

Save Energy Now LEADER Web Conference Replication Seminar Series

Build Replication into Corporate Culture

Fred Schoeneborn, CEM, CEA
August 23, 2011



Agenda

- Seminar Series **Overview**
- **Recap** Replication Session #4
- **Build Replication into Corporate Culture**
- Fred Schoeneborn - **ORNL** team
- Steve Schultz – **3M**
- **Questions/Feedback**



Replication Series

- Presents **5** one-hour Webinars assisting *Save Energy Now* LEADER Companies
- Scheduled monthly - **fourth Tuesday** at 2:00 p.m.
- Focuses on **real-world** examples and solutions
- Offers practical **tools**
- Includes **peer** *Save Energy Now* LEADER participants



Determine and Communicate the Value of Replication

- **Describe** Best Practices & note successes
- Highlight the **benefits**
- Calculate the total **PRIZE**
- **Track** implementation
- Engage **Public Relations** Experts
- Use **scorecards, posters, newsletters, etc.**
- Conduct Energy **Summits**
- Form teams and a **network**
- **Recognize** & reward key contributors



Sharing by Nissan

- Show **top management** support
- **Define** energy efficiency replication
- **Communicate** everything to everybody
- Use all communication **tools**
- Establish formal **training**
- Participate in **budgeting**
- Be aware of communication **competition**



Implement Routines

- Develop a replication **scorecard**
- Schedule regular **reviews** with senior management
- **Cash the check**
- Establish **criteria** for replication results
- Ensure energy is consistent with **corporate goals**
- Integrate energy with the **Business Plan**
- **Celebrate** accomplishments
- Link **pay** with performance incentives
- Gain momentum from **outside recognition**



Celebrate Accomplishments

- Sell the accomplishments but **sell with facts**
- Credit the **TEAM** – keep your ego in check
- **Publicize** results internally and externally
- **Reward** individuals



Observe Rewards/Recognition Guides

- Make **meaningful**
- Show **senior management** support
- Link with the **Business Units**
- Be **fair**
- Err on the side of **too much** not too little



Publicize Results

- Turn achievements into **company culture messages**
- Create “**Neighbor Newsletters**”
- Make **posters** telling the story
- Use **bulletins/case studies/success stories**
- Offer material for the **Annual Report**
- Link to **sustainability**



Replication Wrap

- **Design one** – build many
- Integrate elements into **corporate culture**
- **Repeat** key elements
- Include **senior management**
- Use **communication** tools
- **Recognize** contributors
- Tune in to **WII-FM**



Champion of Replication

- **Steve Schultz**
- 3M
- Corporate Energy Manager
- Focus is on Replication

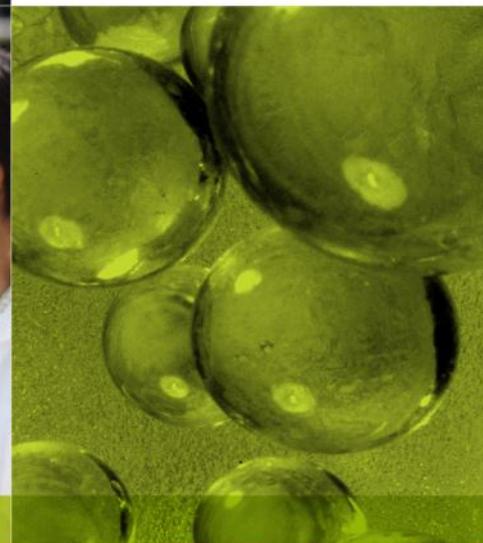


Build Replication into the Corporate Culture



Energy Efficiency
a Competitive Advantage





Who we are



3M is the Innovation Company That Makes Progress Possible

- Create transformational products and solutions that enable customer success and improve people's lives around the world
- Collaborative, high-energy approach to solving the toughest problems across industries and markets:
 - *Constantly exchange and build on each other's ideas*
 - *Uncover new connections between seemingly unrelated markets and more than 40 diverse technology platforms*
 - *Culture of intellectual curiosity and creativity that pushes boundaries*

One Strong Brand, Complemented by Many Strategic Brands

- 3M named one of the Best 100 Global Brands by strategic brand consultancy, Interbrand in 2010
- Proud of the household names we have created with our market leading strategic brands
- Our strategic brands play an integral role in strengthening the 3M brand and allowing us to deliver tangible results that enable customer success

At 3M, we continuously build on each other's ideas...



