

SESSION H3: STRATEGIC ENERGY MANAGEMENT

COSTS AND BENEFITS OF ENTERPRISE-WIDE IMPLEMENTATION OF SUPERIOR ENERGY PERFORMANCE AT SCHNEIDER ELECTRIC

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SCHNEIDER ELECTRIC'S DRIVERS FOR JOINING SEP

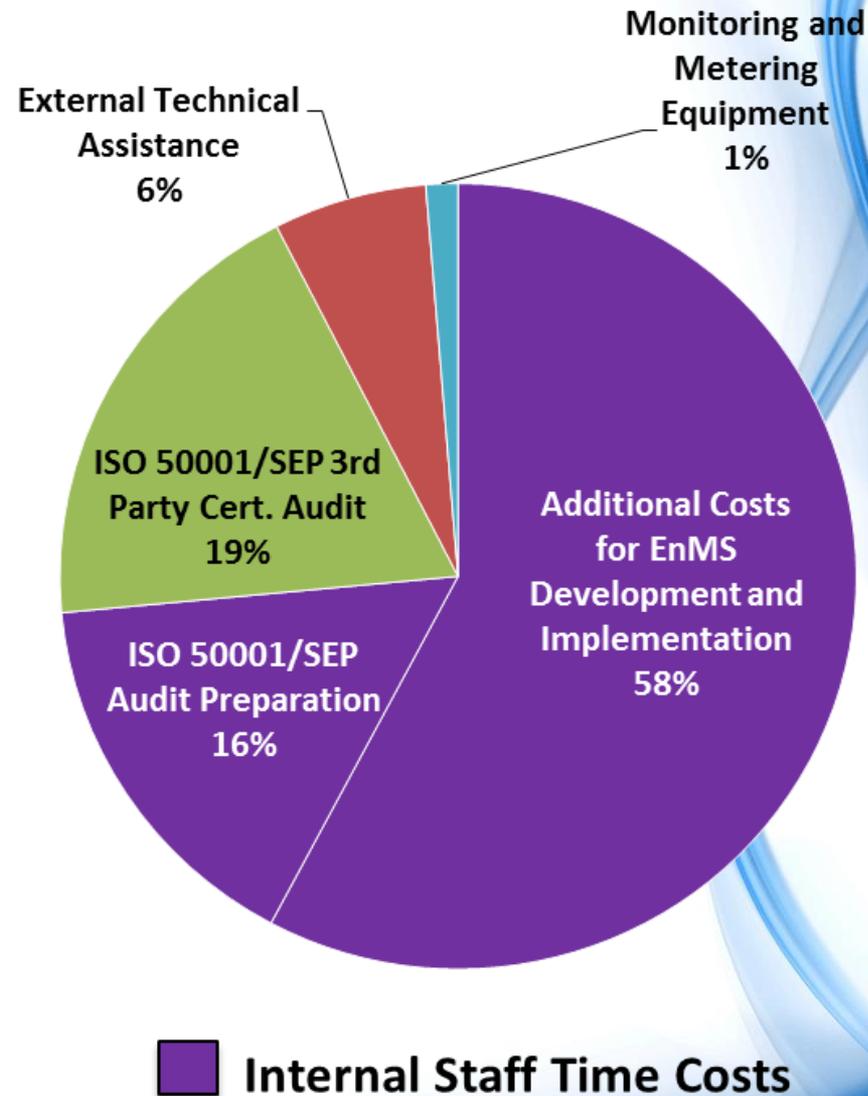
- Energy Management System structure to help drive and sustain savings
- Reward system to motivate and reward sites that perform well
- Positive exposure for the company, important in our role as The Global Specialist in Energy Management
- Verification of the value of the energy program and its effects to the organization

OUR CORPORATE GOALS AND ALIGNMENT WITH ENTERPRISE SEP

- Schneider Electric has a goal as a part of our company program to reduce energy consumption by 10% in its largest sites worldwide
- Enterprise SEP is a major driver of this reduction in North America
 - Standardizes our approach to EnMS implementation
 - Allows us to easily identify and share best practices of our significant energy users.
 - Aligns with our current efforts to aggregate, communicate, and share results internally
 - Targeting 20 certified sites by the end of 2015

