Advanced Manufacturing Office

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

Engaging customers with 50001 Ready

Sandy Glatt
US Department of Energy
NE SEM Collaborative
November 6. 2018

Engaging Customers with 50001 Ready

How to drive deep, sustainable energy savings through energy management

Topics:

1. EnMS an Overview
2. The 50001 Ready Program
3. What's New
4. Options and Resources for Utility Programs and Implementers

EnMS, An Overview: ISO 50001, SEM & CEI

EnMS – What is it?

- An **En**ergy **M**anagement **S**ystem (**EnMS)** integrates active energy management into everyday business systems and procedures.
  - Enables organizations to better manage energy usage, to achieve operating cost savings, and to continuously improve energy efficiency.
  - Active management results in the continued implementation of ***energy actions***.

- An **EnMS** is a holistic approach to continuous improvement of a site's or corporations energy performance.
  - A commitment by top corporate management
  - Technical, cultural, and behavioral improvements that are tracked, measured, and evaluated annually
  - Includes energy efficiency, energy security, energy use and consumption
  - Resetting of improvement goals & objectives annually

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** was developed to establish international standards for **EnMS** and energy improvement*

You can't manage what you don’t measure!

- Would you buy stock in a company without a financial management system?
  - Doubtful! ….. **International Financial Reporting Standards (IFRS)**
- Would you invest in a company without a good environmental management system?
  - Doubtful!…. **ISO140001**, Dow Jones Sustainability Index, CP100, ….
- Would you buy products from a company without quality control system?
  - Don’t think so! …. **ISO 9001**
- Would you work for a company without a good safety management system?
  - No chance!…. **ISO 45001** *Occupational health and safety management systems*

Corporate system standards *are core to every well managed company*

HR, purchasing, supply chain, operations, testing…

All have long institutionalized company systems with industry standards.

An Energy Management System is critical to any successful company!

ISO 50001: an EnMS defined by an international body

- Developed to create consistency between the multiple national energy management standards that were being developed
- Published in 2011, recently updated
  - 44 ISO member countries and 14 observer countries participated in the development

- Describes an ***Energy Management System*** *framework*
  - A management model for continual improvement similar to existing models for quality (ISO9001) and environmental management (ISO14001)
  - A ***requirements specification*** for establishing, implementing, maintaining and improving an energy management system.

Bridging the Gap: The DOE 50001 Ready Program for utilities and implementers

Why aren't Utilities running ISO 50001-based SEM programs?

"Don't need a complex SEM/CEI type program"

"ISO 50001 documents are too complicated"

"Running an ISO 50001 implementation is too costly to design and implement"

"ISO 50001 does not provide immediate savings"

"Other SEM/CEI program designs can provide the same benefits"

The 50001 Ready Program and resources are designed to help utilities overcome these issues

50001 Ready Program for utilities and implementers

The DOE Objective

The Objective

- Create readily adoptable, easy-to-use resources for utilities and implementers that want to offer their customers a continuous energy improvement program. Provide self-attestation and recognition.

50001 Ready is

1. Open source software tools and resources, designed to be enhanced by implementers and offered to end-users
2. Suite of resources to support utilities and implementer who want to work with customers in institutional, commercial and industrial facilities
3. Available to support 'enterprise' or multi-facility adoption
4. Recognition for self-attesting to ***conformance*** with ISO 50001. There are no certification requirement from third parties

50001 Ready Process

Three Steps to Becoming 50001 Ready

STEP 1
Self-declared implementation of ISO 50001

50001 Navigator

- ✓ The Navigator walks a user through the steps of implementing an EnMS consistent with an ISO 50001 framework.
- ✓ Each step is checked off and validated by the user

STEP 2
Validation of energy and emissions reductions

DOE EnPI (Energy Performance Indicator)

- ✓ Run a regression-based calculator for single or multiple fuels to determine energy savings. DOE makes an EnPI tool available
- ✓ The User can utilize the DOE EnPI tool, an Energy Star tool, a third party tool, or their own tools to validate the results.

STEP 3
Submission of results to DOE for recognition

Recognition Program

- ✓ Complete Navigator with > 0 results
- ✓ Complete EnPI with YES to all questions
- ✓ Submit to DOE signed attestation of completion along with EnPI results

DOE or Utility recognized success for conformance to ISO standards

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

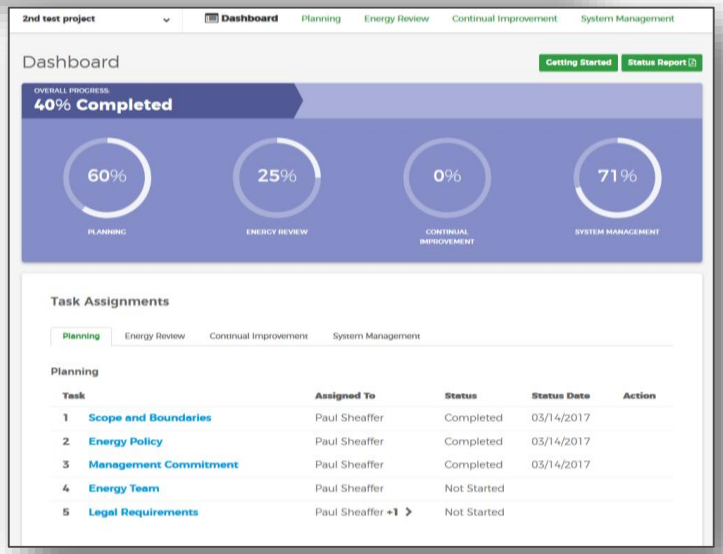
Move to achieve ISO 50001 Certification

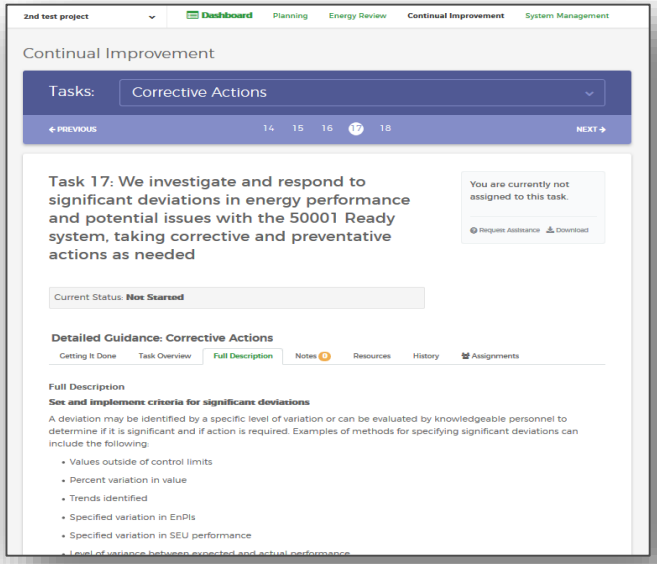
- ✓ *Decide on facility or enterprise level*
- ✓ *Organize submissions of policy, framework fulfillment and performance*
- ✓ *Work with external auditor & certification body to receive ISO 50001 Certification*

