



## 50001 Ready: Self-Reporting & Assessment Tool

Course Number: **CXENERGY1703**

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April 26, 2017



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AABC Commissioning Group

AIA Provider Number 50111116



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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

This course is registered with **AIA**

# Course

## Description

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DOE's voluntary 50001 Ready program aligns with existing corporate business systems and operating practices, and enables companies to increase their energy productivity while also improving health, safety and comfort, reducing emissions, and creating processes for energy management that endure staff turnover. This program provides an online do-it-yourself set of tasks with supporting guidance that work alongside energy performance measurement tools such as EPA's ENERGY STAR Portfolio Manager, allowing facilities to realize and monitor lasting energy performance improvements. Upon completion of the tasks, the organization's energy team will self-attest to their achievement and the facility will be recognized by the U.S. government as *50001 Ready*.

# Learning Objectives

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At the end of the this course, participants will be able to:

1. Understand where and how 50001 Ready fits in the spectrum of energy-related management systems and certifications
2. Learn about the purpose of and instructions for using the DOE's new 50001 Ready Self-Assessment tool
3. Learn how data is used to identify, plan and prioritize energy management and energy savings efforts
4. Learn to staff, organize and implement a 50001 Ready team in an organization

# *What is ISO 50001?*





- What it is:
  - An **Energy Management System** framework created by the International Organization for Standardization (ISO)
  - A management model for continual improvement similar to existing models for quality (ISO 9001) and environmental management (ISO 14001)
  - A requirements specification for establishing, implementing, maintaining and improving an energy management system
  - Consistent framework for integrating an energy management system
- What it does:
  - Enables an organization to follow a systematic approach in achieving continual improvement of energy performance, including energy efficiency, energy security, energy use and consumption
  - Aims to help organizations continually reduce their energy use, and therefore their energy costs and greenhouse gas emissions
  - *Establishes a 'culture' or 'practice' around energy use*



- What it requires a company to do:
  - develop an **internal management policy** for continual efficient use of energy
  - create an energy team and get leadership buy-in
  - fix targets and objectives to meet the policy
  - use data to understand and make decisions on energy use and consumption
  - measure the ongoing results
  - review the effectiveness of the policy & continually improve energy management
- What about certification:
  - Certification is *possible but not obligatory*
  - Certification proves the energy management system meets the ISO requirements
  - Certification is done by independent external accredited certification bodies

“Hilton uses ISO 50001 to drive continuous improvement at more than 4,200 properties. It aligns with our goal to reduce carbon footprints and increase cost savings across our global portfolio.”

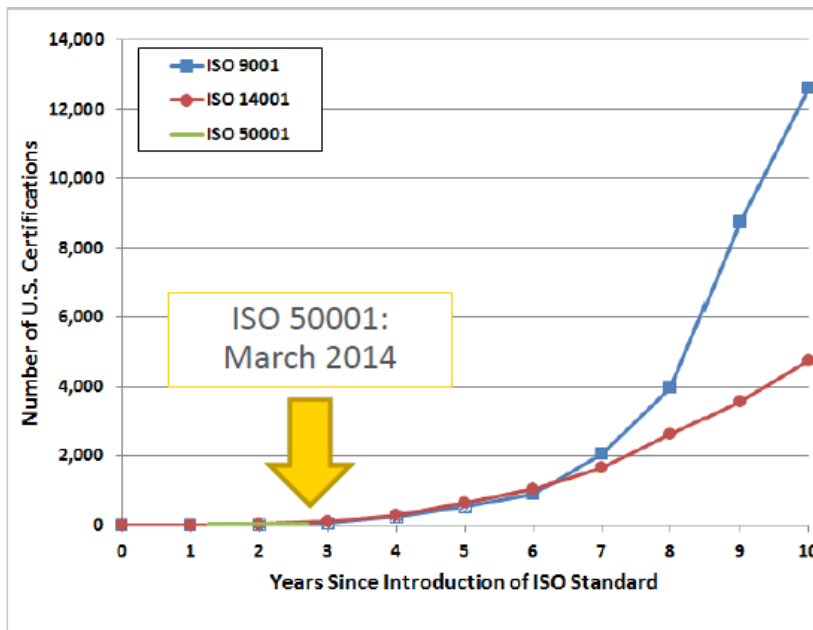
-- Maxime Verstraete,  
Vice President of Sustainability, Hilton Worldwide



