



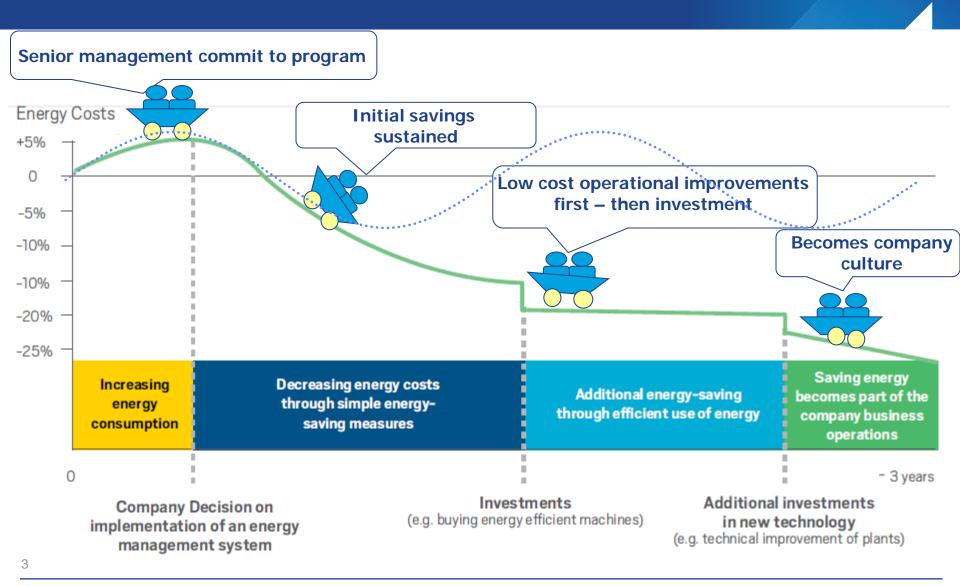
Ad hoc Approach to Energy Management







Structured Approach to Energy Management







Strategic Energy Management Continuum

SEP

Verified energy performance and ISO 50001

ISO 50001

Standard Energy Management System (EnMS) framework for global industrial operations

Foundational Energy
Management (e.g., ENERGY STAR
For Buildings & Plants)

- Verifies measured results internal credibility
- Rigorous third-party measurement and verification
- External stakeholder recognition of achievement
- Marginal effort beyond ISO 50001

- ISO standard for Energy Management Systems EnMS
- Similar framework to ISO 9001 and ISO 14001
- Certifiable EnMS, SEM program

- Transition from project to systematic approach
- Many utility SEM programs operate at this level





ISO 50001: ISO management system standard



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







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Better Buildings Summit

Strategic Energy Management









Company Overview



Hilton Worldwide is the largest hotel company in the world with 4,322 hotels and 715,000 rooms in 94 countries and territories



























- Founded in 1919
- \$10.5 billion in revenue (2014)
- 157,000 employees
- 44 million Hilton HHonors members
- 230,000 rooms in the pipeline over half under construction



Company Overview



Our Locations

Rooms: 581,000 Pipeline: 112,000 Under Construction: 42,000 Rooms: 67,000 Pipeline: 29,000 Under Construction: 15,000

> Rooms: 21,000 Pipeline: 25,000 Under Construction: 19,000

Rooms: 46,000 Pipeline: 64,000 Under Construction: 45,000

Corporate Responsibility - Issue Alignment







Creating Opportunities

Youth Opportunity

Learning &
Development

Diversity & Inclusion

Team Member

Wellness



Strengthening Communities

Local Economic
Impact
Community Hospitality
Disaster Support
Human Rights



Celebrating Cultures

Global Commerce
Welcoming Diversity
in Travel
Local Experiences



Living Sustainably

Energy - Carbon

Water

Waste - RePurpose

Supply Chain

Initial Sustainability Strategy: 2009 - 2013



In 2008, Hilton Worldwide announced aggressive goals to improve its global sustainability performance throughout the next 5 years:

- > Reduce energy consumption by 20%
- > Reduce CO2 emissions by 20%
- > Reduce waste output by 20%
- > Reduce water consumption by 10%

PERFORMANCE

- Measurement
- Corrective Action
- Enforcement

PARTNERSHIPS

- Support our goals and business
- Extend reach beyond our business
- Raise awareness

Hilton Worldwide was one of the first multi-brand hospitality company to include sustainability as a performance measure of our business

Initial Sustainability Strategy: 2009 - 2013



LightStay – Our Measurement Framework

- 4,300 Hotels reporting on sustainability measures
- Over 15,000 projects to improve performance

Enforcement – Brand Standards & QA

- Sustainability measurement and corrective action are global brand standards for all Brands
- Enforcement done through Quality Assurance at all of our hotels

ISO Certification - Our Validation

- ISO 9001 (quality) and 14001 (environment) certifications for all corporate offices and hotels globally
- One of the first in our industry and one of the largest volume certification of commercial buildings



