

# ISO 50001/SEP

## Superior Energy Performance at Schneider Electric



**Energy**  
Operation

**Schneider**  
 **Electric**

# Schneider Electric – the global specialist in energy management

**22.4**

billion € sales  
(last twelve months)

**39%**

of sales in new economies  
(last twelve months)

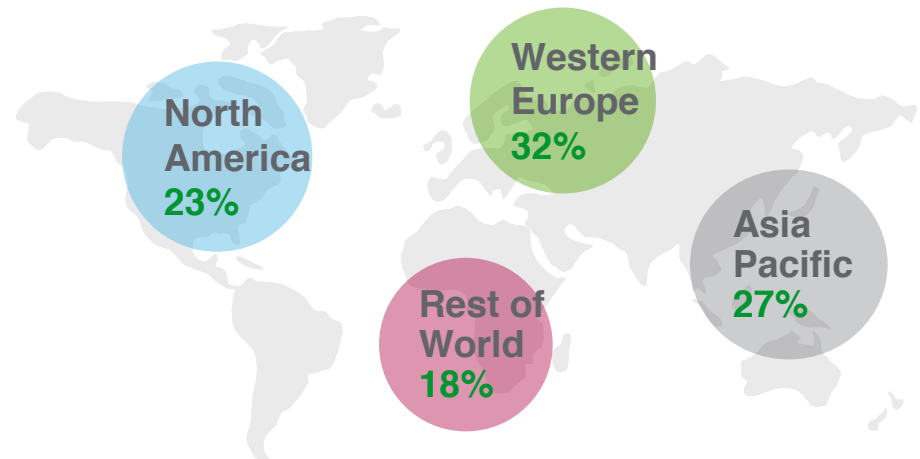
**130 000+**

people in 100+ countries

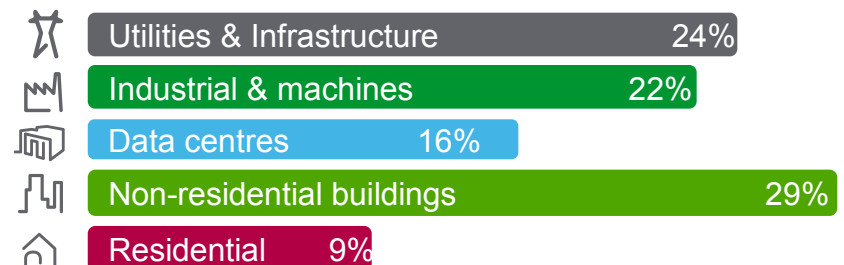
**4-5%**

of sales devoted to R&D

## Balanced geographies – FY 2011 sales



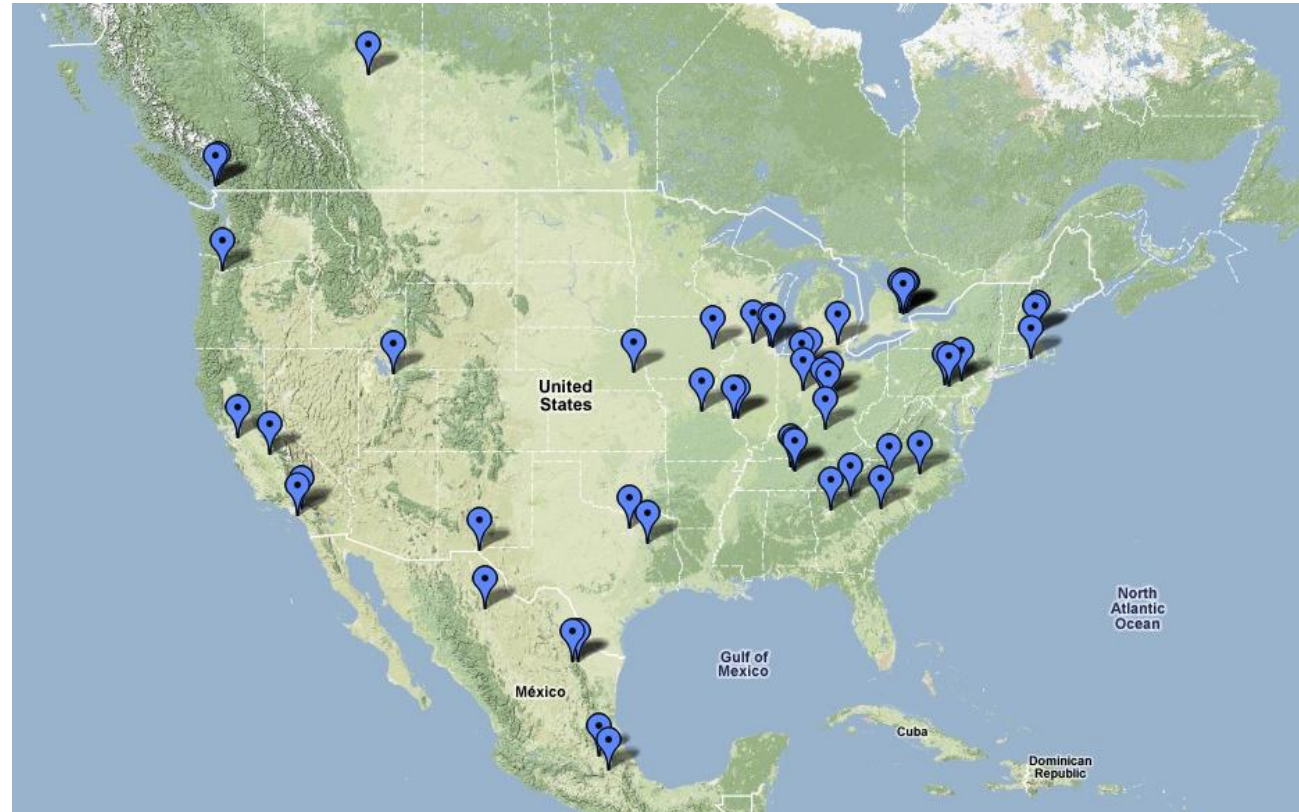
## Diversified end markets – FY 2011 sales



