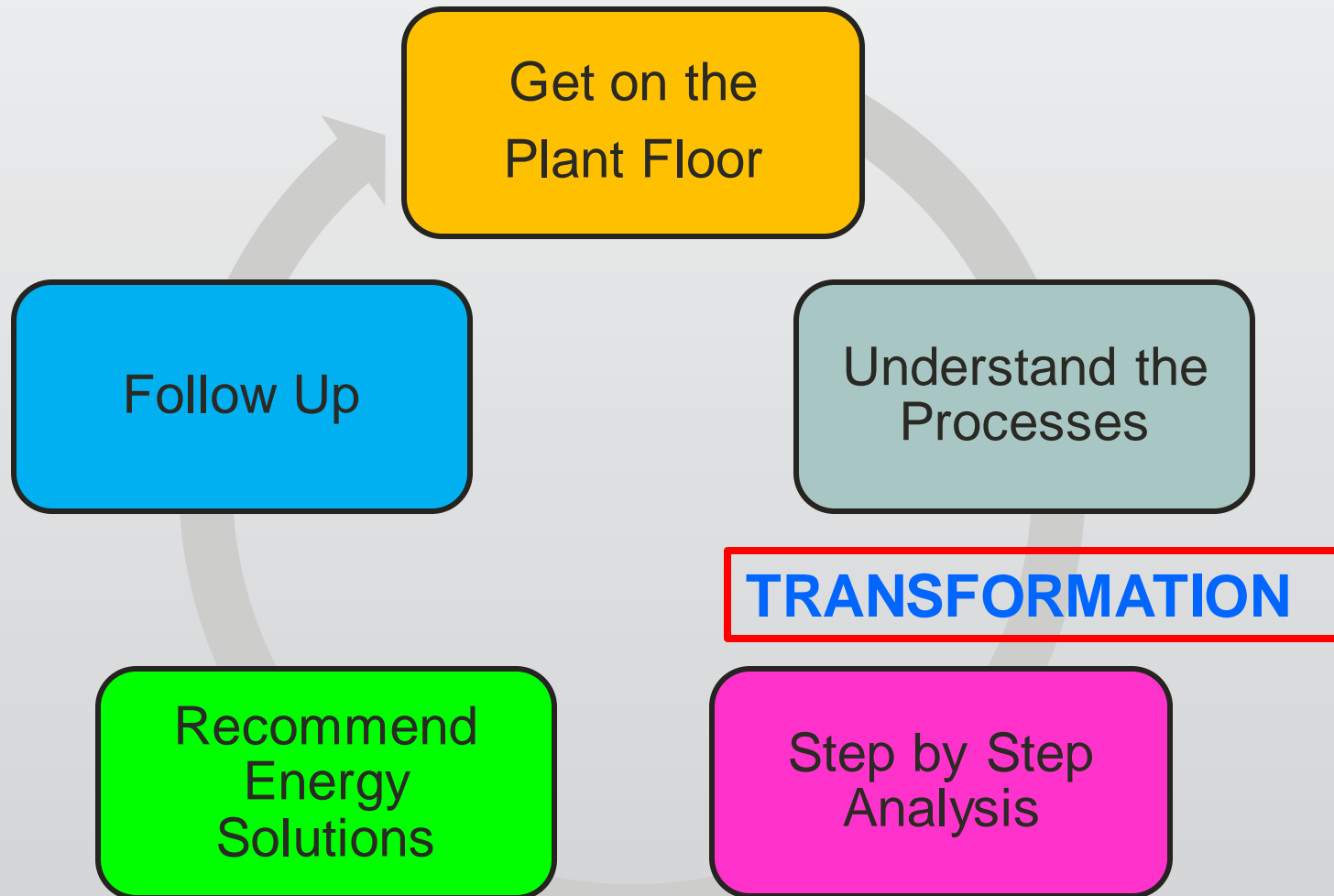
Why SEM? - Non-Energy Benefits

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



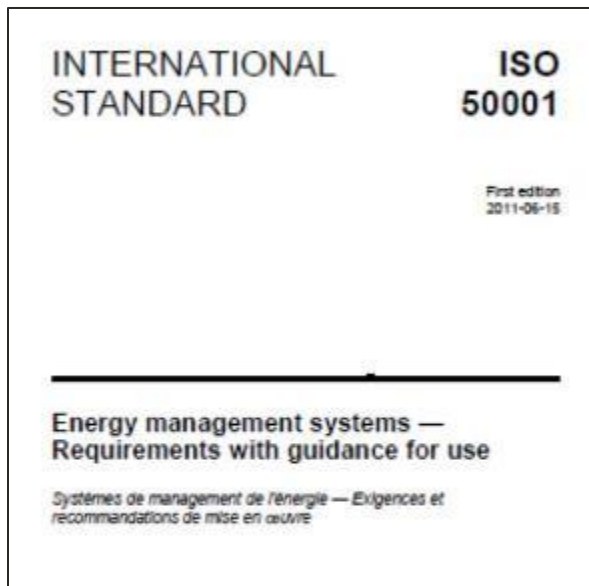
Why SEM? - Continual Improvement



Why 50001 Ready? - Background



- 50001 Ready is a recognition program based on the ISO 50001 Standard



Why 50001 Ready? – A System

Active Partner Referral | Advanced Energy

[more information](#)

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U.S. DEPARTMENT OF ENERGY



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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

Tell Me More

The 50001 Ready Navigator is an online guide for establishing an energy management system to plan, identify, prioritize, and implement projects that will improve your facility's energy performance. Completion of the 50001 Ready Navigator creates a facility to pursue certification to the international best practice for energy management systems, ISO 50001.

What is Energy Management?

Energy management is an effort for continual improvement of energy performance and efficiency that is integrated into an organization's strategic business processes. Organizations with an energy management system achieve energy and cost savings through informed decision making and the implementation of energy saving practices for facilities, processes, equipment, and operations. ISO 50001 is the international standard for establishing and maintaining energy management systems.

Why is Energy Management important?

