Better Buildings®
U.S. DEPARTMENT OF ENERGY

Implementing Energy Management Systems

Tuesday, May 16

3:45 - 5:00 p.m.

U.S. DEPARTMENT OF ENERGY

Panelists

- Steve Schultz, 3M Energy Management
- Wade Willatt, Nissan
- Greg Baker, Efficiency Vermont
- Pete Langlois, U.S. DOE Advanced Manufacturing Office

ISO 50001 – Energy Management System (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 guidelines for establishing, implementing, maintaining and improving an EnMS

Extending _____ Management principles to Energy

- ***Financial***
- ***Personnel***
- ***Compliance***
- ***Inventory***
- ***Production***
- ***Quality***
- ***Environmental***
- ***Health & Safety***
- ***...***

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

ISO 50001 in the U.S.

Cummins

Google

Typical energy savings in an industrial setting (from low- and no-cost measures):

- *5-7% annual improvement is common*
- *30% over 3-4 years is not unheard of*

Examples of companies already using 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
- Hilton Worldwide
- IBM
- Intertape Polymer Group
- Land O'Lakes
- Johnson Controls
- Marriott International
- MedImmune
- NewGold
- **Nissan North America**
- Samsung
- Schneider Electric
- Subaru
- Titan America
- Volkswagen
- Volvo Truck

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

Why ISO 50001?

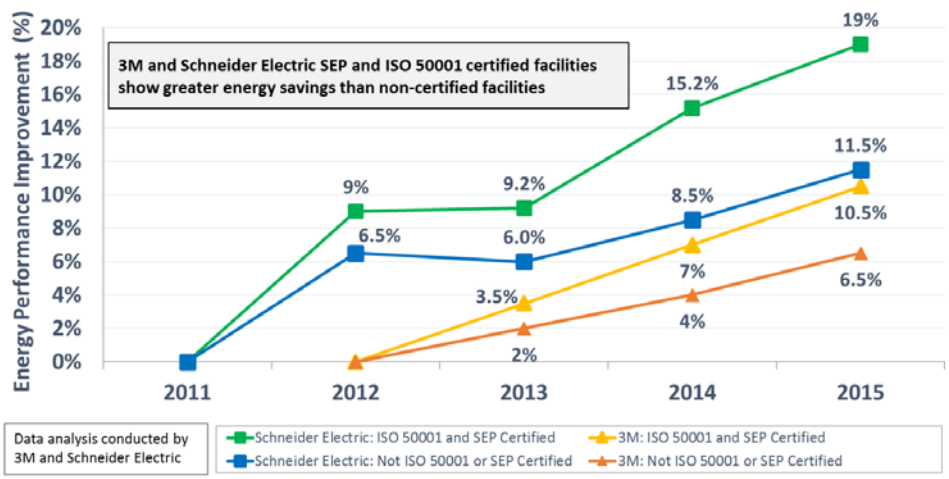
Known – Still large potential for industrial/commercial energy savings, historic improvement focus has been on ad hoc projects, low hanging fruit

We believe - Best way to achieve the fullest EE potential is to adopt programs & policies that improve energy performance on a continuing basis

- An EnMS (Energy Management System) is best way to accomplish this
- ISO 50001 is best available - internationally consistent / proven / recognized

Conclusion

Broad market acceptance and implementation of ISO 50001 in the U.S. will significantly improve EE and reduce GHG in the industrial and commercial marketplace



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

DOE Support for ISO 50001

U.S. Recognition Options for ISO 50001

Program Name	**50001 Ready**	**Superior Energy Performance® (SEP™)**
U.S. Government Supported Approach	**Program to self-attest ISO 50001 structure**	**Program for ISO 50001 certification**
Energy Savings Validation Approach	50001 Ready 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

Steve Schultz

3M Energy Management

U.S. DEPARTMENT OF ENERGY

3M Experience Implementing ISO 50001 and Superior Energy Performance®

Steve Schultz, Corporate Energy Manager
3M Energy Management

Driving Progress Around the World

- $30 Billion Sales
  - 60% International
- 5 Business Groups, 26 Business Units
- Operations in 29 States and 70 Countries
- Sales in 200 Countries
- 89,000 + Employees

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Our fundamental strengths are the foundation of 3M's performance

Leveraging these assets creates value; strengthening them ensures our future

Technology

Ability to share and combine elements of 3M's broad technology portfolio to produce unique, differentiated products, translating to premium margins.

Manufacturing

Utilization of 3M manufacturing footprint and technology, including process trade secrets, leading to higher-performing products and lower unit cost.

Global capabilities

Subsidiary front- and back-office footprint that allows for effective development, adaptation and commercialization of products.

Brand

Brand equity in the 3M brand and in authority brands that are shared across business groups.

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Our 2025 Sustainability Goals

Energy & Climate

- **Improve energy efficiency indexed to net sales by 30%**
- **Increase renewable energy to 25% of total electricity use**
- Ensure GHG emissions at least 50% below our 2002 baseline, while growing our business
- Help our customers reduce their GHGs by 250 million tons of CO_2 equivalent emissions through use of 3M products

Raw Materials

- Invest to develop more sustainable materials and products to help our customers reach their environmental goals
- Reduce manufacturing waste by an additional 10%, indexed to sales
- Achieve “zero landfill” status at more than 30% of manufacturing sites
- Drive supply chain Sustainability through targeted raw material traceability and supplier performance assurance

Health & Safety

- Provide training to 5 million people globally on worker and patient safety

Water

- Reduce global water use by an additional 10%, indexed to sales
- Engage 100% of water-stressed/scarce communities where 3M manufactures on community-wide approaches to water management

Education & Development

- Invest cash and products for education, community and environmental programs
- 100% participation in employee development programs to advance individual and organizational capabilities
- Double the pipeline of diverse talent in management to build a diverse workforce

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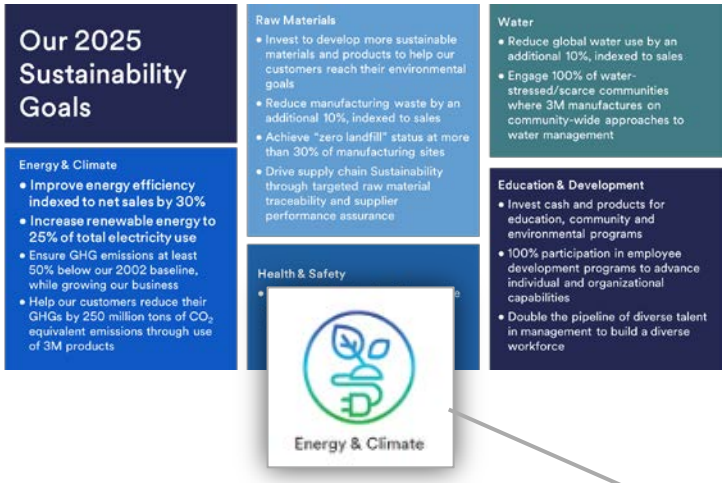
Improvement in Energy Efficiency is a 2025 3M Sustainability Goal



Energy

- Improve Energy Efficiency indexed to net sales by 30%
- Increase renewable energy to 25% of total electricity use
- Ensure GHG emissions at least 50% below our 2002 baseline, while growing our business

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Strategies to Achieve 2025 Goals

Short-term

- Treasure Hunts
- Shutdown procedures
- LED replacement
- Waste reduction
- Process energy optimization
- HVAC recommissioning

Long-term

- ISO 50001 / Superior Energy Performance
- Combined heat and power
- Oven optimization
- Design and install new capital equipment to be high efficiency
- Product reformulation
- Process energy monitoring

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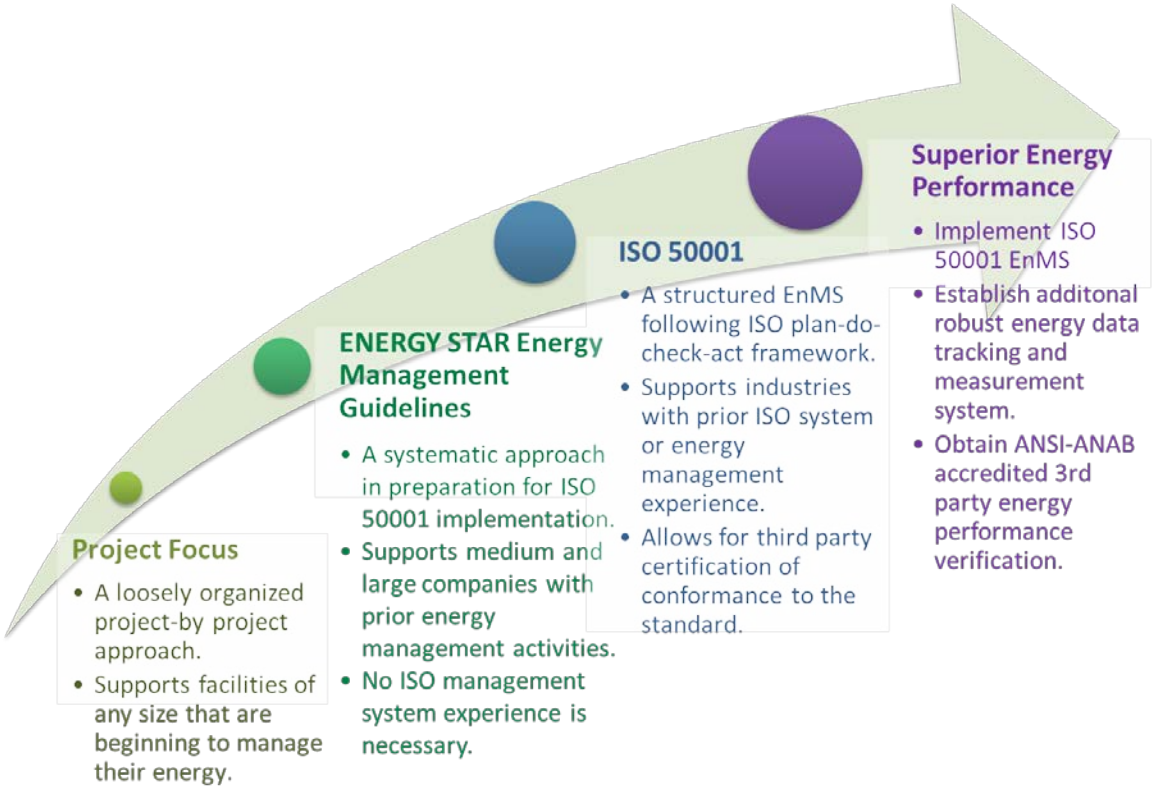
Strategic Energy Management Continuum