# Enterprise-wide Facility Management

## Demographics

- 72 buildings
- 55 locations
- 12 M ft<sup>2</sup>
- 105 people
- 7 Regional managers
- 26 facility managers
- 79 techs
- Across North America
- Across all Businesses



# Why Implement SEP / ISO 50001?

## Efficient Framework for Energy Management Program

### Corporate Self-Defined Energy Management Program

SEP / ANSI/MSE 50021

ISO50001

### ISO 50001 Structure

Plan

1. ~~~~~
2. ~~~~~

Do

2. ~~~~~
3. ~~~~~

Check

1. ~~~~~
3. ~~~~~
4. ~~~~~

Act

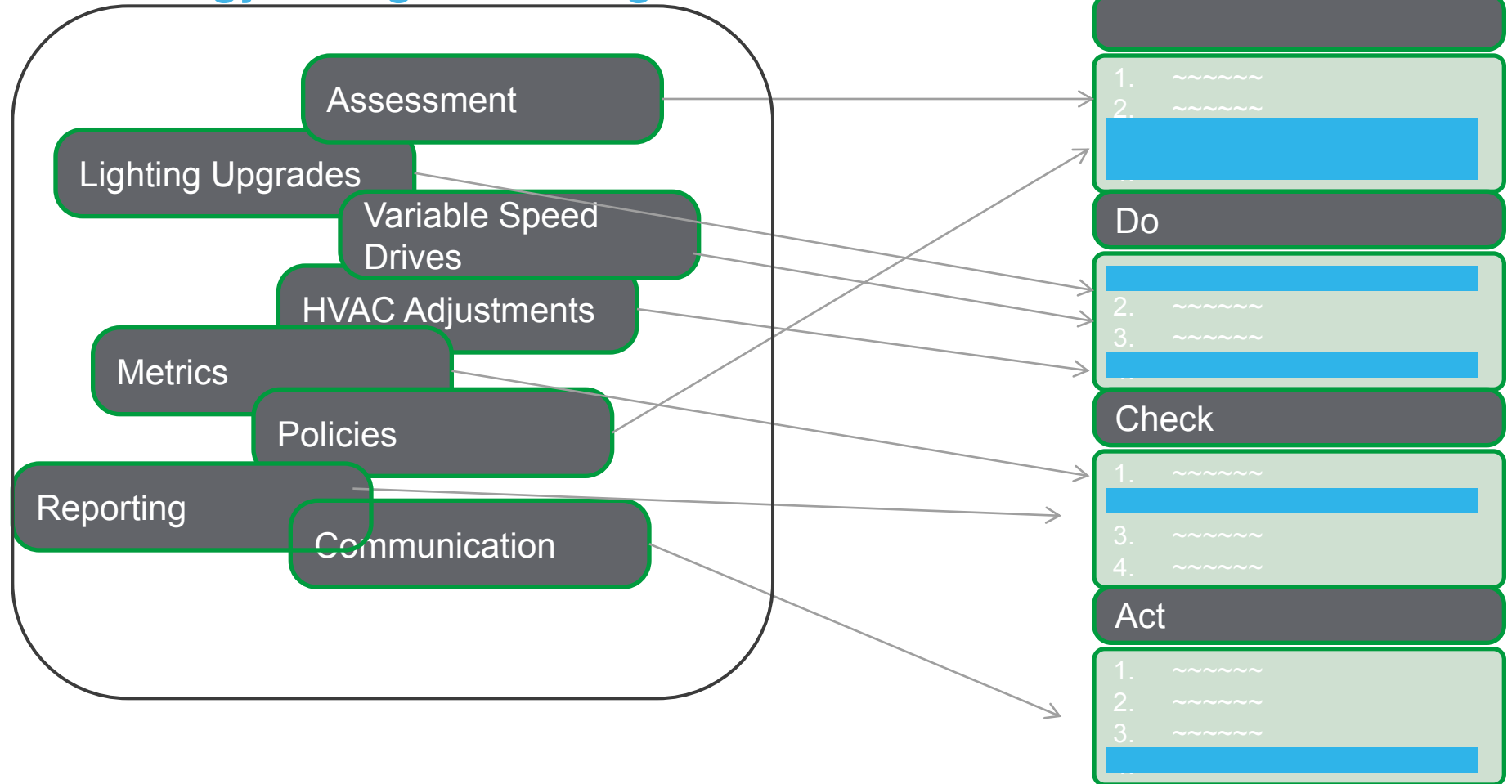
1. ~~~~~
2. ~~~~~
3. ~~~~~

# Why Implement SEP?

## Efficient Framework for Energy Management Program

### Corporate Self-Defined Energy Management Program

### ISO 50001 Structure



# Why Implement SEP?

## Efficient Framework for Energy Management Program



Energy Management  
Program Objectives:



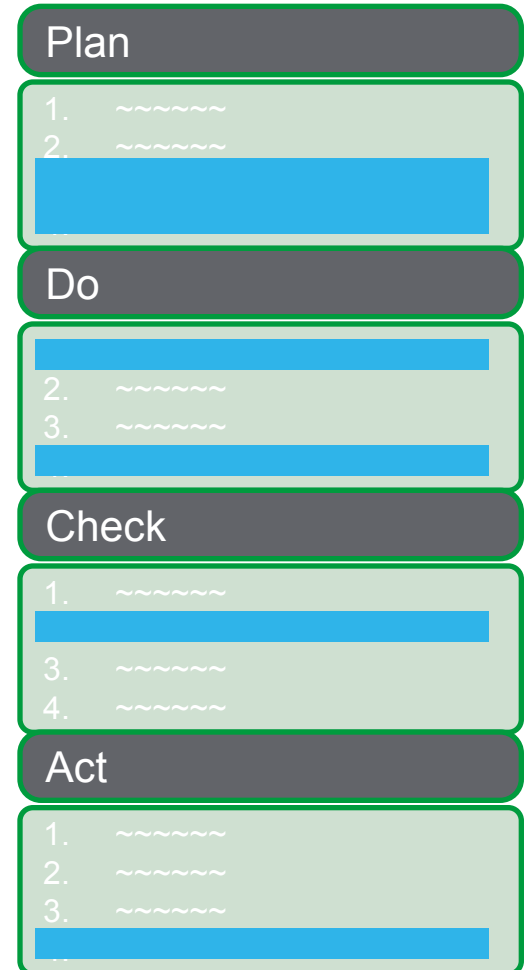
Certification  
Best Practice  
Standardization