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



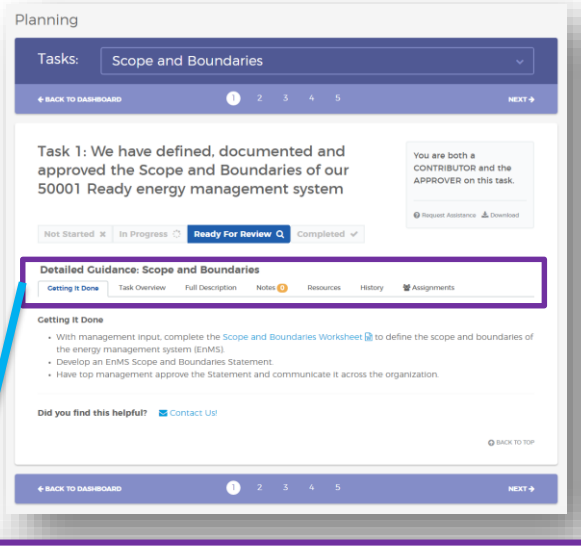


https://navigator.industrialenergytools.com

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 or ENERGY STAR
- Track and update task progress
- Form teams and assign tasks
- Download guidance
- Create multiple projects
- Access over 100 related resources
- **DOE 50001 Ready Recognition!**



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

50001 Ready Navigator Steps

- Having a **Continuous Energy Improvement** or **Energy Mgmt. System** means you are already at least **HALF WAY DONE**

Strongly prepared Partially prepared

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

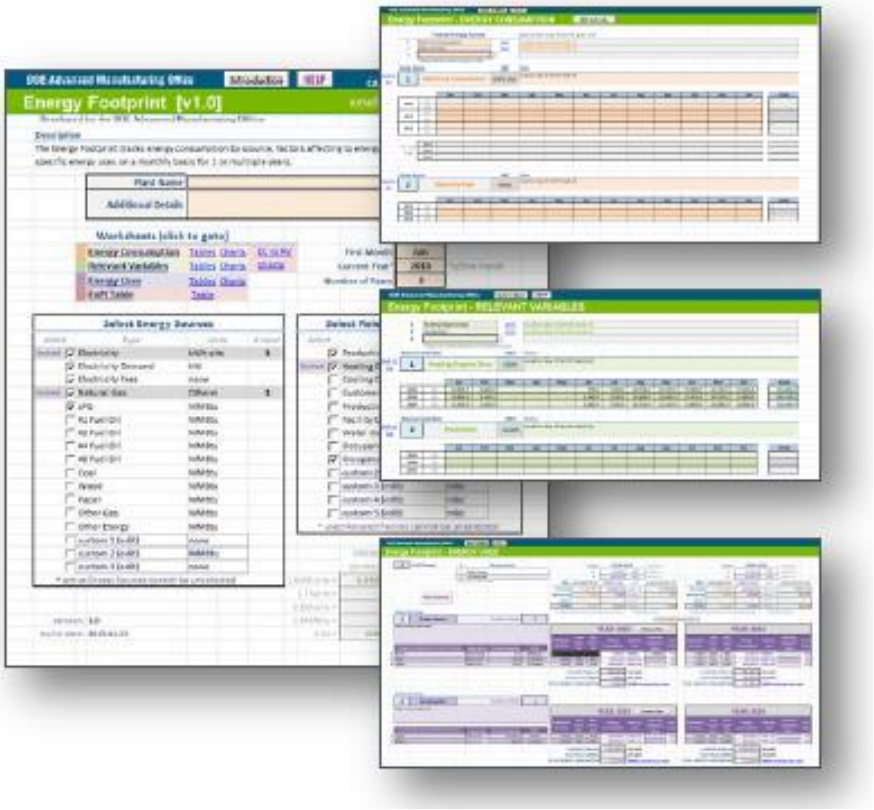
14. Monitoring*
15. Measurement*
16. Operational Controls*
17. Corrective Actions
18. Energy Consideration in Design

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

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

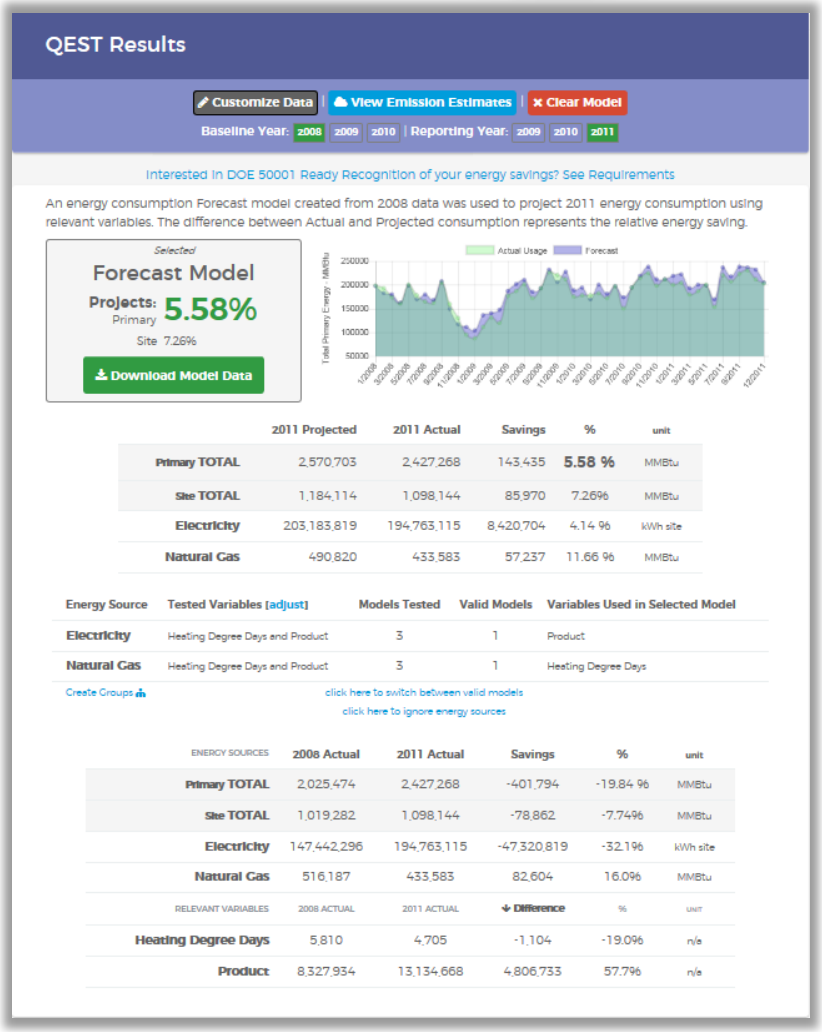
https://ecenter.ee.doe.gov/EM/tools/Pages/EnergyFootprint.aspx

50001 Ready Tools

DOE Energy Performance Indicator Tool (EnPI Lite)

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



https://enpi.industrialenergytools.com/

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

50001 Ready Tools

Automated Register of Implemented 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	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
	Use multiple rows for multiple energy types impacted by the same action.											
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

What's New!!

