

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)

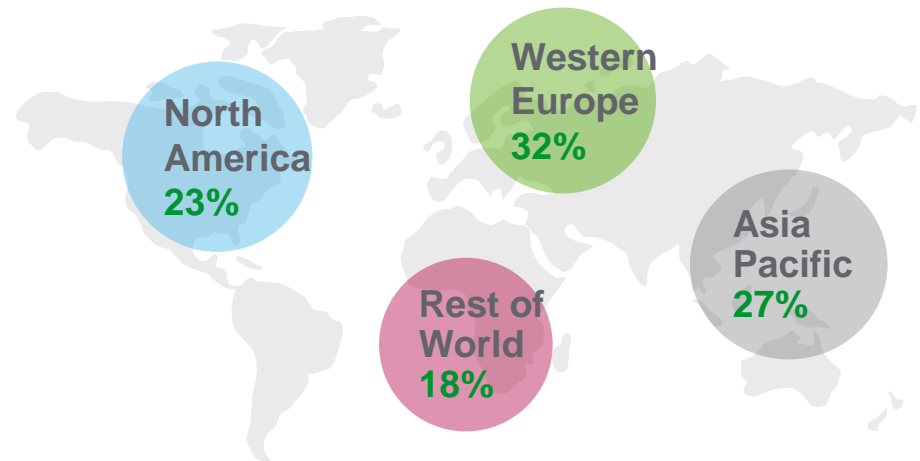
130 000+

people in 100+ countries

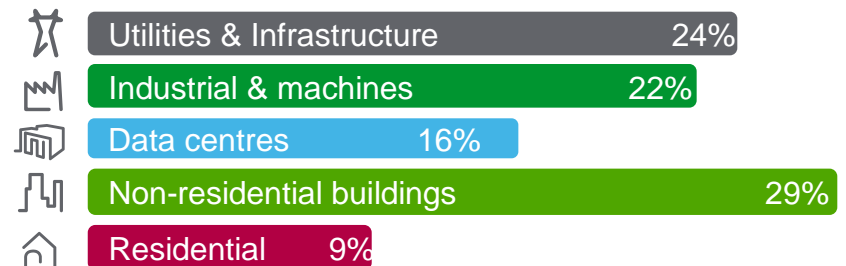
4-5%

of sales devoted to R&D

Balanced geographies – FY 2011 sales



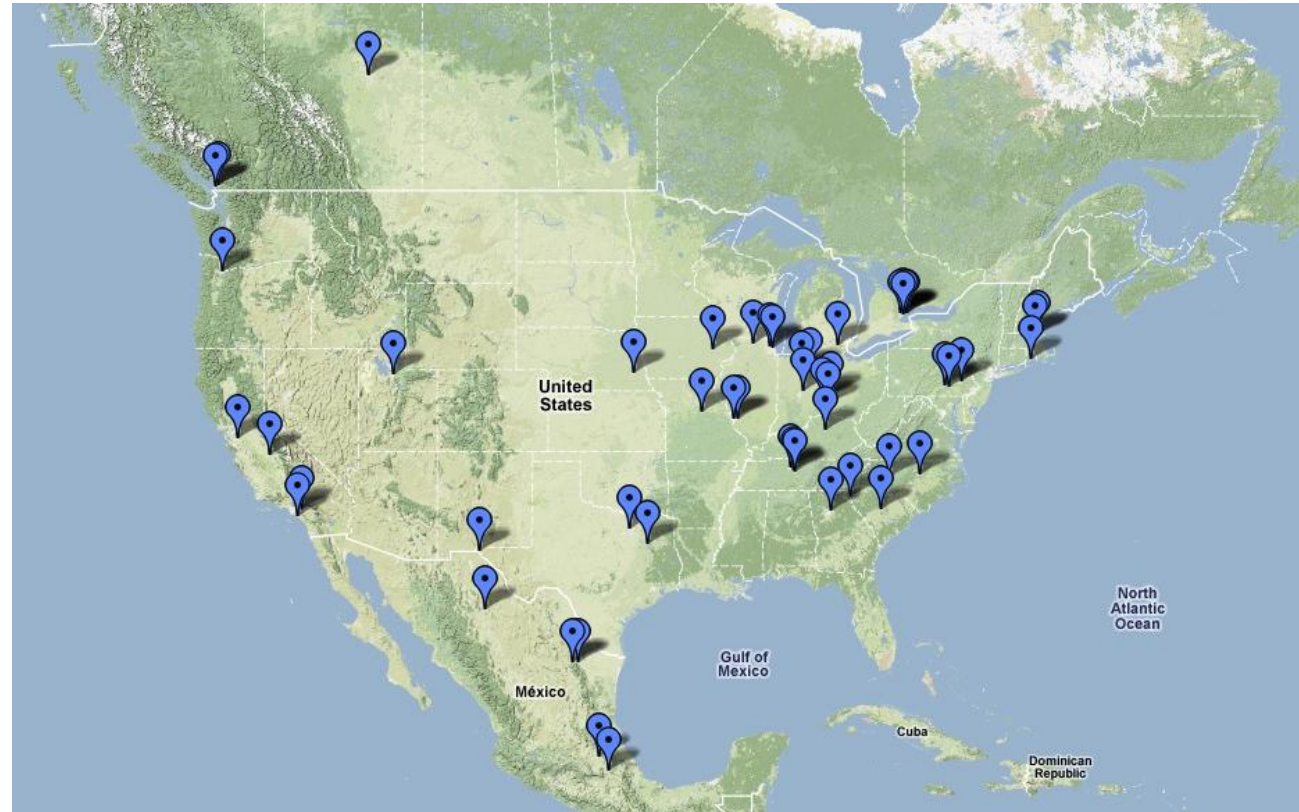
Diversified end markets – FY 2011 sales



Enterprise-wide Facility Management

Demographics

- 72 buildings
- 55 locations
- 12 M ft²
- 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