Measured and Verified  
Results

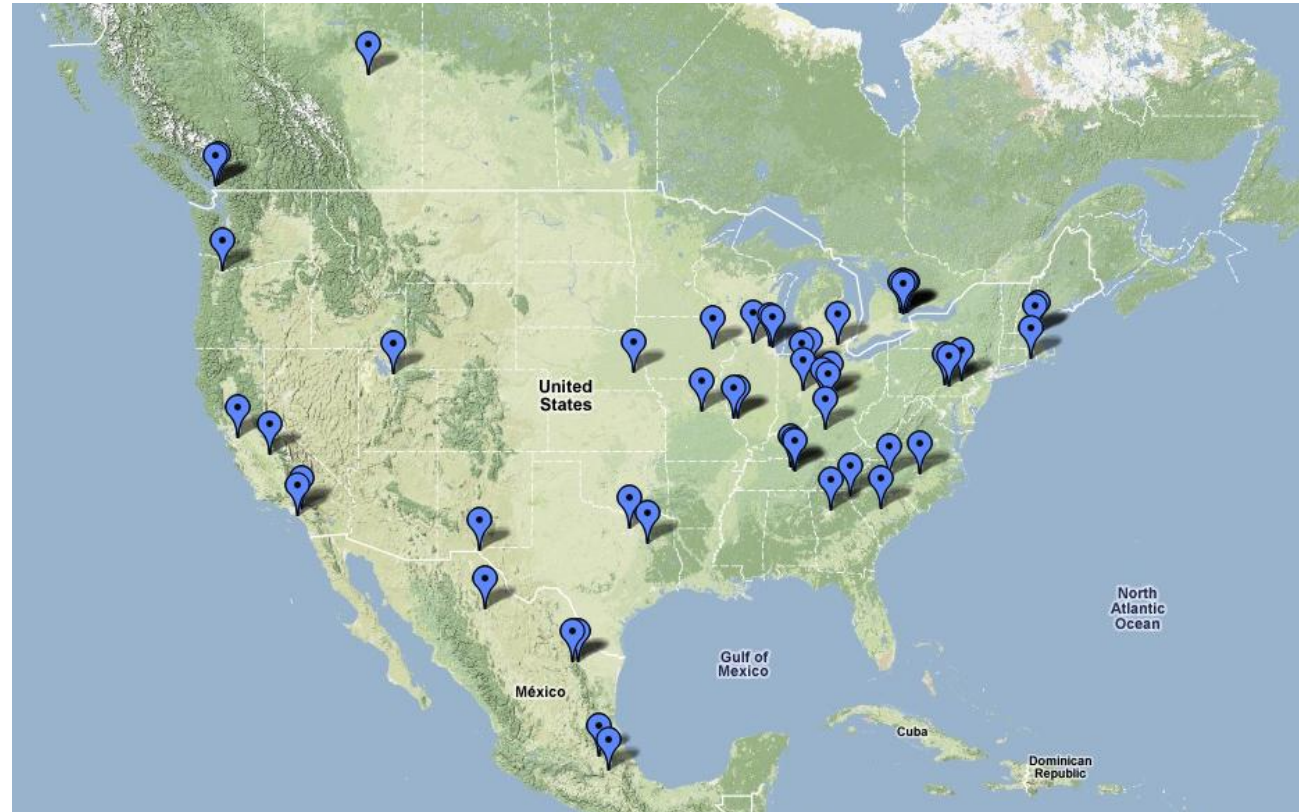


### ISO 50001 Structure



# SEP / ISO 50001 @ Schneider Electric

- Target 11 sites to be complete by the end of 2014
- Target sites with ISO140001 certification (Clovis)
- Exposure to Management system
- Seat at table
- Verified results by 3<sup>rd</sup> party
- Benchmarking for Enterprise
- Documented Results



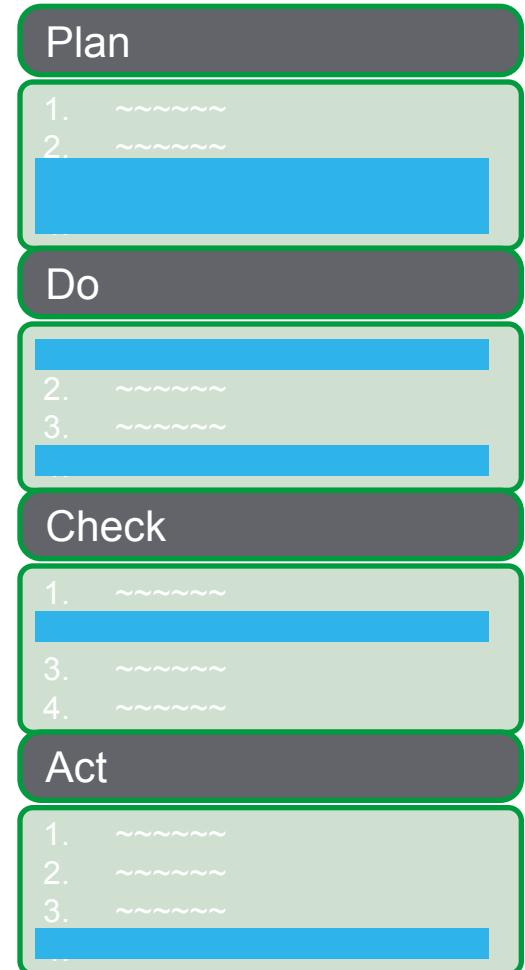
# Why Implement SEP?

