Superior Energy Performance for Energy Efficiency Program Administrators

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Outline

- Background
  - Existing Industry Energy Efficiency Portfolios
  - Barriers to Energy Management System Implementation
  - DOE Voluntary Industrial Programs
    - Better Plants
    - Superior Energy Performance
- Strategic Energy Management Business Case
- DOE Tools and Resources
- Return on Investment
- Awareness and Implementation
- Testimonials and Key Takeaways

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BACKGROUND

Existing Industrial Energy Efficiency Portfolios

- Industrial sector has largest energy savings potential for all major energy-using sectors in the U.S.*
- Wide variation exists in offerings to customers
  - Savings targeted: equipment, operational or both
  - Segmentation: same approach for all C&I customers, or industry-specific marketing and implementation
  - Account executive training: wide range of specialized efficiency training
  - Marketing: customer-initiated or administrator-initiated/targeted
- Many administrators are providing services to customers but services may not be comprehensive or sustained
- Administrators may be concerned about exhausting the easily achievable targets and are in need of for tools to identify and comprehensively address the needs of this market segment
- *SEP can deliver deeper and continuous energy savings, especially for large industrial customers receiving services*

* Glatt and Schwentker 2010

Barriers to Energy Management System (EnMS) Implementation

- Shortages
  - Information regarding the benefits, costs, and risks of energy-efficiency investments
  - Dedicated energy management staff and systems
  - Support/resources from top management
  - Time and effort required to implement an EnMS
  - Ability to connect energy use with production
- Competing commitments - time and funding
- Bias toward lower first cost vs operating costs
- Verified energy performance improvement undervalued

How does SEP help to address these barriers?

DOE Voluntary Industrial Programs

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

SEP Helps Better Plants Partners

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

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STRATEGIC ENERGY MANAGEMENT BUSINESS CASE

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Deloitte Sustainability Survey

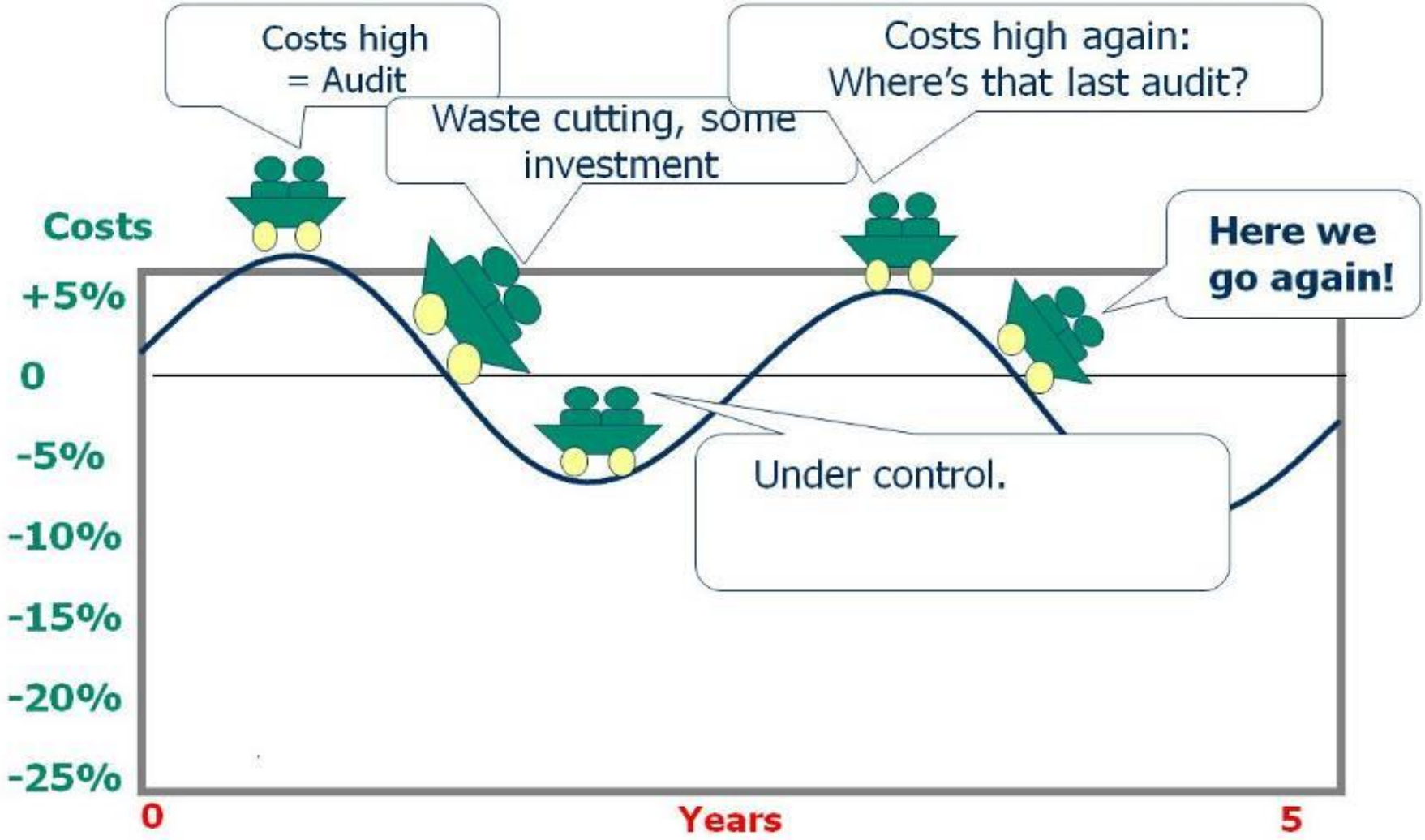
A global survey in 14 countries of 250 CFOs

Key findings:

- Energy tops CFOs list of sustainability issues
- Energy management is viewed as a challenging issue and energy prices are viewed as a significant risk.
- More robust, verifiable data is needed to report performance and risk.
  - only 12% of CFOs consider the level of their sustainability data to be excellent
  - the quality and credibility of energy data will become more important