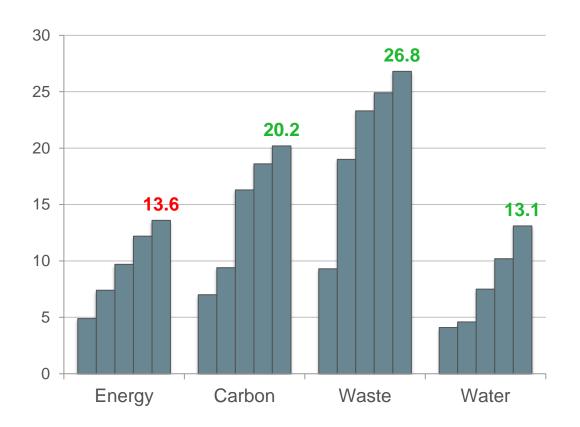




Initial Results

5-Year progress and results



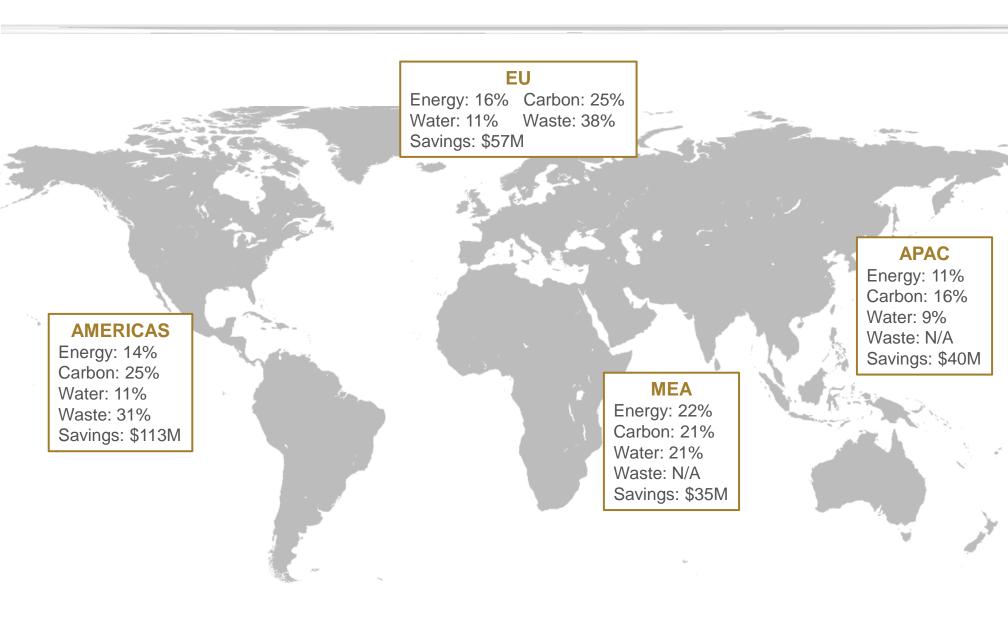


- We achieved our 20% carbon goal on the last year from a combination of energy efficiencies (15.2%) and the purchase of 417 million kWh renewable energy (2012 EPA Green Power Partner of the Year)
- The multi-year financial crisis had a strong impact on energy efficiency which requires more capital for improvements. No cost/low cost projects could only take us so far
- Energy and carbon were aggressive goals, based on a bold vision for Hilton Worldwide in a time when the economy was strong

\$388 Million in estimated cumulative cost savings

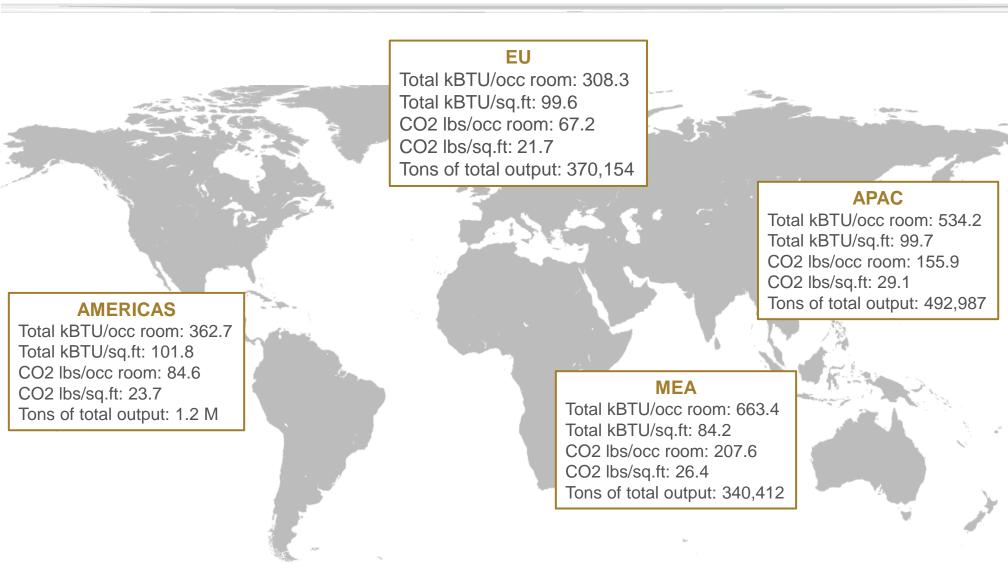
5-year Results by Region (Owned & Managed Hotels)