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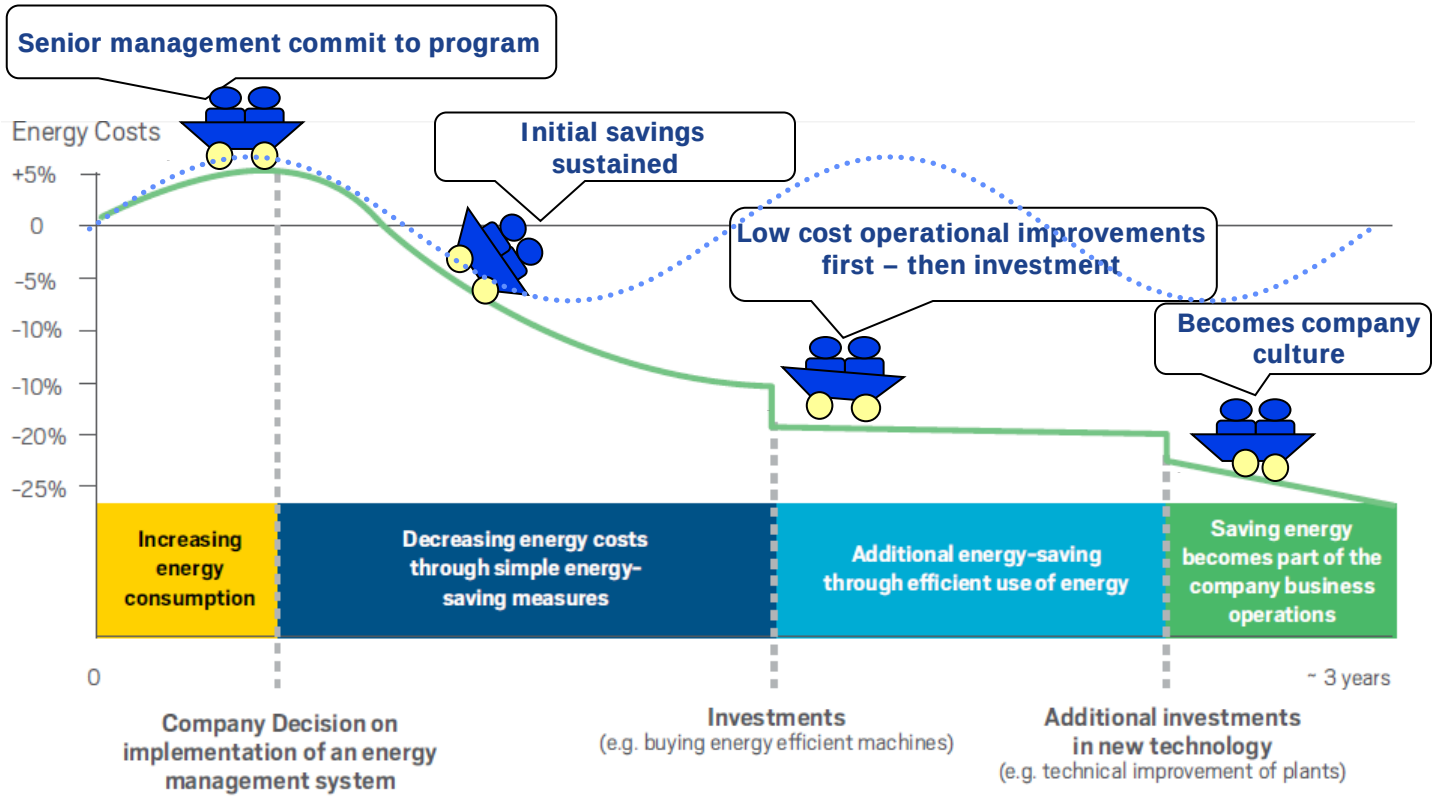
Structured Approach to Energy Management



Source: Kahlenborn et al. (2012), based on Lackner & Holanek (2007)

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3M Enterprise-wide Certification

Benefits

- Five additional sites certified
- One previously certified site brought into enterprise
- 7.3% improvement in energy performance
- $3.6 million energy cost savings
  - Nearly 70% from operational changes

- $23,600 saved on implementations costs, PLUS
- One+ FTE, PLUS
- Accelerated implementation timeline, PLUS
- System in place for additional implementations

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3M Enterprise-wide Certification

Keys to Success

- Corporate Energy Management Department
- Corporate Energy Policy
- Corporate Corrective Action System
- Corporate Energy Review and Planning Tool
- Plant Energy Performance Review Tool
- Corporate Top Management Committee

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Barriers and Challenges

- Informing them of what ISO 50001 / SEP is and why certification provides value
- Internal resources to guide locations through the certification process
  - Utilize external resources whenever possible
  - Group locations into cohorts
- Language and cultural issues when expanding internationally
- Determining a Top Management Structure in our matrix organization

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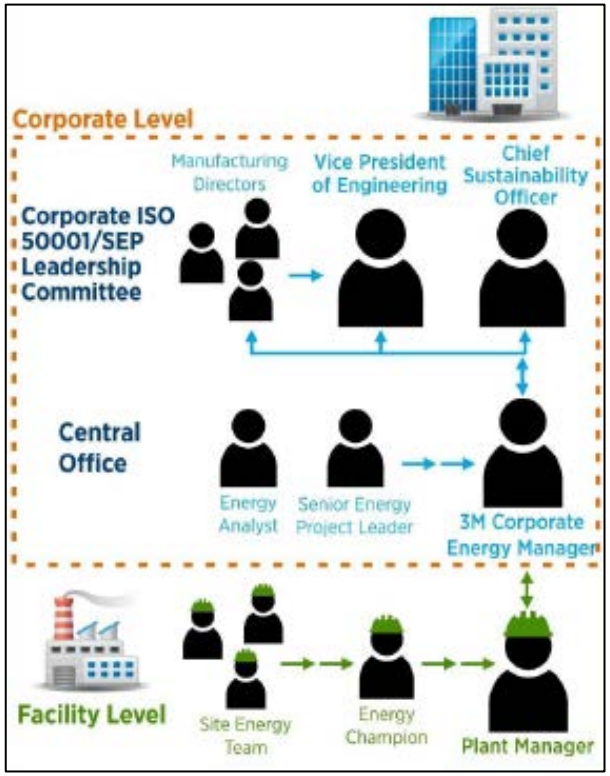
Top Management, Plant Management, Annual Cycle



	Q1			Q2		
	January	February	March	April	May	June
Central Office	Annual update of tools - Review & Planning Tool/ Management Review Workbook, etc. Training on updated tools provided to plants.	External Stage I audits		External Stage II audits or Surveillance audits	*New plants to join enterprise*	Top Management Review
Plants					PEPR's take place. PEPR Workbook and Review & Plannng Tool saved and uploaded to SharePoint. EnPI Updated for Energy Dashboards	

	Q3			Q4		
	July	August	September	October	November	December
Central Office		Internal audits completed		Participate in PEPR's as appropriate	Schedule internal/ external audits for upcomng year - Plant, Corporate, DEKRA	Top Management Review
Plants		Internal audits completed		PEPR's take place. PEPR Workbook and Review & Plannng Tool saved and uploaded to SharePoint.	Schedule internal/ external audits for upcomng year - Plant, Corporate, DEKRA	

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3M Facilities Implementing ISO 50001 and SEP

	Country	Site	Latest Action	SEP Certified
1	Canada	Brockville 501 (Tape)	ISO 50001 Certified	Platinum
2	Canada	London	ISO 50001 Certified	No
3	Canada	Perth 301	ISO 50001 Certified	No
4	Canada	Perth 302	ISO 50001 Certified	No
5	Canada	Montreal	Being ISO Certified	No
6	Canada	Mordon	ISO 50001 Certified	No
7	France	Tilloy	ISO 50001 Certified	No
8	Germany	Kempten (Ceradyne)	ISO 50001 Certified	No
9	Germany	Neuss	ISO 50001 Certified	No
10	Germany	Hilden	ISO 50001 Certified	No
11	Germany	Kamen	ISO 50001 Certified	No
12	Germany	Seefeld & Landsberg	ISO 50001 Certified	No
13	Germany	Jüchen	ISO 50001 Certified	No
14	Korea	Naju	ISO 50001 Certified	Yes
15	Poland	Wroclaw PSD	ISO 50001 Certified	No
16	Poland	Wroclaw Automotive	ISO 50001 Certified	No
17	Poland	Wroclaw	ISO 50001 Certified	No
18	Taiwan	Tainan	ISO 50001 Certified	No
19	U.S.	Cordova	ISO 50001 Certified	Silver
20	U.S.	Aberdeen	Enterprise-wide ISO 50001	Gold
21	U.S.	Cynthiana		Silver
22	U.S.	Decatur		Silver
23	U.S.	Hutchinson		Gold
24	U.S.	Prairie du Chien		Silver
25	U.S.	Cottage Grove MRD	International Program of cohorts	
26	Canada	Brockville PSD		
27	Mexico	San Luis Potosi		

2017

- 3M Enterprise-wide ISO 50001 certification
- Twenty-seven locations in eight countries certified or being certified
- Five plants implemented as a group of cohorts
- Three plants in three countries implementing as cohorts in North American Pilot

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Science.
Applied to Life.™

Thank you

3M.com/Sustainability
#Improvinglives

Wade Willatt

Nissan

U.S. DEPARTMENT OF ENERGY

Nissan – Enterprise-wide Energy Management

Wade Willatt

Better Buildings Summit
May 2017

NISSAN GROUP
OF NORTH AMERICA

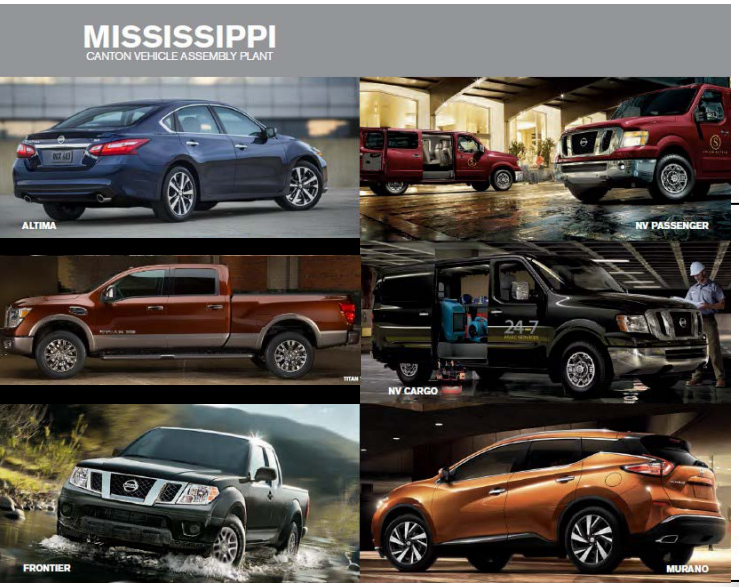
U.S. FOOTPRINT

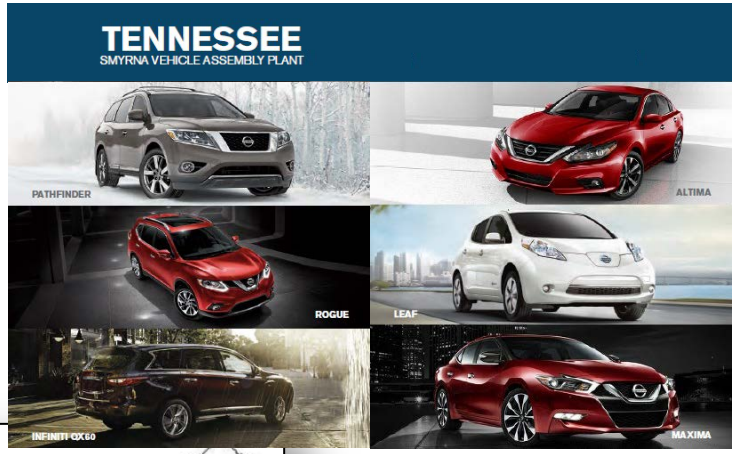
More than **22,000** employees in the U.S.

U.S. MANUFACTURING & INVESTMENT

- Celebrated more than 30 years of U.S. Automotive Manufacturing since 1983
- $11 billion manufacturing investment since 1981
- U.S. production has increased by more than 88% since 2010
- More than 300 suppliers in 30 states provide parts and materials to Nissan
- $14 billion in U.S. parts and materials purchases in 2016
- 15 million vehicles, 10 million engines and 90,000 lithium ion battery packs proudly manufactured in the U.S.