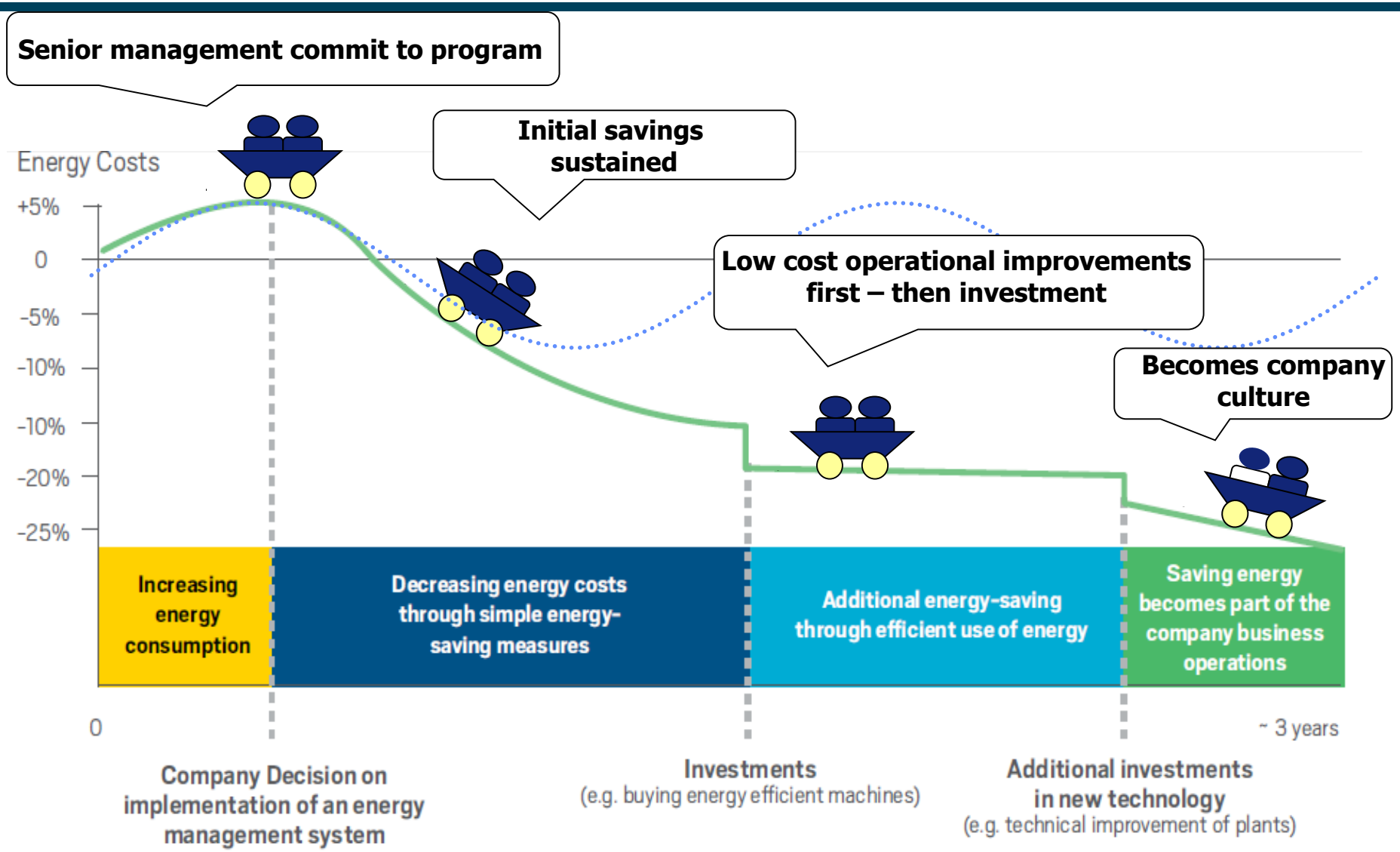
* The 2012 Sustainability & the CFO Survey. Conducted by Verdantix on behalf of Deloitte, 2012

Ad hoc Approach to Energy Management



Source: UNIDO 2010

Structured Approach to Energy Management



Strategic Energy Management (SEM) Continuum

Superior Energy Performance (SEP):

- Rigorous third-party measurement and verification
- **Marginal effort beyond ISO 50001**

- ISO standard for EnMS
- Similar framework to ISO 9001 & ISO 14001
- Third-party certification

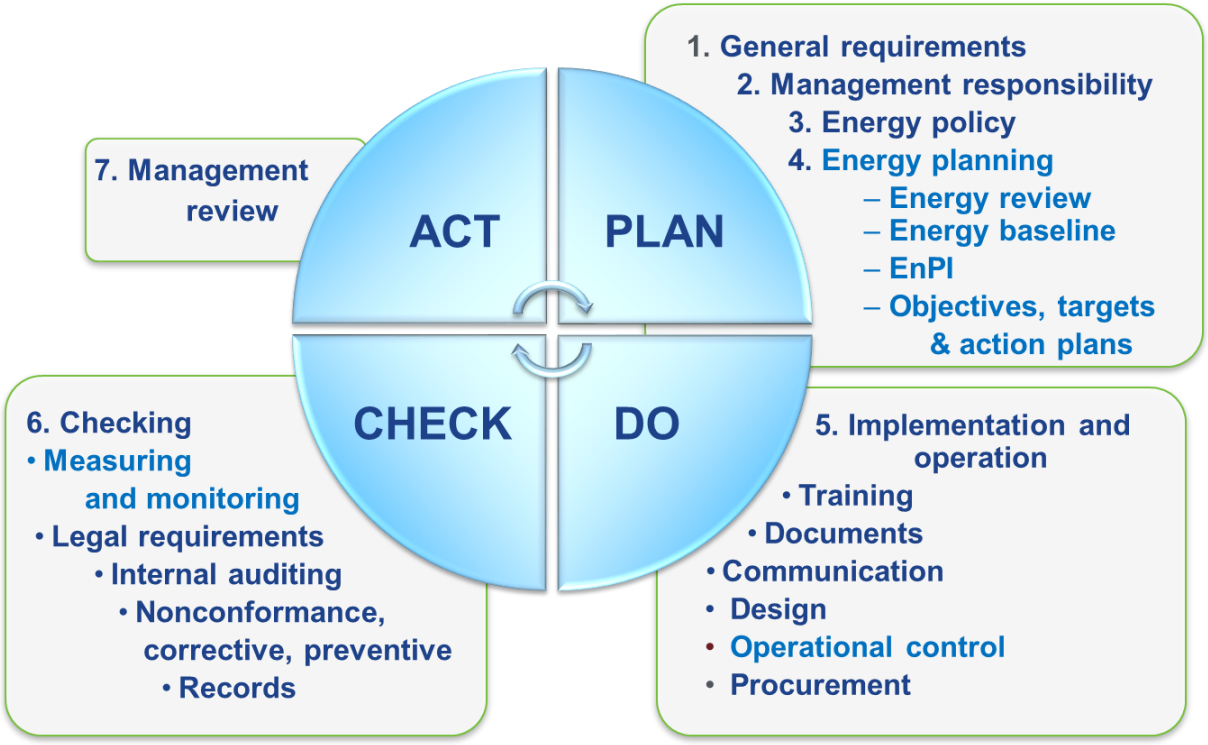
- Systematic approach
- Operation of many utility SEM programs at this level