50001 Ready Playbook

- 50001 Ready Navigator is a personnel management and tracking tool
  - Bring in energy team and consultants
  - Assign to Tasks and track feedback
  - Leave notes and Sharepoint locations for the needed deliverables

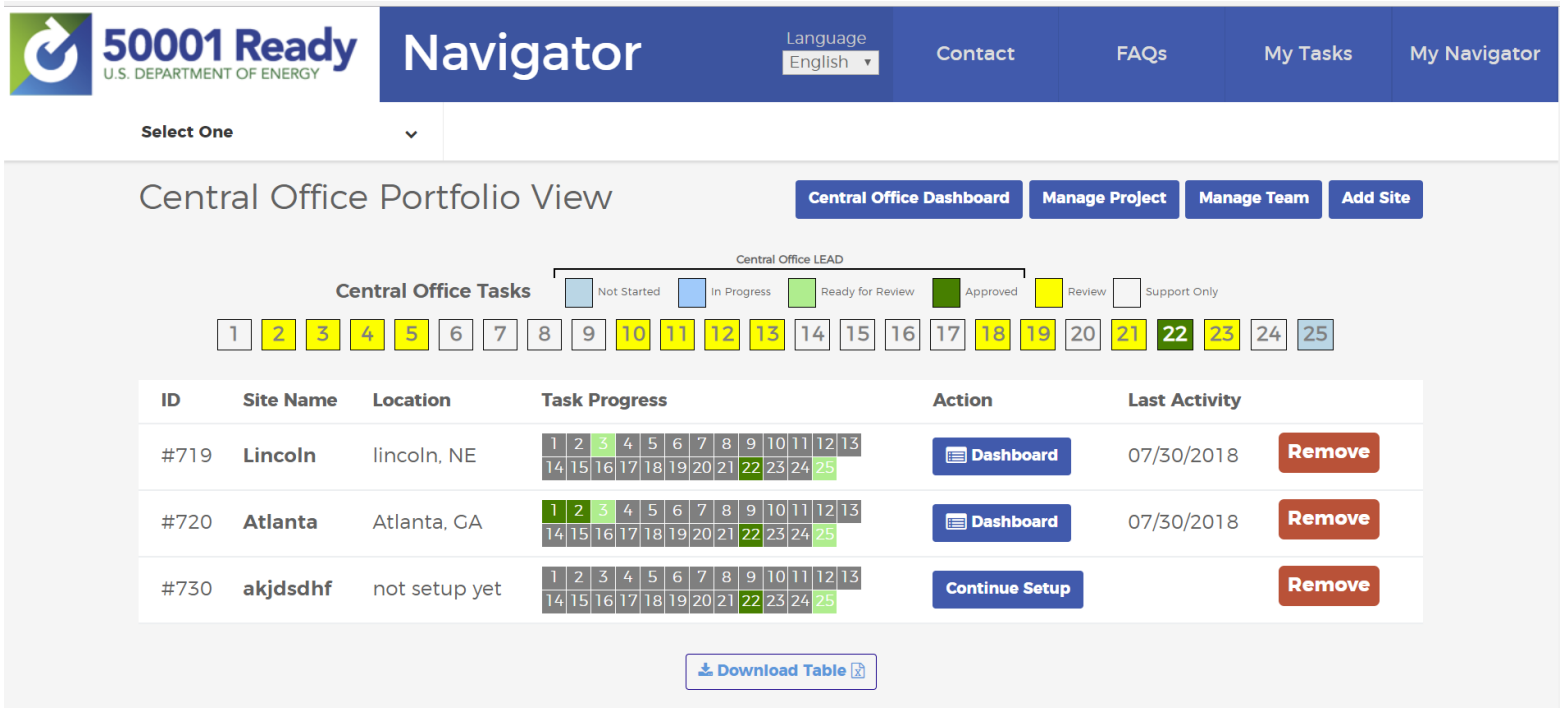
- New: Companion Playbook with Task worksheets
  - Fill out the worksheets for each Task
  - Living document (spreadsheet) that contains the energy data and system
  - Step-by-step guide to establishing and improving energy use
  - On boarding tool for new energy personnel (management or staff)
  - Will contain sample completed forms to show end product example
  - Examples across sectors (industrial, commercial, municipal)

Multi-Site Platform!

- Multi-site functionality – central office involvement to coordinate and support activities at multiple linked facilities – has applicability to cohort program models
- Reduces time and effort to implement 50001 Ready across multiple facilities
- Standardizes 50001 Ready system across facilities
- Centralized repository for shared information
- Applicable for entities with multiple facilities pursuing 50001 Ready
  - Municipal; schools, hospitals
  - Industrials with multiple sites