Energy is a critical component to your organization's operations. It is important to realize that energy can be managed and controlled in a cost-effective way. Energy management helps to reduce your organization's energy costs through improved energy performance and optimized use of energy systems and energy-related assets. To realize the full benefits of your organization's investment in energy management, you can use the 50001 Ready Navigator to help you understand the importance of energy management and the steps to take to implement it.

Why should I use the 50001 Ready Navigator?

The 50001 Ready Navigator has been developed by the U.S. Department of Energy to align with the energy management system best practices defined in ISO 50001. Use of the Navigator enables the user organization obtain a consistent definition of energy management systems and facilitates a more robust approach to its implementation. The Navigator is designed to help your organization build a solid foundation of ISO 50001, so that you can eventually be ISO 50001 Ready or pursue ISO 50001 or ISO 50001-2 certification.

What is 50001 Ready?

50001 Ready is a U.S. Department of Energy program for facilities and organizations that have implemented an ISO 50001-based energy management system. Organizations that have implemented an ISO 50001-based energy management system are eligible to participate in the 50001 Ready Navigator, and the tool demonstrated energy performance improvements. To be 50001 Ready recognized, organizations are responsible for:

Explore the Navigator

Dashboard

100% Recognition Required on 05/06/2017. The 500 should report directly to your account.