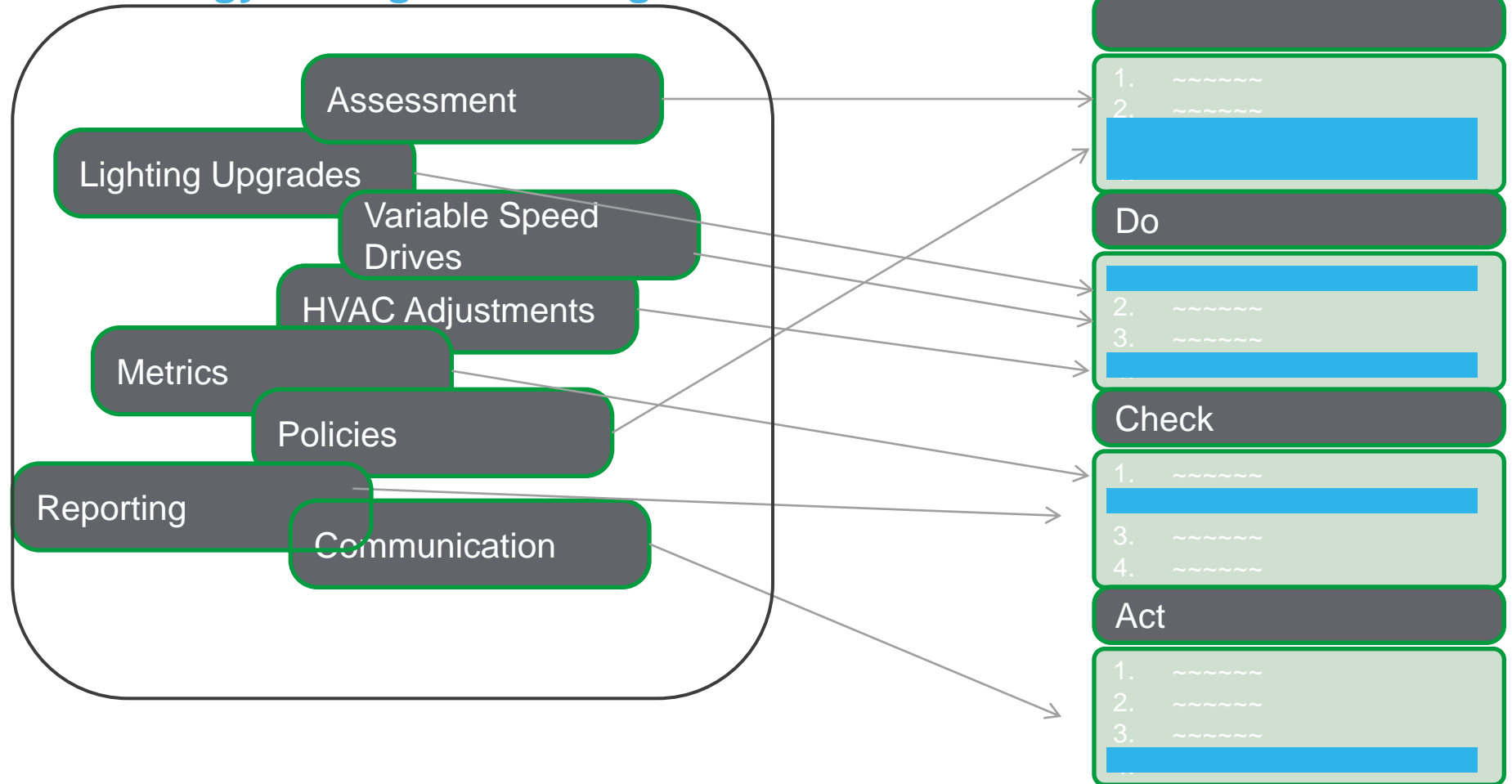
1. ~~~~~
2. ~~~~~
3. ~~~~~

Why Implement SEP?

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Corporate Self-Defined Energy Management Program

ISO 50001 Structure



Why Implement SEP?

Efficient Framework for Energy Management Program



Energy Management