# ISO 50001 Adoption Cycle

## Now Is The Time to Accelerate Adoption

- The number of ISO 50001 certifications around the world is rapidly growing
- ISO 14001 and ISO 9001 accelerated only 3 to 4 years after introduction
- ISO 50001 is in year 5 since adoption in 2011
- A medium adoption scenario shows **over 9000 U.S. certified facilities by 2025**
- Creating market pull could significantly impact market acceleration



### Adoption Impact (2015 – 2025)

- Adoption curve mirrors historic ISO 140001 growth
- Three adoption scenarios: Low, Medium and High
- **Medium Adoption Scenario: 9,054 facilities** certified by 2025

Segment	Medium Adoption # certified facilities
Large Manufacturing	1,021
Large Mining (exl. oil/gas extraction)	414
Large Water and Wastewater	1,029
Large Commercial	6,590

ISO 50001 certification data supplied by NAGUS - German Federal Environment Agency to update the certification listing. Unfortunately the updates terminated by the agency at the end of May 2014. Therefore this listing is the last version we are able to exhibit.

# *Why ISO 50001?*

# Why ISO 50001 is Different?

- **ISO 50001 is an EnMS (Energy Management System)**

- A framework by which an organization establishes ongoing managed policies to achieve control and improvement of energy performance – a systematic approach to energy management
- Based on the Plan-Do-Check-Act (PDCA) cycle. It integrates both the technical and managerial activities



- **ISO 50001 focuses on continuous improvement**

- Unlike a project approach it strives for continuous improvement at process, facility, or enterprise level
- It focuses on policy integrated into the long term strategy of a company
- It requires regular auditing and certification of the policy, process and implementation

- **ISO 50001 is based existing internationally accepted models**

- Similar in approach and method to ISO 9001 (quality) and ISO 14001 (environmental management)
- Makes it easier for an organization to integrate energy management with existing efforts

***ISO 50001 requires continual energy performance improvement***  
***It does not include prescriptive energy performance improvement goals***  
***It provides a framework through which organizations set and pursue goals for improving energy performance***

# ISO 50001 is Being Used in Commercial & Industrial

“ The ISO 50001 framework not only builds upon our energy management systems, but also help us drive consistency and performance improvements across our locations. ”

Steve Sacco,  
**Schneider Electric** Vice President,  
Safety, Environment & Real Estate



Hilton Worldwide has become the first hospitality company to have hotels certified to the DOE's Superior Energy Performance. *Photos courtesy of Hilton.*

