



**Superior
Energy
Performance®**
U.S. DEPARTMENT OF ENERGY

Introduction to the Superior Energy Performance® program

Certifying Increased Energy Productivity under ISO 50001

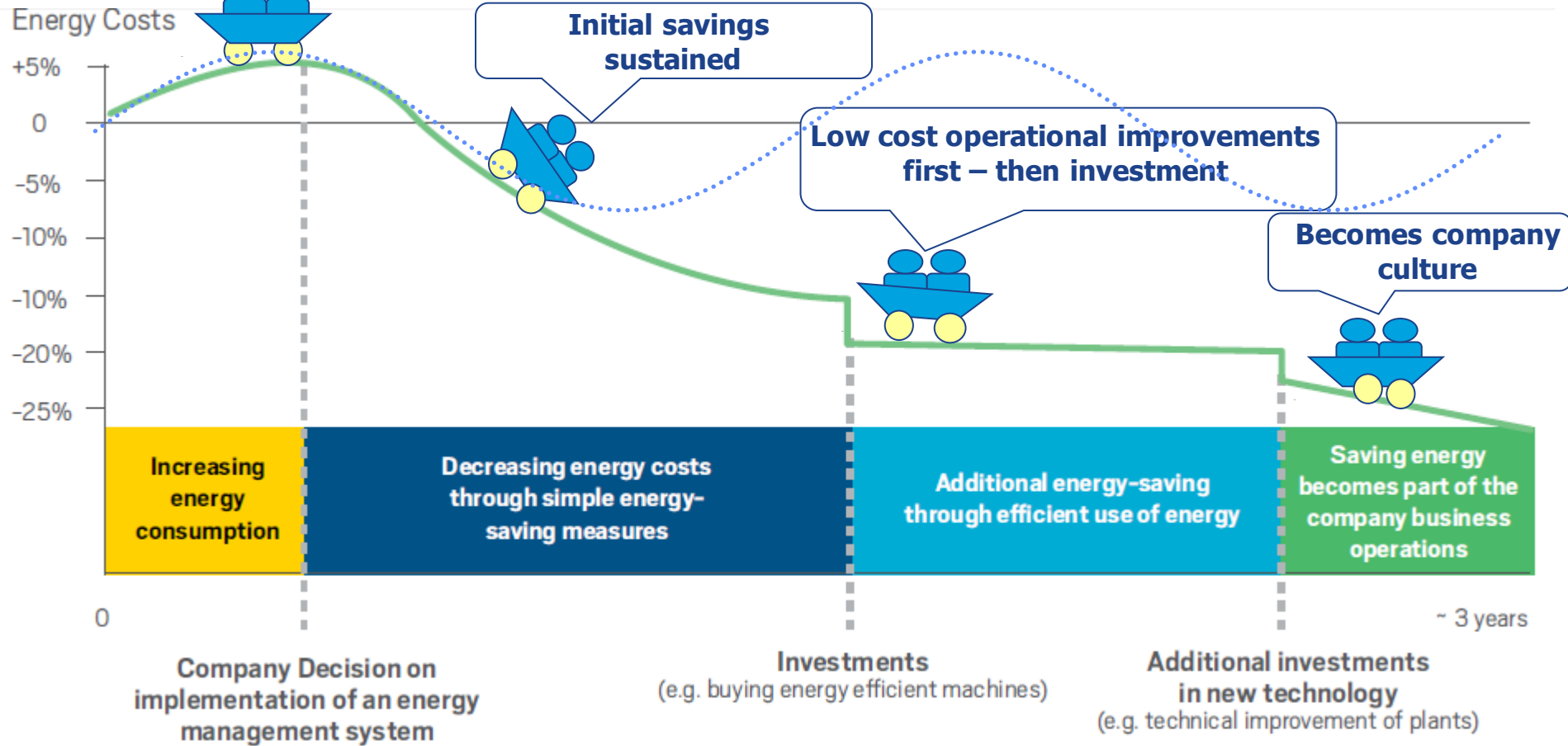
July 2015

Ad hoc Approach to Energy Management



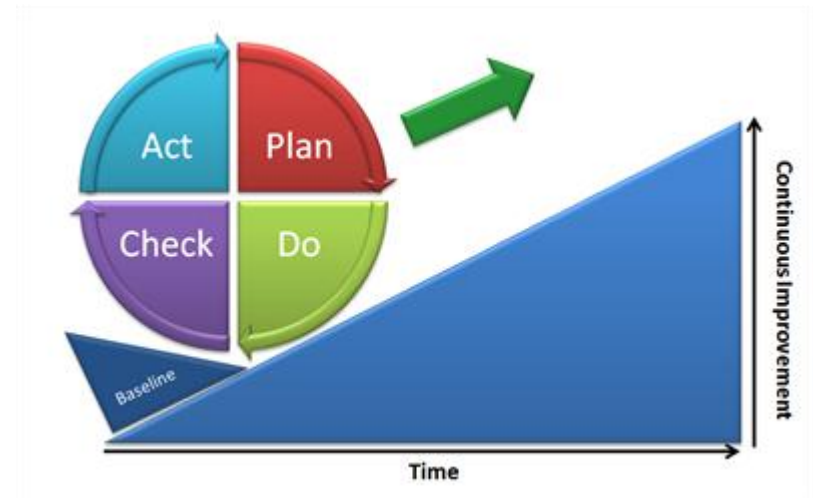
Structured Approach to Energy Management

Senior management commit to program



Energy Management System (EnMS)

- **Elevates and integrates energy into normal business systems**, as has happened for safety & quality