Program Objectives:



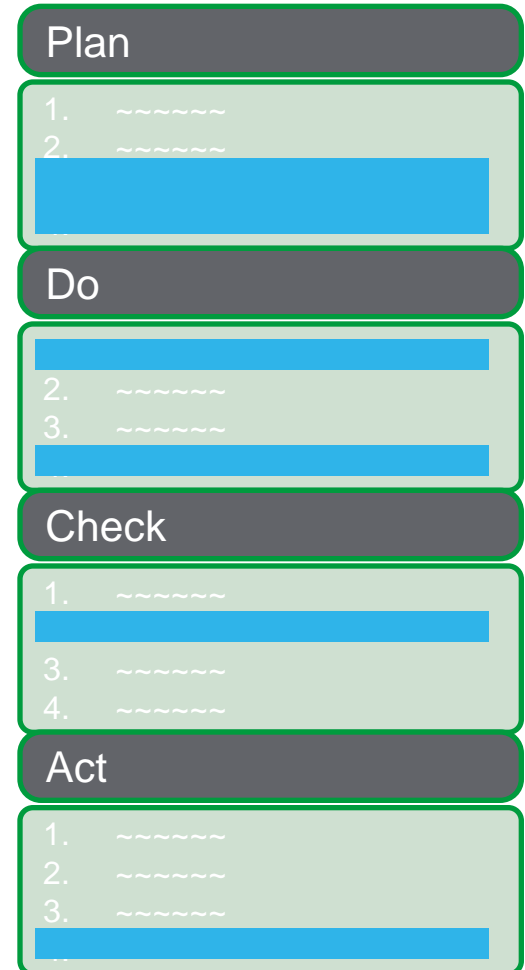
Certification
Best Practice
Standardization



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 3rd party
- Benchmarking for Enterprise
- Documented Results



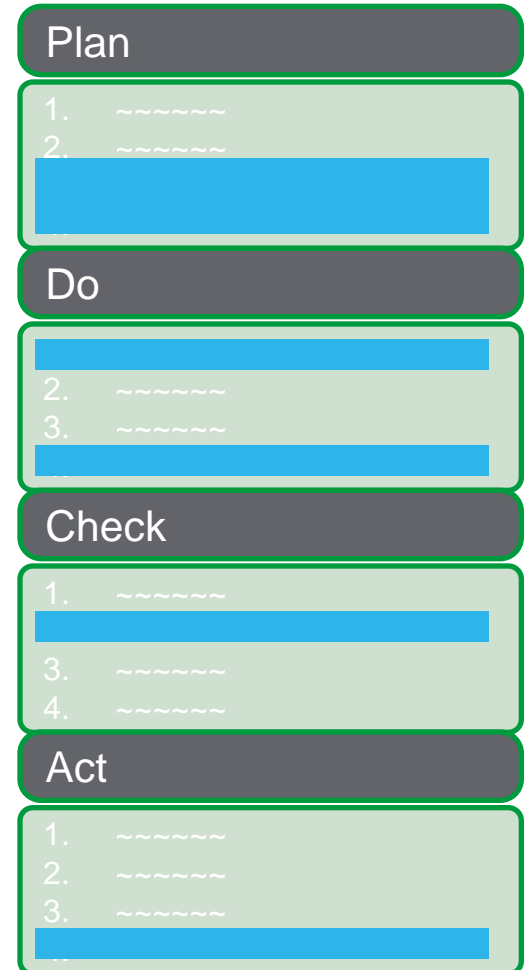
Why Implement SEP?