ISO 50001: an ISO Management System Standard

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

ISO 50001 & Superior Energy Performance

ISO 50001

- Proven, **internationally recognized**, best practice in energy management **building upon other ISO standards**
- Requires energy performance improvement with **energy data & metrics**
- **Relevance** for global corporation deploying energy management & sustainability programs

- Builds on ISO 50001 with **specific energy performance improvement criteria**
- National program **accommodating diverse facilities**: sector, size, program maturity, etc.
- **Transparency: Rigorous 3rd party verification** that market can reward: supply chains, utilities, carbon trading

Superior Energy Performance® Certified Plants

PLATINUM

3M Canada Company Brockville, Ontario, Canada
Cummins, Inc. Columbus, IN
Detroit Diesel Corporation Detroit, MI
HARBEC Inc. Ontario, NY
Hilton Washington, DC
JW Marriott Hotel Washington, DC
Mack Trucks Macungie, PA
Nissan NA Smyrna, TN
Rexroth Bosch Corporation Bethlehem, PA
Schneider Electric Saanichton, British Columbia, Canada
Schneider Electric Costa Mesa, CA
Schneider Electric West Kingston, RI
Schneider Electric Smyrna, TN
Schneider Electric Clovis, CA
Schneider Electric Seneca, SC
Volvo Group Trucks Hagerstown, MD
Volvo Trucks, NA Dublin, VA

GOLD

3M Company Aberdeen, SD	**3M Company** Hutchinson, MN
Coca-Cola Refreshments USA, Inc. Dunedin, Fl	
Cummins, Inc. Whitakers, NC	
Schneider Electric Columbia, MO	**Schneider Electric** Peru, IN
Schneider Electric Hopkins, SC	**Schneider Electric** Tijuana, Mexico
Schneider Electric Apodaca, Mexico (Monterrey 2)	

SILVER

3M Company Cordova, IL	**Hilton** San Francisco, CA
3M Company Cynthiana, KY	**Hilton** Honolulu, HI
3M Company Decatur, AL	**MedImmune** Gaithersburg, MD
3M Company Prairie du Chien, WI	**Schneider Electric** Apodaca, Mexico (Monterrey 3)
Bridgestone Wilson, NC	**Schneider Electric** Cedar Rapids, IA
Curtiss-Wright Cheswick, PA	**Schneider Electric** Lexington, KY
Land O' Lakes Carlisle, PA	**Schneider Electric** Lincoln, NE
	Schneider Electric Rojo Gomez, Mexico

Last updated: July 7, 2016

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SEP Certified Facilities & Verified Energy Performance Improvement

Schneider Electric	Saanichton, BC Canada	30.6%
	Smyrna, TN	23.1%
	Clovis, CA	16.7%
	Seneca, SC	15.6%
	Peru, IN	24.9% / 10 yrs
	Costa Mesa, CA	23.4%/15 mo's
	West Kingston, RI	20.0%
	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%
	Lexington, KY	6.9%
	Lincoln, NE	6.5%
	Rojo Gomez, Mexico	5.9%
HILTON WORLDWIDE	Washington, DC	15.9%
	Honolulu, HI	8.4%
	San Francisco, CA	6.3%
VOLVO	Mack Trucks, Macungie, PA	41.9% / 10 yrs
	Dublin, VA	28.4% / 10 yrs
	Hagerstown, MD	20.9%
3M	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%
Cummins	Columbus, IN	16.8%
	Whitakers, NC	12.6% / 2 yrs
DETROIT	Detroit, MI	32.5% / 10 yrs
NISSAN	Smyrna, TN	17.7%
Rexroth Bosch Group	Bethlehem, PA	17.0%
JW MARRIOTT	Washington, DC	16.5%
HARBEC	Ontario, NY	16.5%
Coca-Cola	Dunedin, FL	12.2% / 2 yrs
BRIDGESTONE Your Journey, Our Passion	Wilson, NC	15.1% / 10 yrs
MedImmune A member of the AstraZeneca Group	Gaithersburg, MD	8.5%
CURTISS WRIGHT	Cheswick, PA	7.6%
LAND O'LAKES	Carlisle, PA	5.7%

Last updated: July 7, 2016

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Improvement over 3 years unless stated otherwise

Nissan: Smyrna, TN

2015–18 | PLATINUM
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"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

See case study:
www.energy.gov/eere/amo/business-case-sep#case-studies

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HARBEC Inc.: Ontario, NY

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

"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

2013–16 | PLATINUM
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- **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

See case study:
www.energy.gov/eere/amo/business-case-sep#case-studies

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SEP Payback

Deeper, more rapid savings at less cost

- 2015 study of 10 SEP-certified facilities
  - 12% reduction in energy costs within 15 months of starting SEP implementation, on average
  - Saved over **$430,000/year** on average from **low/no cost operational improvements**