U.S. MANUFACTURING



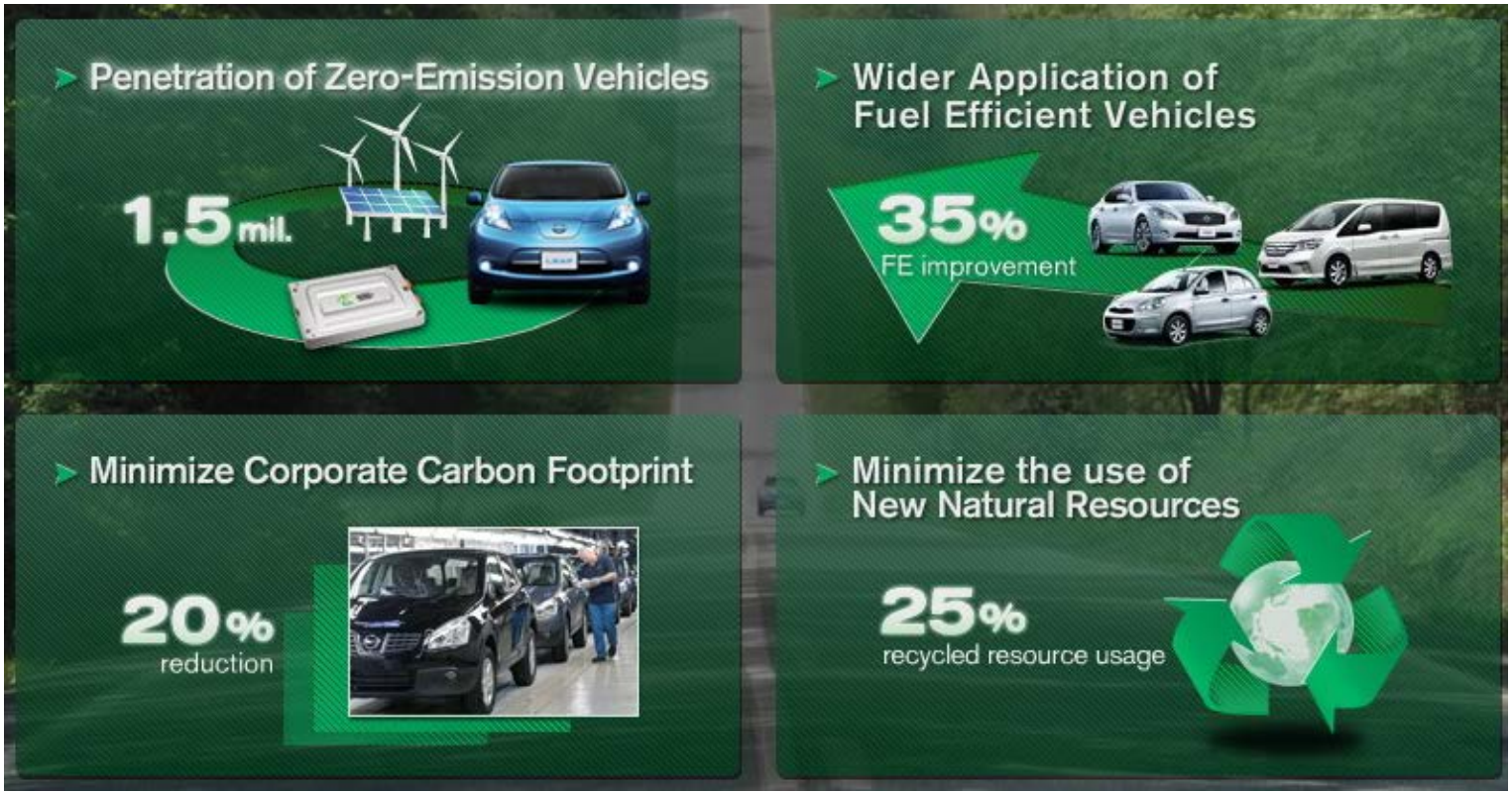


NISSAN GROUP OF NORTH AMERICA

ENERGY COMMITMENTS

Cost Reduction On Energy Spend	Nissan Green Program
ENERGY STAR® Certification	DOE Better Plants / Superior Energy Performance®

NISSAN GREEN PROGRAM



External Program Commitments

U.S. DEPARTMENT OF ENERGY

⇩

Better Plants
U.S. DEPARTMENT OF ENERGY

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Better Plants® CHALLENGE
U.S. DEPARTMENT OF ENERGY

Smyrna = Central Office (Mother Region) for ISO 50001
Each Site = SEP Certification (local)

Canton — Superior Energy Performance
Decherd — Superior Energy Performance
Smyrna — Superior Energy Performance

+ ISO 50001 ENERGY MANAGEMENT

NNA Enterprise-wide

Certification/Recognition Opportunities

EPA United States Environmental Protection Agency

⇩

ENERGY STAR PARTNER

⇩

ENERGY STAR AWARD 2017 — PARTNER OF THE YEAR — Sustained Excellence — NNA Corp-Wide

2016 ENERGY STAR CERTIFIED FACILITY — Smyrna/ Canton EPI

ENERGY STAR CHALLENGE FOR INDUSTRY — Decherd/ Stamping & Fascia Shops

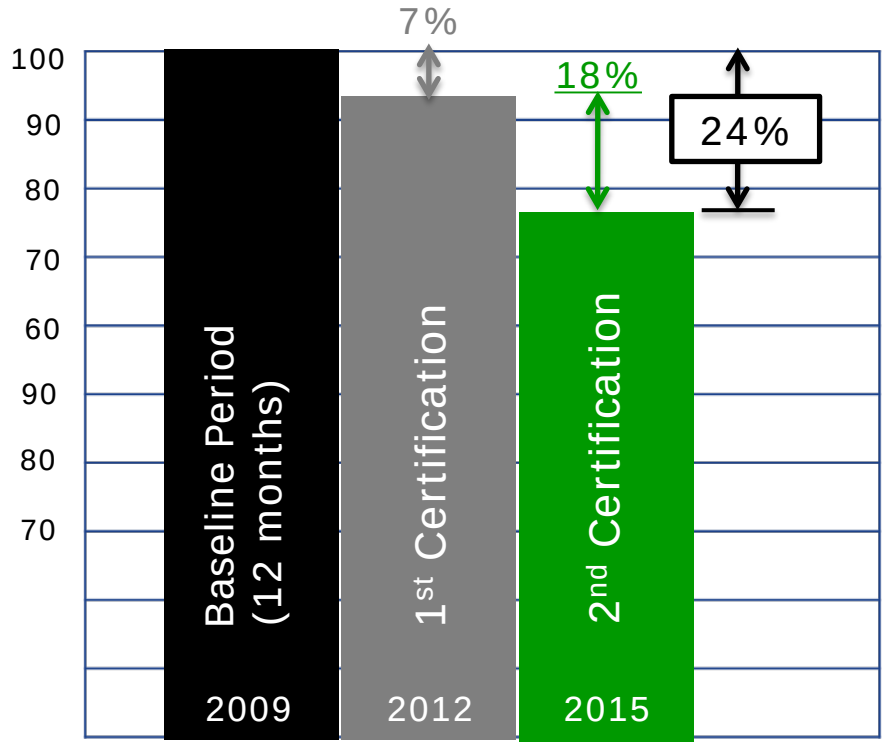
SEP CERTIFICATION

NNA-Smyrna received ISO 50001 and Superior Energy Performance (SEP) Certifications in 2012.

- Became the first passenger-vehicle manufacturing facility to attain ISO 50001 and SEP certifications.
- Within 3 years of establishing baseline, the Smyrna plant improved energy performance by 7%.

CONTINUOUS IMPROVEMENT

Normalized Facility Energy Consumption (source energy)