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

- **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

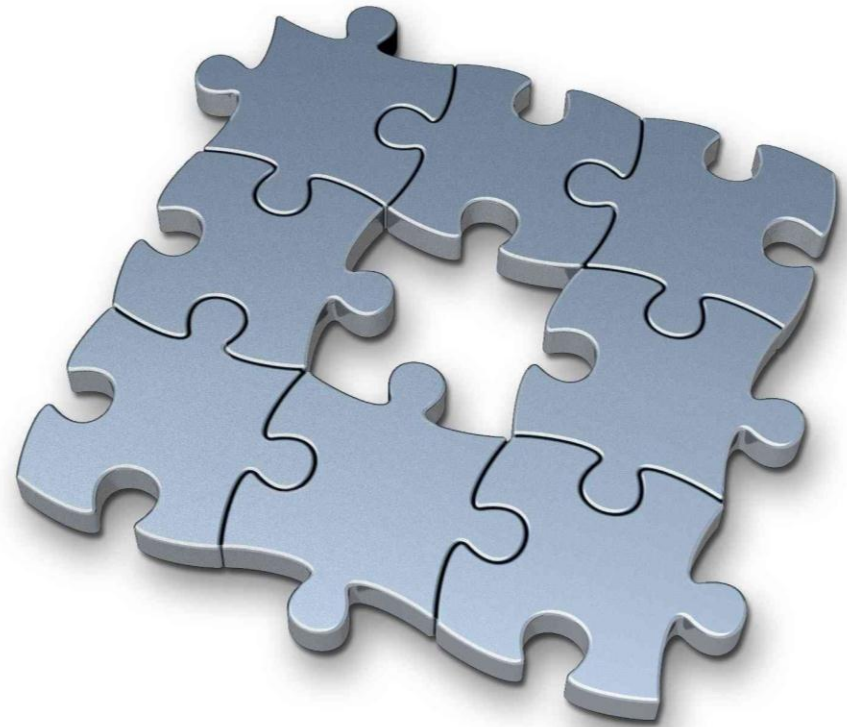
- First Step towards ISO 50001
- Should include:
 - Someone with experience with other ISO standards
 - Someone who is charged with improving energy KPI
 - A third party who can provide direction

Preferred Team Members

- 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)