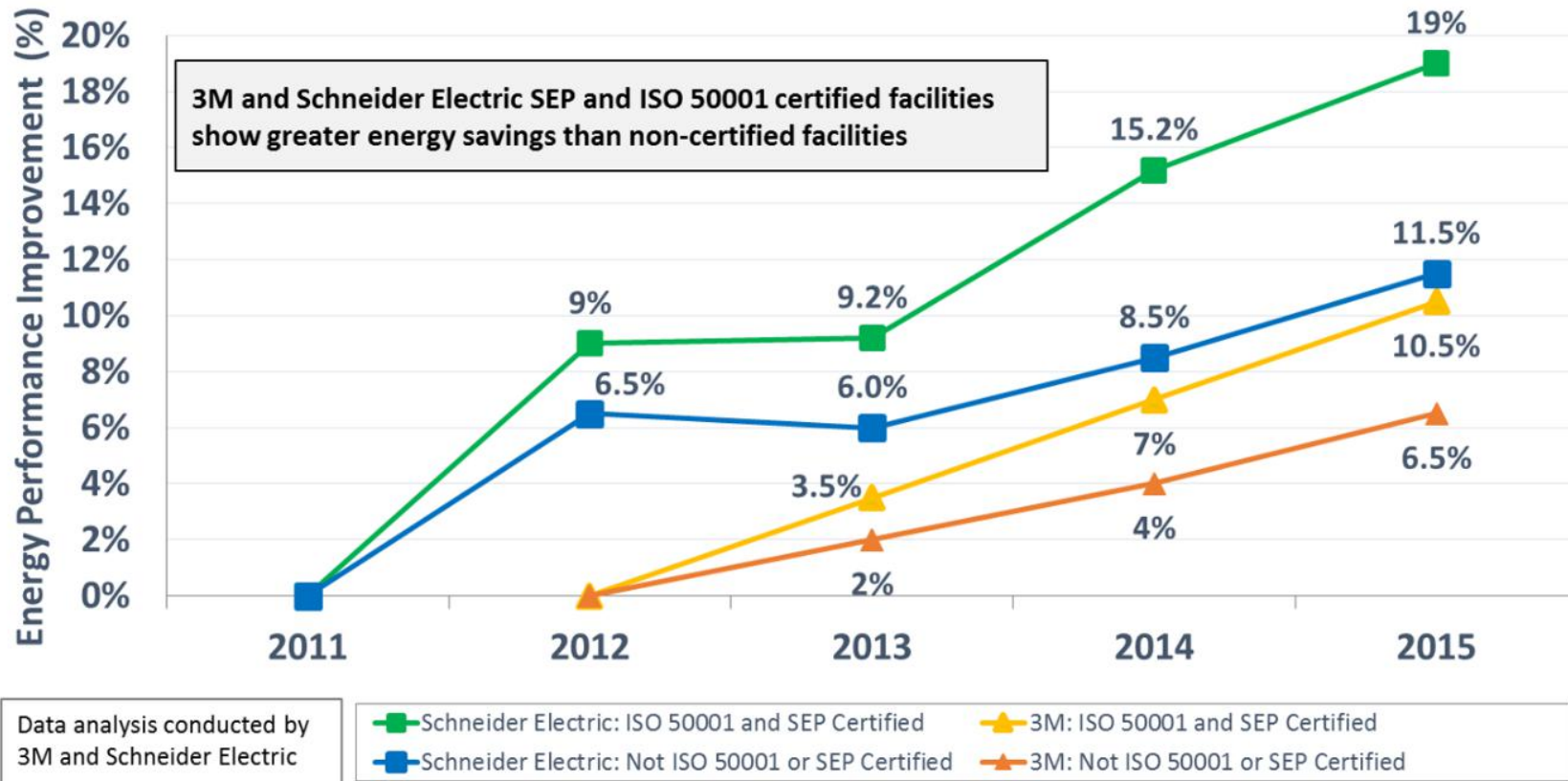
## ISO 50001 in America

- 3M
- Aflac
- American Axle & Manufacturing
- BAE Systems
- BMW
- Bosch Rexroth
- Bridgestone
- Cargill
- Chrysler
- Coca-Cola
- Cummins
- Curtiss-Wright EMD
- Detroit Diesel
- Google
- HARBEC Inc.
- Hilton Worldwide
- IBM
- Intertape Polymer Group
- Land O'Lakes
- Mack Trucks
- Marriott International, Inc.
- MedImmune
- NewGold
- Nissan North America
- Samsung
- Schneider Electric
- Titan America
- Volkswagen
- Volvo

“ ISO 50001 helped us nearly double our ENERGY STAR Portfolio Manager score over the years. ”

Alfred Blackmar,  
**Aflac** Vice President, Facilities Support

# What is the Business Case for ISO 50001?



Savings at certified facilities greater on average compared to non-certified facilities:

- **3M: 62% greater over 3 years:** 18 ISO 50001 sites across 7 countries; 2 US SEP, 1 Korea SEP certified; 257 non-ISO 50001
- **Schneider Electric: 65% greater over 4 years:** 20 ISO 50001 in North America; 16 US SEP certified; 30 non-ISO 50001