AVERAGE SEP IMPLEMENTATION COST BREAKDOWN PER PLANT

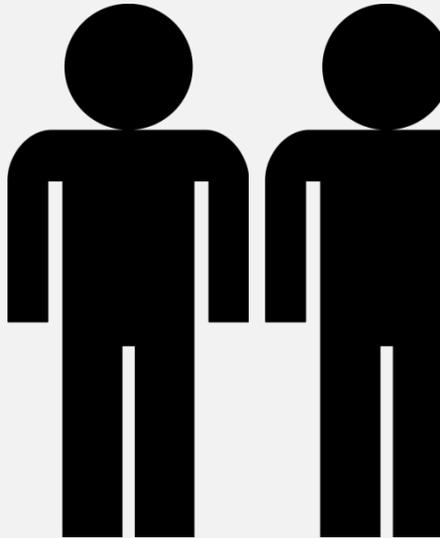
- 8 SEP certified facilities
- Technical Assistance was only needed for the initial SEP implementation at Smyrna, TN. Schneider used this initial training to develop in-house expertise.
- Corporate energy team trained staff and implemented SEP at the remaining facilities.



INTERNAL STAFF TIME FOR ENERGY MANAGEMENT AND SEP AT SCHNEIDER ELECTRIC

Staff required to develop and implement EnMS and prepare for ISO 50001 and SEP audits

1.75 Person Year Equivalents per plant on average



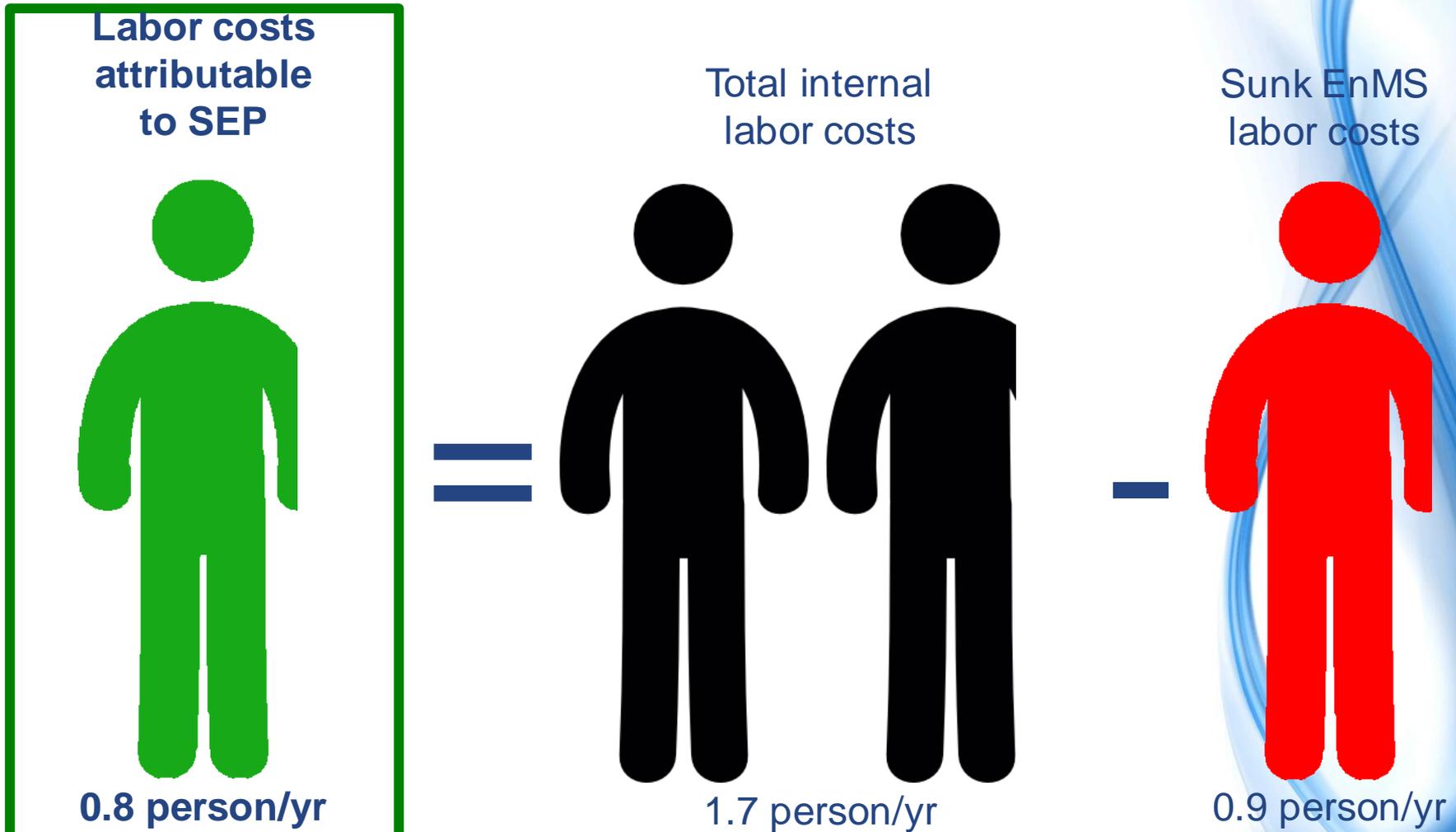
Staff involved in energy management *prior* to SEP (Business As Usual)