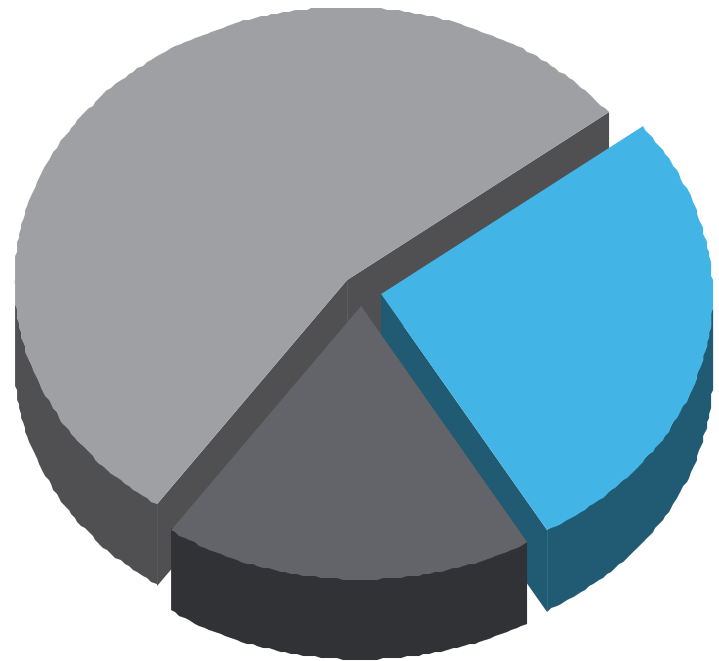
Phase 1 – Gap Analysis

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



Phase 2 – Energy Review

- 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

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



Phase 4 – Readiness Prep

- 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

- **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

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

Phase 3: EnMS Construction

- 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

- 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



Created foundation for continuous improvement



Competitive advantage through reduced costs

