

SEP and ISO 50001 at 3M Canada's Brockville Plant

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Sustaining Our Future



Energy Management at 3M Canada

OVERVIEW

An Introduction to 3M

3M Sustainability

Energy Management Initiatives

Results

Insight



3M at a Glance

- Established in 1902
- 84,000 employees
- Operations in 65 countries
- 3M products sold in 200 countries
- 46 technology platforms
- Global sales: \$30 billion

3M Markets And Sells More Than 55,000 Products



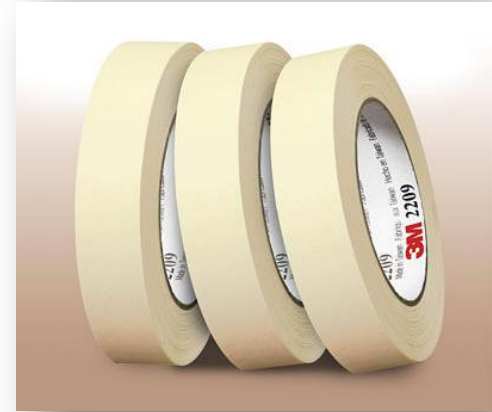
3M Canada

- First 3M subsidiary (1951)
- Employs 1,900 people
- Seven manufacturing facilities
 - *Abrasives*
 - *Tapes*
 - *Healthcare,*
 - *Scotch-Brite*
- First subsidiary to have full time energy manager



Brockville Ontario Tape Manufacturing

- High volume masking tape manufacturing operation.
- Established 1992 – 170 Employees
- 200 SKUs ranging from low cost bundling and holding tapes to high temperature fine line automotive masking tapes.
- Current ISO Registrations:
 - ISO 14001 ISO 9001-2000



Sustainability at 3M

Since 1932, 3M has been at the forefront of companies adopting programs and policies to ensure environmental protection, social responsibility and economic vitality.

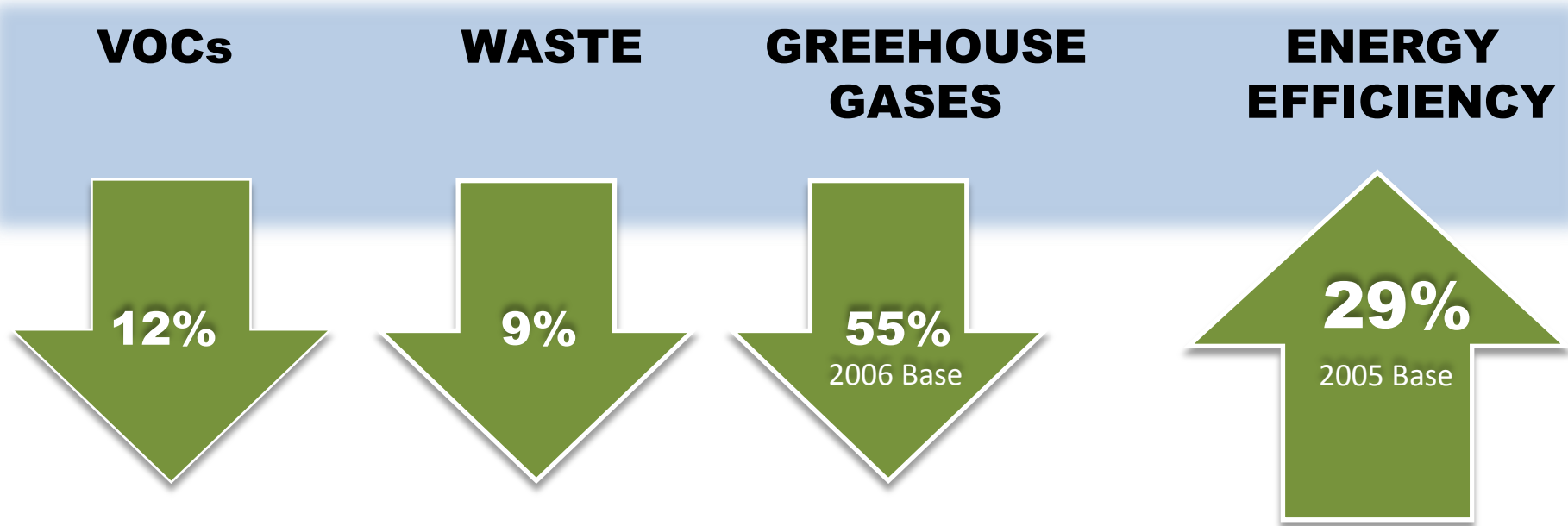
Five Year Environmental Targets First Set in 1990s