# Why ISO 50001?

## What we know

- There is still large potential for energy savings in the industrial and commercial marketplace
- Industrials/commercials historically focus on improving EE through products and projects
- There has been a high focus on low hanging fruit – low ROI, cash incentives, simple, easy, piecemeal

## What we believe

- The best way for industrials and commercial buildings to achieve the fullest EE potential is to adopt programs & policies that improve energy performance on an ongoing basis
- The best available instrument to assure transparent and continuing EE improvement is an energy management systems (EnMS) that is auditable and certifiable
- The best available auditable & certifiable internationally recognized EnMS tool is ISO 50001

“ The money we save on energy can be reinvested back into the plant and ultimately create more jobs for the people here in Detroit. ”

Jeff Allen, Plant Manager, **Detroit Diesel**



# The real benefits to business & industry



- Operational excellence via:
  - Sustained management of cost reductions through integrated energy management systems
  - Accountability through metrics associated with business policy on energy use
  - Improved operational efficiency and productivity
  
- Reduction of business risk associated via:
  - Rising or volatile energy costs
  - Energy supply disruption
  
- Improved shareholder value via:
  - Improved brand value through active and managed sustainability via energy management
  - Improved profitability through cost reductions
  - Improved productivity through strategic energy systems management

*Good for business, good for employees, good for shareholders!*



# ***DOE's 50001 Ready Program Overview***



[www.energy.gov/50001ready](http://www.energy.gov/50001ready)

# 50001 Ready Mission & Objectives

## Mission:

*Create an environment in the U.S. where industrial and commercial markets drive implementation of ISO 50001 through compelling financial and brand value*

## Objectives:

- Accelerate market acceptance, awareness, and adoption of ISO 50001 in U.S.
- Prepare companies for ISO 50001 by offering the 50001 Ready Navigator resource
- Establish DOE resources as a simple method for gradual progression towards ISO 50001 certification
- Establish 50001 Ready and ISO 50001 as a cost effective, brand impacting pathway for sustained, verifiable energy efficiency improvement and impactful sustainability
- Create an enabler that helps organizations achieve their energy savings goals, improve their Energy Star scores, and progress towards any other sustainability goals related to energy

## DOE Strategy

### A comprehensive campaign to move end users towards 50001 readiness

- ✓ reduce/remove the barriers to ISO 50001 in US
- ✓ create a market pull towards ISO 50001 implementation
- ✓ prove out the value case for industrial, commercial and institutional facilities of varying sizes
- ✓ create and validate tools to assist in enabling ISO 50001 conformance/readiness

# What is 50001 Ready?

## Three Steps to Becoming 50001 Ready

### STEP 1

#### Self-declared implementation of ISO 50001

##### 50001 Ready Navigator resource

- ✓ 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 performance

##### Valid Tool to Present Energy Performance

- ✓ DOE Qualified Energy Savings Tool (QEST) is a regression-based calculator for single or all fuels to determine energy savings
- ✓ Energy Star Portfolio Manager
- ✓ Many utility or energy databasing companies

### STEP 3

#### Submit to DOE for 50001 Ready recognition

##### Recognition Program

- ✓ Self-attestation of completion of Navigator, executed by leader and executive
- ✓ Submit energy performance data