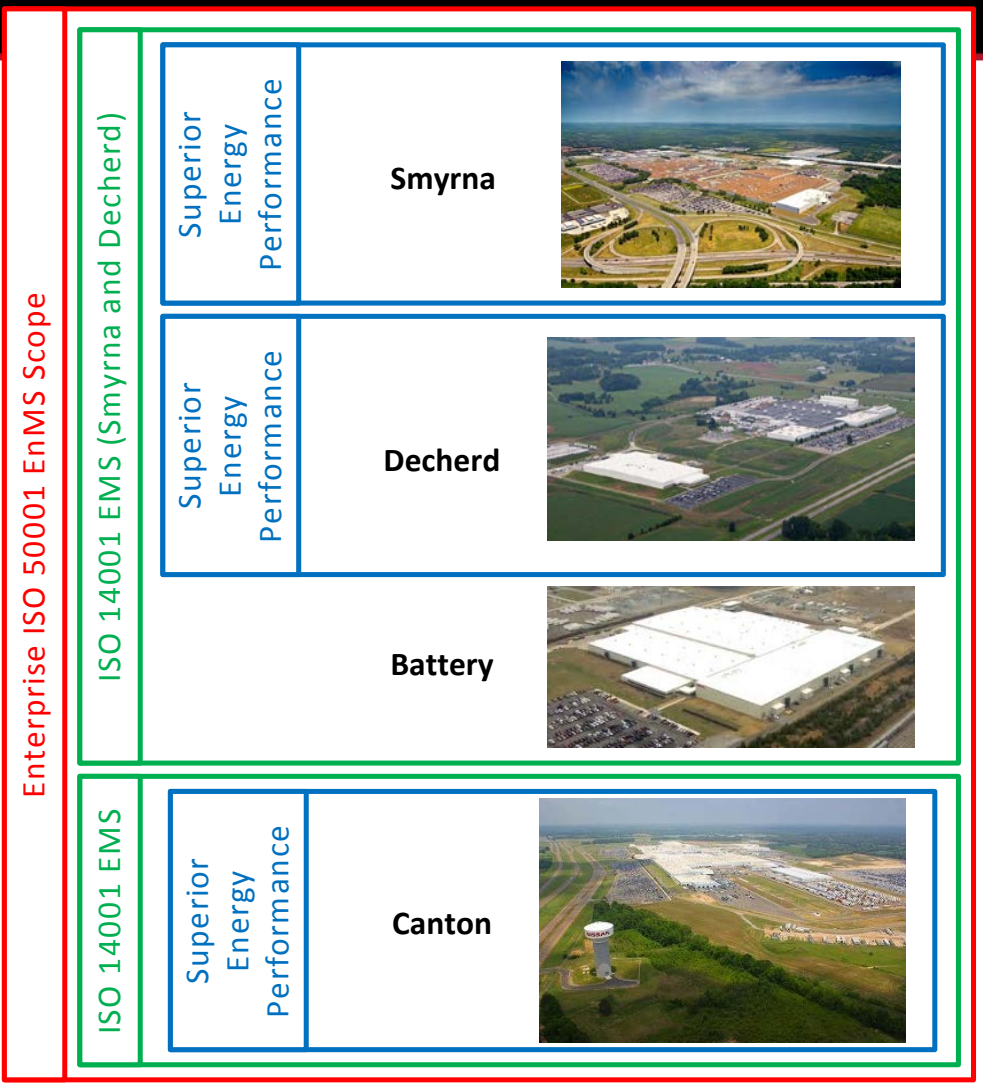
Nissan – Smyrna, TN facility

2015–18 | PLATINUM
Superior Energy Performance®
U.S. DEPARTMENT OF ENERGY

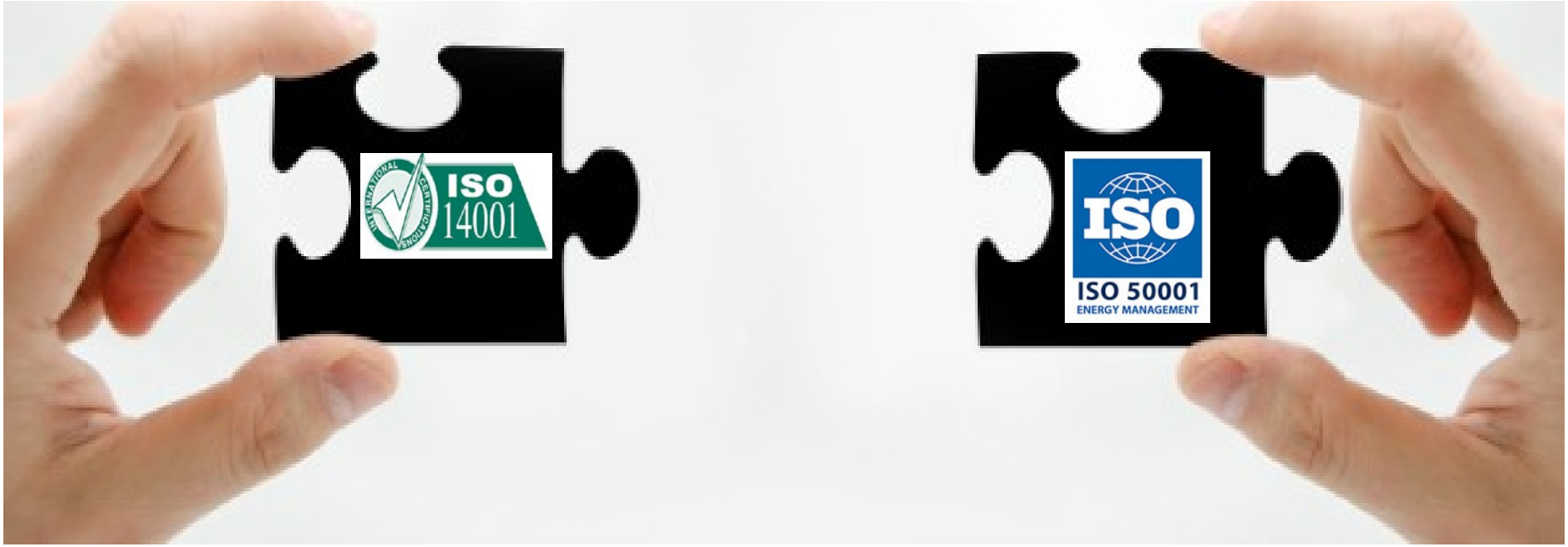
SEP ENTERPRISE BUSINESS CASE

- **Corporate Goals** and Customer Expectations
  - SEP Supports global CO_2 reduction targets
  - TdC reduction and supply chain cost savings.
- **Overall Opinion** (OaO) & Brand Strengthening
  - OaO is a key performance indicator
  - External recognition improves perception of environmental performance
- **Structure** ISO 50001 & SEP Harmonize EnMS across U.S. Sites
  - Smyrna plant serves as “Central Office”
  - Standardization (audits, project tracking, EnPIs)

Nissan Environmental and Energy Management Systems



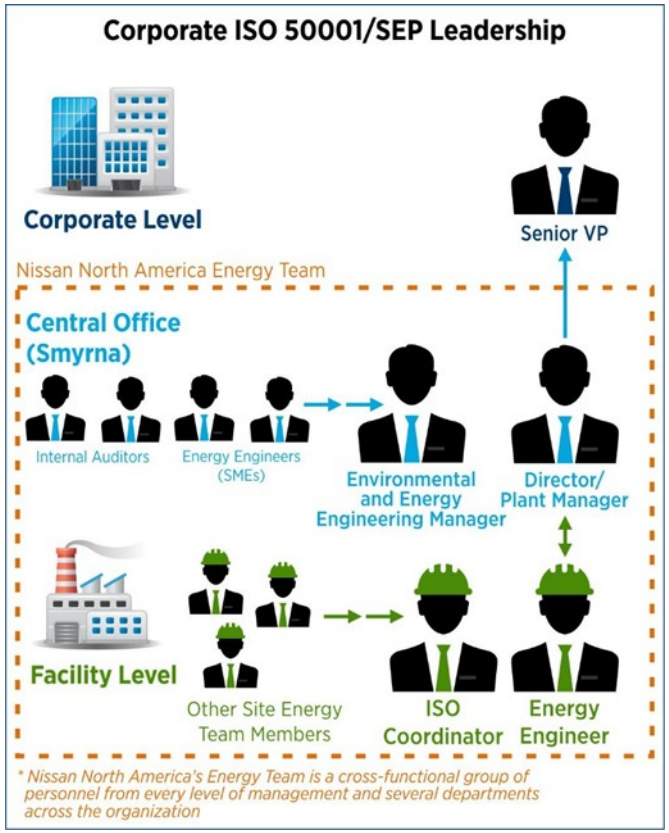
Integration with EMS



ISO Principles

Improve it

EnMS Structure



EnMS Functions of Nissan Central Office

1. Planning, Audits
2. Develop EnMS Procedures
3. Technical Support, Guidance

EnMS Functions of Nissan Sites

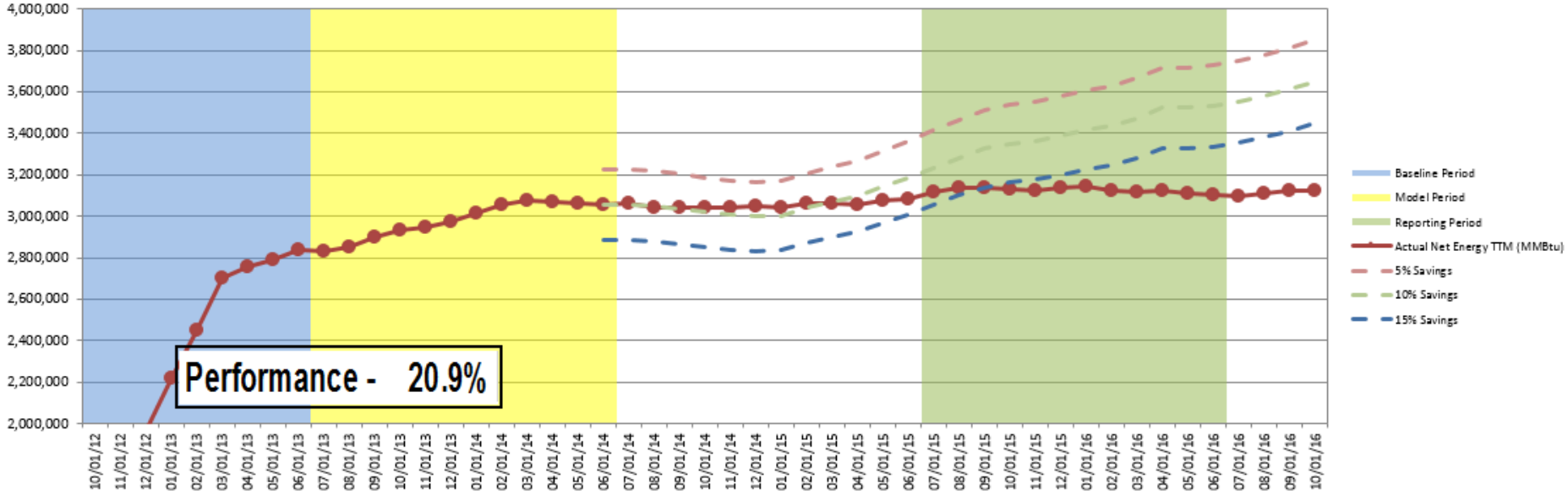
1. Implement EnMS Procedures
2. Energy Review & Planning
3. Action Plans, Energy Perf.

Enterprise EnMS IMPLEMENTATION

- Utilized existing EnMS from Smyrna
  - Smyrna serves as Central Office
  - Modified all procedures so they are not Smyrna centric
- Most of the effort was spent on sites implementing the required practices
  - Developed a task list
- SEP adds rigor, analysis, and disciplined structure
  - Improved the consistency between sites making regional reporting easier
- EnMS prompts NNA to consider energy impacts of new design projects and facility/equipment modifications

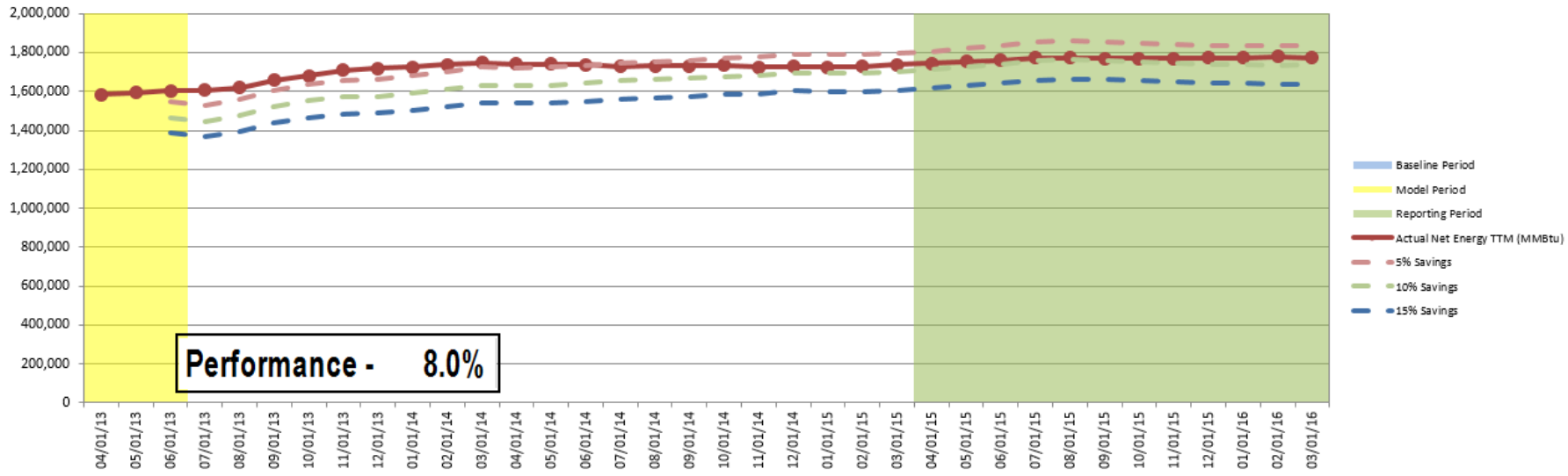
Canton SEP Achievement

- Superior Energy Performance Indicator (SEnPI)
  - Platinum Performance Level
  - 20.9% verified improvement in 3 years



Decherd SEP Achievement

- Superior Energy Performance Indicator (SEnPI)
  - Silver Performance Level
  - 8% verified improvement in 3 years



BENEFITS

- Easier best practice and resource sharing amongst sites
  - EnMS maintenance is distributed across multiple sites
  - Met our Better Plants Challenge (25% reduction) target 5 years early
- Not every site is externally audited each year
  - Reduced costs and resource requirements
- Corporate Sustainability Report – 3rd Party Audit of CO_2/GHG reporting

"ISO 50001 and SEP are worth the effort as it brings structure and discipline to the program. Nissan values third-party validation and the external recognition for being an environmentally friendly manufacturer."

—Mike Clemmer, Director - Manufacturing Engineering

LESSONS LEARNED

- Experience is key
  - Use 1 site as pilot to ease changes during development
  - Ensure you have a mix of team members with ISO and energy backgrounds
  - SEP training from DOE helps bring energy and ISO experts up to speed
- Mature ISO 14001 program helps ISO 50001 adaptation
- Simplification – Merged Energy & Environmental Policies and Procedures
- SEP Best Practice/Scorecard points are value-add and worth doing
- EnPI Tool is very powerful in conveying performance
  - Japanese energy managers like the DOE EnPI tool

Energy Reduction Resources

FREE Energy Assessments by Industrial Assessment Centers

http://energy.gov/eere/amo/locations-industrial-assessment-centers

ENERGY STAR PARTNER

- ENERGY STAR Portfolio Manager can help benchmark your performance against other similar plants
- Tips available regarding taking the next step in Energy Management

www.energystar.gov

Available Industries for EPI Tool

- Automobile Assembly
- Cement Manufacturing
- Commercial Bread & Roll Bakery
- Container Glass Manufacturing
- Cookie and Cracker Bakery
- Flat Glass Manufacturing
- Frozen Fried Potato Processing
- Integrated Paper and Paperboard Manufacturing
- Juice Processing
- Pharmaceutical Manufacturing
- Pulp Mill
- Wet Corn Milling

THANK YOU!