Credible, third-party verification

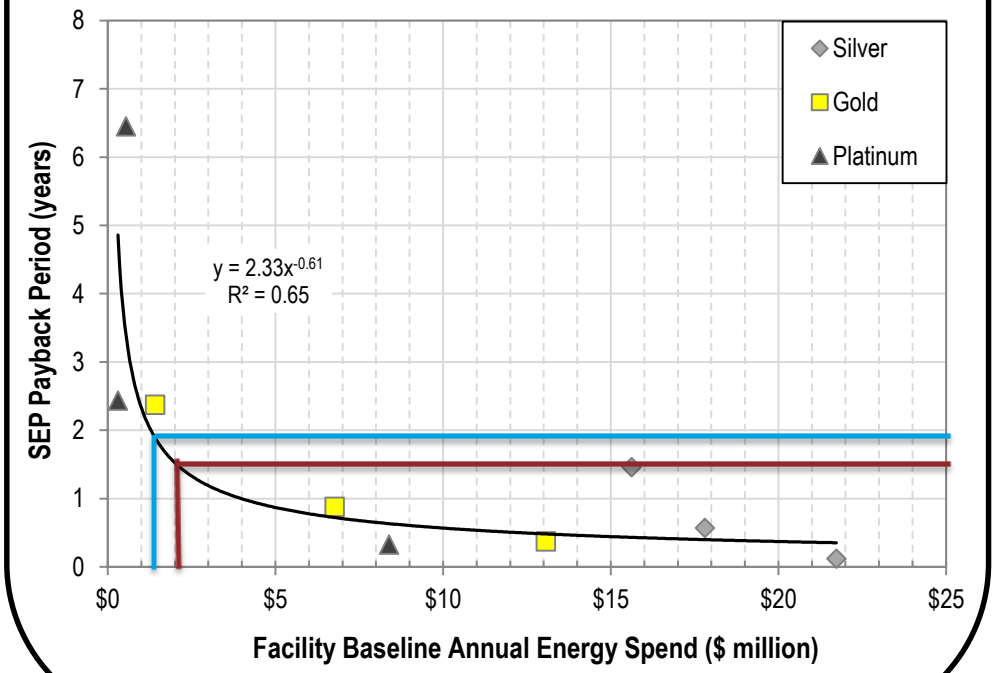
- Valuable data and analysis for **higher confidence in energy efficiency investments**

www.energy.gov/eere/amo/downloads/sep-2015-cost-benefit-analysis-paper

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



Replicate results across company's facility and buildings nationally and internationally

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SEP Benefits to Program Administrators

By offering SEP to your customers, PAs can expect:

- Cost-effective, persistent energy savings
- Additional energy savings projects identified addressing all energy uses
- Option to provide higher value to customers and regulators by offering monitoring and verification (M&V) of projects
- Opportunities to improve relationships with high value customers

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DOE TOOLS AND RESOURCES

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

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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

  Become a CP EnMS:
  energy.gov/eere/amo/become-energy-management-professional

- **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 requirements.

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SUPPORTING AWARENESS AND IMPLEMENTATION

Administrator Challenges in Developing SEP Programs

- Establishing a new context for program incentives supporting a shift in energy management practices and integration into corporate culture
- Tailoring implementation strategies for a continual improvement approach
- Developing messaging and marketing strategies to target a different audience (e.g., corporate executives, EnMS vendors, etc.)
- Demonstrating value of SEP program offerings to regulators (discussed in next section)

Traditional, SEM and Potential SEP Offerings by PAs

	Traditional Offerings	SEM Offerings	Potential SEP Offerings
Outreach	Build awareness of equipment-focused program benefits and recruit participants	Build awareness of operations-focused program benefits and recruit participants	Identify candidates for SEP and build awareness of benefits of continual energy performance improvement
Training	Provide training on systems	Provide training on systems and SEM, organize cohort meeting(s) to share best practices	Help customers understand and establish an ISO 50001-conformant EnMS
Technical Assistance	Assist customers with: • Audits, system assessments and engineering studies	Assist customers with: • Energy review, including audits, system assessments and engineering studies • Energy planning, including goal setting • Implementation of action plans • Development of reports on achievements	Assist customers with: • Completing Energy Review (e.g., energy audits, system assessments, and engineering studies) • Developing action plans • Meeting ISO 50001 competency requirements
Incentives	Design incentive offerings	Design incentive offerings	Design incentive offerings
EM&V	Set up meters	• Set up meters • Help establish a performance tracking system	Help customers establish measurement and monitoring program that meets basic SEP requirements and prepare for SEP certification

SEP Target Market

- Target Market
  - Industrial facilities
  - >$1 million annual energy bill
  - Prior ISO management system certification preferred
  - Strong sustainability program preferred

- Non-Target Market Incentives
  - ISO 50001 training
  - Use of DOE resources, such as the eGuide
  - CEE minimum elements
  - Energy star