Focused on:

- Reducing Volatile Air Emissions
- Reducing Waste
- Reduce Greenhouse Gas Emissions
- Improving Energy Efficiency

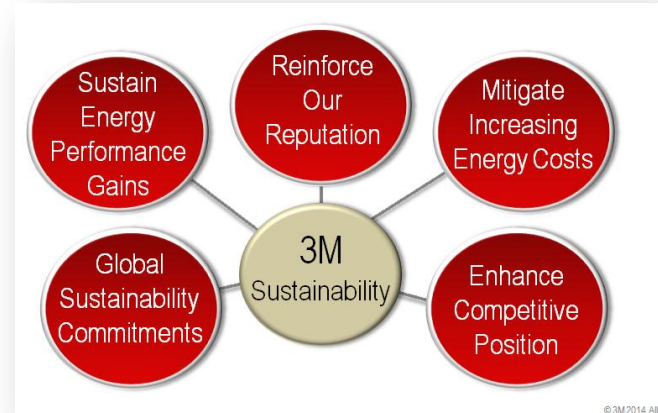


Sustainability at 3M Progress on 2015 Targets



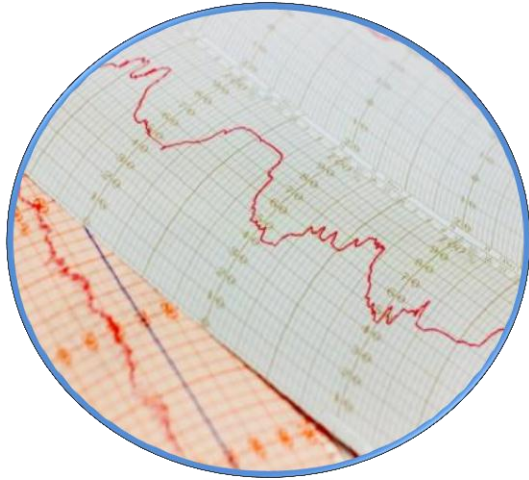
Motivation

- Support 3M's global Sustainability commitments
- Sustain energy performance gains.
- Respond to increasing energy cost pressures
- Reinforce reputation with customers
- Provide US-Canada support for GSEP initiative of the Clean Energy Ministerial
- Safeguard 3M's competitive position in the marketplace
- ISO 50001 EnMS provides bottom line results by driving own energy costs



Successful Energy Management

MEASUREMENT



TECHNOLOGY



PEOPLE



Energy Management with ISO50001



- Voluntary international standard framework to manage energy
- Based on “Plan–Do–Check–Act” continuous improvement cycle
 - Leads to improved energy performance
 - Integrates energy efficiency into management processes
 - Many core elements in common with ISO9001 (quality) and ISO14001 (environmental) ISO standards



SEP – Superior Energy Performance

- US DOE and industry partnership program for energy performance
- Fully incorporates ISO 50001 but adds more requirements per ANSI/MSE-50021 standard
- Prescribes specific silver-gold-platinum energy reduction
- Assesses performance with International M&V Protocol
- Global SEP supported by 13 countries, including Canada, USA and EU