Footprint (Owned & Managed Hotels)





The most aggressive approach

Hotel Industry Goals Numbers



	HILTON	STARWOOD	MARRIOTT	WYNDHAM	IHG
ENERGY	2009 - 2013 20%	2009 - 2020 30%	2008 - 2020 20% *	None Reported	None Reported
	13.6% (YE 2013) 2009 - 2013	11.5% (YE 2012) 2009 - 2020	16.5% (YE 2012)	2011 - 2020	2013 - 2017
CARBON	20%	30%	None Reported	20%	12% **
	20.2% (YE 2013)	11.6% (YE 2012)		12.7% (YE 2013)	2.4% (YE 2013)
WATER	2009 - 2013 10%	2009 - 2020 20%	2008 - 2020 20% *	2011 - 2020 20%	2013 - 2017 12% **
	13.1% (YE 2013)	14.8% (YE 2012)	11.6% (YE 2012)	No progress reported	4.6% (YE 2013)
WASTE	2009 - 2013 20%	None Reported	None Reported	None Reported	None Reported
	26.8% (YE 2013)				

We are all doing similar things, with similar results, but no one has the same baseline, timeline or even methodology

Goals for 2014 and Beyond



Hotels have measured



They have taken corrective action



Next: set individual performance goals

In addition to setting multi-year enterprise wide goals, hotels will be required to set annual performance goals

Flexibility

- This allows hotels to set goals that are right for them
- It also allows a Brand, management company or ownership group to set a goal for a specific item they wish to tackle
- Continues to satisfy all RFP requirements

ISO & Hilton Worldwide: Increased Focus on Energy



In September 2014, Hilton achieved ISO 50001 certification for Energy Management and ISO 9001 and 14001 re-certifications for quality and environmental management

ISO 9001 - Quality management

This standard is based on a number of quality management principles including a strong customer focus, the motivation and implication of top management, the process approach and continual improvement. ISO 9001 helps ensure that customers get consistent, good quality products and services, which in turn brings many business benefits.

ISO 14001 - Environmental management

This standard ensures environmental impact is being measured and improved. The benefits can include reduced cost of waste management, savings in consumption of energy and materials, lower operating costs, and improved corporate image among regulators, customers and the public.

ISO 50001 – Energy management

ISO 50001 helps organizations save money as well as helping to conserve resources and tackle climate change. ISO 50001 supports organizations in all sectors to use energy more efficiently, through the development of an energy management system (EnMS).

Benefits of adding ISO 50001



Leverage our 9001 and 14001 certifications, and add ISO 50001 to our 2014 recertification and benefit from time, effort and cost efficiencies.

Benefits:

- Industry leadership: After being one of the first in industry to achieve ISO 9001 and 14001 certifications at a global scale for all our hotels and offices, achieving ISO 50001 solidifies our leadership position
- Increase LightStay value proposition: ISO 50001 further expands LightStay as a continuous improvement system for energy management.
- **Performance**: Results from ISO 50001 organizations show incremental performance improvement beyond even mature energy programs (deeper energy cost reduction)
- **Risk management**: These standards also act as an enhancement to risk management and due diligence programs in Energy area
- Staying ahead of legislation: Growing interest by utility companies in ISO 50001 as a way to sustain energy performance improvements which could eventually result in incentives and rebates. Energy was at the forefront of Obama's Climate Action Plan.

Benefits of "Going Through the Process"



Benefits:

- Having a documented Energy Management System is key to sustained improvement
 - Management system structure ensures sustainability of improvements
 - Effective management oversight is ensured
- Having third party oversight assures sustainability
 - Verification by a recognized protocol
 - Independent assurance statement (DEKRA)
- Looking at energy from a system perspective versus project level brings a different eye/approach
- Shifting from budget line item to a deeper analysis of energy use
- Integrating energy management into the management processes as required by ISO standards
 - Management review
 - Performance measurement
 - Individual performance metrics