Greg Baker

Efficiency Vermont

U.S. DEPARTMENT OF ENERGY

Efficiency Vermont

MAY 16, 2017

Continuous Energy Improvement

GE Aviation

BEN & JERRY'S

MACK

KEURIG GREEN MOUNTAIN

HUSKY
Keeping our customers in the lead

WEIDMANN

Agri-Mark FAMILY DAIRY FARMS

ST. ALBANS CO-OP CREAMERY Dairy Farmer Owned

CABOT

vermont creamery

STRATTON VT

Energizer Keep Challenging Keep Growing
Household Products

THE University of Vermont HEALTH NETWORK
Central Vermont Medical Center

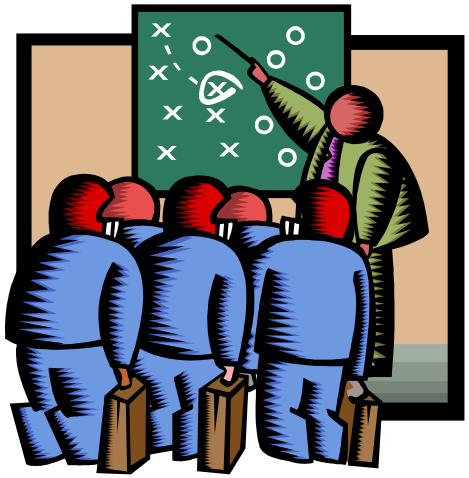
Redefining relationships by focusing on Energy Management

- ✓ Non-incentive, non-project **value-add**
- ✓ Holistic approach to managing energy
- ✓ Barriers to energy management
- ✓ Energy use **visible** to everyone in the company, from top management down.
- ✓ Energy as a **standard operating procedure**, similar to Safety, Quality and Production.

Efficiency Vermont

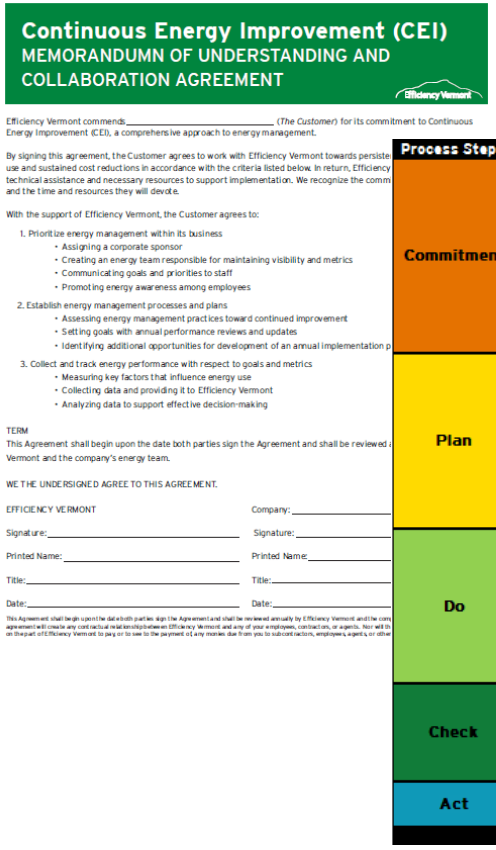
Efficiency Vermont's Program

- ✓ Large C&I customers
- ✓ Cohort Engagement – Peer to Peer
- ✓ Promoting energy management
  - Customer commitment
  - Energy Management Planning & Implementation
  - System for Monitoring, Tracking & Reporting Performance



Efficiency Vermont

Program Components



Continuous Energy Improvement (CEI)
MEMORANDUMM OF UNDERSTANDING AND COLLABORATION AGREEMENT

Efficiency Vermont commends _____ (*The Customer*) for its commitment to Continuous Energy Improvement (CEI), a comprehensive approach to energy management.

By signing this agreement, the Customer agrees to work with Efficiency Vermont towards persiste
use and sustained cost reductions in accordance with the criteria listed below. In return, Efficiency
technical assistance and necessary resources to support implementation. We recognize the comm
and the time and resources they will devote.

With the support of Efficiency Vermont, the Customer agrees to:

1. Prioritize energy management within its business
   - Assigning a corporate sponsor
   - Creating an energy team responsible for maintaining visibility and metrics
   - Communicating goals and priorities to staff
   - Promoting energy awareness among employees
2. Establish energy management processes and plans
   - Assessing energy management practices toward continued improvement
   - Setting goals with annual performance reviews and updates
   - Identifying additional opportunities for development of an annual implementation p
3. Collect and track energy performance with respect to goals and metrics
   - Measuring key factors that influence energy use
   - Collecting data and providing it to Efficiency Vermont
   - Analyzing data to support effective decision-making

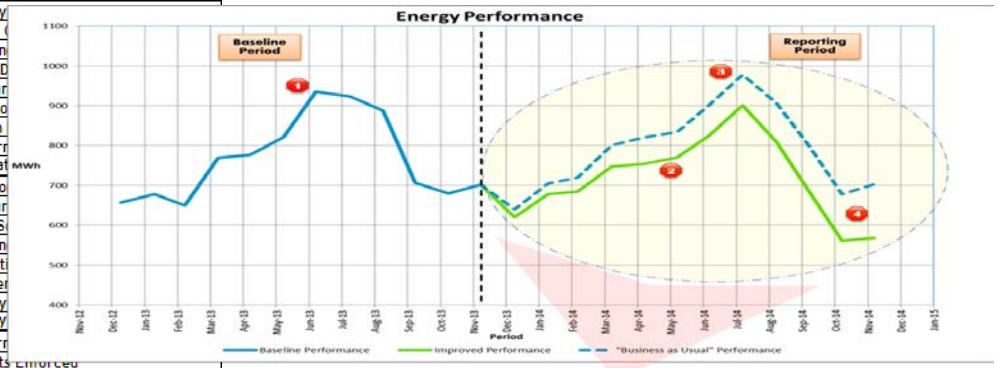
TERM
This Agreement shall begin upon the date both parties sign the Agreement and shall be reviewed a
Vermont and the company's energy team.

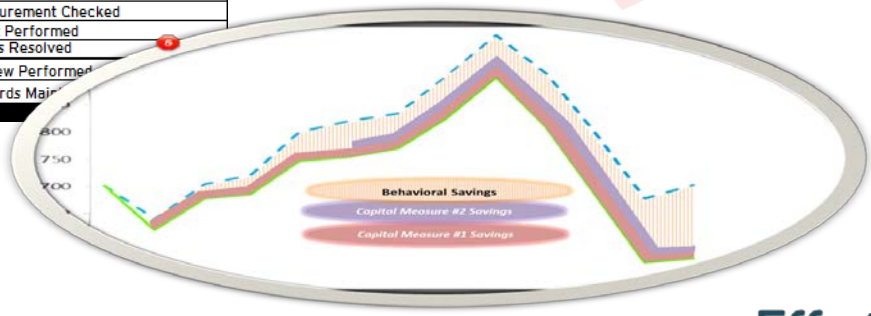
WE THE UNDERSIGNED AGREE TO THIS AGREEMENT.

EFFICIENCY VERMONT — Company: _____
Signature: _____ — Signature: _____
Printed Name: _____ — Printed Name: _____
Title: _____ — Title: _____
Date: _____ — Date: _____

This Agreement shall begin upon the date both parties sign the Agreement and shall be reviewed annually by Efficiency Vermont and the comp
agreement will create any contractual relationship between Efficiency Vermont and any of your employees, contractors, or agents. Nor will th
on the part of Efficiency Vermont to pay or to see to the payment of any monies due from you to subcontractors, employees, agents, or other

Process Step	Category	Milestone
Commitment	Senior Management	Corporate Sponsor Identified
		Energy Management Defined
		Resources Allocated
		Culture Adopted
	Energy Policy	Policy Written
		Procedures Defined
		Commitments Designated
	Energy Champion & Energy Team	Energy Champion Selected
		Authority Granted
		Reporting Executed
Plan	Energy review	Energy
		Usage (
		Baselin
		EnPIs D
		Measur
		Revisio
	Action plan	Action
		Perforr
		Evaluat
Do	Implementation	Milesto
		Measur
	Employee Engagement	Staff S
		Trainin
		Operati
		Mainte
		Energy
		Energy
Check	Monitoring, measurement and analysis	Perforr
		Targets Enforced
		Measurement Checked
	Internal auditing	Audit Performed
		Issues Resolved
Act	Management Review	Review Performed
		Records Mai





Efficiency Vermont

Program - Successes

- Most valued program element - **Peer-to-Peer Interaction**

- Success with implementing **CEE minimum elements**
  - ✓ Customer commitment
  - ✓ Planning and implementation
  - ✓ Systems for measuring and reporting

- Communication and **partnership with Efficiency Vermont**

Efficiency Vermont

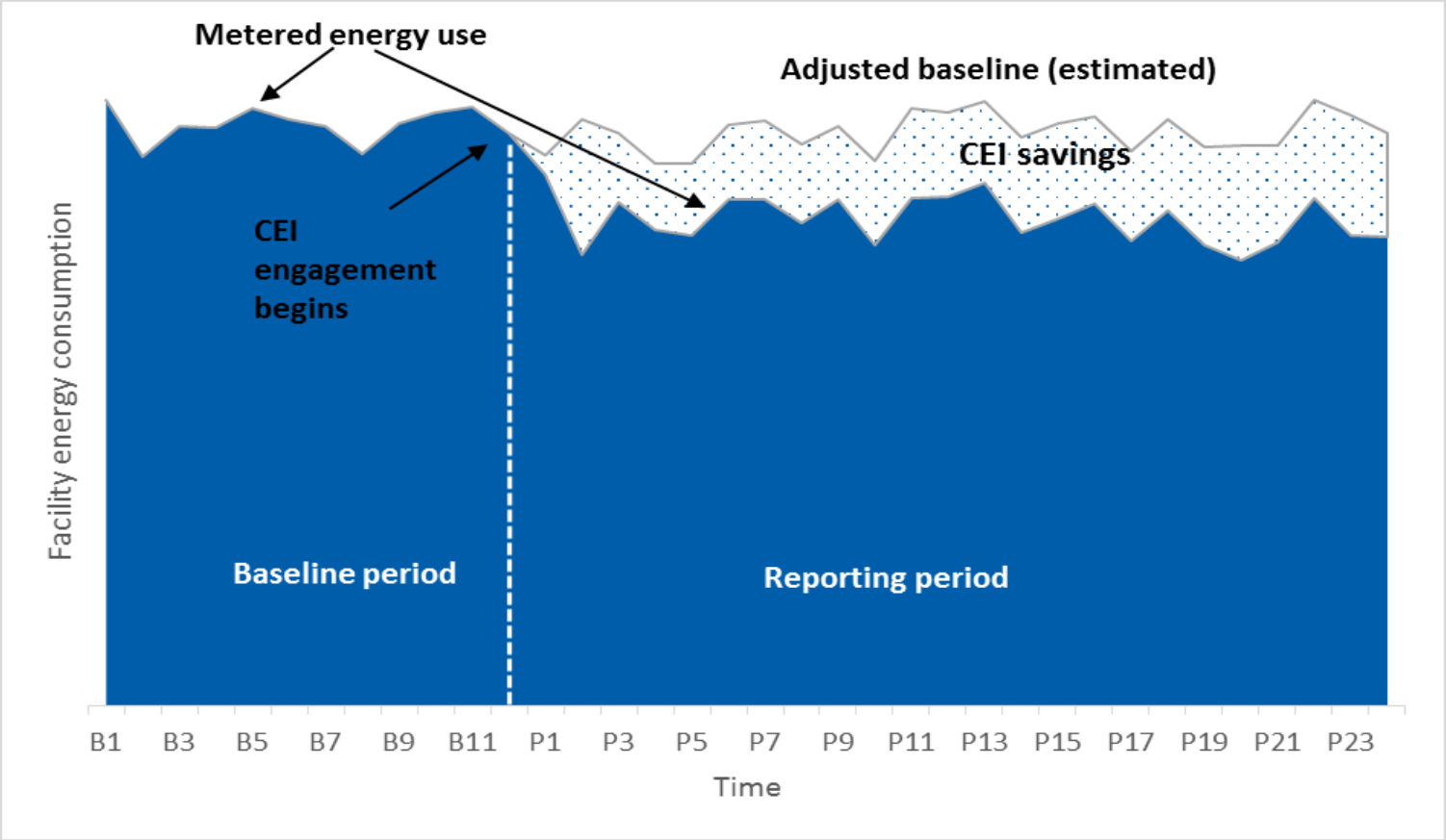
Program - Challenges

- **Finding time**—both as energy champion and in engaging employees
- Creating and **maintaining cross-functional team**; agreeing on priorities across departments
- Gaining and maintaining corporate level **commitment**
- Time and **distance required for workshop** attendance
- Making business case for sub-metering, **competing priorities**, identifying appropriate variables