Implementing ISO 50001 Globally

3M London, Ontario

ISO 50001– certified in January 2014

3M Brockville, Ontario

SEP/ISO50001 certified in June 2012

3M Cordova, Illinois

SEP/ISO50001 certified in Sep 2012

3M Wroclaw, Poland

ISO 50001 certified in June 2013

3M Kempten, Germany

ISO 50001 certified in June 2013

Canada

All Manufacturing locations certified by 2016



Process

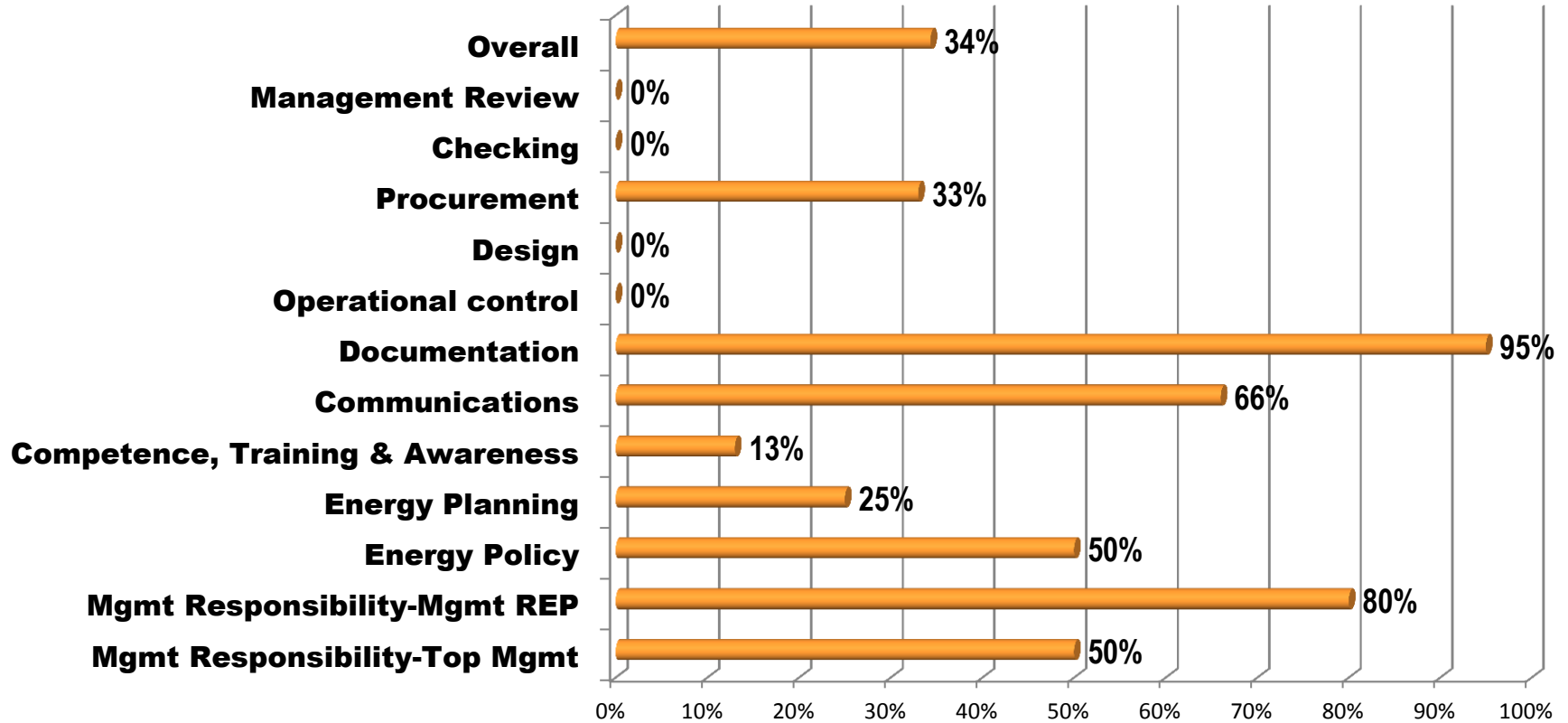
- Build on existing 3M Energy Management legacy
- Integrate a systematic Energy Management System into plant operations & culture
- Leverage existing management system components, 3M business & operations systems where possible