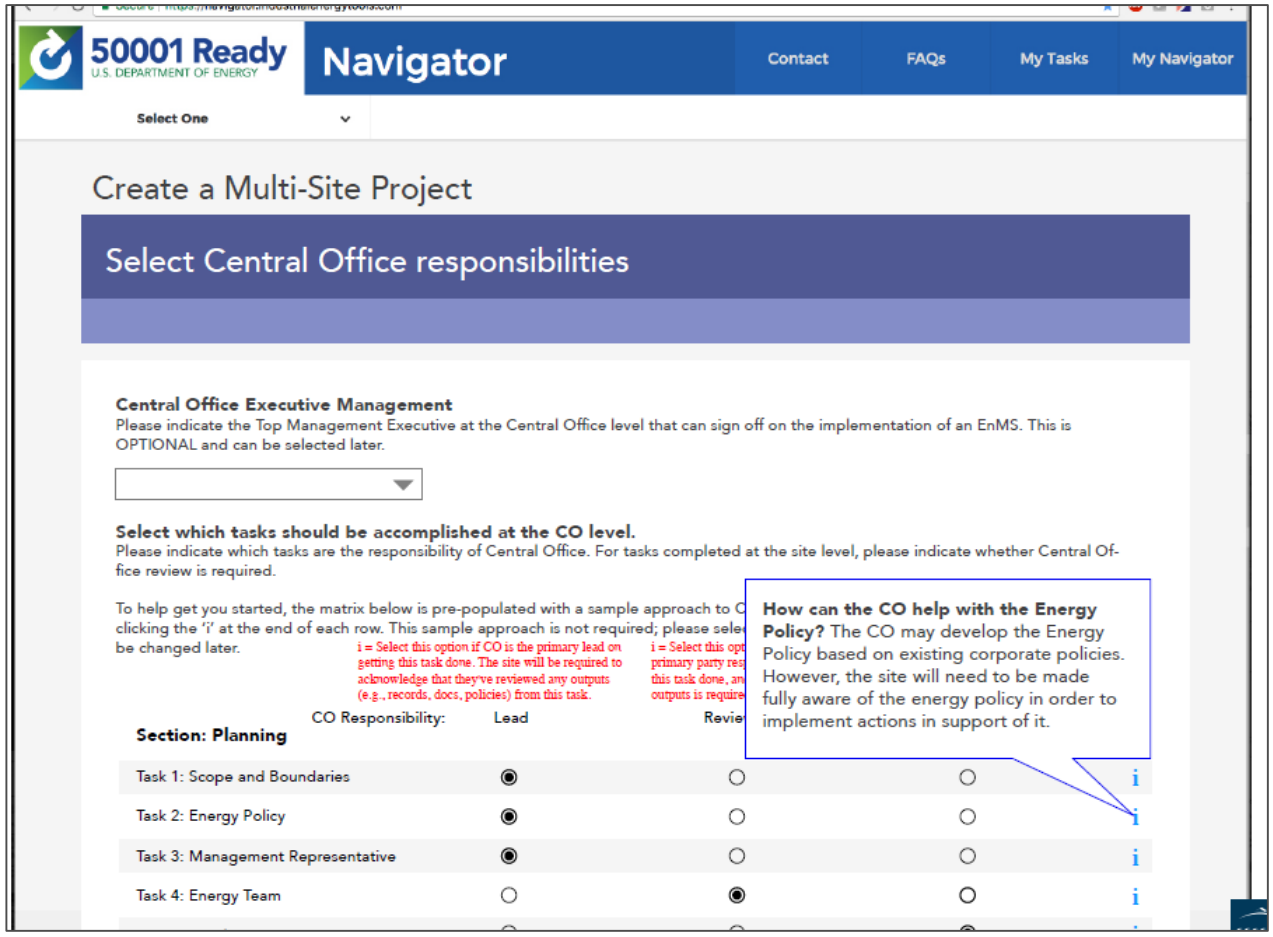
50001 Ready Navigator Multi-Site Features

- Track overall 50001 Ready implementation across multiple sites
- Platform for communicating with sites on 50001 Ready



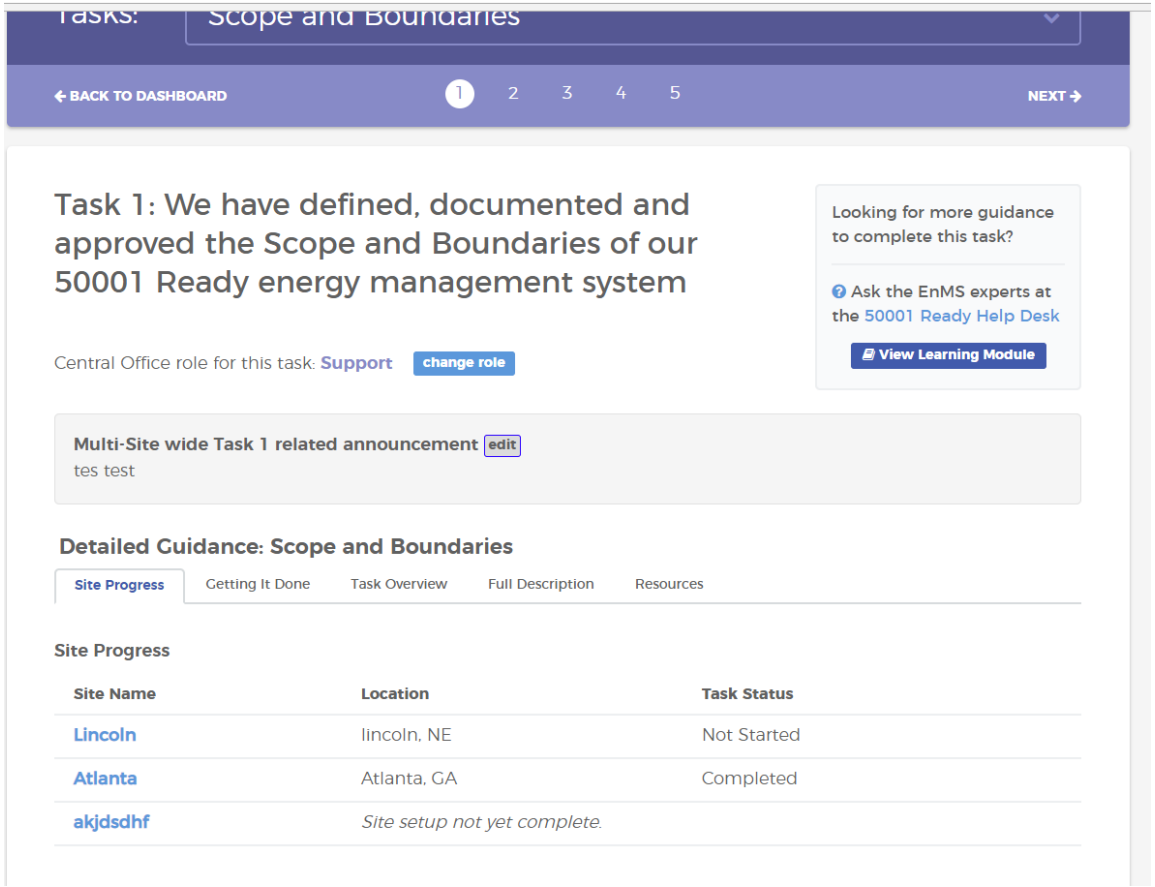
50001 Ready Navigator Multi-Site features