Efficiency Vermont

SEM Cohort 1 Savings Results

- ✓ SEM Cohort 1 Savings = 3% *(captured via regression analysis)*



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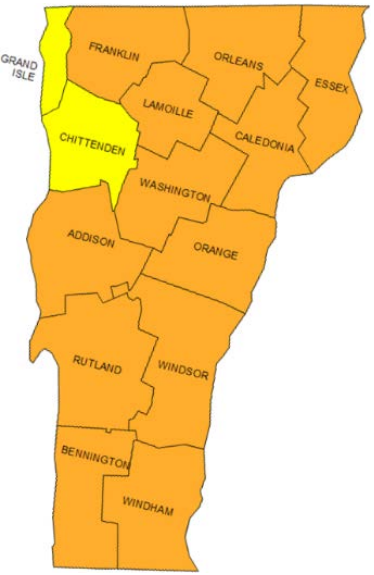
Cohort 2: SEM with a focus



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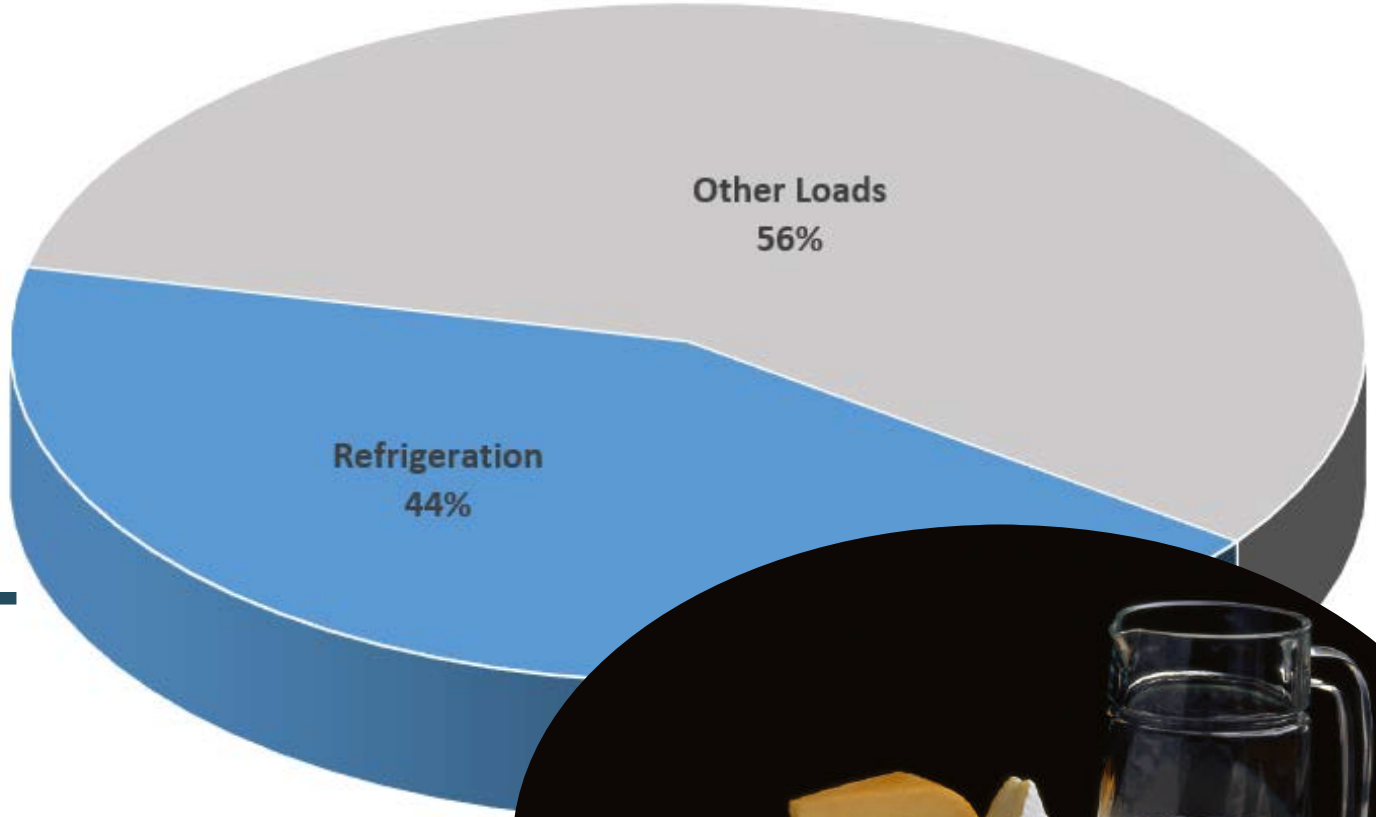

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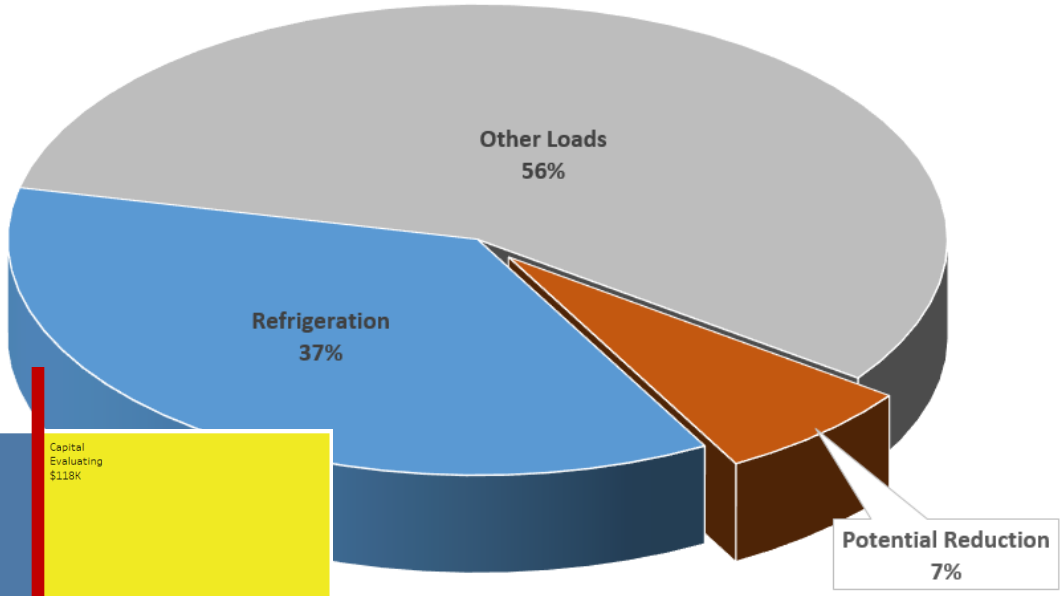
SEM Cohort 2 Savings Results

Site	% Total
A	3.3%
B	8.1%
C	16.1%
D	11.4%
E	5.4%
F	6.0%
G	5.4%
Average	**7.0%**



Low Cost Opportunities

Capital

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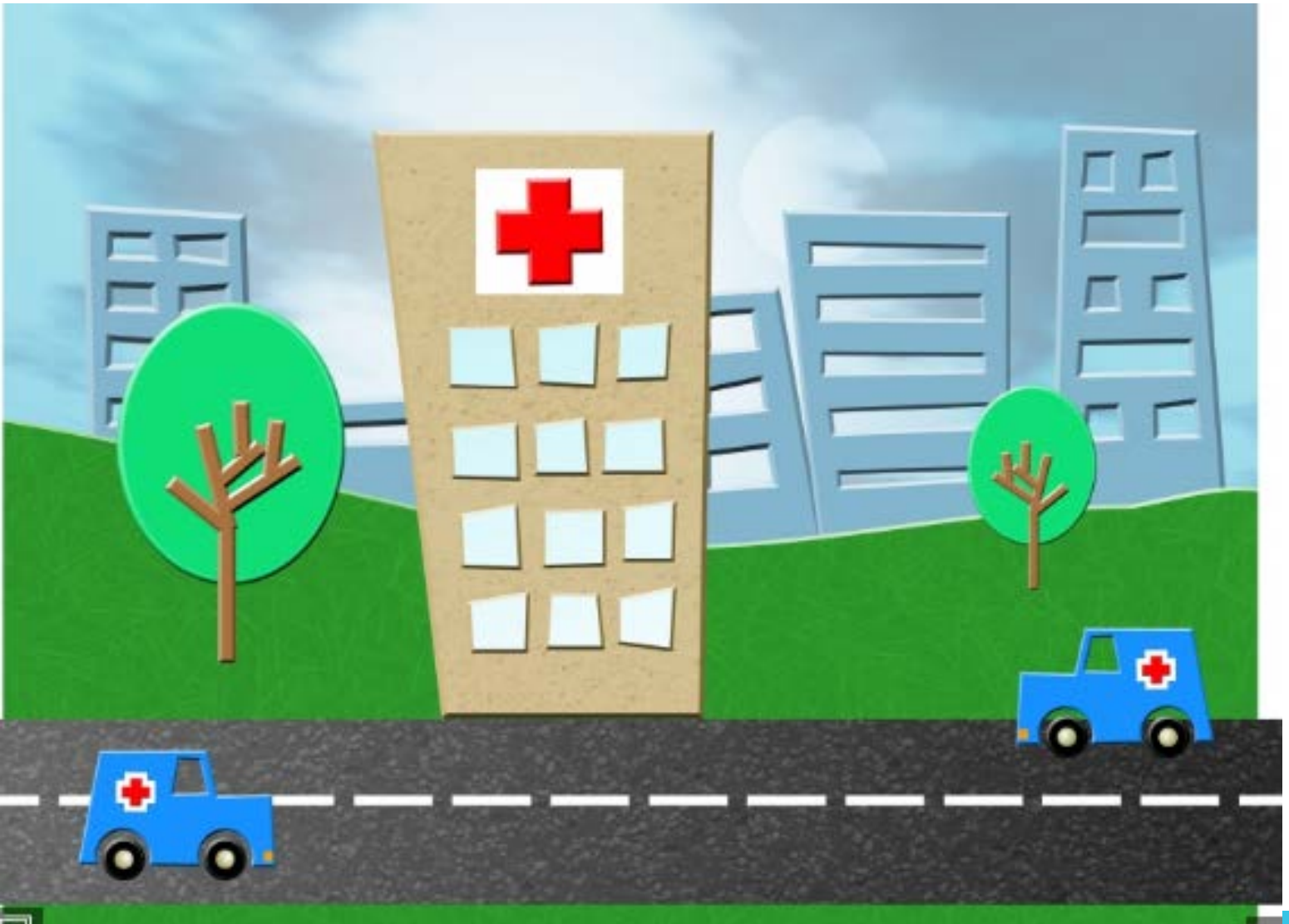
Cohort 3: SEM with another focus