Implementation Process



Initial Gap Analysis

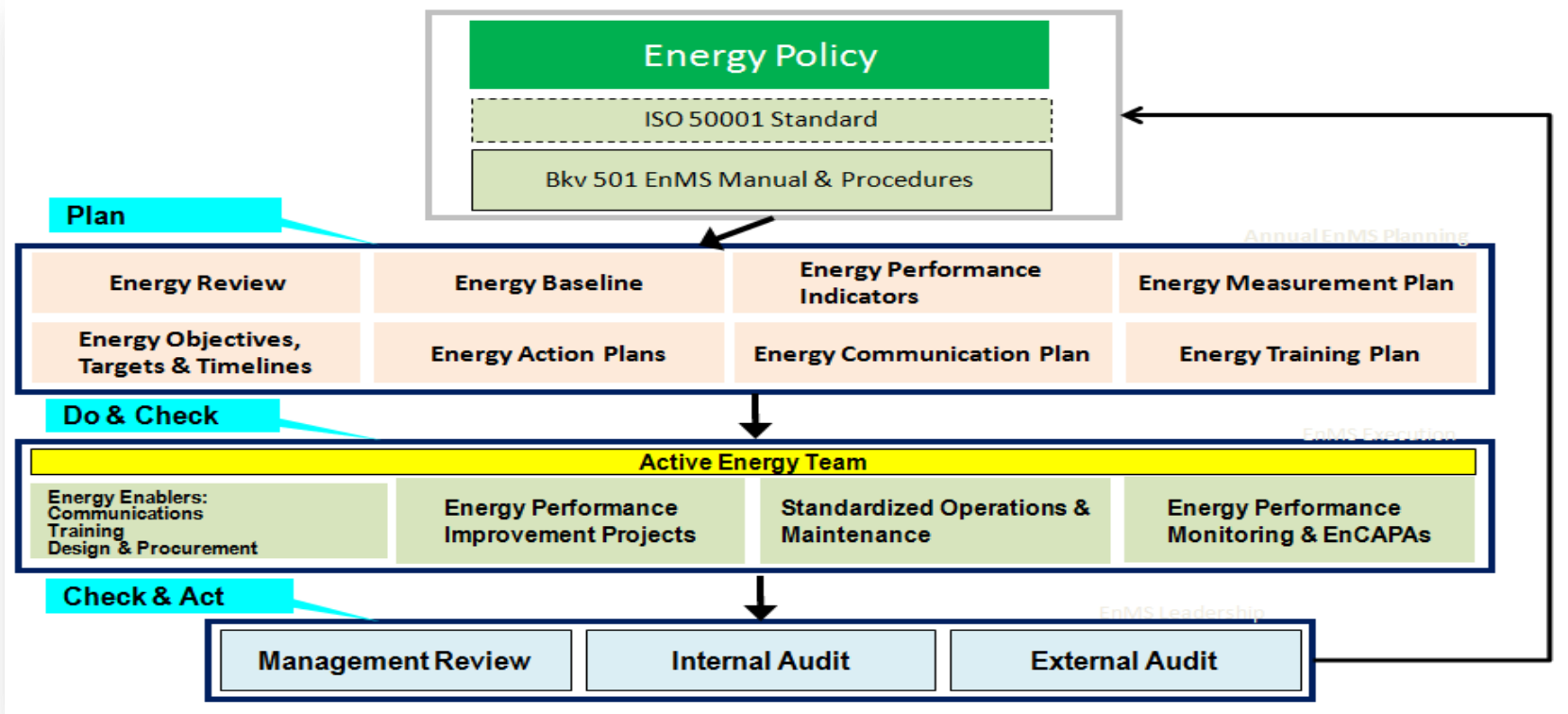


Work Plan Activities

- **Make Basic Decisions**
 - Scope of EnMS, external communication, etc.
 - Resource allocation - Management Rep, EnMS Coordinator, etc.
- **Adapt Existing Energy Management practices**
 - Energy Policy, Objectives, Targets & Action Plans
 - Project Planning, Management & Results Reporting Systems
- **Leverage Existing Business Systems**
 - Communications, Training, Legal, Internal Audit, Document Control
- **Write EnMS Manual**
 - Documents EnMS Implementation at 3M Brockville Tape Site
 - Addresses All Elements of the Standard
 - Formalizes Top Management Commitment to the EnMS
- **Write Top Level Procedures**
 - Energy Planning, Energy Review, EnPI Selection, Audit, etc.