**50001 Ready**  
U.S. DEPARTMENT OF ENERGY

DOE or Utility  
recognized  
success for  
conformance to  
ISO standards

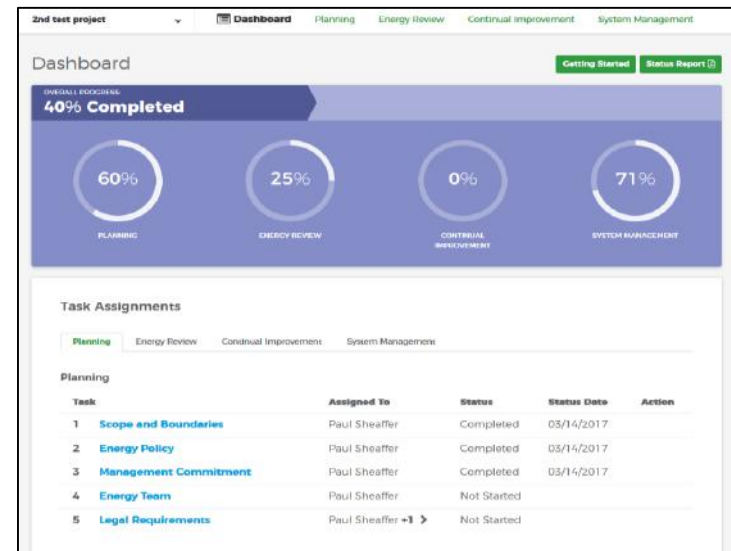
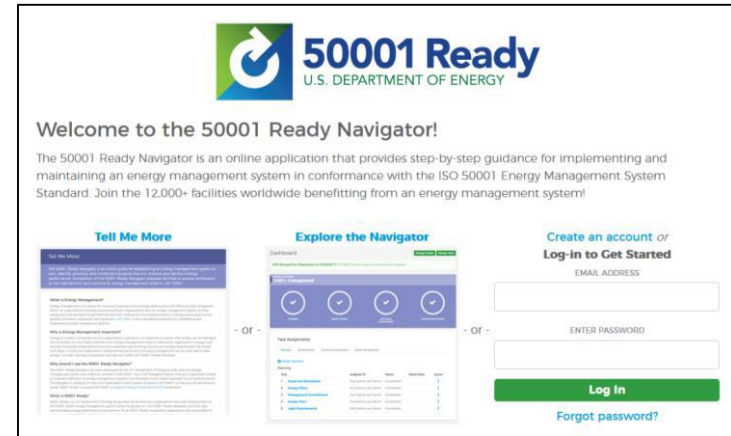
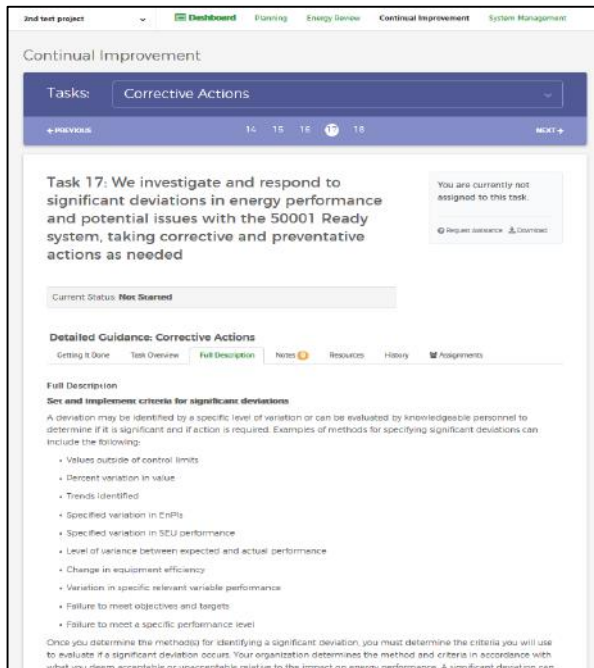
#### OPTIONAL

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

*Move to achieve ISO 50001  
Certification or DOE's Superior Energy  
Performance (SEP)*

# 50001 Ready Navigator online resource

- ✓ Step-by-step “Turbo Tax” approach to 50001
- ✓ 25 tasks divided into 4 sections
- ✓ Extensive guidance available in each module



[navigator.industrialenergytools.com](http://navigator.industrialenergytools.com)

# 50001 Ready Navigator online resource

- ✓ Ability to assign tasks to team members, manage multiple projects across an enterprise
- ✓ Requires energy performance change data from Portfolio Manager, QEST calculator or similar tool

Back to Dashboard

Team Members

Add Person Manage Project

5 People found Show 10

First	Last	Email	Role	Added	Created	Action
Christine	Wu	cjw@ibl.gov	Administrator	02/14/2017	No	...
Pamela	de los Reyes	pdelosreyes@energetics.com	Administrator	02/27/2017	No	...
Paul	Sheaffer	psheaffer@ibl.gov	User	02/14/2017	No	...
Pete	Langlois	pete.langlois@ee.doe.gov	Administrator	02/01/2017	Yes	...
Pete	Langlois	pete.langlois@ee.doe.gov	User	03/15/2017	No	...