- **Involves staff from the board room to the shop floor:**
Organizational change in culture
- Systematic energy management leads to **continual improvements** in energy and cost performance



Energy & cost savings over time

ISO 50001–Energy Management Systems (EnMS)

International standard that draws from **best practices around the world**. Developed with input from 56 countries, many countries now adopting it as a national standard.

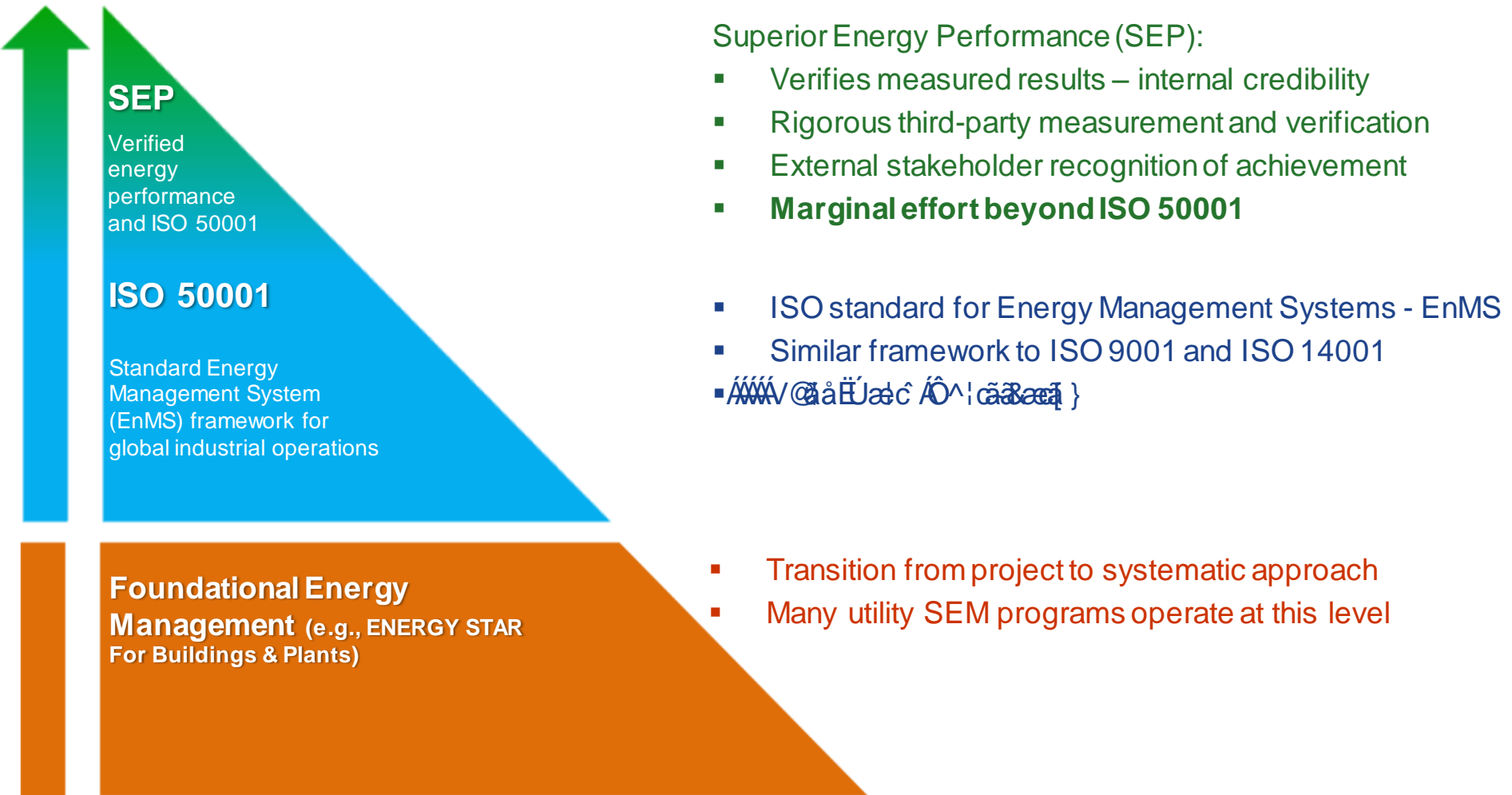
ISO 50001 specifies requirements for establishing, implementing, maintaining and improving an EnMS.