Energy Management Systems – ISO 50001

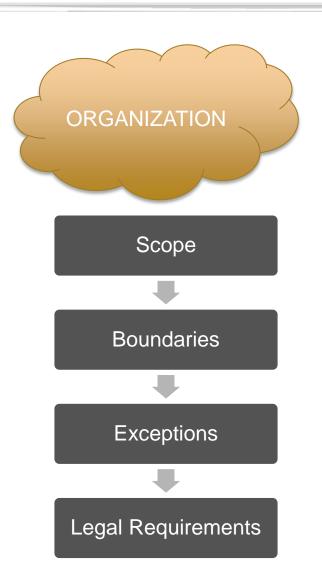


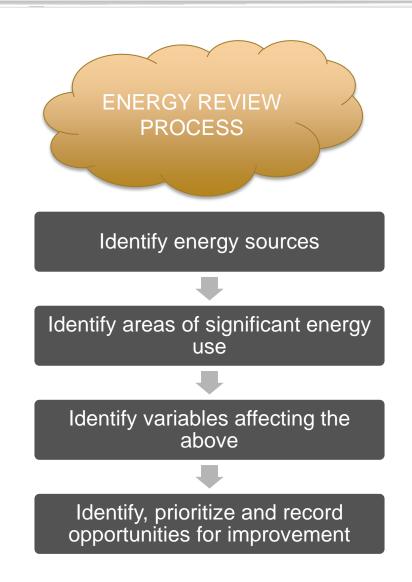
Keys to Implementation

- Understand Energy Sources, Uses, Consumption: start with significant energy users
 - Essential to be identified and managed— even if not the source of initial improvements
- Move on to other uses, consumption more opportunities for improvement
- Create action plans for improvements
- Leverage Existing Management System Processes
 - Integrate or Copy ISO 9001/14001 foundation processes
 - Internal Auditing, Management Review, Document Control, Records Management, etc.
- Focus on energy planning: how will I manage my energy performance?
 - Objectives, Targets and Action Plans Improvements
 - EnPl's, Measurement Plan Sustained performance
 - Management Review Reinforce Improvement

Define Energy Review Processes







Data Capture, Baseline and Deviations



Requirements

- 1. Hotels must establish, maintain and record an energy baseline
- 2. Hotels must investigate and respond to significant deviations in energy performance
- 3. Hotels must record these activities

Impact to LightStay

- 1. Establishing a normalized baseline with 2013 consumption data
- 2. Defining a significant deviation and how to flag them
- 3. Defining response mechanism from hotels to these deviations
- 4. Defining additional needs for data captures to meet the above

Energy Review



Significant Energy Users And Relevant Variables

The significant energy users at hotels:

- HVAC system
- Lighting
- Water heating

The main variables affecting these significant energy users are:

- Weather
- Occupancy
- Meeting room occupancy and food covers in some cases are also variables affecting the significant energy users

Determine Energy Performance And Future Use

Energy performance and future energy are estimated on a monthly basis through a linear regression model as defined by Superior Energy Performance's measurement and verification protocols for industry

Maintaining our certification

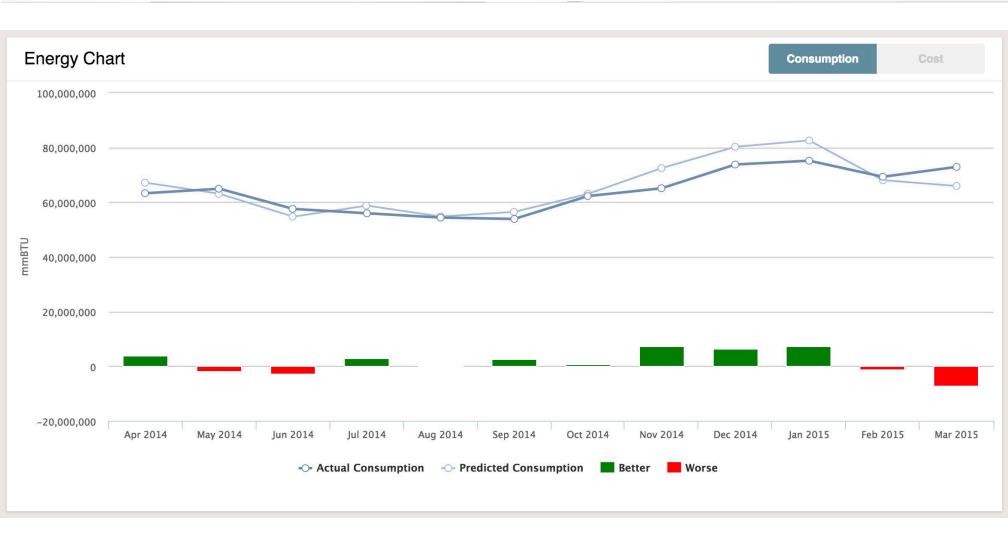


Annual surveillance audits

- Every year, hotels are randomly selected for an ISO audit. Hotel audits include review of overall operations, communications, utilization of technology, recycling, security, facilities, housekeeping, F&B, front desk/guest relations, hiring and training, hazardous waste and chemical storage/handling/disposal, purchasing, maintenance, improvement and corrective action processes, LightStay...
- Corporate offices are also audited every year. These audits include review of QA systems, LightStay, internal audits, legal compliance, costumer focus processes, improvement processes, internal policies, communications, management involvement, HR, supply management, etc...
- Reports highlighting strengths, opportunities, findings and requests are generated for every audit (hotel and corporate)
- Corrective action plans are required for every finding