100% Completed

Task Assignments

Task	Assigned To	Status	Status Date	Action
1. Scope and Resources	First Name Last Name	Completed		
2. Energy Policy	First Name Last Name	Completed		
3. Management Commitment	First Name Last Name	Completed		
4. Energy Team	First Name Last Name	Completed		
5. Legal Requirements	First Name Last Name	Completed		

- OR -

- OR -

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

EMAIL ADDRESS

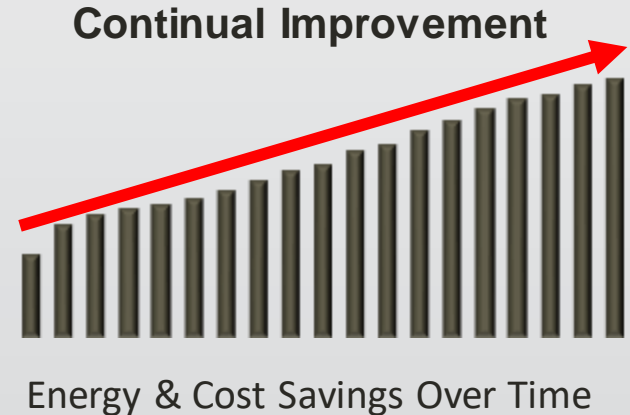
ENTER PASSWORD

Log In

[Forgot password?](#)

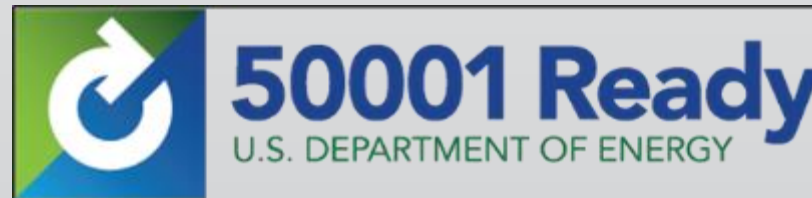
Why 50001 Ready? – Proven Results

- 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

- Continual Improvement - similar to Lean, Kaizen, 6 Sigma
- Company Culture Impact - Involve everyone in energy
- Commitment - Leadership driven, resources 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 from the certification body
3. A prerequisite to SEP

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

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

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



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 continual improvement in institutional, commercial and industrial facilities
5. Able to support 'enterprise' or multi-facility use