It does not prescribe specific energy performance improvement criteria.



Light blue text represents new data-driven sections in ISO 50001 that are not in ISO 9001 & ISO 14001

Strategic Energy Management Continuum



Superior Energy Performance® (SEP™)

SEP is a DOE certification program that verifies energy management excellence and sustained energy savings.

SEP is ISO 50001 plus:

- **Deeper, sustained savings at less cost** through robust tracking and measurement with advanced tools
- **Credible, third-party verification** by ANSI-ANAB accredited entity that market can reward supply chains, utilities, and carbon trading



- **National recognition** by U.S. DOE identifying sustainability leaders



iStock photo: 16418416

SEP Requirements

SEP certification requires industrial facilities and commercial buildings to meet the ISO 50001 standard and improve energy performance.

Superior Energy Performance



**ISO 50001
certification**



**Verified energy
performance
improvement**

Silver

5%
energy performance
improvement over
3 years

-or-

15% energy
performance
improvement over
10 years
+

30 Best Practice
Scorecard points

Gold

10%
energy performance
improvement over
3 years

-or-

15% energy
performance
improvement over
10 years
+

61 Best Practice
Scorecard points

Platinum

15%
energy performance
improvement over
3 years

-or-

15% energy
performance
improvement over
10 years
+

81 Best Practice
Scorecard points

SEP Certified Facilities

Leaders in energy management and performance

PLATINUM

3M Canada Company Brockville, Ontario, Canada
HARBEC Inc. Ontario, NY
Mack Trucks Macungie, PA
Nissan NA Smyrna, TN
Schneider Electric Seneca, SC
Schneider Electric Smyrna, TN
Schneider Electric Clovis, CA – Dec. 2014
Schneider Electric Saanichton, British Columbia, Canada
Volvo Group Trucks Hagerstown, MD
Volvo Trucks, NA Dublin, VA

SEP is applicable to a broad range of sectors, sizes, and energy program maturity. Even those with mature energy management programs have achieved greater savings and other benefits.