Energy Review







































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Energy Performance

Goal

5-8%

Reduction in Energy Intensity by 2016 Commitment

91

Million Square Feet

Showcase Project

Hilton Columbus Downtown
Columbus, OH





Schneider Electric Enterprise Energy Management System

May 2015 Wade Willatt Facilities Manager



The global specialist in energy management

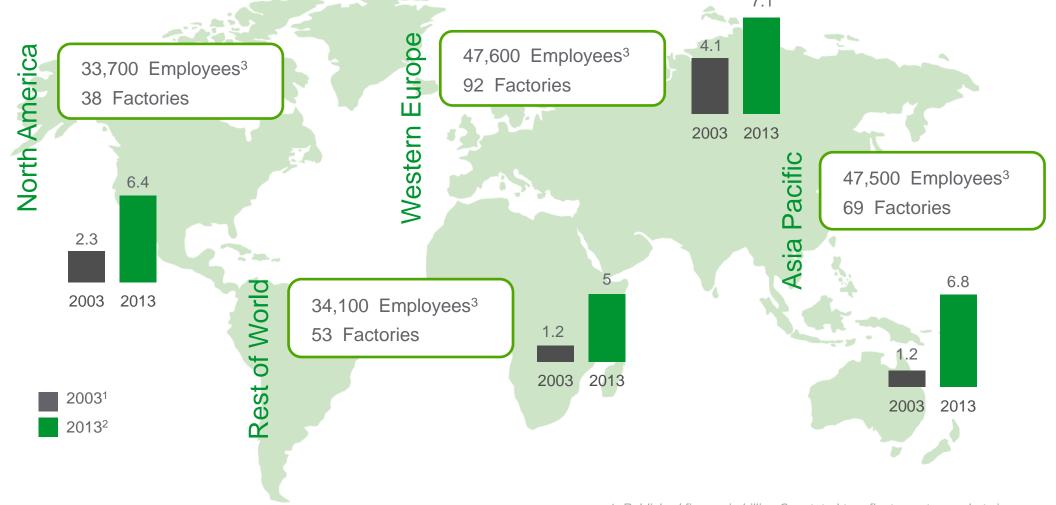
- > €24 billion sales (last 12 months)
- > 140 000+ employees in 100+ countries
- > Brands such as Square D, APC, and Pelco
- > Recently acquired Invensys
- > Le Hive was first ever ISO 50001 certified



A large company, with a balanced geographical footprint and a commitment to sustainability

Confidential Property of Schneider Electric

Creating a global enterprise, close to our customers



^{1:} Published figures in billion € restated to reflect country-market view

^{2:} Billion € pro forma basis including LTM Sept. 2013 revenue for Invensys

^{3:} Including Invensys, excluding DelixiTM and FujiTM

Schneider Energy Action

ISO 50001 Builds on Existing Energy Program

Have reduce normalized energy consumption by 40% over last 10 years

Normalized Model for Each Site

- Model Year over Year performance
- Account for changes in weather using Telvent
- Account for changes in production and production mix

Standard Utility Bill Database

- Resource Advisor houses all utility bills
- Easily accessible during audits

Verify Results with Enterprise Wide Action Plan

Confidential Property of Schneider Electric 4

SE ISO 50001 Certified Sites

>100 total for Schneider Electric

>11 for Schneider Electric North America

- > Smyrna, TN SEP Platinum
- > Seneca, SC SEP Platinum
- > Lincoln, NE SEP Silver
- > Tlaxcala, MX
- > Lexington, KY SEP Silver
- > Cedar Rapids, IA SEP Gold
- > Peru, IN SEP Gold
- > Columbia, SC SEP Gold
- > Rojo Gomez, MX SEP Silver
- > Victoria, BC SEP Platinum
- > Clovis, CA SEP Platinum

ISO 50001 Implementations

6 Months from Start to Certification Audit

- Workforce Requirements
 - Internal Consulting Team
 - Provide expertise in modeling
 - > 5 CP-EnMS's
 - > 1 SEP Performance Verifier
 - Plant Resources
 - Drive new procedures
 - Host external auditors and performance verifiers
 - Implementation Costs
 - First Site was twice the cost of each of the next 10
 - Future Sites will be reduced by a further 50%