- Establish role of Central Office in 50001 Ready implementation



50001 Ready Navigator Multi-Site Features

- Track 50001 Ready implementation across multiple sites for each task



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

Overview of Changes in ISO 50001:2018

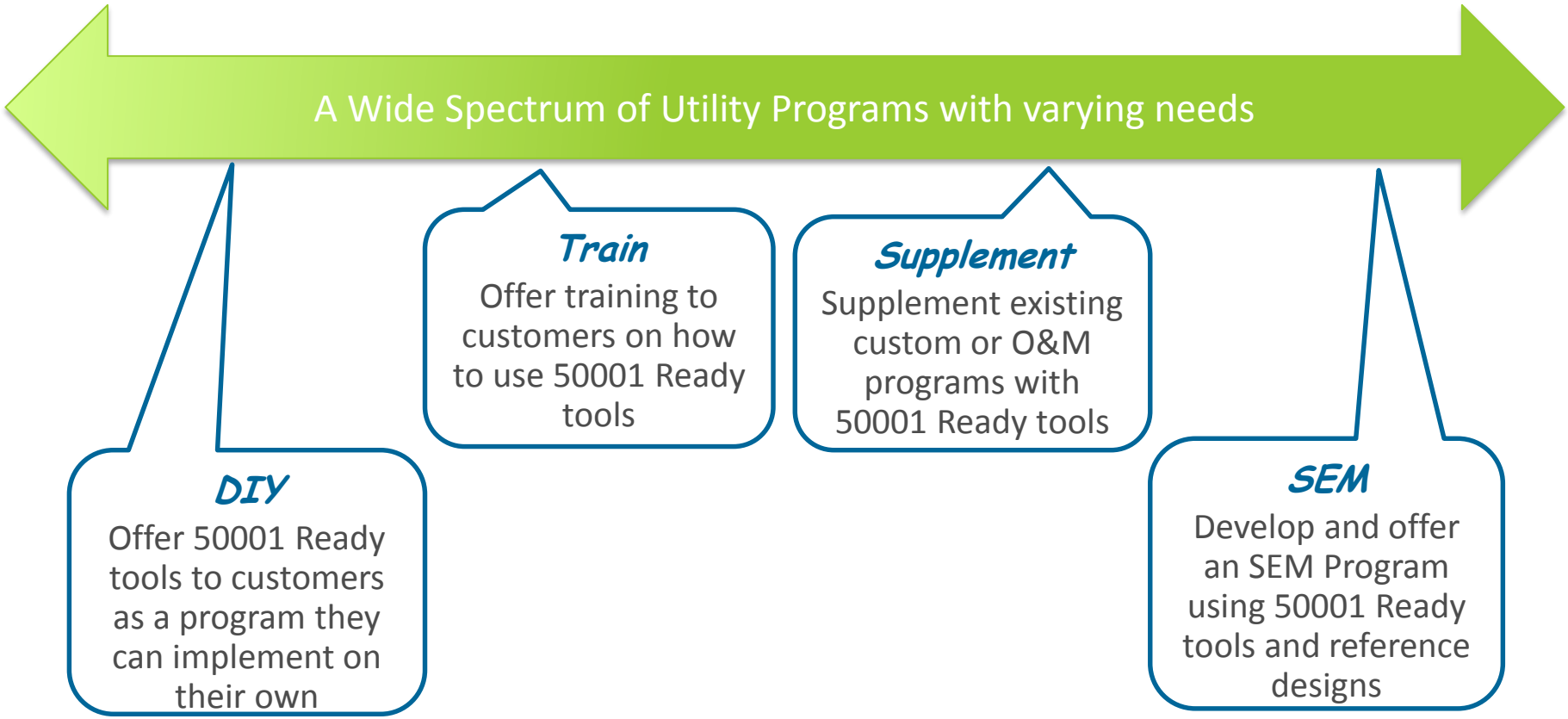
Updates clarify expectations for organizations committed to ISO 50001!

- **Top management**: expanded role and description of responsibilities
- **Continual energy performance improvement**: strengthened demonstration and emphasis on measurable benefits.
- **Types of energy** within the defined scope and boundaries cannot be excluded.
- **Topics with new clarifying details**:
  - Energy review
  - Energy performance indicators and associated energy baselines
  - Energy data collection plan, previously energy management plan
  - Normalization for variables that affect performance.
- **Reorganized content and user friendliness**
  - Adopts ISO's new "high-level structure" that aligns all management system standards for consistency and greater cross-discipline integration

Options and resources for utility programs and implementers

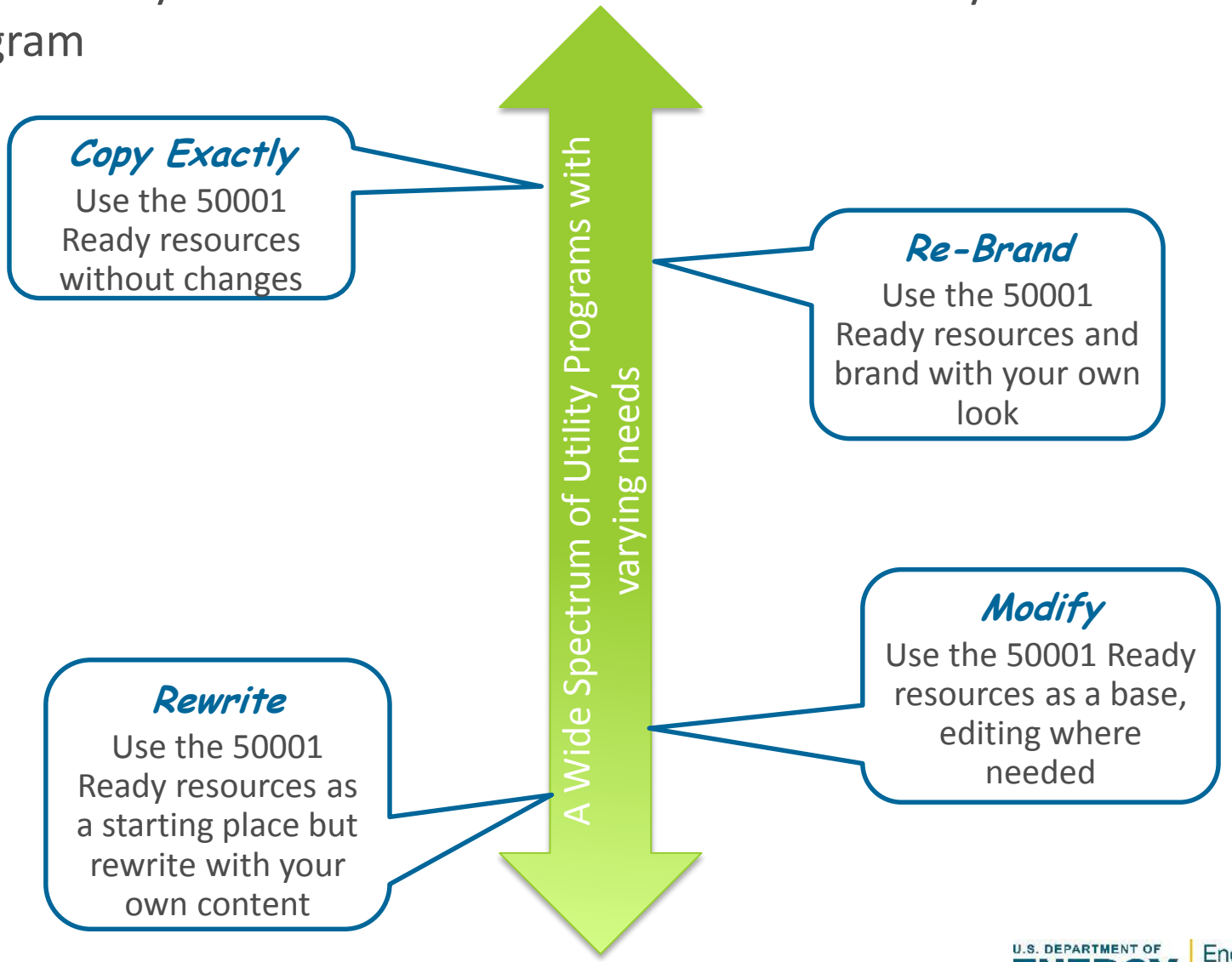
50001 Ready Program for Utilities and Implementers