GOLD

Coca-Cola Refreshments USA, Inc. Dunedin, FL
Cooper Tire Texarkana, AR
Cummins Whitakers, NC
General Dynamics Scranton, PA
Schneider Electric Hopkins, SC
Schneider Electric Peru, IN
Coca-Cola Refreshments USA, Inc. Dunedin, FL
Cooper Tire Texarkana, AR

SILVER

3M Company Cordova, IL	Olam Spices Gilroy, CA
Bridgestone Wilson, NC	Schneider Electric Cedar Rapids, IA
Curtiss-Wright Gaithersburg, MD	Schneider Electric Lexington, KY
Land O' Lakes Carlisle, PA	Schneider Electric Lincoln, NE
MedImmune Gaithersburg, MD	Schneider Electric Rojo Gomez, Mexico

SEP Certified Facilities and Verified Energy Performance Improvement

Improvement over 3 years unless stated otherwise

	Saanichton, BC Canada	30.6%		Brockville, Ontario Canada	21.4% over 10 years
	Clovis, CA	16.7%		Cordova, IL	5.6%
	Seneca, SC	15.6%		Smyrna, TN	17.7%
	Smyrna, TN	23.1%		Ontario, NY	16.5%
	Hopkins, SC	10.2%		Whitakers, NC	12.6%
	Peru, IN	24.9% over 10 years		Dunedin, FL	12.2%
	Cedar Rapids, IA	8.8%		Scranton, PA	11.9%
	Lexington, KY	6.9%		Texarkana, AR	10.1%
	Lincoln, NE	6.5%		Wilson, NC	16.8% over 10 years
	Rojo Gomez, Mexico	5.9%		Gilroy, CA	9.8%
	Mack Trucks, Macungie, PA	41.9% over 10 years			
	Dublin, VA	28.4% over 10 years			
	Hagerstown, MD	20.9%			
					
					
					
					
					
					
					
					
					
					

SEP Measurement & Verification Protocol provides robust methodology to track and verify energy performance improvement.

Savings: Cost-effective, deeper, credible

Deeper, more rapid savings at less cost

- Certified facilities improved energy performance between:
 - **5.6% - 30.6% over 3 years**
 - **16.8% - 41.9% over 10 years**
- 2015 study of 11 SEP-certified facilities
 - Facilities improved energy performance by 12.4% over 3 years on average
 - Saved over **\$430,000/year** on average from **low/no cost operational improvements**

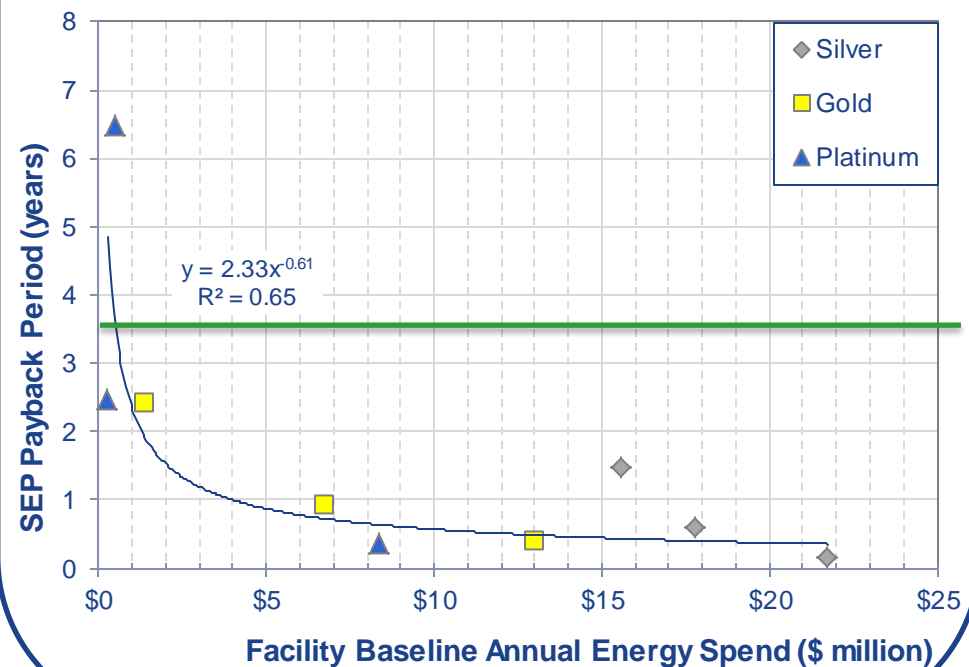
Credible, third-party verification

- Rigorous, data-driven approach leads to **new insights & opportunities**
- Valuable data and analysis for **higher confidence in energy efficiency investments**