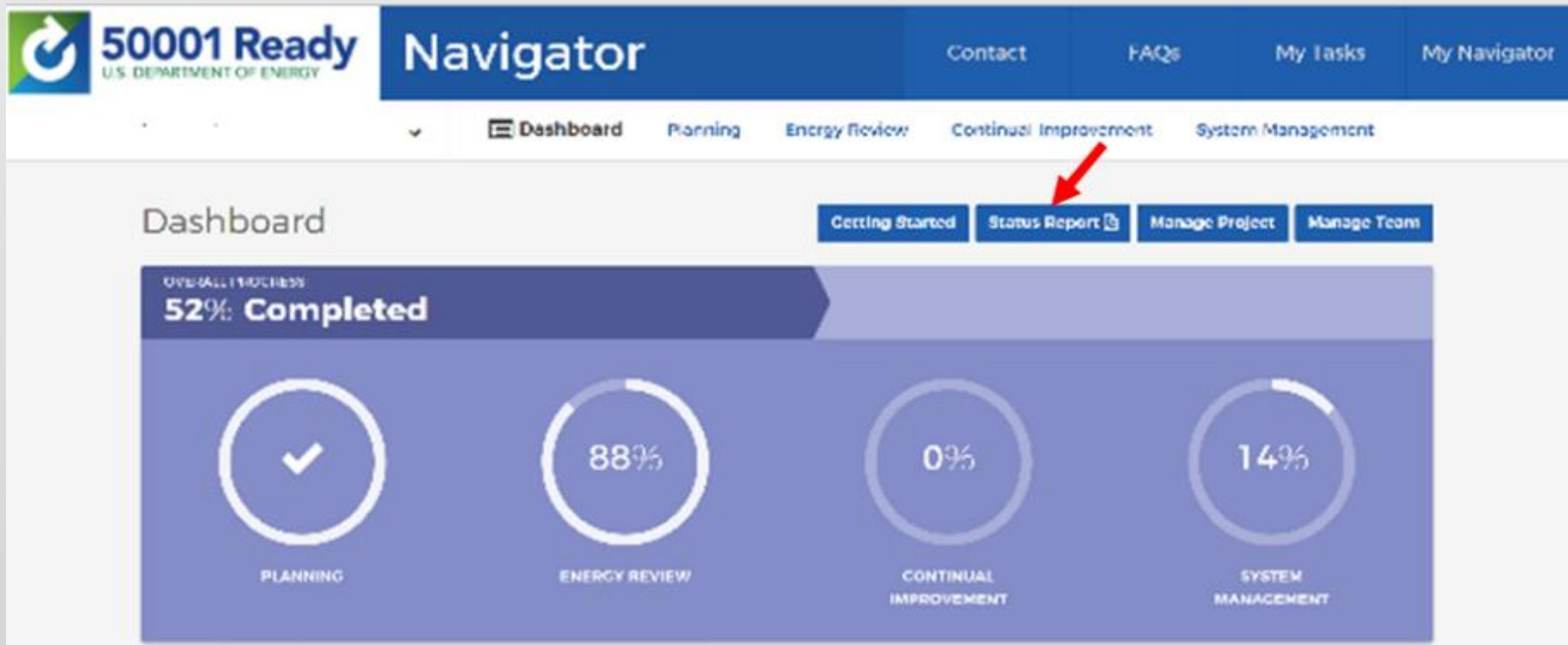
Overview of 50001 Ready

- Must measure energy performance 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

Navigator
Categories

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 **1**

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

Getting It Done

Task Overview

Full Description

Notes 0

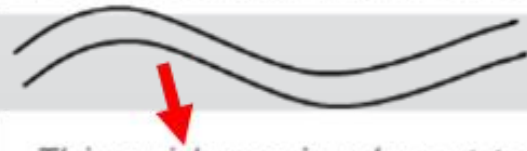
Resources

History

Assignments

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

Getting It Done **Task Overview** Full Description

Task Overview




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

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		
Getting It Done	Task Overview	Full Description
Resources		
Name ^	Type ⇅	
Energy Policy Example	pptx 	
Energy Policy Worksheets	docx 	
ENERGY STAR Guidelines for Energy Management	pdf 	

Overview of 50001 Ready

- Use the EnMS Documentation Guidance Table

REFERENCES		DOCUMENTS		RECORDS	
ISO 50001-2011 Reference	Associated 50001 Ready Navigator Task #	What must be documented?	Notes/Comments	What must be recorded?	Comments/Notes
§ 4.1 b) § 4.2.1 d) § 4.5.4.1 a)	Task 1 Task 19 See also <u><i>Energy Manual Guidelines</i></u>	EnMS scope and boundaries	Setting scope and boundaries is a top management responsibility. Consider documenting EnMS scope and boundaries within an Energy Manual. Or, the scope and boundaries statement can be a standalone document.		

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 resources are available?



Active Partner Referral | Advanced Energy

[more information](#)

[cancel referral](#)



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Why is Energy Management Important?

Energy is a critical component to your organization's operations. It's important to realize that energy can be managed and controlled, it is not a fixed overhead cost. Energy management helps to reduce your organization's energy costs through improved energy performance and decreased use of energy sources and energy related assets. No matter how large or small your organization's energy requirements, some form of energy management can be a key step to better energy cost control and the competitive edge you need for ISO 50001 certified facilities.

Why should I use the 50001 Ready Navigator?

The 50001 Ready Navigator has been developed by the U.S. Department of Energy to align with the energy management system best practice outlined in ISO 50001. Use of the Navigator provides the user organization with a practical pathway to energy management systems and facilitates a more robust approach to its implementation. The Navigator is designed to help your organization build towards all parts of ISO 50001, so that you can continue to bring 50001 Ready to your ISO 50001 or ISO 50001 Energy Performance CO2 certification.

What is 50001 Ready?