- Consider a range of program offerings

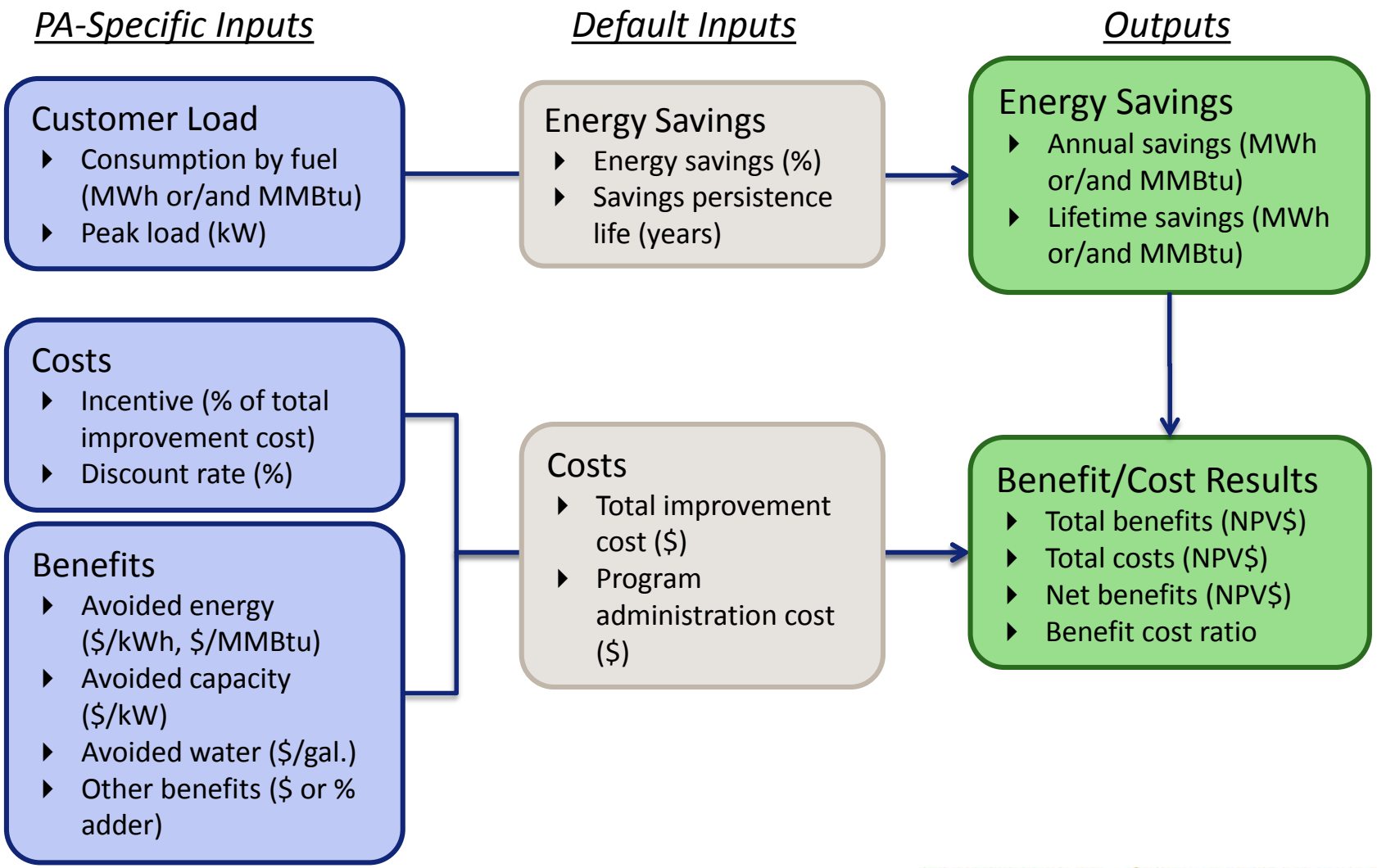
Marketing Strategy to Promote SEP

- Large customers
  - Direct marketing by account executives offers PAs the opportunity to…
    - Promote a dialog about SEP benefits, process, and requirements
    - Support energy managers as they pitch SEP to their corporate officers
    - Assess internal process commitment and culture change
    - Initiate discussion of complementary program offerings
    - Build client relationships
- Medium customers (annual energy spend $0.3 to $2.0 million)
  - Direct marketing by account executives
  - Leverage energy service companies and energy management system vendors to target hard-to-reach customers
  - Provide education and training to reduce costs

Regulatory Challenges in Implementing SEP Programs

- Demonstrating value-added to regulators (i.e., cost effectiveness)
- Evaluation, monitoring and verification
- Savings persistence
- Savings attribution

Program-Level Cost Effectiveness Screening Tool



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RETURN ON INVESTMENT

SEP Participant and Customer Costs

Participant costs include:

- EnMS materials (including software and metering)
- Internal staff to implement the EnMS
- External technical assistance to implement the EnMS
- External technical assistance to identify energy performance improvement opportunities
- Executing and evaluating Action Plans (project incentive and/or M&V)
- Preparation for SEP certification
- Third-party certification

Participants' SEP-related costs can be partially or wholly covered by program incentives. Program incentives can reduce the initial economic hurdle to participation.

SEP Participant/Customer Benefits

- Quantifiable
  - Facility-wide, deeper and more sustained energy savings (12%, on average over 3 years)
  - Ongoing cost savings (energy, maintenance)
- More difficult to quantify
  - Operation efficiency based on improved data tracking and utilization
  - Cost-effectiveness of approach to meeting sustainability targets
  - Integration of energy management into existing management system processes
  - Structure and framework for action and for managing future changes in an energy efficient manner
  - Internal and external communication improvements

Benefits and Costs to Ratepayers and Administrators

- Benefits
  - Avoided energy and capacity
  - Avoided transmission and distribution capacity and line loss
  - Other benefits:
    - Avoided environmental compliance costs
    - Wholesale market price suppression effects
    - Reduced risk
    - Additional non-energy benefits
- Costs
  - Program administration (planning, marketing, EM&V)
  - Program incentives
  - Other costs: performance incentives to PAs

Measurement & Verification (M&V) and Continual Improvement

Conducting M&V in the ISO 50001 continual energy performance improvement context requires consideration of both:

- The results from implementing action plans (projects)
- Improvements in energy performance resulting from the ongoing operational control of significant energy uses

Example:
A facility identifies compressed air as a significant energy use, but has made many energy efficiency upgrades already, including storage, controls and an air leak management program.

- ISO 50001 requires that the facility demonstrate *operational control* for the entire compressed air system, which may be as simple as using existing energy performance data more effectively and training staff on existing operational procedures.
- Implementation of operational control will likely produce some additional improvement in energy performance that is ongoing - not project specific

M&V and Continual Energy Performance Improvement

- The SEP M&V Protocol offers a best practice methodology to:
  - Verify the results from a facility's implementation of ISO 50001
  - Track energy performance changes over time
  - Document energy performance normalized to production and other relevant variables
- SEP M&V Protocol includes

  Familiar approaches
  - Regression
  - Energy accounting

  and new elements
  - Focus on continual improvement in energy performance
  - More than a collection of actions or projects
- ISO 50001 requires organization to "plan operations and maintenance activities which are related to its significant energy uses"
- Not all activities *related to operational control* of significant energy uses will require action plans - they are ongoing

Energy Performance Verification for SEP

- **Top-Down**. Top-down energy performance improvement is facility-level improvement calculated from energy consumption data at the whole facility level. Conformance with the program requires that the top-down estimate must show savings better than the threshold for that performance level.