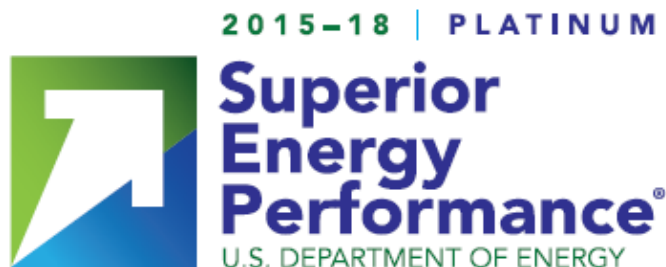
Payback:

Less than 2 year payback for facility with a baseline annual energy spend greater than \$1M

Less than 1.5 year payback for facility with a baseline annual energy spend greater than \$2M



Nissan



“SEP adds rigor, analysis, and gives good guidance. It’s one thing to have a target and objective, but SEP gives tools that empower you to be more disciplined and prove the impact certain activities have.”

-Nissan North America Energy Team

- **SEP Platinum Certified:**
Smyrna, TN vehicle assembly plant
- **Sustained achievement:**
 - 2015 Recertified SEP Platinum
 - 17.7% improvement in energy performance over 3 years
 - **6 week payback**
 - 2012 Certified SEP Silver
 - \$938,000 total annual energy savings; 7.2% improvement over 3 years
 - 4 month payback
- **Used DOE EnPI Tool** to measure & track improvements



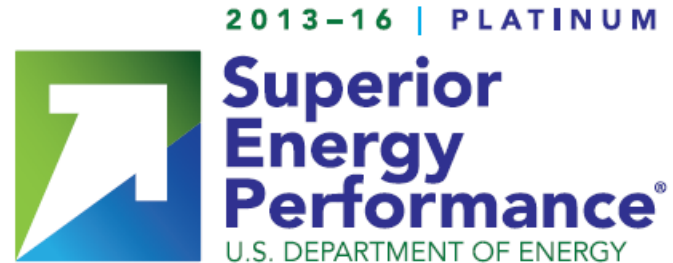
HARBEC Inc.



HARBEC Inc. President, Bob Bechtold, and Energy Team Amy Bechtold and Jeff Eisenhower.

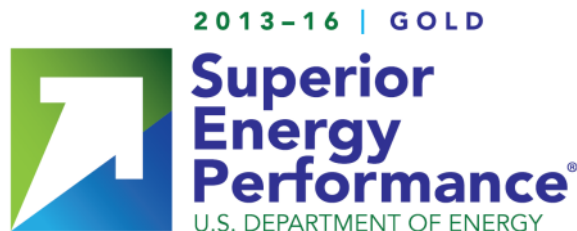
“We are wary of statements of intent, but third-party verification under SEP provides evidence of proven energy savings. Without verification, stated savings are just a nice statement.”

- Bob Bechtold, President



- **SEP Platinum Certified:** Ontario, NY, facility
- 16.5% improvement in energy performance over 3 years
- EnMS implementation resulted in \$52,000 in annual savings through operational improvements ***with no capital investment***
- SEP is the organizing framework in driving the company's goal to be a ***carbon-neutral company***
- Adopted a CHP system and two wind turbines
 - ISO 50001/SEP strengthens management of this equipment, increasing the benefits gained

General Dynamics: Scranton, PA



- **SEP Gold Certified:** Scranton, PA facility. First U.S. defense contractor to be SEP and ISO 50001 certified
- 11.9% improvement in energy performance over 3 years
- \$956,000 annual savings
- 6 month payback
- Meter upgrades to all significant energy-using equipment
- DOE Better Plants Partner

SEP Certification Process

1

Enroll

Gain access to SEP resources such as program updates, tips, and phone support. No fees or commitment required, enroll today!