← PREVIOUS 1 NEXT →

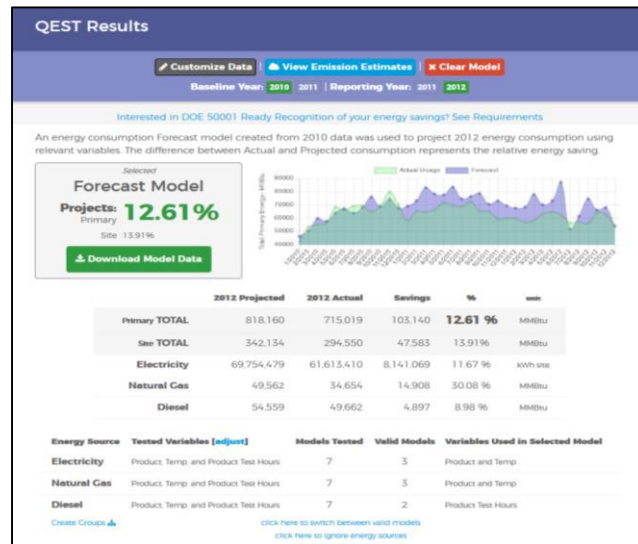
Manage Projects

Projects Overview Add Project Create Project for Others

Project Name	Task Progress	Sector	Status/Next Action	Last Activity	Action
2nd test project	40%	Commercial	Team Completing Tasks	03/15/2017	...
50001 Ready Hotmail	0%	Industrial	Team Completing Tasks	03/07/2017	...
Home	0%	Commercial	Team Completing Tasks	03/15/2017	...
Oakland office	100%	Institutional	DOE Recognition Approved	03/24/2017	...
Pete's testing example #1	4%	Commercial	Team Completing Tasks	03/07/2017	...
Pete's townhouse	28%	Institutional	Team Completing Tasks	03/21/2017	...

Powered by

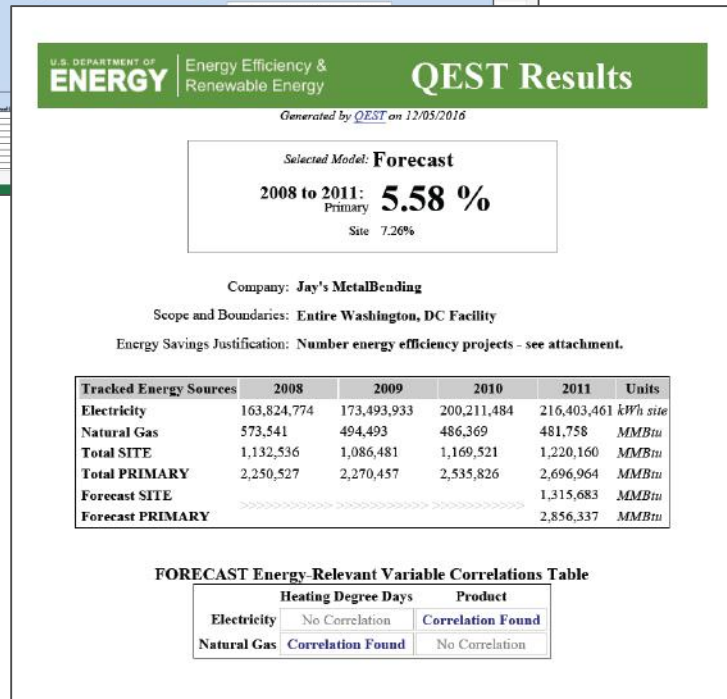
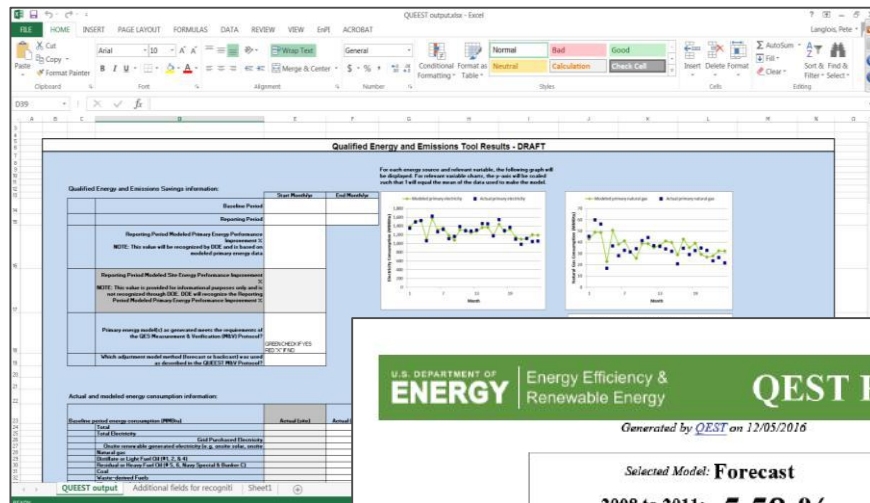
**50001 Ready**  
U.S. DEPARTMENT OF ENERGY