- The 50001 Ready program is designed to be used by program administrators and implementers in whatever way fits their goals



50001 Ready Program for Utilities and Implementers

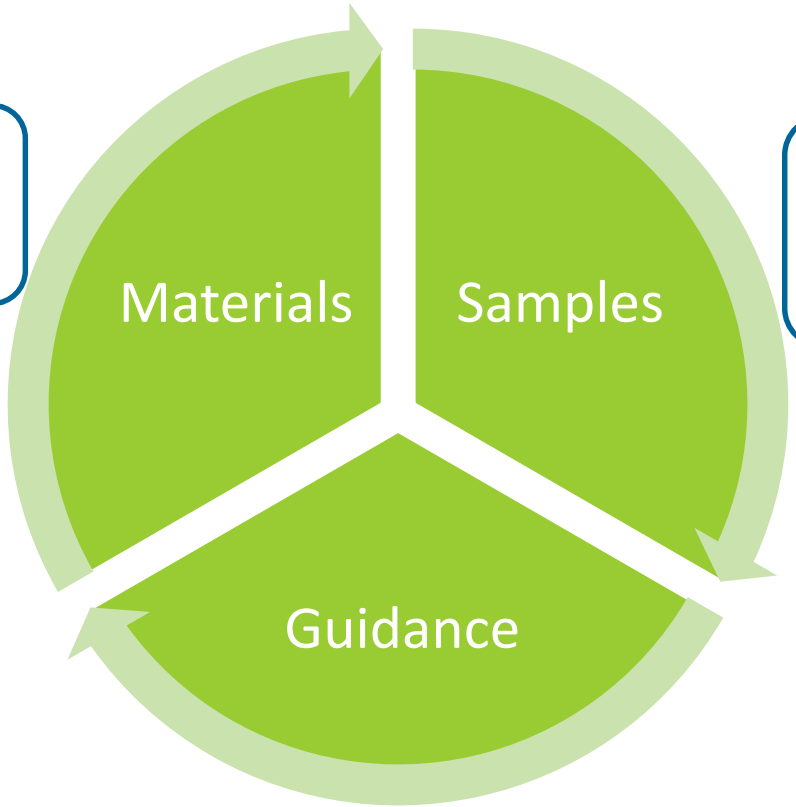
- 50001 Ready resources can be used in whatever way is best for each program



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

Additional Tools for Program Administrators and Implementers

To help utilities and implementers easily develop custom materials



To give give utilities and implementers ideas on potential program designs

To help utilities and implementers make decisions when designing programs

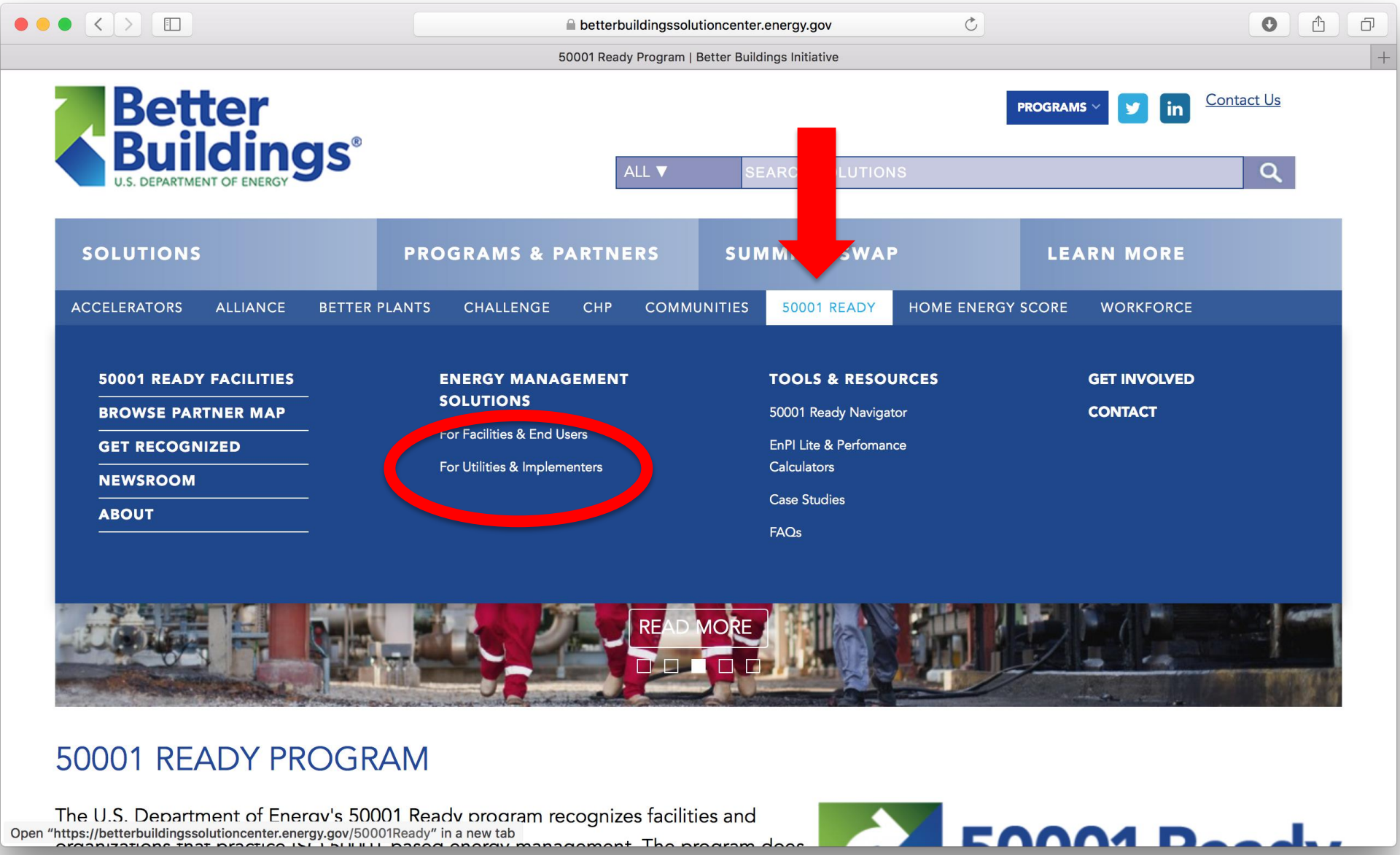
Overview of 50001 Ready Utility and Implementer Materials