Energy Management System



Certification Process

- Complete first iteration of the EnMS Planning work
 - Energy Review, EnPIs, Action Plans, etc.
- Activate EnMS Execution work
 - Training, Monitoring, Standardized O&M, Energy Corrective and Preventive Actions etc.
- Conduct Management Review & Internal Audit
 - Engage management team, close audit findings, etc.
- Work the system and generate the records that demonstrate implementation



Certification Process

- Pre-assessment
 - Review of EnMS documentation to determine readiness
- Phase I Audit
 - Detailed investigation of all system elements
- Phase II Audit
 - On-site audit to examine evidence of implementation
- Brockville Tape Achieved ‘Platinum’ level for SEP
 - Energy performance improvement exceeding 15% over three years (2007 to 2010)
 - 1st SEP with ISO 50001 EnMS in Canada
 - 2nd SEP platinum level with ISO 50001 in the world



ISO50001 Certification



Energy Management System Benefits

Increased Awareness of
Energy Performance

Improved Procurement &
Engineering Practices

Improved O&M Practices

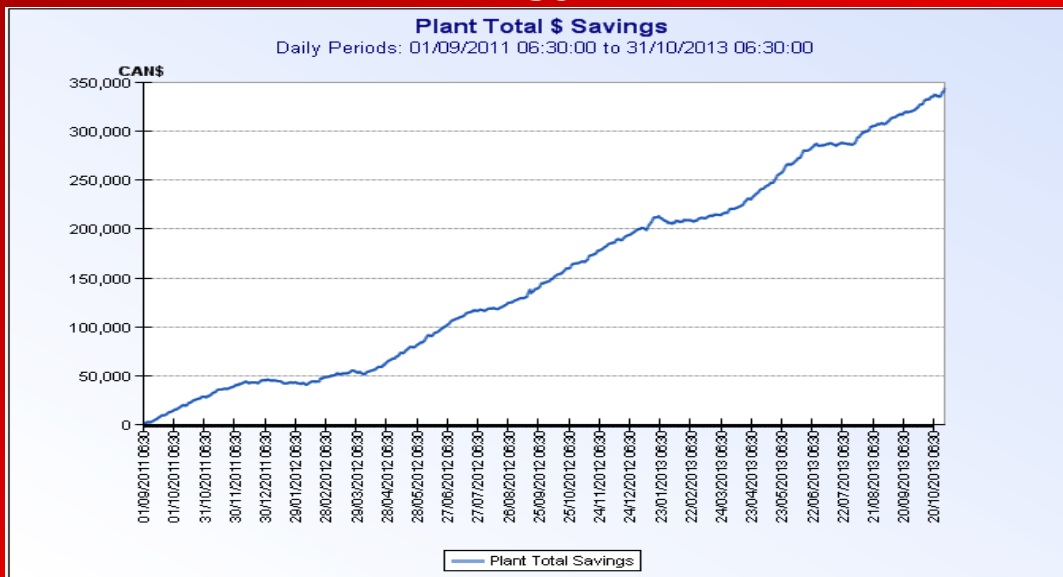
Increased Idea Generation
– Suggestion System