1.18 Person Year Equivalents per plant on average



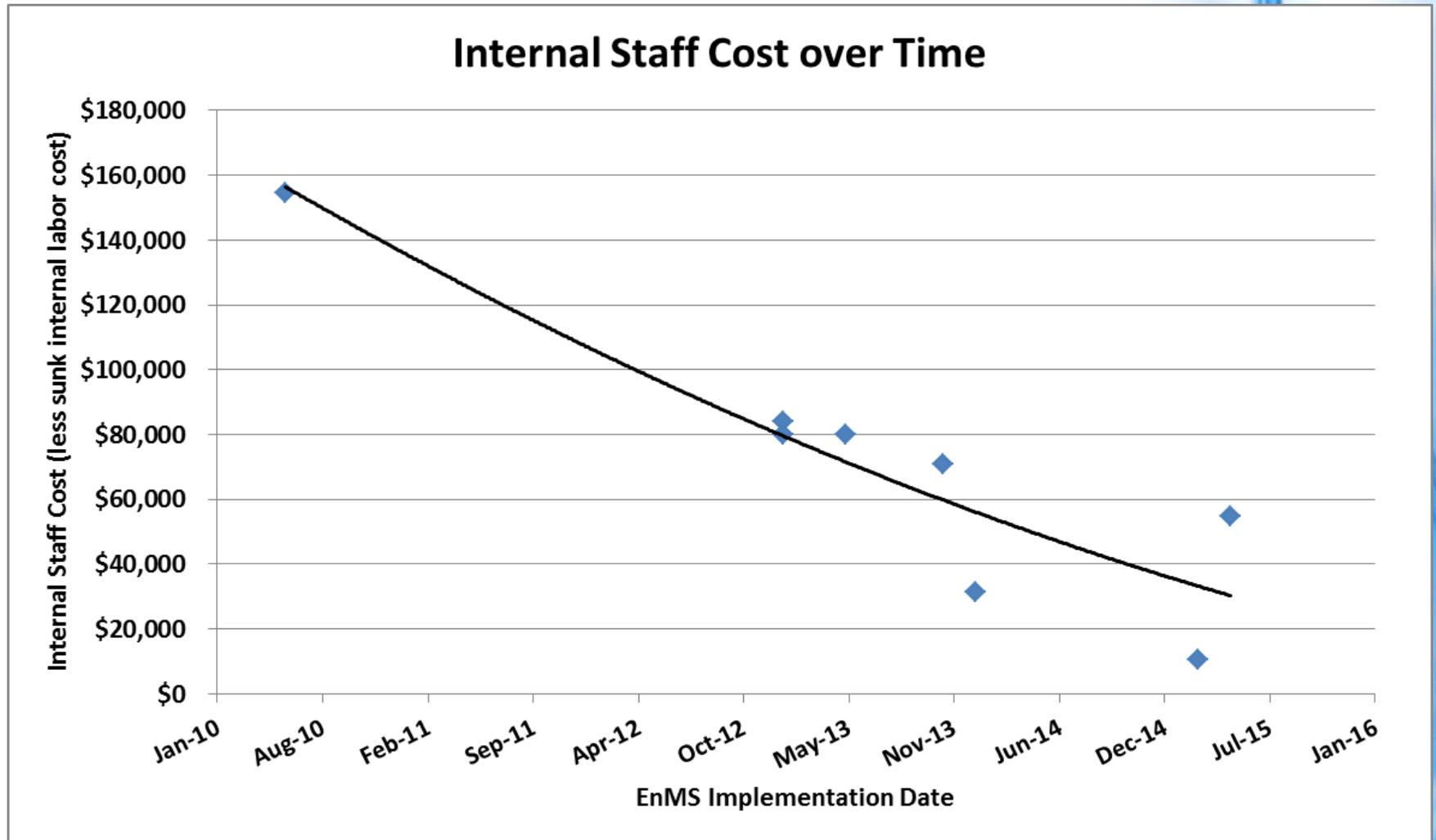
0.57 Person Year Equivalents of *additional* effort to meet the requirements of SEP