[navigator.industrialenergytools.com](http://navigator.industrialenergytools.com)

# Qualified Energy Savings Tool – QEST

- ✓ Facilities enter or upload energy use data and account for mitigating factors (e.g. product production levels, occupancy changes, weather)
- ✓ Top-down regression analysis will calculate an adjusted energy change versus the defined baseline year
- ✓ QEST Output file is an input for completing the steps in 50001 Ready Navigator
- ✓ Integrates with DOE Energy Footprint tool and ENERGY STAR Portfolio Manager



# What “50001 Ready” Is... and Is Not

## “50001 Ready” Is Not...

### ***A standalone DOE program***

- It is designed to be ‘reskinned’/customized by the utility, state, etc.
- DOE is willing to co-brand 50001 Ready recognition
- DOE is not ‘claiming’ savings

### ***Designed to replace current Utility SEM programs or offerings***

- Can be a jump start into SEM or integrated into advanced SEM program
- Requires minimal effort to integrate ISO Ready with existing SEM programs

### ***A certification program***

- Builds infrastructure toward certification (if desired) – hence Ready
- Provides recognition for ISO 50001 self-declared

## “50001 Ready” Is...

### ***A tool to be rebranded/re-purposed for utilities, cities, states, etc.***

### ***A user-friendly tool to establish an energy management system consistent with ISO 50001 structure***

- Should not require ‘certified’ professionals to implement; but may leverage existing program support people or CP EnMS professional

### ***Regression-based energy and emissions savings calculator (QEST)***

- Based on utility SEM ‘best practices’
- DOE will share tool for partner analysis and adoption

### ***A promoter of consistent energy management principles and savings numbers***

- Based on ISO 50001 guidance used across the globe
- Output consistent across sectors, geography, service territories

### ***Not a policy requiring certification***

- Option to move to ISO 50001/SEP certification (as Tier 2 program)



## *Possible Next Steps after 50001 Ready*

# Two Options for Market with ISO 50001

## U.S. Recognition Options for ISO 50001

Program Name	50001 Ready	Superior Energy Performance® (SEP™)
U.S. Government Supported Approach	<p>Program to self-attest ISO 50001 implementation</p> 	<p>Program for ISO 50001 certification</p> 
Energy Savings Validation Approach	Qualified Energy Savings Measurement & Verification (M&V) Protocol	SEP M&V Protocol
Market Actors & Drivers	Market Allies recognized by U.S. DOE	Accredited certification bodies recognized by U.S. DOE