Purpose of 50001 Ready Utility Resources

Make it easy for utility program administrators and implementers to use 50001 Ready by providing:

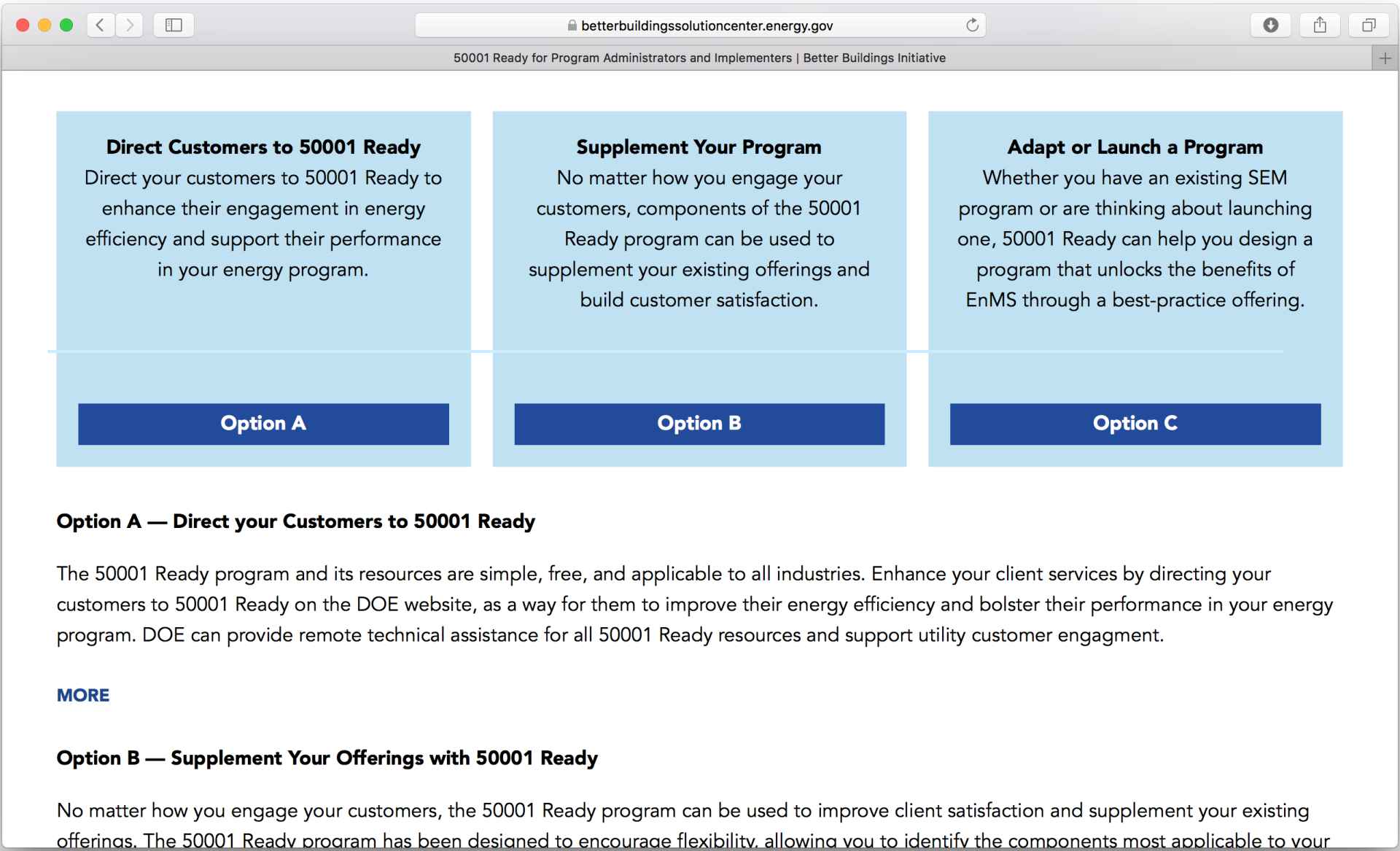
- Samples- to give ideas on how use 50001 Ready can be used
- Guidance- that helps make decisions on how to use 50001 Ready
- Materials- that make it easy to develop offerings using 50001 Ready
- *COMING SOON: CASE STUDIES!!!*

Resources in ENERGY.GOV/50001READY



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

Support for Various Types of Engagement



Option A Resources

Option A — Direct your Customers to 50001 Ready

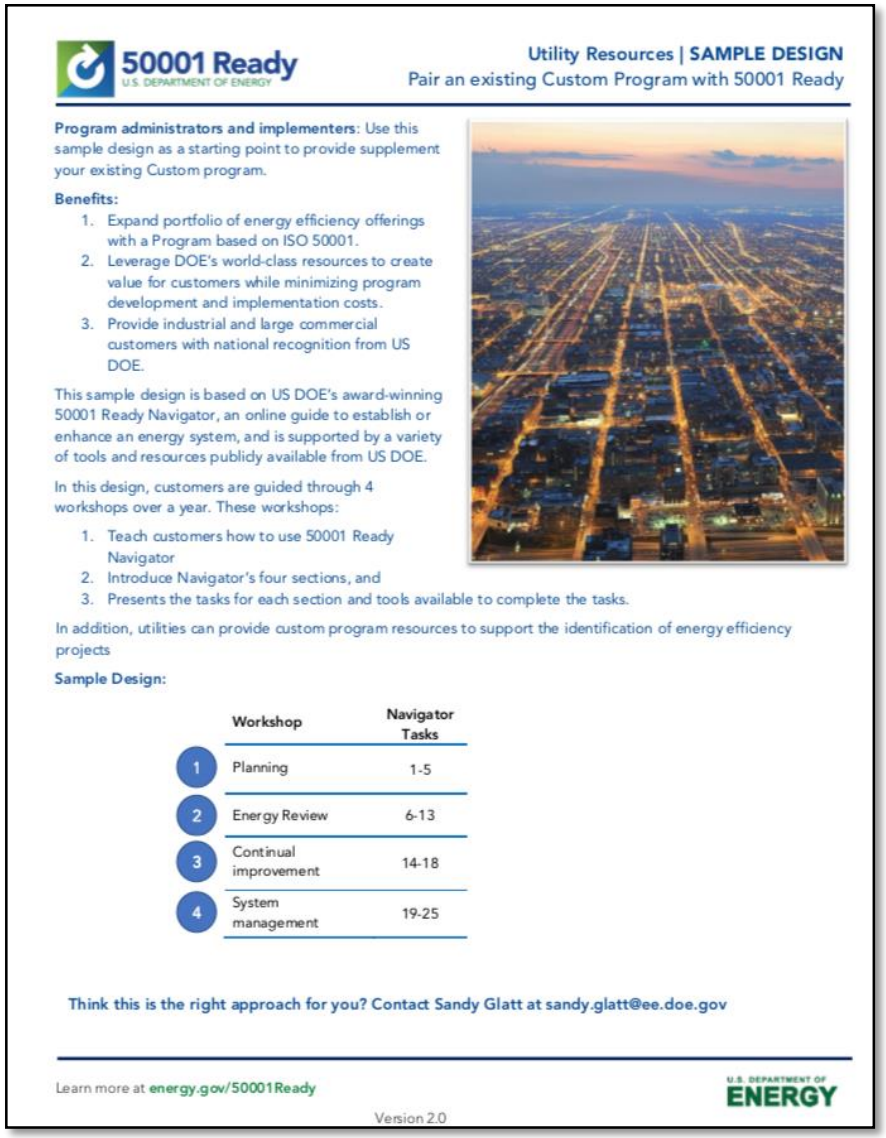
The 50001 Ready program and its resources are simple, free, and applicable to all industries. Enhance your client services by directing your customers to 50001 Ready on the DOE website, as a way for them to improve their energy efficiency and bolster their performance in your energy program. DOE can provide remote technical assistance for all 50001 Ready resources and support utility customer engagement.