## Efficient Framework for Energy Management Program

When do Savings Start:



### SEP Structure





# SEP Results at Schneider Electric?

Efficient Framework for Energy Management Program

# Implementation Process

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- **Planning Session:** determine the Energy Management Team

- **Implementation: 5 Phases-**

- #1 Gap Analysis

- #2 Facility Energy Review

- #3 EnMS Construction

- #4 Readiness Review and Internal Audit

- #5 ISO Certification Audit

- **6 – 18 month** Process



# Energy Management Team

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- First Step towards ISO 50001
- Should include:
  - Someone with experience with other ISO standards
  - Someone who is charged with improving energy KPI
  - A third party who can provide direction

# Preferred Team Members

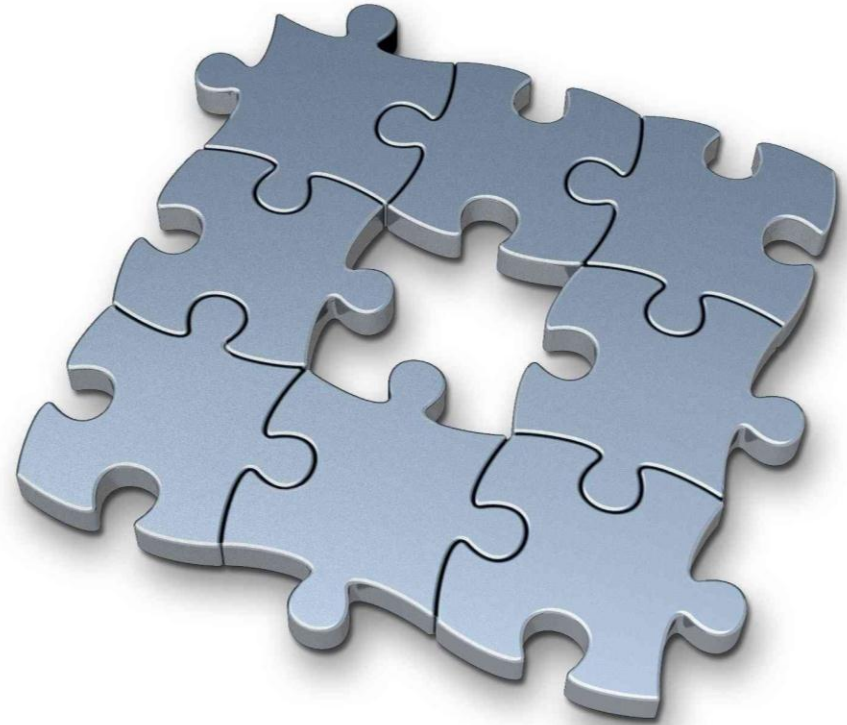
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- Facility Manager/Energy Manager
- Plant Manager
- Quality Manager (ISO 9001 Rep)
- Environmental Manager (ISO 14001 Rep)
- Procurement Manager
- Maintenance Manager
- Manager(s) of Significant Energy Use(s)

# Phase 1 – Gap Analysis

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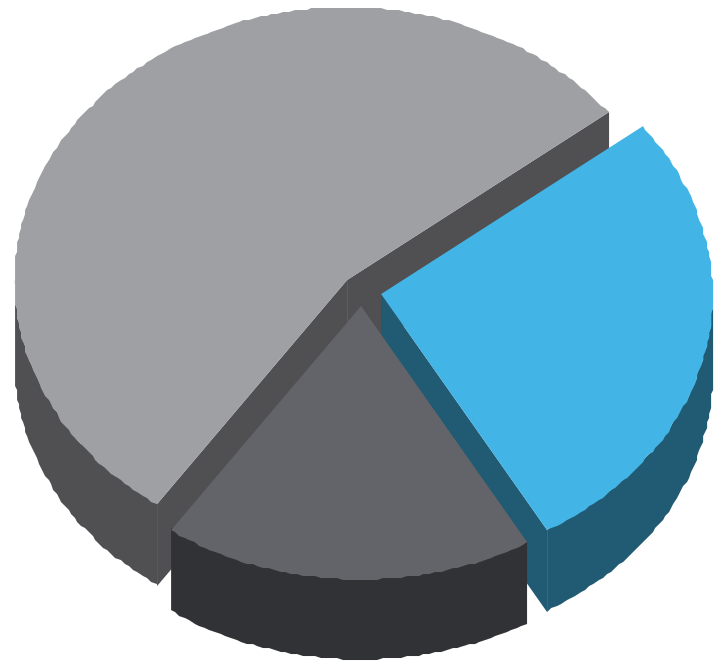
- Determine which current practices can be adopted to meet the standard
- Develop an implementation plan
- Determine Phase 3 required effort