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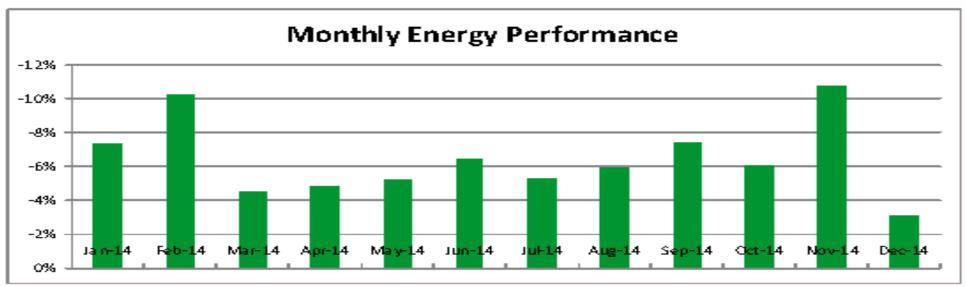
Energy Performance Indicators

2014 SENA Energy Model for North America – 56 Sites



Monthly Energy Performance						
Jan-14	Feb-14	Mar-14	Apr-14	May -14	Jun-14	
-7 %	-10%	-5 %	-5%	-5 %	-6%	

Jul-14	Aug-14	Sep-14	Oct-14	No v-14	Dec-14
-5 %	-6%	-7 %	-6%	-11%	-3%



Transition to Enterprise EnMS

Target Date(s)	Event/Task	Personnel Involved	Sites Involved
01 January 2015	Appoint Energy Management Designee	Plant Management	Group B
01 January 2015	Purchase Copy of ISO 50001 and MSE 50021	Energy Designee	Group B
01 February 2015	Communicate Energy Policy	All	Groups A and B
15 February 2015	Adopt New Procedures	Energy Designee	Groups A and B
31 March 2015	Complete Energy Review	ESS; Energy Designee	Group B
31 March 2015	Conduct Energy Basics Training	All	Groups A and B
17 April 2015	Conduct Internal Audits and Management Review	ESS; Energy Designee	Group A
15 May 2015	Conduct Internal Audits and Management Review	ESS; Energy Designee	Group B
15 May 2015	Complete Central Office Audit	Energy Team; Enterprise Team	Smyrna
31 May 2015	Complete Surveillance Audits	ESS; Energy Team	Group A
31 July 2015	Complete Certification Audits	ESS; Energy Team	Group B

Group A - Sites already ISO 50001 certified Group B - Sites without ISO 50001 certification

Transition to Enterprise EnMS

		ISO/OHSAS Elements		Related Document(s)			
ISO/OSHA Elements	9001	14001	18001	50001 SEP MSE-50021	SERE NA	Local Procedur e(s), Attachme nt(s), and Form(s)	External Document (s)
General Requirements (Scope)		4.1	4.1	4.1	SE705	Torrito	
•Policy		4.2	4.2	4,3	SE100		
Resources, Roles, Responsibility, and Authority		4.3.1	4.3.1	4.2	SE150		
Legal and Other Requirements		4.3.2	4.3.2	4.4.2	SE130		
SENA S&E Reporting Requirements		4.3.2, 4.6	4.3.2, 4.6		SE105		
●Energy Planning				4.4.3, 4.4.4, 4.4.5, 4.5.1	SE720		
Objectives, Targets, and Programs		4.3.3	4.3.3	4.4.6	SE140		
Competence, Training, and Awareness		4.4.1	4.4.1	4.5.2	SE160		
Contractor Requirements		4.4.1	4.4.1	4.5.2	SE165		
Communication		4.4.3	4.4.3	4.5.3	SE170		
Documentation		4.4.4	4.4.4	4.5.4.1	SE180		
Control of Documents		4.4.5	4.4.5	4.5.4.2	SE180		
Operational Control		4.4.6	4.4.6	4.5.5	SE400		
 Emergency Preparedness & Response 		4.4.7	4.4.7	4.5.5	SE200		
 Design of New/Modified Equipment and Processes 				4.5.6	SE120		
 Energy Related Procurement 				4.5.7	SE730		
Monitoring, Measurement, and Analysis		4.5.1	4.5.1	4.6.1	SE185		
●Evaluation of Compliance		4.5.2	4.5.2	4.6.2	SE360		
Nonconformance/Corrective & Preventative Action		4.5.3	4.5.3	4.6.4	SE195		
Control of Records		4.5.4	4.5.4	4.6.5	SE230		
●Internal Audit		4.5.5	4.5.5	4.6.3	SE315		
Management Review		4.6	4.6	4.7.1, 4.7.2, 4.7.3	SE340		

Energy Policy

Make the Most of Your Energy



Schneider Electric is committed to continuous improvement in the efficiency with which energy is used and the avoidance of energy waste.

Our objective is to reduce our total energy consumption each year after normalizing for significant changes in levels of activity, weather, and other relevant factors.

We are committed to conserving natural resources so future generations can prosper

We set annual objectives and targets for energy performance improvement to drive continual improvement. Schneider Electric is committed to providing the necessary resources and information in order to achieve our objectives and targets.

We want to limit our risks related to energy

We will comply with all legal requirements related to our energy use, consumption, and efficiency. In addition, we will meet all other requirements that we choose to pledge to including ISO 50001 and Superior Energy Performance.