INTERNAL STAFF TIME FOR SAMPLING OF 13 SEP CERTIFIED FACILITIES – 2015 ACEEE PAPER



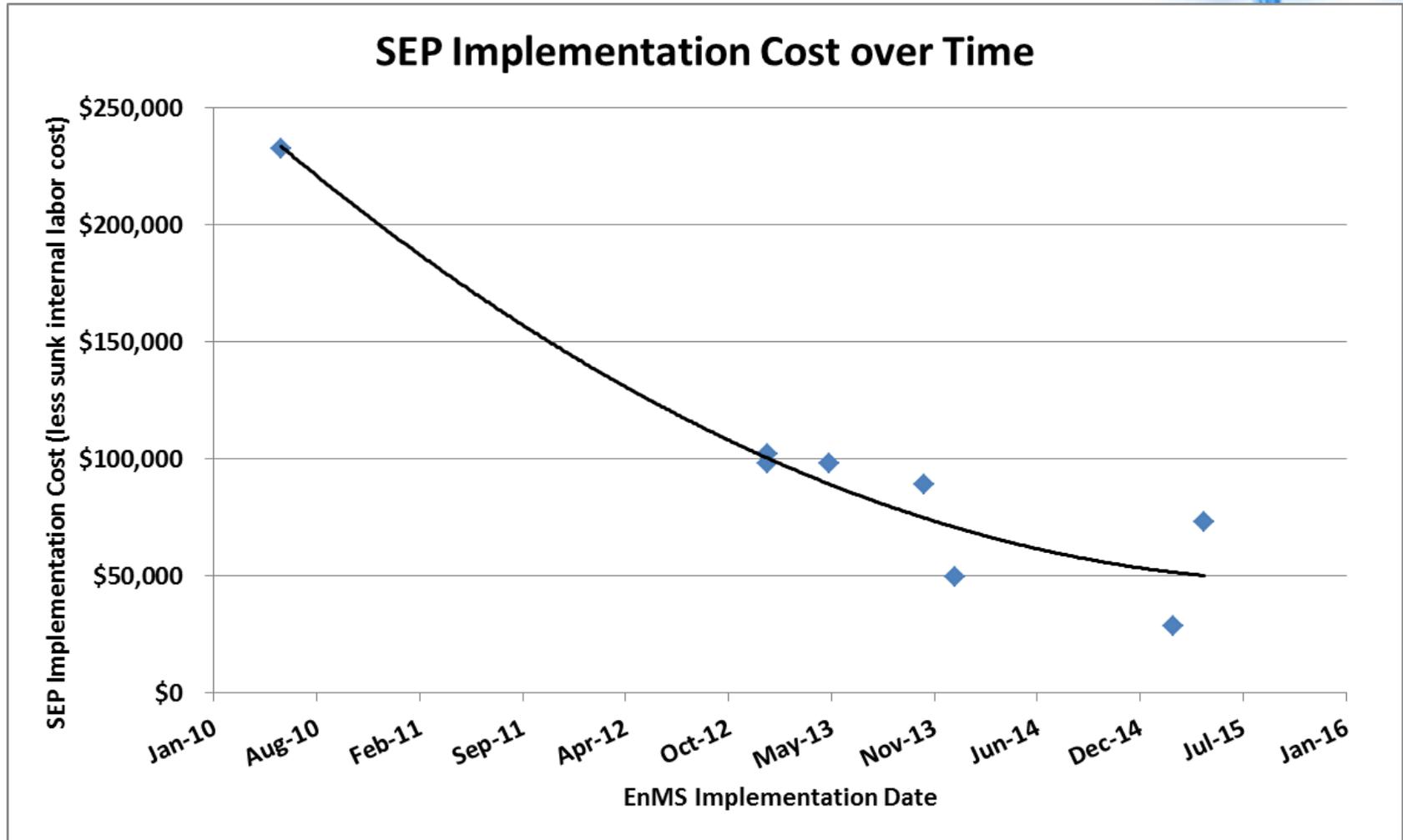
Therkelsen, Peter, Aimee McKane, Ridah Sabouni, Yannick Tamm, Prakash Rao, and Paul Scheihing 2015. Development of an Enhanced Payback Function for the Superior Energy Performance Program. In *2015 ACEEE Summer Study on Energy Efficiency in Industry* Niagara Falls, NY.