# Phase 2 – Energy Review

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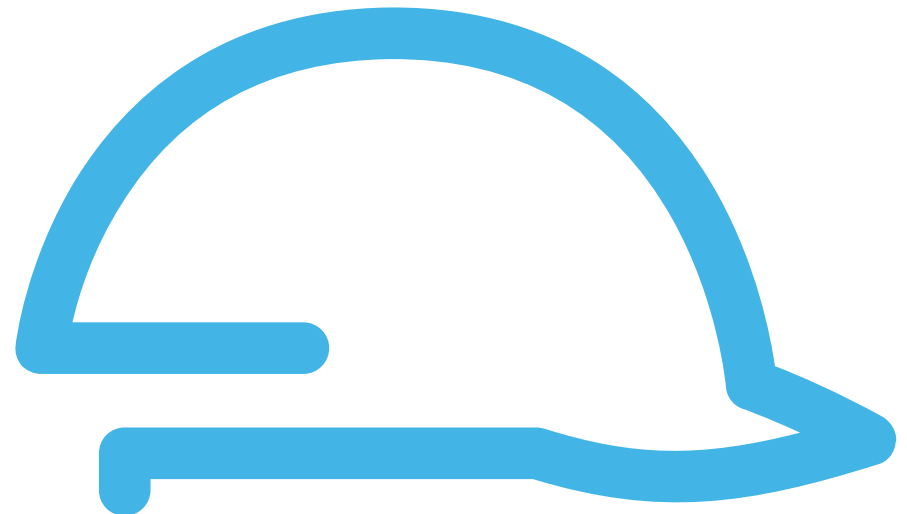
- Conduct utilities analysis
- Identify Significant Energy Users (SEUs)
- For each SEU
  - Develop **Energy Conservation Measures**
  - Create **metering plan**
  - Identify **operating parameters**



# Phase 3 – EnMS Construction

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- Build procedures for a fully functional system
- Provide awareness & training
- Ensure energy efficiency targets have a plan for achievement



# Phase 4 – Readiness Prep

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- Second Gap Analysis to ensure all requirements are met
- Conduct an Internal Audit
- Hold Management Review
  - Review Internal Audit Results
  - Review Energy Performance Indicators (EnPI)





# Phase 5 – Certification Audits

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- **Stage 1 Audit**

- Higher level audit to ensure **readiness** for Stage 2

- **Stage 2 Audit**

- Ensure the **EnMS** meets the intent of the standard
- Deeper dive into **procedures**
- Present **corrective actions** for major and minor findings



## Phase 1 and 2: Gap Analysis and Energy Review

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- **Identified the Paint Line as the Significant Energy User (SEU)**
  - ❑ Wash Process
  - ❑ Powder Coat
  - ❑ Curing
- **Identified WAGES metering needs**

## Phase 3: EnMS Construction

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- Bridged the gap between process and energy  
Implemented Energy Conservation Measures (ECMs)
- ❑ VFDs on wash pumps
  - ❑ Turned off IR oven (10% of gas use)
  - ❑ Hook burn-off temperature set to 1,500 degrees when 1,200 degrees would suffice

# Phase 4: Readiness

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- **Used internal auditors from ISO 9001 and 14001 teams**
  - Gave an energy fundamentals course
- **Corrective Actions Identified**
  - Operating temperatures for ovens were not in procedures
  - Calibration issues for gauges
  - Auto-date feature on some documents
  - Purchasing had not adopted new procedures
  - Issues with energy awareness
- **Well prepared for certification audits**
  - Only minor findings in Phase 5: Certification”

# Outcomes

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**Created foundation for continuous improvement**