We want to be an example for our customers through Schneider Energy Action

Schneider Energy Action provides a platform for sharing best practices enabling improved process design for energy efficiency and the purchase of energy-efficient product and services.





Energy Reduction Programs

- Better Buildings Better Plants Challenge (25% reduction over 10 years)
 - On Pace to exceed target
 - 20.8% reduction from 2009 through 2014 for US Plants
- Company Program
 - Exceeded Target with 14% (10% target from 2011-2014)
 - Target is another 10% from 2014-2017

Recent Superior Energy Performance Results

- > Smyrna
 - > Platinum with 23.1% from 2011-2014
- > West Kingston
 - > Platinum with 20.3% from 2011-2014
- > Costa Mesa
 - > Platinum with 16.8% from 2011-2014
- > Columbia, MO
 - > Gold with 13.3% from 2013-2014
- > Monterrey Plant 2
 - > Gold with 12.1% from 2011-2014
- > Pacifico
 - > Gold with 10.2% from 2011-2014
- > Monterrey Plant 3
 - > Silver with 7.7% from 2012-2014

- > Not qualified at this time
 - > Tlaxcala
 - > McLaughlin
 - > Portland
 - > Oxford

Superior Energy Performance Interim Results

- > Seneca, SC 17.8% from 2012 to 2014
- > Columbia, SC 6.9% 2013 to 2014
- > Lexington, KY 6.7% from 2013 to 2014
- > Cedar Rapids, IA 3.6% from 2013 to 2014
- > Lincoln, NE 1.8% Increase from 2012 to 2014
 - > Have increased cooling capability causing increased consumption
- > Clovis, Victoria, and Rojo Gomez do not yet have data for next period

Future Improvements

> Continue Integration with Safety and Environmental

- > Create integrated internal audit checklists
- > Utilize same certification body and audit at same time

> Add Invensys sites

- > Invensys is implementing ISO 14001 and OHSAS 18001
- > Invensys has recently joined SEA, but should be a focus for additions to the certified EnMS in 2016

> Increase Engagement of Smaller Sites

> Continue to add sites to the certified EnMS as it drives commitment to improvement

Make the most of your energy[™]



Strategic Energy Management

Mark Dhennin

May 28, 2015



Cummins, Inc.

2014 Revenue: \$19.2 billion

55,000 employees, 190+ countries & territories



Engines



Power Generation



Components



Distribution

Cummins Environmental Sustainability Plan





Materials & Fuel Efficiency

Innovative design for efficient use of fuel and raw materials



Facilities / Operations

Reduce energy, water, and waste footprint



Transportation

Use most efficient method and mode to move goods across Cummins network



Products In-Use

Partner with customers to improve fuel efficiency of our products in use





Reduce energy use and greenhouse gas emissions by 25% and 27%, respectively, by 2015 against a 2005 baseline



2

Reduce direct water use by 33% and achieve water neutrality at 15 sites by 2020



3

Increase recycling rate from 88% to 95% and achieve zero disposal at 30 sites by 2020

EMPLOYEE AND COMMUNITY ENGAGEMENT AND COMMUNICATE ACTIONS

2014 footprint – global operations



903,000,000 kWh electricity

12,600,000 gallons diesel fuel

1,600,000,000 cubic feet natural gas \$150 million total energy spend

98% GHGs associated with energy use

789,000 metric tons CO₂e emissions

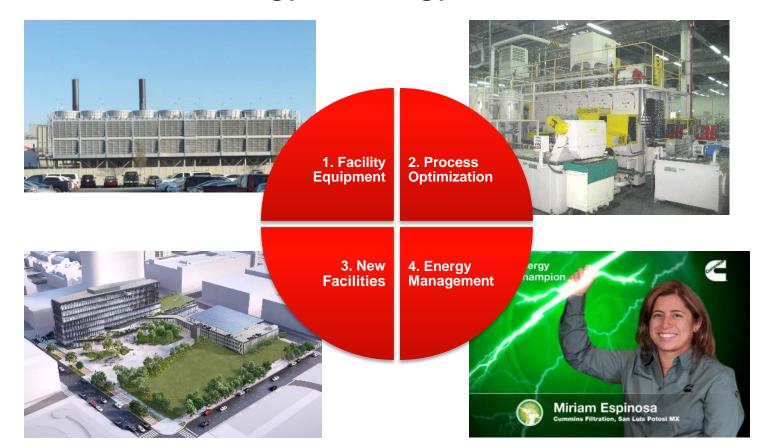
34% energy intensity reduction since 2005