50001 Ready is a U.S. Department of Energy initiative for facilities and organizations that have implemented an ISO 50001 based energy management system using the guidance in the 50001 Ready Navigator, and that have demonstrated energy performance improvements. To be 50001 Ready recognized, organizations are responsible for:

Explore the Navigator

Dashboard

ISO Recognition Required on 05/03/2019. The ISO annual report should be your report.

100% Completed

Task Assignments

Planning | Energy Review | Technical Implementation | System Management

Change the view

Task	Assigned To	Status	Status Date	Action
1. Scope and Resources	Fred North Last Name	Completed		
2. Energy Policy	Fred North Last Name	Completed		
3. Management Commitment	Fred North Last Name	Completed		
4. Energy Team	Fred North Last Name	Completed		
5. Legal Requirements	Fred North Last Name	Completed		

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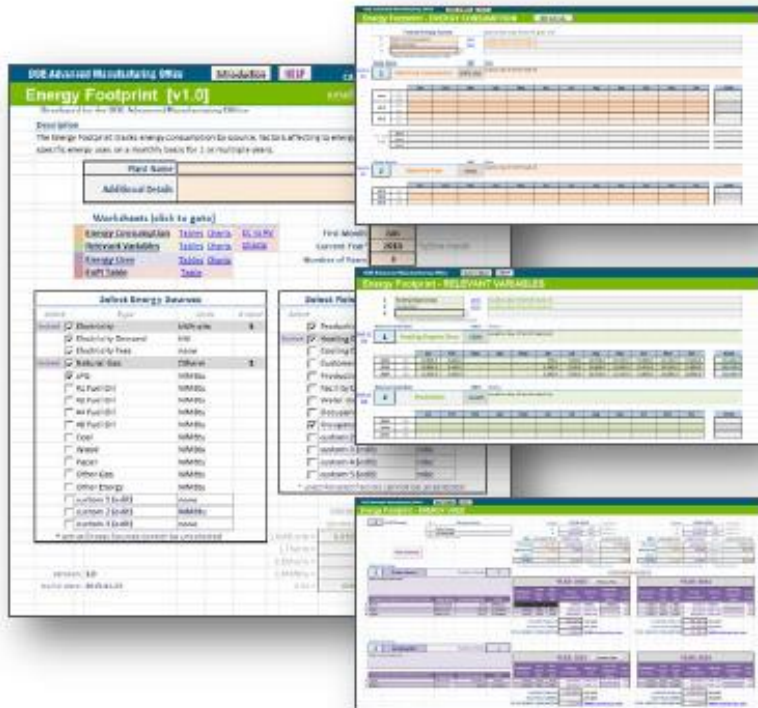
ENTER PASSWORD

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What resources are available?

Energy Footprint Tool



Easily track and analyze:

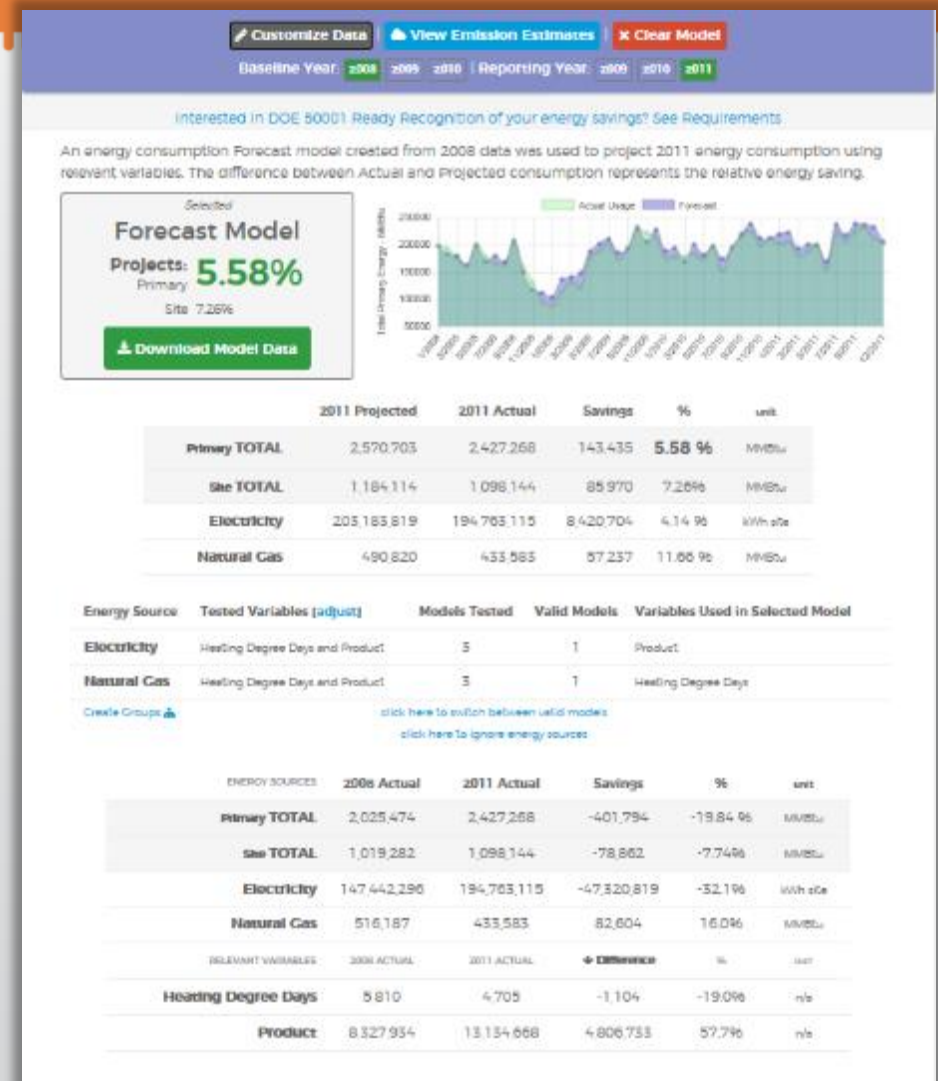
- Energy consumption
Electricity, natural gas, etc.
- Relevant variables
Production levels, degree days, operating hours, occupancy rates, etc.
- Energy Uses
- Calculates energy-related greenhouse gas emissions
- Easily exports to DOE EnPI Tool

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

The screenshot displays the '50001 Ready Navigator' interface. At the top, there is a navigation bar with the '50001 Ready U.S. DEPARTMENT OF ENERGY' logo, the title 'Navigator', and links for 'Contact', 'FAQs', 'My Tasks', and 'My Navigator'. Below this is a 'My Projects Overview' dropdown menu. The main content area features a 'My Projects Overview' heading with a 'Hide Test Projects' button and two 'Create Project' buttons. A table below shows a list of projects with columns for 'Project Name', 'Task Progress', 'Status/Next Action', 'Last Activity', and 'Action'. The table contains four rows of project data.

SHOW	50	ENTRIES	SEARCH:		
	Project Name	Task Progress	Status/Next Action	Last Activity	Action
[test]	San Francisco facility	✓	⚠ Recognition Request Returned	07/25/2017	...
[test]	Associated with: Better Buildings Berkeley Lab	✓	➡ Request DOE Recognition	07/05/2017	...
[test]	Oakland office	✓	➡ Request DOE Recognition	04/03/2017	...
[test]	Associated with: FEMP Building 90	0%	⚙ Team Completing Tasks	04/03/2017	...

What resources are available?

- 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://betterbuildingsolutioncenter.energy.gov/better-plants/software-tools>

What resources are available?