...to innovate unexpected solutions and make progress possible

Acknowledged by Opinion Formers



Most Visible
3M Ranks 3rd



Most Reputable Companies
3M Ranks 4th



European Best
Multi-national Workplaces
3M Ranks 5th



Most Admired Companies
3M Ranks 15th



Top Public Companies
3M Ranks 7th



Most Innovative Companies
3M Ranks 3rd



7 time ENERGY STAR® Sustained
Excellence Award Winner



Among Best Companies
for Leadership



Environmental Results Worldwide

Our progress toward sustainability

- Prevented the generation of 2.9 billion pounds of pollutants since 1975 with more than 7,400 3P projects.
- Cut volatile organic air emissions 95%.
- In 2011 again, received the ENERGY STAR Sustained Excellence Award for Energy Management.
- 3M reduced absolute greenhouse gas emissions by 69% from 1990-2008.



3M Global Operations

Energy
Efficiency
as a 3M
Competitive
Advantage

3M Energy Management Program

Research and
Development

New Products
and Processes

Engineering

New Facilities
and Equipment

Support
Implementation
of Energy
Projects

Existing
Operations

Plant Energy
Teams

Sourcing

Procurement of
Energy

Environmental
Operations

Cooperate and
Leverage
Energy Related
Environmental
Aspects

Suppliers

Reduce
Imbedded
Energy Costs,
Environmental
Impacts, and
Future Risks

Customers

Add Value to
Customer
Relationships

Corporate Energy Goals

2005 - 2010

Target: Reduce energy usage by 20% based on Btu's per unit of product

Scope: All divisions/countries

Process:

- **Top-down** consistent company-wide target
- Businesses develop prioritized plans for projects & spend and measured by results
- Facilities report data quarterly

2010 - 2015

Target: 25% improvement in energy utilization

Rationale: Consistent with U.S. Department of Energy Save Energy Now Leaders pledge

Process:

- **Top-down** consistent company-wide target
- Businesses responsible for results

Objectives

1. Encourage businesses to think in terms of energy strategically
2. Encourage facilities to continue to drive site-specific reductions

Scope and Structure

- Energy use and costs tracked at over 200 locations in 39 countries world-wide
- Energy teams at each of 56 larger locations
- Management supports teams through annual plans
- Corporate Energy Management provides resources including quarterly progress reports
 - Guidelines for energy teams
 - Best Practice sharing
 - Monthly web conferences
 - \$ for Funding Energy Projects
 - Access to experts
 - Assessments
 - Awards and Recognition

Site Specific Goals (annual)

- 4% reduction in energy use per pound of product produced (or square foot of space if a non production facility)
- Implement projects representing savings of 3% of 2010 energy spend
- Score 85% or greater on Plant Energy Program Effectiveness Rating

Track Progress

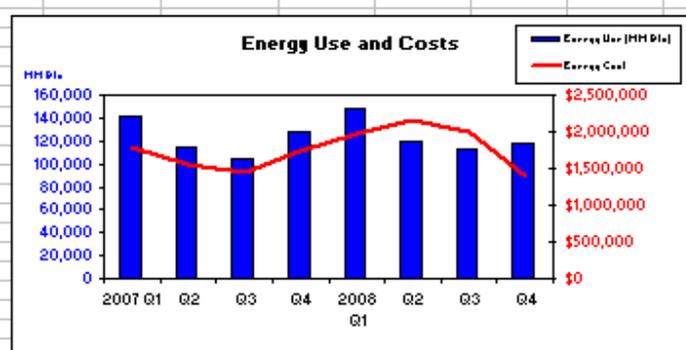
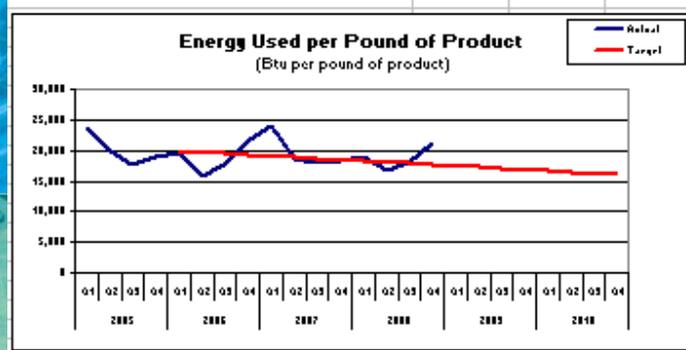
- Site Energy Data System
 - *Tracks energy use and cost information for each 3M site world-wide (more than 200 locations)*
 - *Production inputs from corporate Environmental Targets database*
- Energy Cost Reduction Projects database
 - *Tracks energy projects being implemented at each 3M location (more than 3,700 projects)*
 - *Share information on successful projects*
- Plant Energy Program Effectiveness Rating
 - *Standardized methodology to measure team effectiveness*