**Competitive advantage through reduced costs**

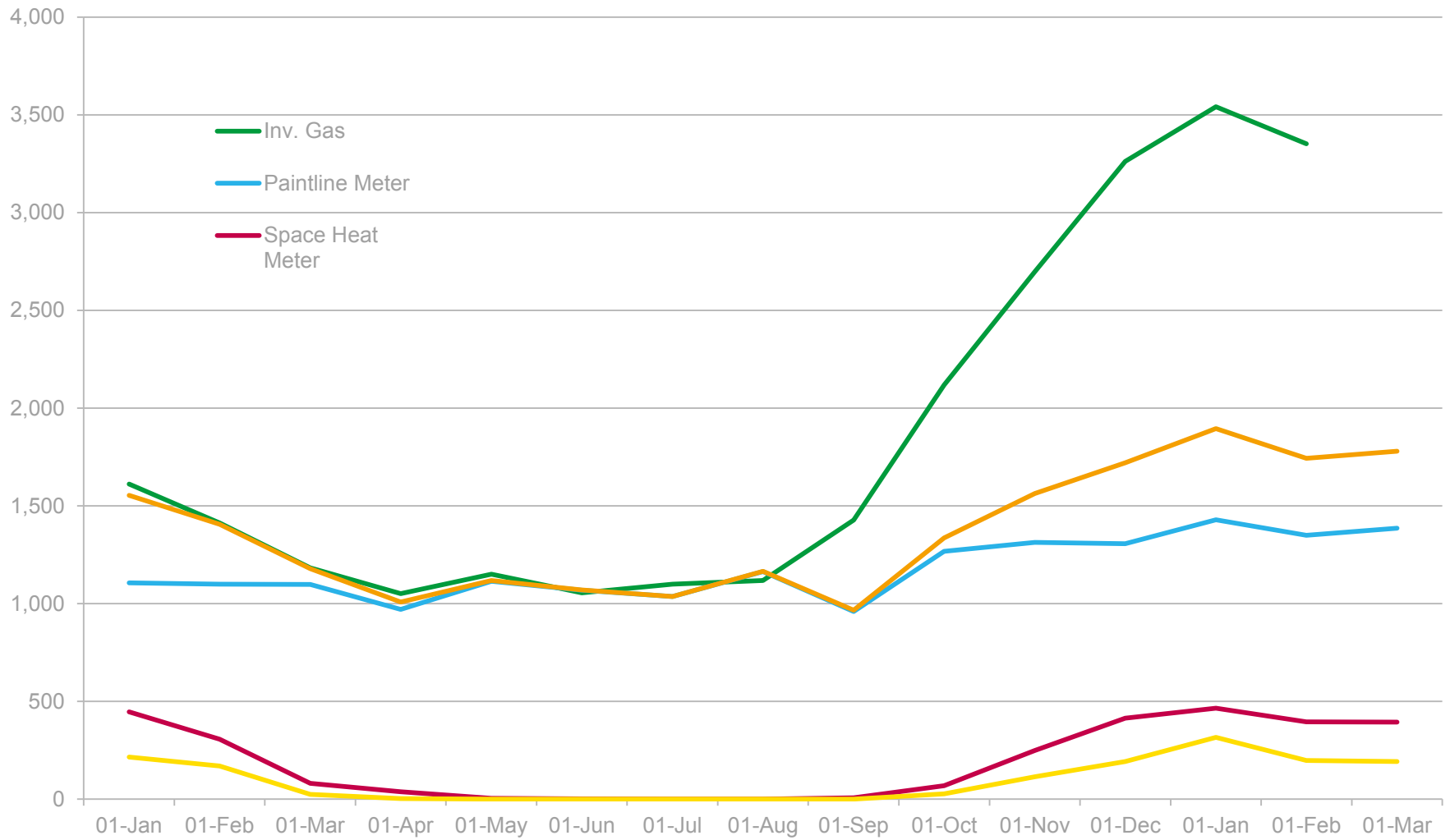


**Qualified for Platinum SEP with 15.5% reduction**



**Identified utility meter malfunction**

# Invoice Analysis – Meter Data vs Invoice Data



# Continued Results SEU

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**Add VFD's to paint line ovens**