Hospitals with large chilled water



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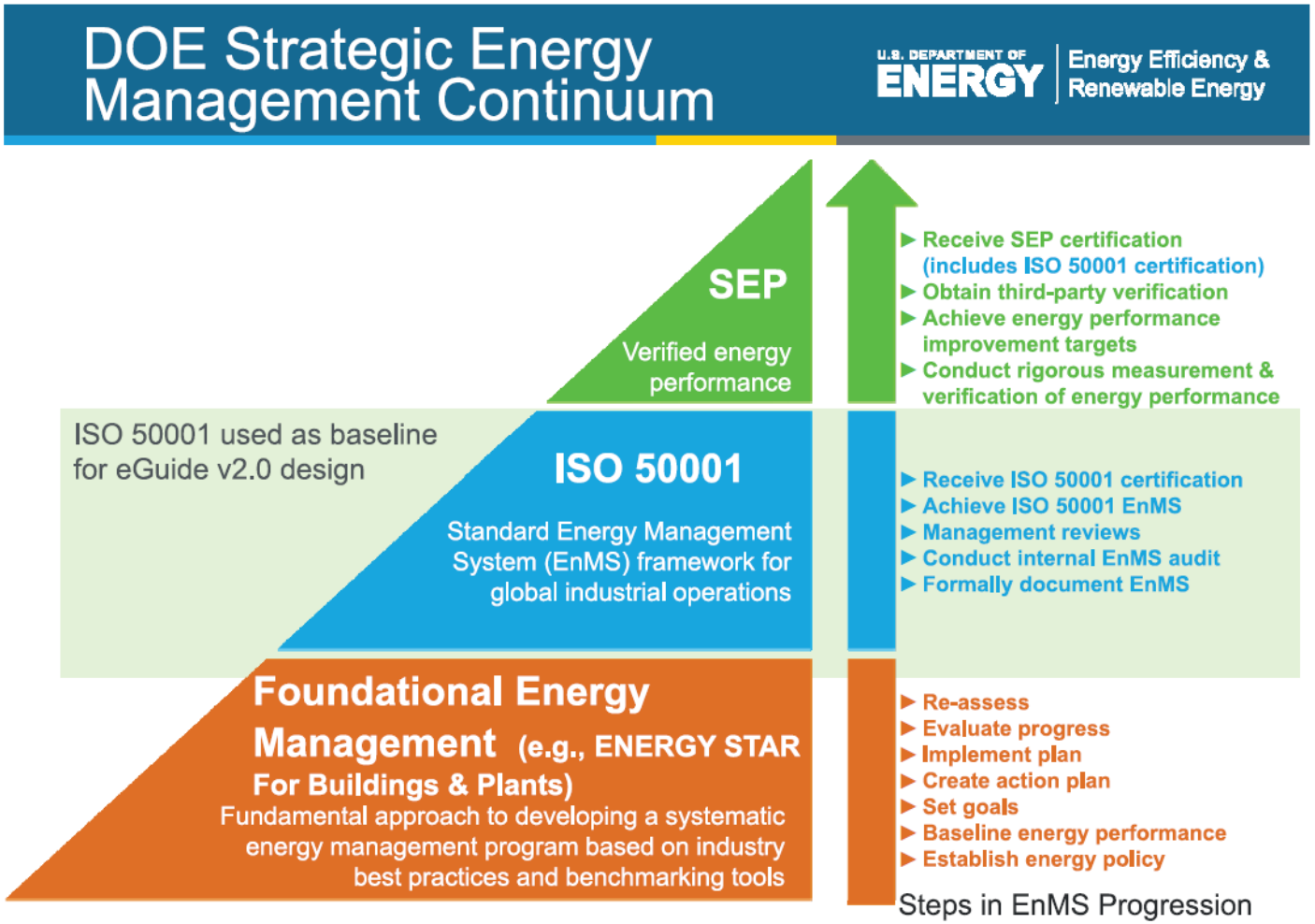
Energy Management Progression



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Building Momentum toward SEP

Same tasks with different levels of effort, documentation, and recognition

CEI participation

50001 Ready

ISO 50001 Certified

Superior Energy Performance

Level 1 (24 substeps)		Level 2 (36 substeps)		Level 3 (26 substeps)	
Step/ substep	Foundational Energy Management	Step/ substep	ISO 50001 Energy Management	Step/ substep	Superior Energy Performance® Program
1	**Engage Management**	**1**	**Engage Management**	**1**	**Engage Management**
1.1	Learn energy management system basics	1.1	Learn energy management system basics		
1.2	Understand and communicate benefits	1.2	Understand and communicate benefits	1.2	Understand and communicate benefits
1.3	Secure top management commitment	1.3	Secure top management commitment		
1.4	Appoint an energy management representative	1.4	Appoint a management representative		
1.5	Establish an energy team	1.5	Establish an energy team	1.5	Establish an energy team
		1.6	Identify the EnMS scope and boundaries	1.6	Identify the EnMS scope and boundaries
		1.7	Define the energy policy		
		1.8	Create organizational awareness	1.8	Create organizational awareness
		1.9	Ensure ongoing management responsibility	1.9	Ensure ongoing management responsibility
2	**Plan for Energy Management**	**2**	**Plan for Energy Management**	**2**	**Plan for Energy Management**
		2.1	Identify and evaluate legal and other requirements	2.1	Identify and evaluate legal and other requirements
2.2	Identify energy sources and uses	2.2	Identify energy sources and uses	2.2	Identify energy sources and uses
2.3	Collect energy bills and other data	2.3	Collect energy bills and other data	2.3	Collect energy bills and other data
2.4	Analyze energy consumption and costs	2.4	Analyze energy consumption and costs	2.4	Analyze energy consumption and costs
2.5	Determine significant energy uses	2.5	Determine significant energy uses	2.5	Determine significant energy uses
2.6	Identify and prioritize energy opportunities	2.6	Identify and prioritize energy opportunities	2.6	Identify and prioritize energy opportunities
2.7	Determine performance metrics	2.7	Determine performance metrics	2.7	Determine performance metrics
2.8	Establish baseline(s)	2.8	Establish baseline(s)	2.8	Establish baseline(s)
2.9	Establish energy performance improvement objectives and targets	2.9	Establish energy performance improvement objectives and targets	2.9	Establish energy performance improvement objectives and targets
2.10	Select energy opportunities	2.10	Select energy opportunities		
2.11	Prepare action plan(s)	2.11	Prepare action plan(s)	2.11	Prepare action plan(s)
3	**Implement Energy Management**	**3**	**Implement Energy Management**	**3**	**Implement Energy Management**
3.1	Ensure proper resources are allocated	3.1	Ensure proper resources are allocated		
3.2	Execute the action plan(s)	3.2	Execute the action plan(s)	3.2	Execute the action plan(s)
		3.3	Manage and control information	3.3	Manage and control information
3.4	Address training and communication needs	3.4	Address training and communication needs	3.4	Address training and communication needs
3.5	Establish operational controls	3.5	Establish operational controls	3.5	Establish operational controls
		3.6	Manage energy considerations in design	3.6	Manage energy considerations in design
		3.7	Incorporate energy considerations in procurement	3.7	Incorporate energy considerations in procurement
		3.8	Define specifications for purchasing energy supply		
4	**Measure and Check Results**	**4**	**Measure and Check Results**	**4**	**Measure and Check Results**
4.1	Measure, monitor, and analyze performance metrics	4.1	Measure, monitor and analyze performance metrics	4.1	Measure, monitor and analyze performance metrics
4.2	Respond to deviations in energy performance	4.2	Respond to deviations in energy performance		
		4.3	Evaluate compliance with legal and other requirements		
		4.4	Plan and conduct internal audits	4.4	Plan and conduct internal audits
		4.5	Correct and prevent nonconformities	4.5	Correct and prevent nonconformities
5	**Review for Continual Improvement**	**5**	**Review for Continual Improvement**	**5**	**Review for Continual Improvement**
5.1	Conduct management review of performance	5.1	Conduct management review of performance	5.1	Conduct management review of performance
5.2	Recognize success and communicate results	5.2	Recognize success and communicate results	5.2	Recognize success and communicate results
5.3	Take action to continually improve	5.3	Take action to continually improve		

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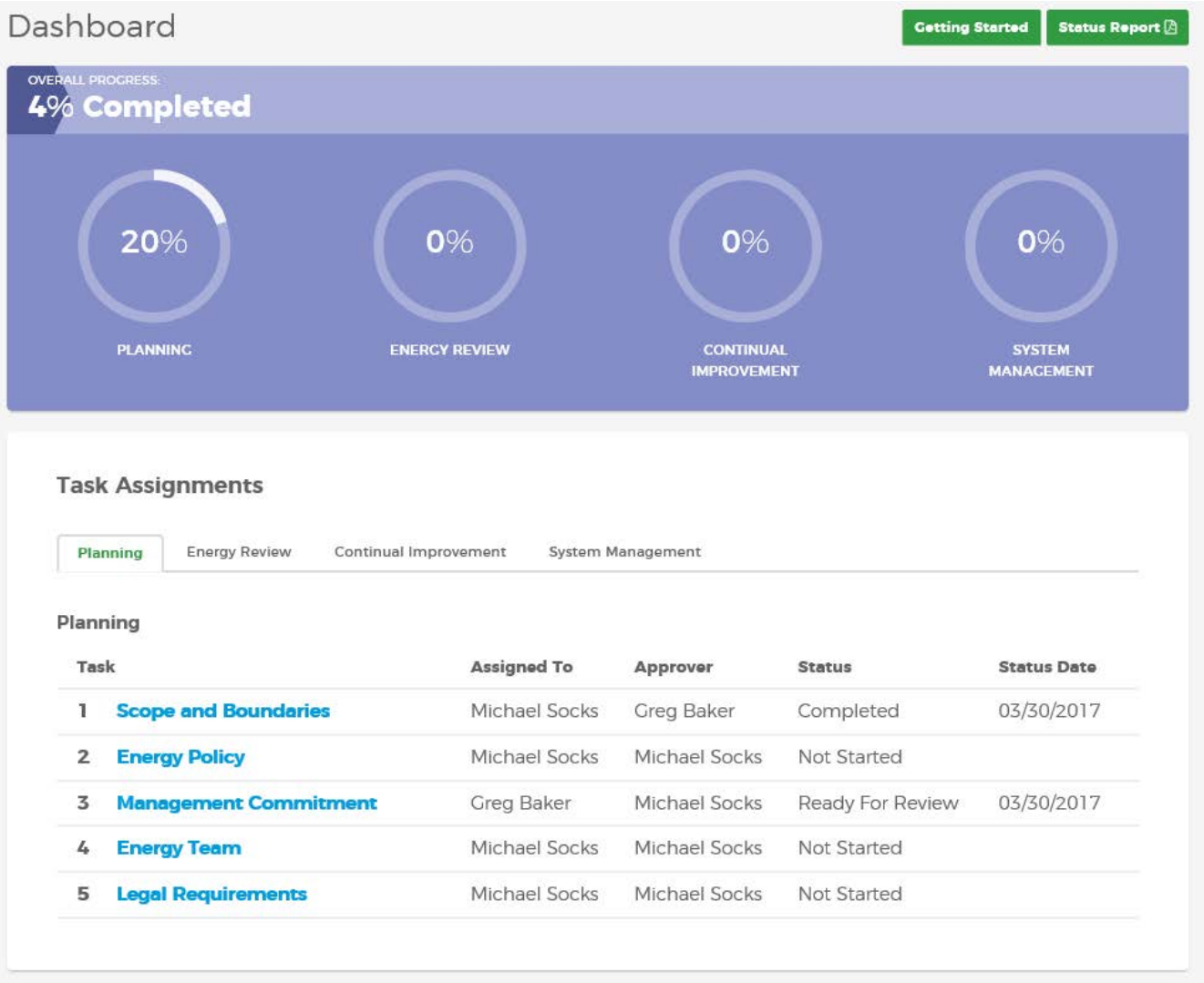
50001 Ready Navigator



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Thank you

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Efficiency Vermont

50001 Ready: Energy Management Assistance and Recognition

Resources and recognition to accelerate (EnMS) use in the U.S.