- **Bottom-Up.** Bottom-up energy performance improvement is facility-level improvement calculated by analysis of individual changes made at the facility. The SEP Protocol does require a high-level bottom-up "sanity check" of the top-down result.
  - A participating facility needs to provide a list of projects/actions that have been taken during the improvement period, together with approximate savings estimates, summing up to at least the threshold savings.

Integrating SEP and Program Administrator EM&V

- SEP Protocols require “source” energy savings outputs in Btu
  - The EnPI Tool takes site energy savings data and estimates source energy savings in Btu by fuel
- The SEP EnPI tool can export data to calculate the metrics typically required for energy efficiency programs, including
  - Site electricity savings (MWh)
  - Site natural gas savings (therms or MMBtu)
- The SEP EnPI tool currently does not track peak load reduction (kW)

Determining Program Savings Attribution

- Traditional approaches
  - Stipulated net-to-gross ratios
  - Self-reporting surveys
  - Enhanced self-reporting surveys
  - Panel of trade allies
  - Large-scale consumption data analysis
  - Cross-sectional studies
  - Top-down evaluations or macro-economic models

    (SEEAction 2012. “Energy Efficiency Program Impact Evaluation Guide”)
- SEP approach
  - Customer survey at SEP initial training to establish BAU trendline
  - Enhanced self-reporting surveys (post certification)
  - Documentation of pre-SEP practices
  - Documentation of implemented EnMS business processes
  - Third-party verification of facility-wide energy performance improvement

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TESTIMONIALS

Testimonials

"Any facility can claim energy savings, but a third party verification proves the savings to be real."

Schneider Electric, Smyrna, TN

"Third-party certification removes any potential of "green washing" and provides credibility to savings."

General Dynamics, Scranton, PA

"SEP has helped justify expenditures to management. The measurement and verification requirement helps to ***identify real cost savings***, allowing us to reinvest those savings into additional energy projects."

Cooper Tire, Texarkana, AR

"The verification was more important than the management standard, because it provides a performance metric.

SEP provides the ability to have proven performance metrics to quantify actual savings, giving both internal and external credibility to savings claims."

Volvo Trucks, Dublin, VA

More Testimonials

"SEP brought to light many energy intensity savings opportunities that were previously hard to justify. With the EnMS system in place and metering instruments installed, it is much easier to justify improvement projects, and management is more receptive to these proposals."

General Dynamics, Scranton, PA

"The established targets required by SEP kept the team at 3M Canada motivated and dedicated to achieving those targets. Since ISO 50001 does not specify particular energy savings targets on its own, along with SEP we're able to truly demonstrate our level of achievement, which we're quite proud of."

3M Canada, Brockville, Ontario

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KEY TAKEAWAYS AND BENEFITS

Key Takeaways and SEP Benefits

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- SEP is practicable for varied company types
- DOE tools make SEP implementation reasonable
- Business case and energy performance improvement are verified through 3rd party
- SEP measurement & verification establishes the foundation for **rigorous and transparent** facility-level energy-related greenhouse gas emission mitigation verification

Key Takeaways and SEP Benefits (continued)

- SEP offers facilities a long-term framework for integrating continual energy improvement into business practices and ensuring that facilities identify and capture operations-related energy savings over time

- EnMS and SEP represent a big opportunity for PAs
  - New energy savings opportunities for key customers
  - Large market potential
  - Ongoing operational energy savings
  - Access to more complete data to support program actions
  - Many opportunities for program administrators to build awareness and assist facilities with participating in SEP

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EXTRA SLIDES

Key Elements of ISO 50001

1. **Energy policy**: top management's official statement of the organization's commitment to managing energy
2. **Cross-divisional management team** led by a representative who reports directly to management and is responsible for overseeing the implementation of the energy management system (EnMS)
3. **An energy planning process** to assess energy uses, energy sources, and consumption and identify opportunities for improvement
4. **Baseline** of the organization's energy use
5. **Identification of energy performance indicators** (EnPIs) that are unique to the organization and are tracked to measure progress

Key Elements of ISO 50001 (continued)

6. **Energy objectives and targets** for energy performance improvement at relevant functions, levels, processes or facilities within an organization
7. **Action plans** to meet those targets and objectives
8. **Operating controls and procedures** to address all aspects of energy purchase, use, and disposal.
9. **Measurement, management, and documentation** for continuous improvement for energy efficiency
10. **Internal audits and periodic reporting of progress** to management based on measurement and documentation

Superior Energy Performance™

- Adds an energy performance improvement target to ISO 50001 requirements
- **Third-party verification** of energy performance improvements (by ANSI/ANAB Verification Body)
- Provides a data-driven structure for continual energy performance improvement
- Involves the entire facility - not dependent on any single individual
- Accommodates change; expandable over time

ISO 50001 is a foundational tool that any organization can use to manage energy.

ISO 50001

Components in place:
- Top Management
- Energy Team
- Policy
- Planning
- Baseline
- Performance Metrics

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Single facility ISO 50001 conformance with verified energy performance improvement

ISO 50001

Overview of SEP Requirements

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

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ISO 50001 certification

Verified energy performance improvement

Silver	Gold	Platinum
5% energy performance improvement over 3 years	**10%** energy performance improvement over 3 years	**15%** energy performance improvement over 3 years
-or-	-or-	-or-
15% energy performance improvement over 10 years + **30** Best Practice Scorecard points	15% energy performance improvement over 10 years + **61** Best Practice Scorecard points	15% energy performance improvement over 10 years + **81** Best Practice Scorecard points

Shorter time frames than 3 or 10 years may be allowed, see M&V Protocol for details.

SEP requirements are undergoing an update. See next slides for a preview of the updated program.