INTERNAL STAFF TIME COST FOR 8 FACILITIES



SEP IMPLEMENTATION COST FOR 8 FACILITIES

- Cost reductions are primarily driven by reducing internal labor costs



REASONS FOR COST DECREASES

- The enterprise program aligns with our efforts to integrate other standards (ISO 14001, OHSAS 18001) into a common set of enterprise procedures
 - Reduces time for writing procedures
 - Provides a framework that's been used in several other facilities, increasing the knowledge base for support and decreasing time to create new solutions
 - Drives us towards common tools and processes across the enterprise, reducing licensing costs and startup time
 - Allows use to use expertise in other disciplines to improve our energy programs
 - Reuses procedures common among the standards (Document Control, Control of Records, Legal and Other Requirements, etc)

SEP AND ISO 50001 IMPLEMENTATIONS

HOW WE DO IT

- **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%

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

QUALITATIVE BENEFITS

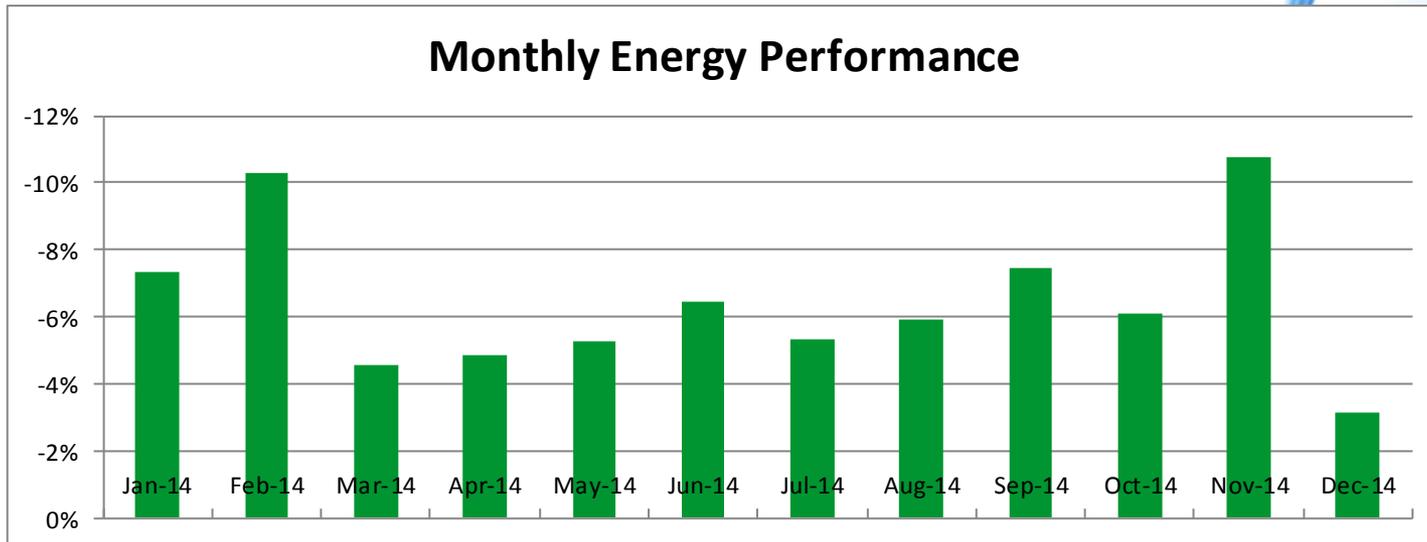
- Improved our record keeping and process standardization
- Helped get the whole site structure involved
- Provides a framework for sustaining the program and ensuring that we don't backslide on savings
- Took our M&V practices to a higher level
- Allowed us to focus on execution and implementation of the processes rather than procedure writing
- Allowed us to realize savings with facilities that are not in the SEP program through sharing of best practices.
 - Used DOE programs to double the efficiency of our paint ovens (typical significant energy use)
 - Using our M and V protocol to extend LED lighting savings from one facility to another reducing the lead time of implementation.

ENERGY PERFORMANCE INDICATORS

Year to Date Energy Performance					
-7%	Combined	-6%	Electric	-7%	Natural Gas

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	Nov-14	Dec-14
-5%	-6%	-7%	-6%	-11%	-3%



Negative is a reduction in Energy Consumption

QUESTIONS?