2

Prepare

Implement an EnMS in your facility and work towards meeting SEP requirements; see DOE tools, such as the eGuide

3

Apply

Submit an application to the SEP Administrator, no fees. Once approved, the application will be sent to your selected SEP Verification Body.

4

Verify

The SEP Verification Body uses certified auditors to verify conformance to SEP requirements and issues SEP and ISO 50001 certificates.

Recognize Achievement and Maintain Momentum

Your facility will receive recognition from the SEP Administrator, currently the U.S. DOE. SEP certification is valid for three years, as long as your facility completes the annual surveillance audits to confirm continued EnMS maintenance (an ISO 50001 requirement).

View full details at: www.energy.gov/eere/amo/sep-and-iso-50001-certification-process

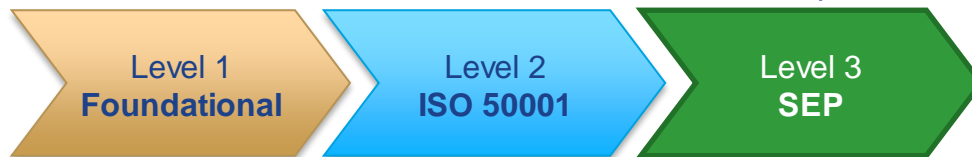
Find an SEP Verification Body: <http://www.energy.gov/eere/amo/sep-and-iso-50001-certification-process#choose-a-VB>

Tools and Resources for SEP

Accelerate SEP implementation with SEP tools and resources:

DOE eGuide: Use this comprehensive, step-by-step online toolkit to implement ISO 50001 and SEP energy.gov/eguide

Guidance, resources for 3 levels, each with 5 core steps



- Step 1: Engage Management
- Step 2: Plan for Energy Management
- Step 3: Implement Energy Management
- Step 4: Measure and Check Results
- Step 5: Review for Continual Improvement

Widely applicable: Industrial end users, commercial end users, federal & state public facilities, university campuses, utilities & program administrators

EnPI Tool: Enter energy consumption data and easily adjust for variables to receive a normalized view of energy performance and calculate SEP metrics energy.gov/enpi

More SEP resources at energy.gov/eere/amo/toolbox-and-expertise:

- **Strategic Energy Management Checklist**: High-level assessment to determine readiness for SEP or ISO 50001 & define practical next steps
- **System Assessment Standards**: Assess specific energy systems (compressed air, process heating, pumping, and steam) to help identify opportunities
- **DOE Tools and Training**: Resources on specific energy systems, webinars & more

Certified Professionals that Support SEP

SEP is building workforce capacity for energy management implementation and measurement & verification.

Training and skill are required for appropriate application of the ISO 50001 and SEP standards, and to conduct the SEP certification audit.

- **Certified Practitioners in EnMS (CP EnMS):**
Help facilities implement an ISO 50001 energy management system and prepare to meet SEP requirements.

Find a CP EnMS:
http://ienmp.org/pro_search/index.php?action=1
- **SEP Lead Auditors:**
Assess a facilities energy management system conformance to ISO 50001 and additional SEP requirements
- **SEP Performance Verifiers:**
Assess a facility's conformance to the (1) measurement and verification protocol and (2) SEP energy performance improvement levels.

energy.gov/eere/amo/become-energy-management-professional

SEP Expansion: Implementation across multiple facilities to reduce costs

Companies are testing strategies to implement SEP across multiple facilities and benefit from economies of scale.