268,000 metric tons CO₂e emissions avoided

56,000 equivalent number of cars removed from road

Cummins Energy Strategy

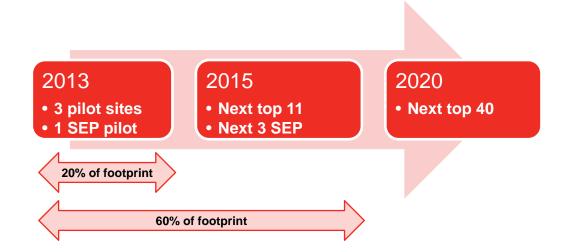




Cummins ISO 50001 plan



- Pilot ISO 50001 & Superior Energy Performance
- Develop corporate program
- Ramp up implementation, priority sites first







Enterprise approach to ISO 50001



- Enterprise vs. individual site certification
- Integrate into existing Cummins HSEMS* Enterprise
- Corporate policies & procedures
- Centrally managed; global program manager
- Common tools, templates & best practices → toolkit

*HSEMS = Health, Safety & Environmental Management System (14001 & 18001)

ISO 50001 & SEP Implementation Costs



Metric	US DOE Pilot Avg.	Cummins Pilot
Annual energy bill	\$9.8M	\$5.0M
Staff time cost	\$224K	\$140K*
3 rd party audit cost	\$18K	\$20K
External tech assistance cost	\$47K	\$0K*
Monitoring & metering equipment	\$36K	\$100K
Annual cost savings (\$)	\$810K	\$606K
Annual cost savings (%)	8%	12%
Simple payback	1.5 yrs	0.5 yrs

*Building on existing HSEMS

Implementation toolkit – DOE eGuide



eGuide



FOUNDATIONAL ENERGY

ISO 50001 ENERGY

SEP™ ENERGY

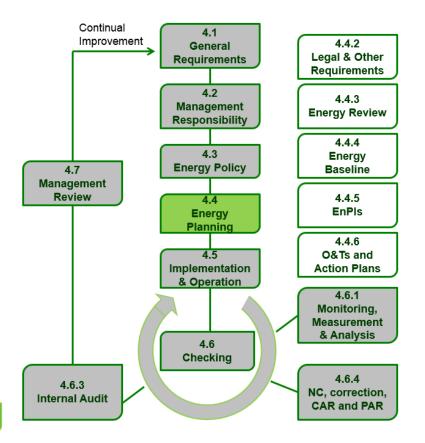
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RESOURCES



Implementation toolkit – Cummins





Implementation toolkit – Cummins



4.4.5 EnPls Procedures / Tools / Templates

- CORP 08-04-03-02: Energy Review
- Corporate Energy Review Tool:
- Pilot Sites EnPIs:
- DOE Checklist of potential EnPIs:
- DOE Checklist of Other Factors Affecting EnPls:



Analysis of Requirements

What compares with ISO 14001?

Implementation Steps

Procedures Tools Templates

Back to Main Menu

Corporate Energy Review tool





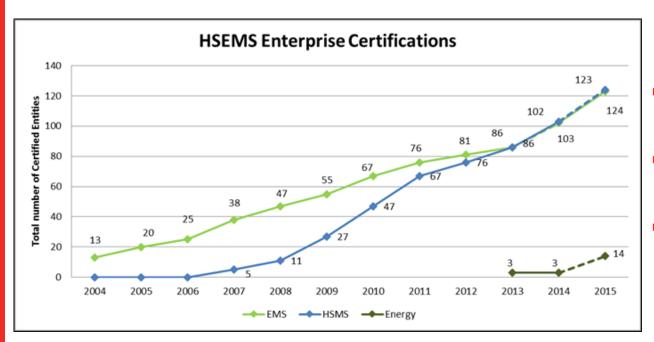
CORPORATE ENERGY REVIEW TOOL



An Energy Review shall be conducted to analyze the Site's er (SEUs) and opportunities to improve the energy performance. Site's Energy Review. Additional explanations and examples a [Note: Please save this tool to your local folder before using the same properties of the same plants are the same plants.	This tool uses a Step by Step appr are available in the "Energy Plannin	oach to help you conducting your
Step 1: Energy Sources Identification	STEP 1	
Step 2 & 3: Energy Users and Important Energy Users Identification	STEPS 2&3	
Step 4: Energy Users' Consumption	STEP 4	Energy Usage Estimating Tool
Step 5: Energy Users' Significance	STEP 5	Unit Conversion
Step 6: Relevant Variables	STEP 6	Calculator
Step 7: Significant Energy Users	STEP 7	Pivot Data
Step 8: Future Energy Use and Consumption	STEP 8	
Step 9: Opportunities for Energy Performance Improvement	STEP 9	
Step 10: Energy Baseline	STEP - 10	

Enterprise auditing





- Enterprise audit sampling
- Over \$5M in audit savings to date
- Internal audit program





Challenge	Solution
Management support	Multi-year energy/GHG plan; leadership scorecard
Site bandwidth	Team approach; common tools & templates; global program manager
Energy technical support	BU energy managers (CP EnMS)
Energy data	Sub-metering included in plan; central capital fund



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