- Key Contacts at DOE

Pete Langlois

50001 Ready Program
U.S. Department of Energy
Pete.Langlois@ee.doe.gov
(202) 586-0984

Bruce Lung

Better Buildings/Better Plants
U.S. Department of Energy
Robert.Lung@ee.doe.gov
(202) 586-4411



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



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

What is a Cohort Anyway?



COHORT: /'kō ,hōrt/

- 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

	Smyrna, TN	17.7%
	Ontario, NY	16.5%
	Whitakers, NC	12.6%
	Dunedin, FL	12.2%
	Scranton, PA	11.9%
	Wilson, NC	15.1% / 10 yrs
	Gilroy, CA	9.8%
	Gaithersburg, MD	8.5%
	Cheswick, PA	7.6%
	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.)



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

**Your
Company**

DOE Resources

DOE Programs

Cohorts

Training Partner



SEM/ISO/SEP Consultants



Next Steps

- If you are interested in more information on SEM and 50001 Ready, *please contact us*
- If you are interested in participating in a 50001 Ready cohort, *please contact us*
- We would love to form a cohort in North Carolina for implementation of 50001 Ready



Survey Says.....

- 4 out of 5 energy consultants surveyed* recommend



50001 Ready
U.S. DEPARTMENT OF ENERGY

- To prevent this from happening to your Energy Team



*No actual survey was taken. This is just used to make a point.

Please Contact Us



Terry Albrecht
(828) 251-7475
talbrecht@wrpnc.org



Michael Stowe
(919) 857-9043
mstowe@advancedenergy.org

Environmental Stewardship Initiative



- DEQ recognition program
- Promotes and encourages superior environmental performance
- Voluntary program; no cost
- Going beyond compliance while conserving natural resources and resulting in economic benefits
- Approximately 200 member sites
- Networking and training benefits

2017 ESI MEMBERS REPORTED RESULTS			
REDUCTIONS	Air Emissions	1,694	Tons
	Greenhouse Gas Emissions*	2,546	Metric Tons CO2e
	Hazardous waste	105	Tons
	Landfilled waste	350,911	Tons
	Energy	1,093,033	mmBtu
	Water Use	1,038,806,743	Gallons
	Material Consumption	356	Tons
	Wastewater Pollutants	6,783.38	Tons
	Wastewater Volume	490,620,971	Gallons
	REUSE	Biomass Recovery**	95,625
Total Recycled Volume		97,774	Tons
TOTAL COST SAVINGS		\$ 8,178,746	

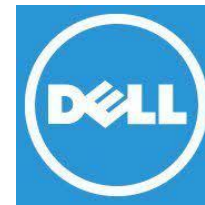


*Indirect not reported in energy reductions

**Category created for compost/mulch related goals

For more information contact:
 Angela Barger, (919) 707-8126
Angela.Barger@ncdenr.gov

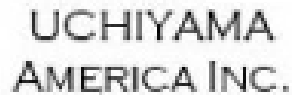
ESI Members



INTERNATIONAL



Powering Business Worldwide



Universal



Firestone Fibers & Textiles

FLEET READINESS CENTER EAST



Waste Reduction Partners



- Innovative partnership between NCDEQ and the Land of Sky Regional Council
- Non-regulatory
- Typically no cost
- Assist facilities improve environmental and energy management through efficiency techniques that save money
- Provides consulting services using 40 retired engineers and scientists
- Conducts on-site assessments and provides cost saving strategies and resources
- Client cost savings since the year 2000: \$137 Million
- Client energy saving since 2000: 5.66 Trillion BTUs

For Services Contact: Terry Albrecht, (828) 251-7475
talbrecht@wrpnc.org
www.wastereductionpartners.org

Questions & Answers



Michael Stowe
(919) 857-9043 {desk}
(919) 904-0279 {cell}
mstowe@advancedenergy.org
www.advancedenergy.org



909 Capability Drive, Suite 2100
Raleigh, NC 27606



More to Follow.....

Thanks for Attending

Watch for a follow-up e-mail with a link to the event recording