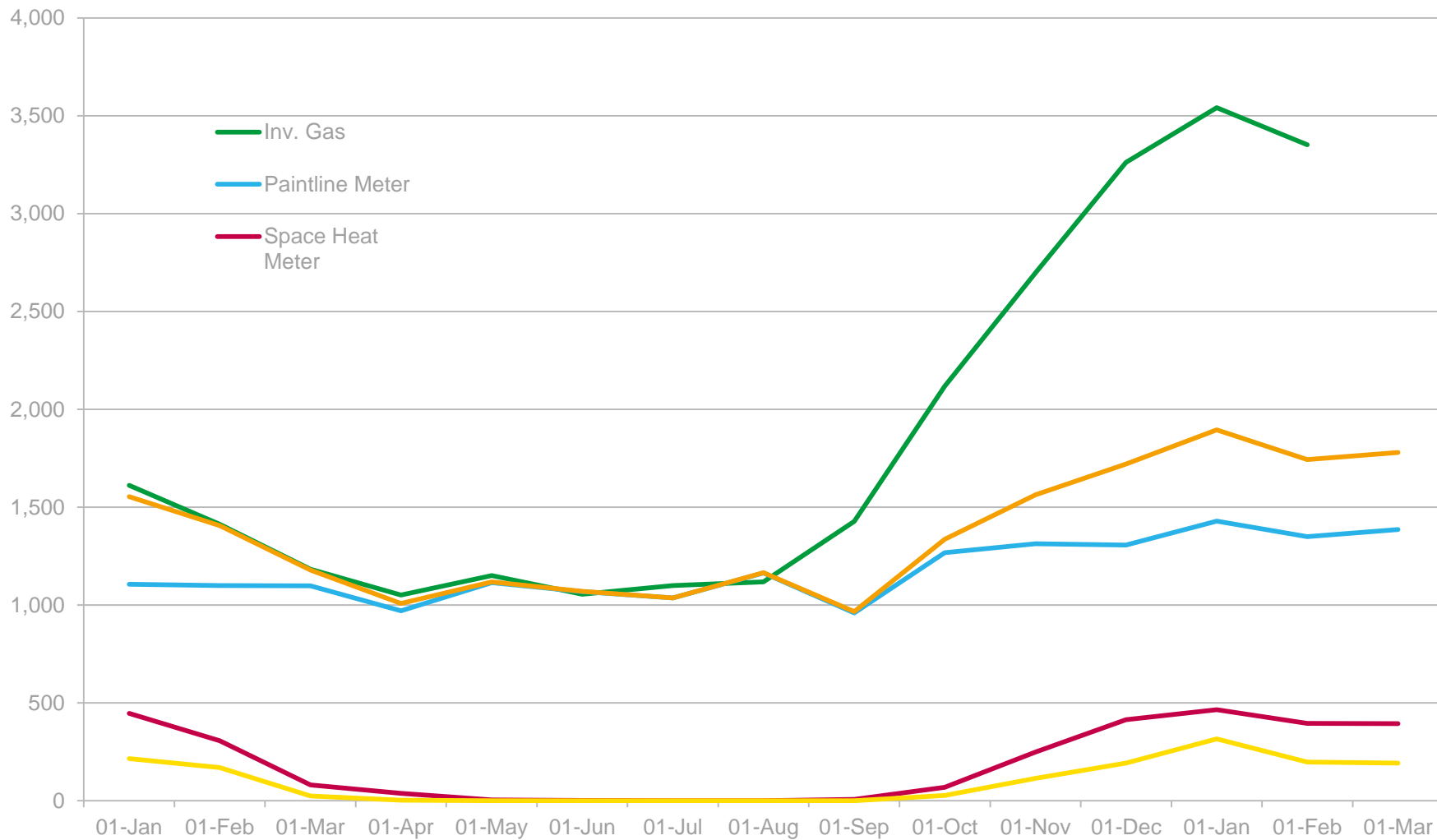


Qualified for Platinum SEP with 15.5% reduction



Identified utility meter malfunction

Invoice Analysis – Meter Data vs Invoice Data



Continued Results SEU



Add VFD's to paint line ovens



Change wash chemicals and reduce water usage and water temperature

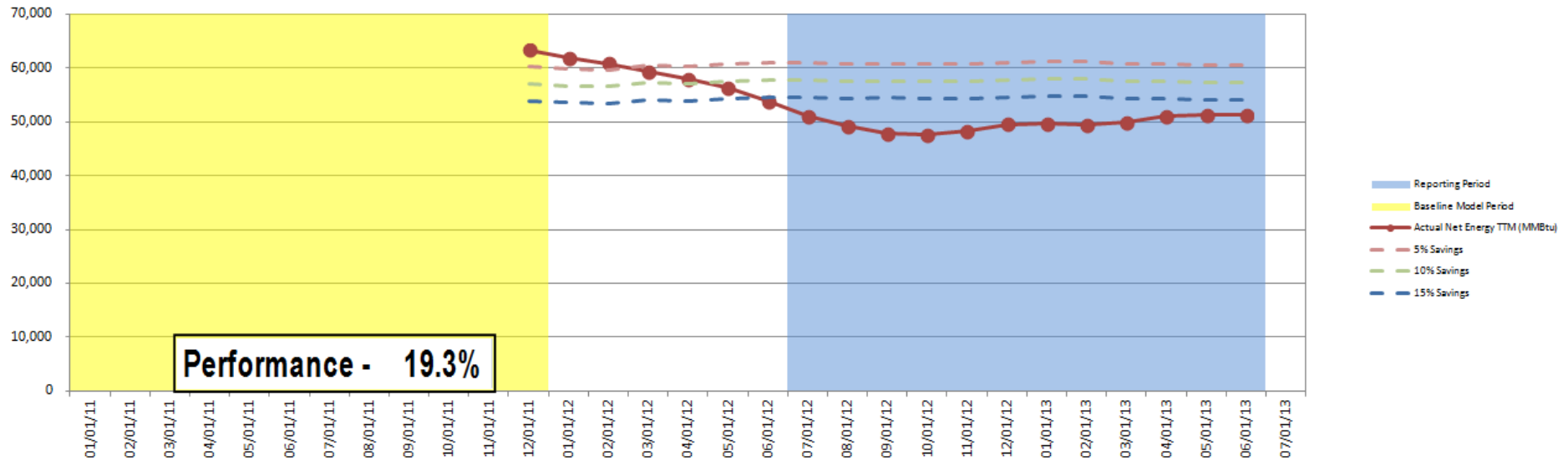


Investigating changing specification of paint to different process to change



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

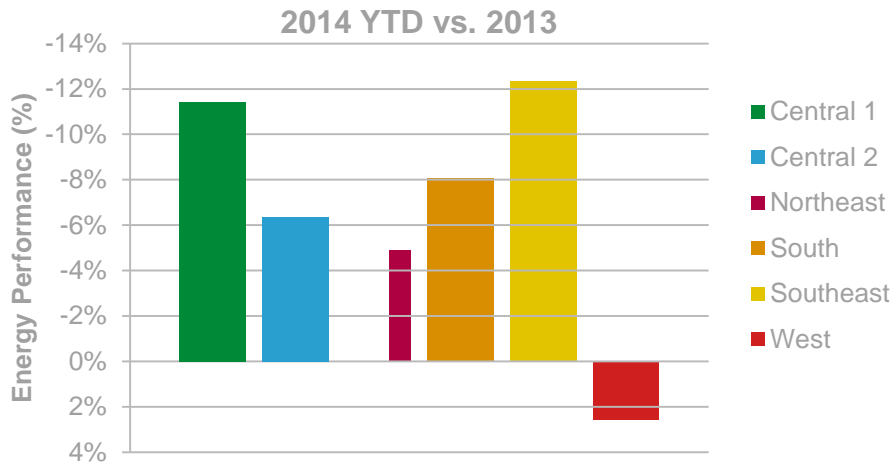
Performance after Certification



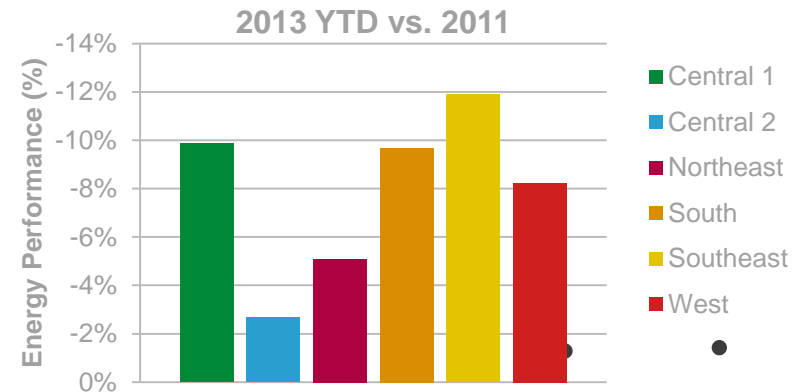
Schneider Electric North America Results

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