Improved Energy Performance = Lower Cost



Results

Improved Energy Performance



Brockville Tape has saved \$350 K
since ISO 50001 implementation



Energy Performance Project

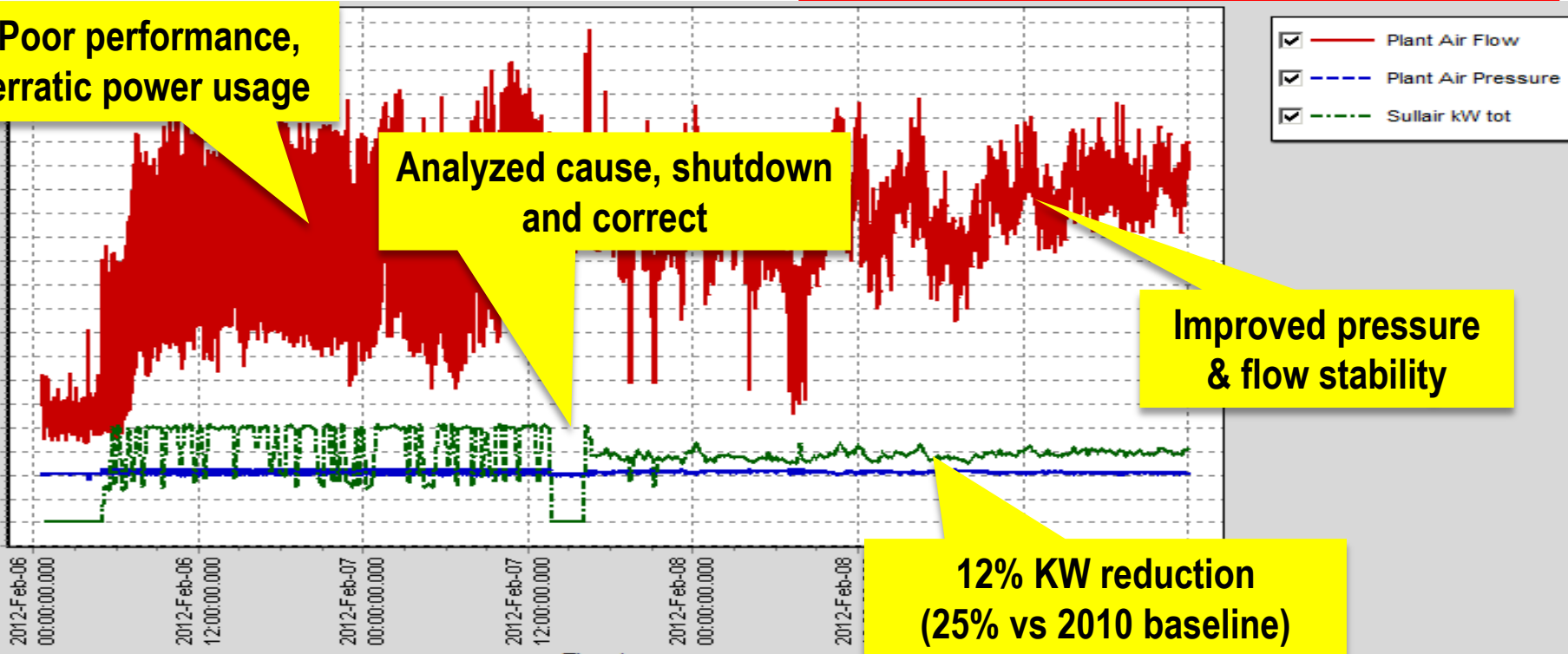
Air Compressor 'Spiral Valve' Optimization

Poor performance,
erratic power usage

Analyzed cause, shutdown
and correct

Improved pressure
& flow stability

12% KW reduction
(25% vs 2010 baseline)



Benefits

CIPEC Energy Award in Corporate Stewardship



Canadian Industry Program for Energy Conservation

Recognizes companies that promote energy efficiency at the corporate level, such as the creation and engagement of an energy management team, the development of a corporate energy management plan or policy, or the implementation of a formalized management system.



Lessons and Advice

Build A Robust System

- **Management Commitment**
- **Allocate Resources:**
- **Set EnMS-related job expectations for all levels**

Use Project Management Techniques

- **Set deliverables, milestones, responsibilities, follow-up, etc., to drive implementation progress**

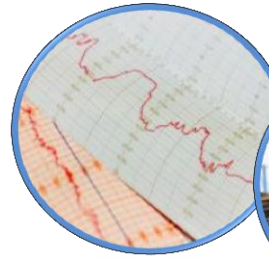
Build On What You Have

- **Use and integrate existing systems: docs, training, etc.**

Key 3M's Success Factors

- Senior Management Commitment
- Selection Of Team Members
- Expert Consultant Support
- Government And Local Energy Suppliers Support
- Rigorous Project Tracking
- Existing Quality And Environmental Management Systems
- Prior Investments In Energy Management Information System
- Legacy Of Corporate Leadership In Sustainability

MEASUREMENT



PEOPLE



Technology





At 3M We don't have a
sustainability initiative.
We have a
sustainability culture.

Thank
You.



Questions