- Help organizations in ISO 50001 preparedness
- Free software tools and DOE recognition for being "50001 Ready"
- The next step in EERE's multi-year effort to spur energy management best practices
- **An Enabler that helps organizations lower energy costs, reinvest in research and personnel, progress towards their sustainability goals related to energy, improve their EPA Energy Star scores, achieve their Better Plants and Better Buildings energy goals, …**
- Recognition: Individual facilities / buildings will be recognized (if they wish) by the DOE as being "50001 Ready" after implementing an energy management system using the online 50001 Ready Navigator guidance resource

Energy.gov/50001ready

50001 Ready Recognition

Three Steps to Becoming 50001 Ready

STEP 1
Start Implementation of ISO 50001 principles

Use the 50001 Ready Navigator Online Tool

- ✓ The Navigator walks you through the process of implementing an energy management system and prepares you to be 50001 Ready

STEP 2
Analysis of energy reductions

Adopt Valid Tool to Present Energy Performance

- ✓ DOE offers the EnPI Lite calculator for 50001 Ready
- ✓ EPA's Portfolio Manager can also be used
- ✓ Other tools can be approved by DOE

STEP 3
File for 50001 Ready recognition

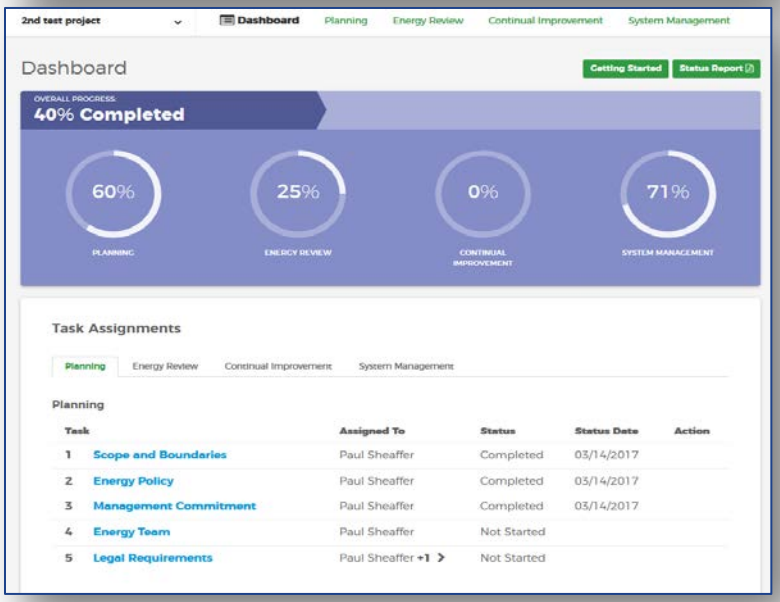
Submit information to DOE for Review

- ✓ Self-attestation of completion of Navigator, executed by team leader <u>and</u> executive
- ✓ Submit energy performance data

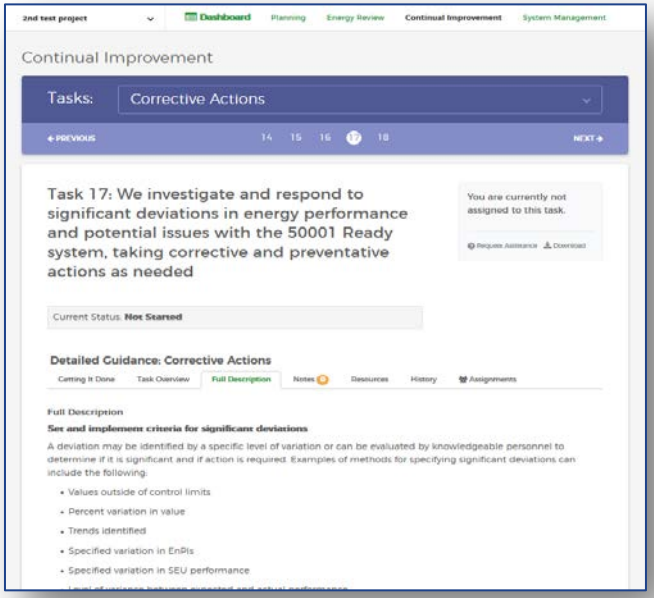
50001 Ready
U.S. DEPARTMENT OF ENERGY

DOE recognizes 50001 Ready achievement

50001 Ready Navigator

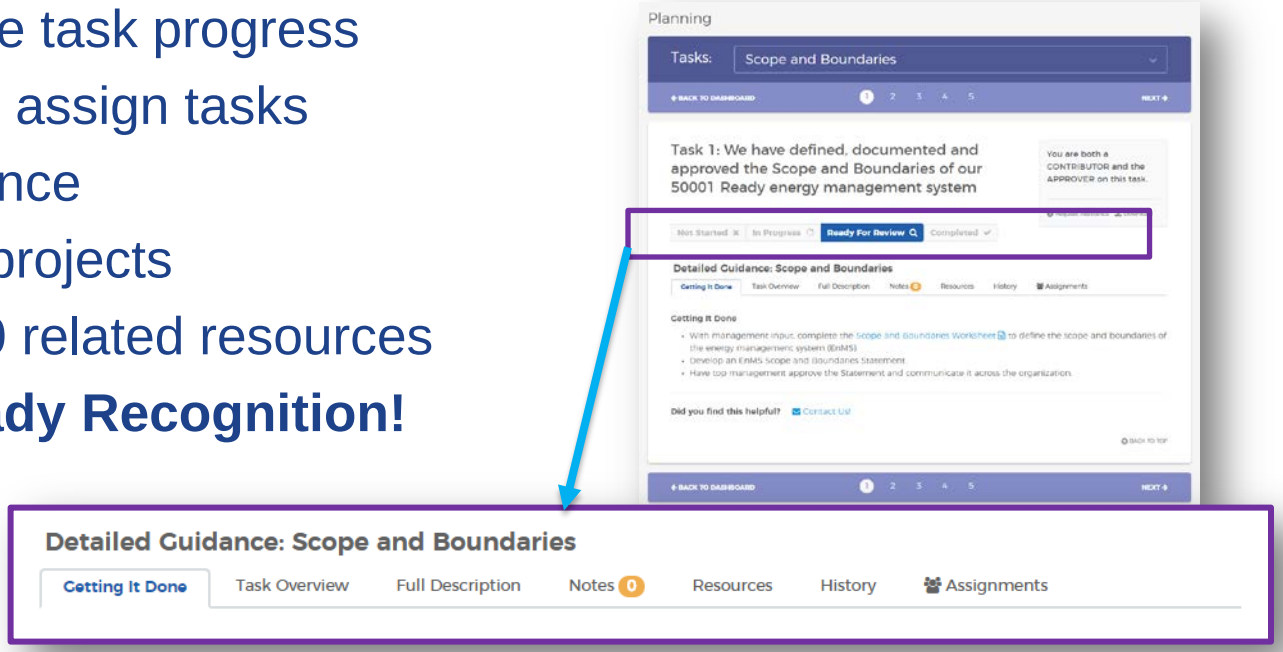


- ✓ Online tool, with simple, step-by-step approach to ISO 50001 implementation
- ✓ 25 tasks divided into 4 sections
- ✓ Ability to assign tasks to team members
- ✓ Extensive guidance available in each module



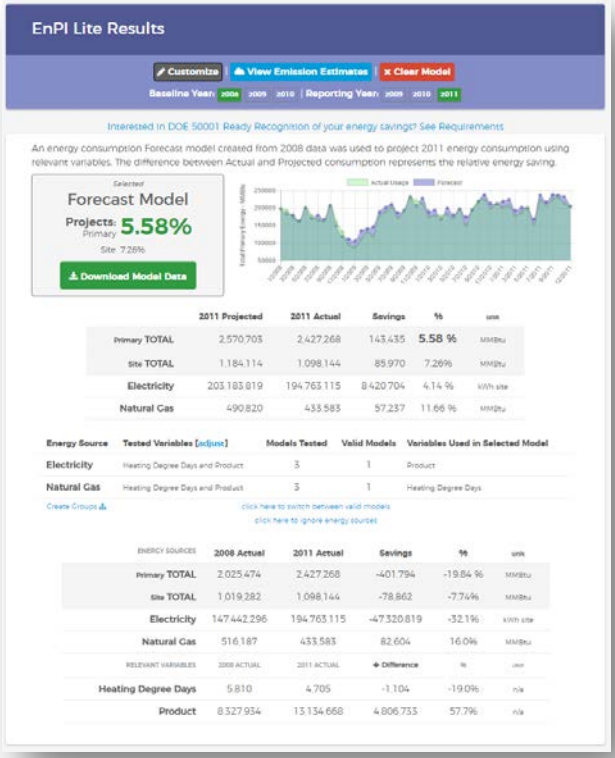
Navigator Highlights

- 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
  - 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!**



EnPI Lite

EnPI Lite is a web based calculator that estimates **energy savings** relative to relevant variables, like production levels and weather, using linear regression



EnPI Lite Steps:

1. Input Energy Consumption and Relevant Variable Data

   Input Options:

   - Energy Footprint Tool
   - ENERGY STAR Portfolio Manager

2. Regression Analysis (*automatic*)
3. Adjust Data / Models as needed
4. Download Results

Note: Provides the same fundamental analysis as the other DOE EnPI tools with similar options

What 50001 Ready Is… and Is Not

50001 Ready Is…

A promoter of consistent energy management principles and energy performance improvement

- Provides guidance based on the ISO 50001 standard used across the globe
- Consistent output across sectors, geography, service territories

A program that does not require formal certification

- Self-declared performance to ready a facility for ISO 50001/SEP certification

A set of resources available for rebranding/repurposing

- The program and its tools may be 'owned' by service companies, utilities, states, and other implementer organizations.

The provider of user-friendly tools to establish an energy management system

- Should not require 'certified' professionals to implement; but may leverage existing program support staff or CP EnMS professionals

50001 Ready Is Not…

A standalone DOE program

- 50001 Ready is designed to be branded & customized by the utility, state, etc.
- DOE willing to co-brand 50001 Ready recognition
- DOE is not 'claiming' savings

Designed to replace current Utility SEM programs or offerings

- 50001 Ready can be used to jump start into SEM or integrated into advanced SEM program
- Requires minimal effort to integrate with existing SEM programs

A certification program

- 50001 Ready builds infrastructure toward certification (if desired)
- Provides recognition for self-declared conformance to the principles of ISO 50001

50001 Ready Summary

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' TurboTax structure
- ❑Can support customers
- ❑Allows for internal and external experts
- ❑Consistent practice across facilities
- ❑Recognition by US Dept. of Energy

50001 Ready
U.S. DEPARTMENT OF ENERGY

Energy.gov/50001ready

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202-586-0984

Next Steps

50001 Ready
U.S. DEPARTMENT OF ENERGY

Here's how you can find out more about 50001 Ready at the Summit:

- ✓ Attend the ***Implementing Energy Management Systems*** session
- Follow up with your TAM
- Chat with the 50001 Ready experts at the **Ask-an-Expert Pavilion**
  - Prakash Rao, Lawrence Berkeley National Laboratory
  - Pete Langlois, DOE
- Visit the 50001 Ready website at **Energy.gov/50001ready**
  - Download info sheets and FAQs
  - Links to explore the Navigator and EnPI Lite tools

Thank You

Provide feedback on this session in the new Summit App!

Download the app to your mobile device or go to **bbsummit.pathable.com**