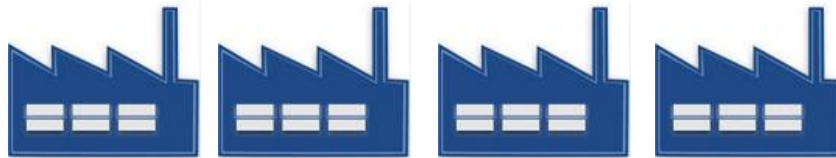
Central office works with facility staff - reduce level of effort & auditing costs per facility

Central office



ISO 50001 certification audit
at enterprise-wide level

and facilities



ISO 50001 EnMS conformance sampled at facility level

SEP energy performance improvement verified at each facility

- 28 participating facilities from 5 companies:
 - 3M Company
 - Cummins
 - General Dynamics
 - Nissan North America
 - Schneider Electric
 - Participating sites in U.S., Canada, and Mexico

SEP Expansion

Organizations beyond industrial are using SEP to achieve energy and savings goals.

- Commercial building pilots
 - Hospitality sector
 - University campus
- International
 - North American initiative
 - ISO 50001 Lead Auditor
 - Clean Energy Ministerial -Energy Management Working Group (EMWG)
- Water/wastewater
 - Des Moines, IA (2)
 - Ithaca, NY
 - Kent County, DE
 - Victor Valley, CA
 - Others TBD
- Federal
 - DOD contractors
 - DOE national labs

In addition, utilities and program administrators are working with DOE to offer SEP for their industrial customers: www.energy.gov/eere/amo/utilities

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energy.gov/eere/amo

energy.gov/eere/amo/ta



Learn more:

energy.gov/isosep

Receive SEP news and updates:
subscribe on the SEP website

SEP Program Update - Refinement

DOE is refining SEP to improve and simplify the program based on experiences and feedback to date. Improvements include:

- **Single, unified scoring system and qualification pathway** combines best features of the Energy Performance and Mature Energy Pathways
- Provide **flexibility in setting facility baseline year to align with corporate or enterprise**; enable companies to more easily expand SEP participation across facilities
- **Motivate plants to enhance energy management programs** through use of the Scorecard at Gold and Platinum levels
- **For recertification, provide practical and flexible energy performance improvement requirement** that is sustainable over multiple certification cycles

Certification to updated program design anticipated by Fall 2016

- SEP standards and protocols to be updated and peer reviewed
- Current program will continue to be available during a transition period

SEP Program Update – Preview

Initial Certification



ISO 50001 certification

Current program will continue to be available during a transition period.

Performance Levels – Initial Certification

Silver	Gold	Platinum
Achievement period	Energy Performance Improvement*	
3 years	5%	
4 years	7%	
5 years	8%	
6 years	10%	
7 years	12%	
8 years	13%	
9 years	15%	
10 years	16%	
	<u>+ 40 SEP Scorecard credits, including:</u> 20 points for Energy Management System	<u>+ 60 SEP Scorecard credits, including:</u> 35 points for Energy Management System - and - 10 points for Advanced Practices and Additional Energy Performance

SEP Program Update – Preview

Recertification



**ISO 50001
certification**



Certification to this updated program design anticipated by Fall 2016.

Current program will continue to be available during a transition period.

Performance Levels

Silver	Gold	Platinum
Achievement period	Energy Performance Improvement*	
3 years	3%	
4 years	3% over most recent 3 years	
5 years	3% over most recent 3 years	
6 years	3% over most recent 3 years	
7 years	3% over most recent 3 years	
8 years	3% over most recent 3 years	
9 years	3% over most recent 3 years	
10 years	3% over most recent 3 years	
	+ 40 SEP Scorecard credits, including: 20 points for Energy Management System	+ 60 SEP Scorecard credits, including: 35 points for Energy Management System - and - 10 points for Advanced Practices and Additional Energy Performance

Better Plants complements SEP

DOE's Better Plants

Corporate-wide Recognition

Aspirational Focus:

Pledge to improve energy
performance by
25% in the next 10 years

Superior Energy Performance

Facility-level Certification

Achievement Focus:

Energy performance improved
**5% or more over past 3
years or 15% or more over
past 10 years**

Better Plants Helps SEP Participants

- Provides structure for corporate-wide energy efficiency goals
- Fosters replication of SEP at other facilities

- Helps individual plants to accelerate energy savings that contribute toward corporate goal
- Provides rigor of energy performance measurement at the facility level

SEP Helps Better Plants Partners