**Change wash chemicals and reduce water usage and water temperature**

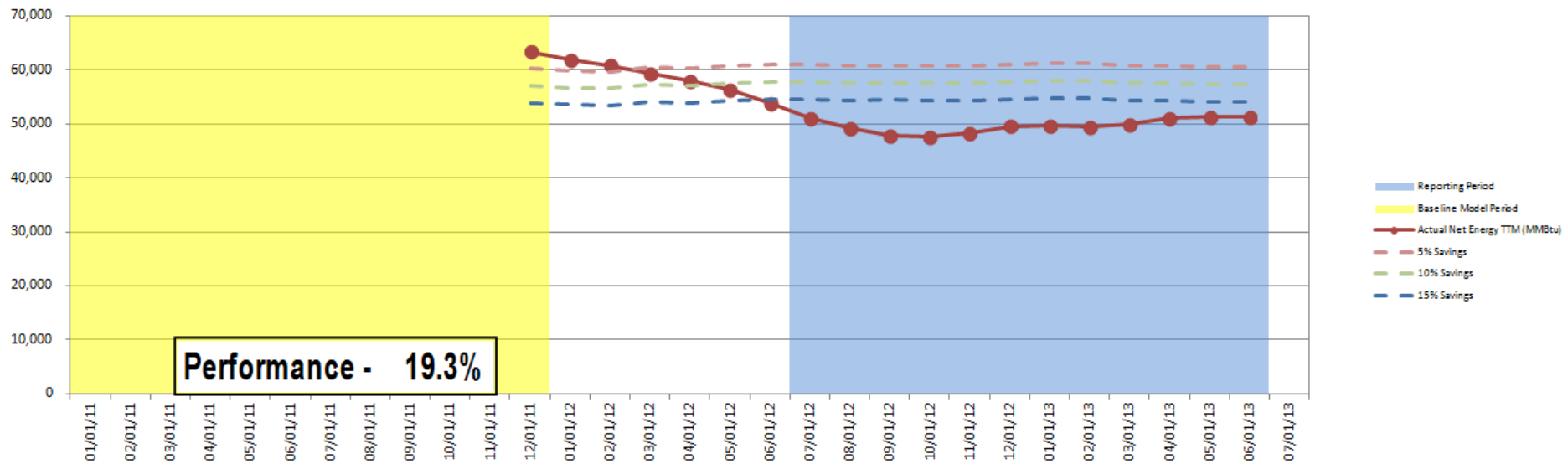


**Investigating changing specification of paint to different process to change**



**Reuse waste heat on paint line to pre-heat combustion air and heat the manufacturing space**

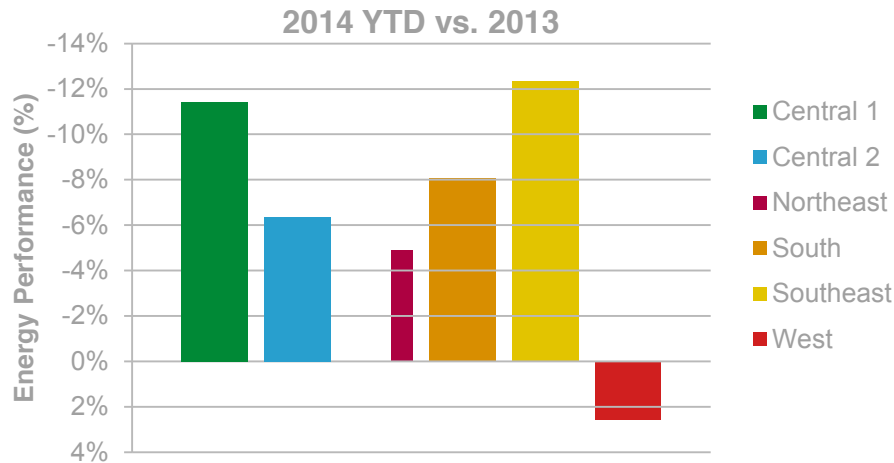
# Performance after Certification



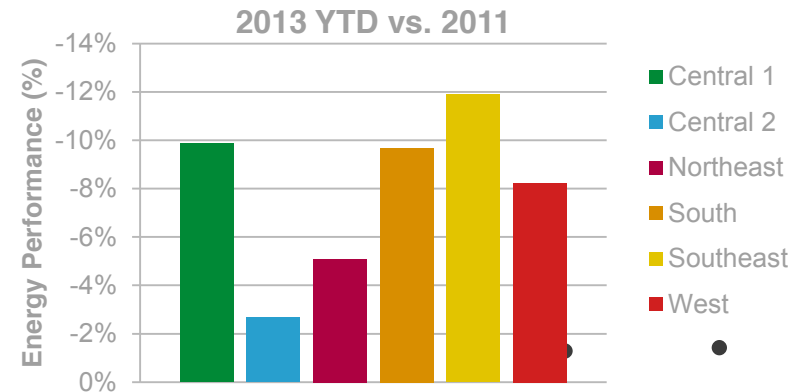
# Schneider Electric North America Results

Enterprise wide energy management information system that **aggregates** energy and resource data from **multiple systems** for **reporting** , **analysis** and **communication**

## NAM Regional Energy Performance



## NAM Regional Energy Performance [2013 vs. 2011]





# Schneider Electric North America Results

Enterprise wide energy management information system that **aggregates** energy and resource data from **multiple systems** for **reporting** , **analysis** and **communication**

# Questions Comments