If you are interested in having your customers use the 50001 Ready program and Navigator tool, DOE resources are available to help you communicate the benefits of 50001 Ready. These templates can be customized to meet your program and customer needs. Several examples are listed below; for editable versions or additional assistance with developing your customer-facing material, please contact us.

- Learn more about how 50001 Ready benefits your customers
- 50001 Ready - Infosheet - Overview for Program Participants (PDF)
- 50001 Ready - Slide Deck - Program Overview (PDF)

Additionally, DOE would like to hear feedback from you and your customers regarding the value and usability of the 50001 Ready Navigator and other program resources. Please contact us to see how your partnership with DOE can contribute to future program and software development.

Sample Design: Supplement with 50001 Ready



50001 Ready
U.S. DEPARTMENT OF ENERGY

Utility Resources | **SAMPLE DESIGN**
Pair an existing Custom Program with 50001 Ready

Program administrators and implementers: Use this sample design as a starting point to provide supplement your existing Custom program.

Benefits:

1. Expand portfolio of energy efficiency offerings with a Program based on ISO 50001.
2. Leverage DOE's world-class resources to create value for customers while minimizing program development and implementation costs.
3. Provide industrial and large commercial customers with national recognition from US DOE.

This sample design is based on US DOE's award-winning 50001 Ready Navigator, an online guide to establish or enhance an energy system, and is supported by a variety of tools and resources publicly available from US DOE.

In this design, customers are guided through 4 workshops over a year. These workshops:

1. Teach customers how to use 50001 Ready Navigator
2. Introduce Navigator's four sections, and
3. Presents the tasks for each section and tools available to complete the tasks.

In addition, utilities can provide custom program resources to support the identification of energy efficiency projects

Sample Design:

	Workshop	Navigator Tasks
1	Planning	1-5
2	Energy Review	6-13
3	Continual improvement	14-18
4	System management	19-25

Think this is the right approach for you? Contact Sandy Glatt at sandy.glatt@ee.doe.gov

Learn more at **energy.gov/50001Ready**

U.S. DEPARTMENT OF ENERGY

Version 2.0

All overviews are similar one-page snapshots:

- Brief description
- Benefits
- Overview of the design

50001 Ready SEM Program Design Tool

>> LAUNCHING A NEW 50001 READY SEM OR CEI PROGRAM

SEM programs are complex, and program development is complicated and can be costly. If you are considering implementing an SEM program, 50001 Ready resources are available to jumpstart the process, reduce the costs of your program development efforts, and provide your customers with a globally recognized approach.

Energy efficiency program administrators that want to launch a 50001 Ready SEM program can take the following steps:

1. Decide what type of 50001 Ready SEM program is right for you.

SEM programs, including the 50001 Ready SEM program, can come in many different "flavors" (e.g., length of engagement, amount and type of support to provide, whether to provide group workshops or cohorts). DOE's ***50001 Ready SEM Program Design Tool*** is available to help you make key decisions on what type of program might be right for you. Answer a few brief questions in the online tool and immediately receive recommendations to consider in designing an SEM program. *Use the 50001 Ready SEM Program Design Tool >*

Design tool provides guidance for designing a new SEM Program

50001 Ready Successes

ArcelorMittal Cleveland – 50001 Ready Facility

Elevating awareness of energy performance among internal and external audiences

- **Competitive advantage in the market:** 50001 Ready distinguishes ArcelorMittal to key customers that prefer suppliers that demonstrate energy management excellence.
- **Access to capital through competitive internal channels:** 50001 Ready helped plant leadership recognize the ongoing value of investment in energy projects.

Nissan North America – Three 50001 Ready Facilities

Leveraging 50001 Ready to replicate successes with energy management

- **No-cost boost to supplier energy management:** Nissan uses 50001 Ready to engage suppliers to manage energy cost-effectively—further reducing corporate carbon footprint.
- **Effective training of new staff:** Following steps in the 50001 Ready Navigator, new hires learn Nissan's energy management processes.

Nissan's 50001 Ready Facilities:

- Vehicle assembly plant, Smyrna, TN
- Vehicle assembly plant, Canton, MS
- Powertrain plant, Decherd, TN

Four Seasons Produce – 50001 Ready Facility

Continuing a tradition of leadership and innovation in sustainability

- **Energy performance:** The Navigator guided efforts to measure, monitor, and improve energy intensity by 2.1%.
- **Continuous Energy Improvement (CEI) practices:** 50001 Ready confirmed enduring effectiveness of CEI best practices to achieve results.
- **No- and low-cost savings:** With 50001 Ready, ~25% of identified savings opportunities were affordable or free.

Four Seasons Produce (Ephrata, Penn.) was introduced to 50001 Ready by their CEI provider, Strategic Energy Group (SEG).

Neenah Inc. – 50001 Ready Facility

Identifying savings from specific energy activities and qualifying for incentives

- **530,000 therms of natural gas and 1.6 million kWh saved annually:** 50001 Ready helped Neenah trace savings to specific energy efficiency projects.
- **Replication of energy savings:** Clarifying the source of savings enabled the mill's energy team to install successful projects across the mill.
- **Leveraging utility incentives:** Completing 50001 Ready in partnership with Focus on Energy led to additional cost savings.

Focus on Energy, Wisconsin's utility-funded efficiency program, introduced 50001 Ready to this specialty paper facility in Whiting.

Contact Us

Sandy Glatt

sandy.glatt@ee.doe.gov

ENERGY.GOV/50001READY