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** though 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

SEP - Initial Certification

ISO 50001 certification

Verified energy performance improvement

Performance Levels	Bronze	Silver	Gold	Platinum
Achievement period	**Energy Performance Improvement**			
12-36 months (1-3 yrs)	1%		5%	
37-48 months (~3-4 yrs)	N/A		7%	
49-60 months (~4-5 yrs)	N/A		8%	
61-72 months (~5-6 yrs)	N/A		10%	
73-84 months (~6-7 yrs)	N/A		12%	
85-96 months (~7-8 yrs)	N/A		13%	
97-108 months (~8-9 yrs)	N/A		15%	
109-120 months (~9-10 yrs)	N/A		16%	
			+ 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

Certification to this updated program design anticipated by Fall 2016.

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

SEP Program Update – Preview, Recertification

SEP - Recertification

ISO 50001 certification

Verified energy performance improvement

Performance Levels

Achievement period	Bronze	Silver	Gold	Platinum
	Energy Performance Improvement			
12-36 months (1-3 yrs)	1%		3%	
37-48 months (~3-4 yrs)	1% over most recent 3 years		3% over most recent 3 years	
49-60 months (~4-5 yrs)	1% over most recent 3 years		3% over most recent 3 years	
61-72 months (~5-6 yrs)	1% over most recent 3 years		3% over most recent 3 years	
73-84 months (~6-7 yrs)	1% over most recent 3 years		3% over most recent 3 years	
85-96 months (~7-8 yrs)	1% over most recent 3 years		3% over most recent 3 years	
97-108 months (~8-9 yrs)	1% over most recent 3 years		3% over most recent 3 years	
109-120 months (~9-10 yrs)	1% over most recent 3 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

Certification to this updated program design anticipated by Fall 2016.

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

Industrial SEP Accelerator, Enterprise-Wide Message-

Start-up Phase: DOE and Partners demonstrate implementing SEP across three or more industrial facilities.

Full Implementation: Industrial SEP Accelerator Partner agrees to:

- **Recruit three or more manufacturing plants** within their company to achieve SEP certification and incur all third-party SEP certification costs.
- **Offer cost-shared SEP training** for corporate and facility energy management teams.
- **Share data from participating facilities**, including SEP cost and benefit data from implementing SEP at the enterprise-wide level.
- Note: DOE to ensure data protection

U.S. Department of Energy Agrees to:

- **Cost-share SEP training** in coordination with participating Partners.
- **Disseminate resources**, including DOE tools such as eGuide and EnPI tools, and best practices on strategies to cost-effectively implement SEP.
- **Provide national recognition** to Partners for achieving SEP Accelerator milestones and goals.
- **Develop case studies** documenting Partner success.

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

eere.energy.gov/buildings/betterbuildings/accelerators/

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

ADVANCED MANUFACTURING OFFICE

SEP M&V Protocol Provides Quality Control

Superior Energy Performance: Measurement and Verification Protocol for Industry (Nov. 19 2012)

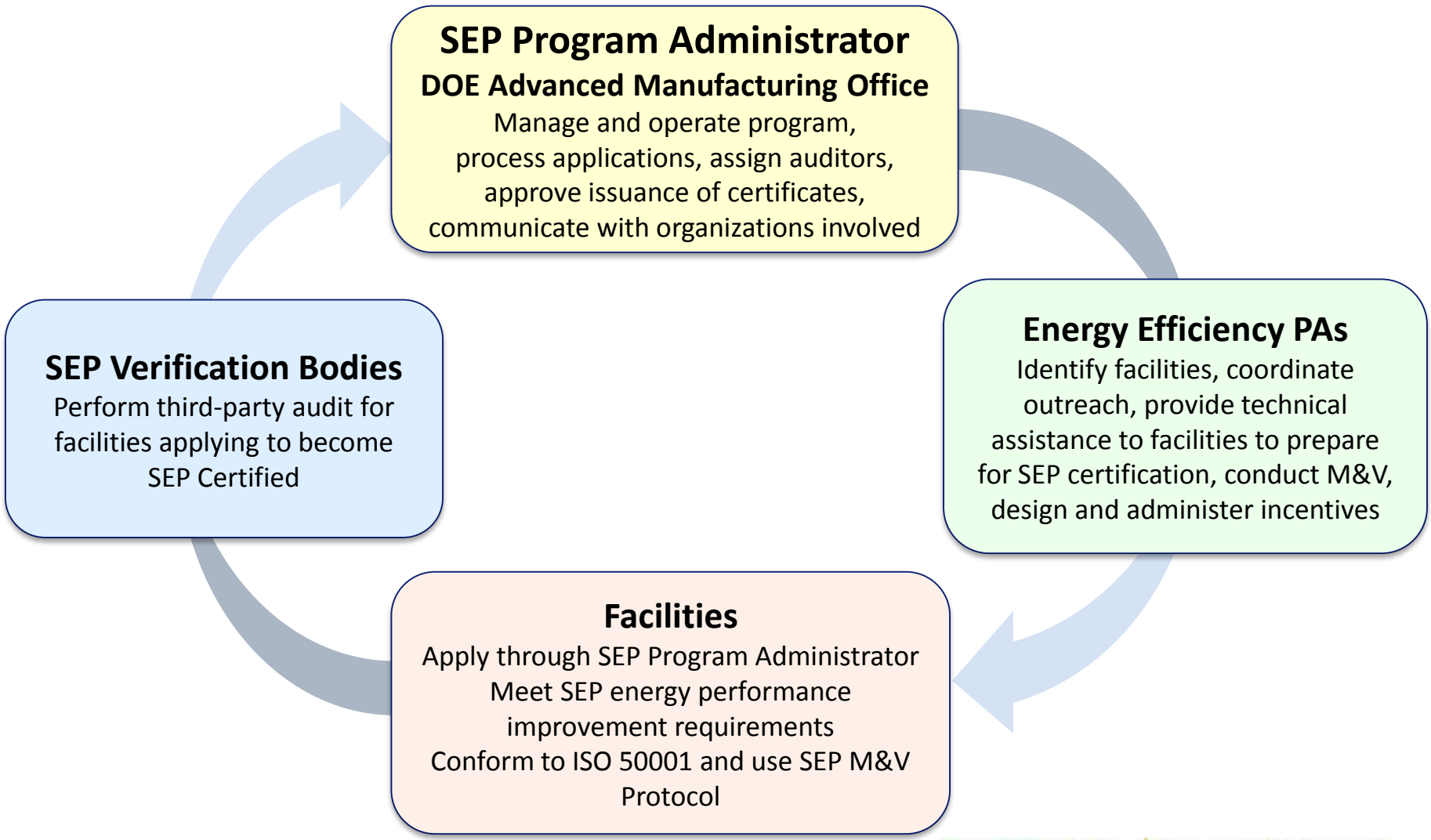
- 3.2 Calculating Adjusted Consumption;
- 3.3 Calculations for a Facility;
- 3.4 Model Validity for Calculating Adjusted Consumption;
- 3.6 Using Adjustment Model Application Methods to Determine Energy Performance Improvement Relative to a Baseline;
- 3.8 Calculating Consumption;
- 3.9 Data Quality