- A voluntary continual energy performance improvement certification program recognizing excellence in organizational energy management practices.
- SEP certification based upon third-party verification of:
  - Energy management system (ISO 50001) and
  - Energy performance improvement (ANSI/MSE 50021)



# The *Verified* Results of ISO 50001 Conformance

## Through DOE's Superior Energy Performance...

- Achieving up to \$1 million in annual savings
- Significant savings from operational improvements with no capital investment
- Reducing carbon emissions, with third-party verified energy performance improvement
- Savings found to be almost double corporate business as usual



# SEP Certified Facilities & Verified Energy Performance

Improvement over 3 years unless stated otherwise

Last updated: January 25, 2017

★ Platinum certified  
★ Gold certified  
★ Silver certified



	Saanichton, BC Canada	30.6%
★	Smyrna, TN	23.1%
★	Clovis, CA	16.7%
★	Seneca, SC	15.6%
★	Costa Mesa, CA	23.4% / 15 mo's
★	West Kingston, RI	20.0%
★	Apodaca, Mexico (Monterrey 4)	15.0%
★	Peru, IN	24.9% / 10 yrs
★	Lincoln, NE	22.0% / 10 years
★	El Paso, TX	14.8%
★	Greensboro, NC	13.7% / 16 mo's
★	Columbia, MO	13.3% / 1 yr
★	Apodaca, Mexico (Monterrey 2)	11.3%
★	Hopkins, SC	10.2%
★	Tijuana, Mexico	10.2%
★	Cedar Rapids, IA	8.8%
★	Apodaca, Mexico (Monterrey 3)	7.8%
★	Foxboro, MA	6.7%
★	Lexington, KY	5.9%
★	Rojo Gomez, Mexico	5.9%
★	Mack Trucks, Macungie, PA	31.6% / 10 yrs
★	Dublin, VA	28.4% / 10 yrs
★	Hagerstown, MD	20.9%



★	Washington, DC	15.9%
★	Honolulu, HI	8.4%
★	San Francisco, CA	6.3%
★	Brockville, Ontario Canada	21.4% / 7 yrs
★	Aberdeen, SD	11.0%
★	Hutchinson, MN	10.7%
★	Cynthiana, KY	6.9%
★	Cordova, IL	5.7%
★	Decatur, AL	5.2%
★	Prairie du Chien, WI	5.2%
★	Columbus, IN	16.8%
★	Whitakers, NC	15.5% / 7 yrs
★	Detroit, MI	32.5% / 10 yrs
★	Smyrna, TN	17.7%
★	Bethlehem, PA	17.0%
★	Washington, DC	16.5%
★	Ontario, NY	25.7% / 5 yrs
★	Dunedin, FL	12.2% / 2 yrs
★	Wilson, NC	15.1% / 10 yrs
★	Gaithersburg, MD	8.5%
★	Cheswick, PA	7.6%
★	Carlisle, PA	5.7%

## Key Actions in 50001 Ready

- ☐ Set an Energy Policy
- ☐ Have management commitment
- ☐ Empower an energy team
- ☐ Identify where energy is used
- ☐ Create plans to improve energy use
- ☐ Management approval of plans
- ☐ Track progress and reassess energy action plans

## Key Takeaways on 50001 Ready

- ☐ Designed to be DIY
- ☐ No cost for resources
- ☐ 'Light Duty' Turbo-Tax structure
- ☐ Can support customers
- ☐ Allows for internal and external experts
- ☐ Consistent practice across facilities
- ☐ Recognition by US Dept. of Energy

“ At **Marriott**, ISO 50001 helped us save over one million kWh of electricity and improve guest satisfaction—our top priority. Using the standard helped us identify and correct a room thermostat malfunction to enhance guest comfort. ”

Rajaram Srinivasan  
Director of Engineering  
JW Marriott, Washington DC





This concludes The American Institute of Architects  
Continuing Education Systems Course

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[navigator.industrialenergytools.com](http://navigator.industrialenergytools.com)

[www.energy.gov/50001ready](http://www.energy.gov/50001ready)

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