Evaluation, Measurement, and Verification

Superior Energy Performance: Measurement and Verification Protocol for Industry (Nov. 19 2012)

- 3.3.3 Totaling Energy Sources;
- 3.7.1 Conversion of Electricity to Primary Energy

Roles in SEP Certification Process



SEP Program Cost Effectiveness – Electric PA Example

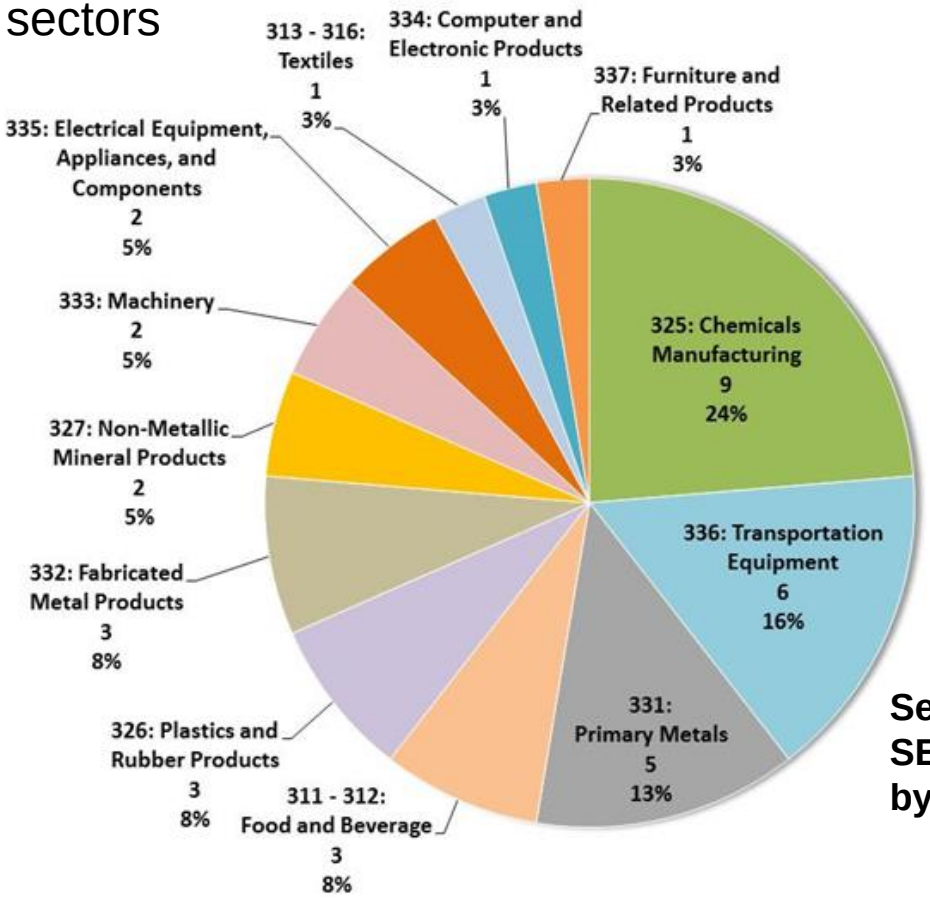
	Utility Cost Test	Total Resource Cost Test	Societal Cost Test
Program Costs			
Program Administration Costs	Yes	Yes	Yes
Program Incentive	Yes	Yes	Yes
Participant Contribution	---	Yes	Yes
Program Benefits			
Customer Bill Savings	---	---	---
Avoided Electricity Costs	Yes	Yes	Yes
Avoided Capacity Costs	Yes	Yes	Yes
Avoided Other Fuel Costs	---	Yes	Yes
Avoided Water Costs	---	Yes	Yes
Other Benefits			
Avoided T&D Costs	Yes	Yes	Yes
Wholesale Market Price Suppression	Yes	Yes	Yes
Avoided Environmental Compliance	Yes	Yes	Yes
Reduced Risk	Yes	Yes	Yes
Other Program Impacts (utility perspective)	Yes	Yes	Yes
Other Program Impacts (participant)	---	Yes	Yes
Other Program Impacts (societal)	---	---	Yes

SEP Benefits to Industrial Facilities

- Facility-wide, deeper and sustained energy savings (11.7%, on average).
- Ongoing cost savings (energy, maintenance)
  - Payback period is under 2 years *excluding energy performance improvements from capital investments* for a facility with baseline annual source energy consumption > 0.27 Tbtus (equiv. to 26 GWh delivered electricity)
- Effective integration of energy management into existing management system processes
- Operational efficiency based on improved data tracking and utilization
- Cost-effective approach to meeting sustainability targets
- A structure and framework for action and managing future changes in an energy efficient manner
- Facilitates communications, both internally and externally

SEP Manufacturing Sector Market Potential

- DOE market analysis identified initial 3,000+ specific manufacturing facilities to target for SEP certification
- DOE projects the number of SEP certified facilities to grow to 1,000+ (23% of U.S. manufacturing footprint) by 2023, representing a wide array of industrial sectors



Prime facilities for SEP certification

- **>$1 million annual energy bill**
- **Prior ISO management system certification**
- **Strong sustainability program**

Sector breakdown of projected SEP certified facilities by 2023, by NAICS code