July 20, 2009

3M Plant Dashboard

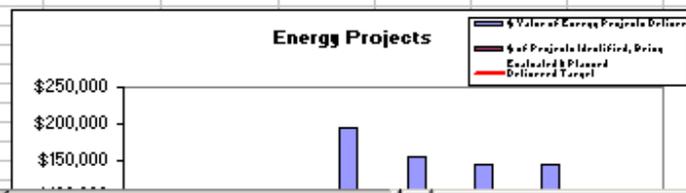
	2007 Q1	Q2	Q3	Q4	2007 Total	2008 Goal	2008 Q1	Q2	Q3	Q4	Total 2008
Energy Trend											
Btu/Pound of Product	23,843	18,761	17,845	18,255	19,617	18,833	18,838	16,593	17,859	21,271	18,510
Change ¹						-4%	-20.39%	-11.56%	0.08%	16.52%	-5.64%
Energy Use (MM Btu)	141,960	114,554	104,194	128,370	489,079	469,515	147,804	120,083	112,512	118,650	499,049
Change							4.12%	4.83%	7.98%	-7.57%	2.04%
Energy Cost	\$1,792,949	\$1,559,032	\$1,441,025	\$1,732,413	\$6,525,420	\$6,264,403	\$1,985,083	\$2,164,435	\$1,996,674	\$1,397,109	\$7,543,300
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Energy Cost per MM Btu	\$12.63	\$13.61	\$13.83	\$13.50	\$13.34		\$13.43	\$18.02	\$17.75	\$11.78	\$15.12
World Class Rating											
Plant Energy Program Effectiveness Rating ²	30%	30%	30%	30%	30%	85%	87%	87%	92%	92%	92%
Projects											
\$ Value of Energy Projects Delivered	\$109,772	\$63,126	\$63,126	\$195,181	\$431,204	\$261,017	\$155,142	\$144,899	\$144,899	\$32,770	\$477,710
\$ Value of Energy Projects Delivered as a % of Plant Energy Spend ³	6.1%	4.0%	4.4%	11.3%	6.6%	4%	7.8%	6.7%	7.3%	2.3%	7.3%
\$ of Projects Identified, Being Evaluated & Planned	NA	NA	NA	NA	NA		\$0	\$0	\$0	\$20,369	\$20,369

Award Points	
5	out of 5
5	out of 5
15	Platinum Level Award
Possible Award Levels:	
	Platinum
	Gold
	Silver
	Bronze



Other Critical Metrics

2008 Energy Costs as a Percent of Total Plant Operating Costs	0%
Potential Savings From Energy Projects Not Yet Completed	\$816,464
Percent Energy Projects Completed	69.26%



3M Site Energy Data System (SEDS) Reports

Generate Report Close

3M *Energy Management*

Energy Report

Step-by-Step:

Select Report Type

- Energy Usage Total MMBTU
- Energy Usage Per Square Foot
- Energy Purchased Total MMBTU
- Energy Per Pound of Product
- Purchased Cost Total in USD
- Energy Usage Detail

Select Time Range

- Month(s)
- Quarter(s)

Select Year(s)

From:

To:

Select Criteria

- All Sites
- By Site
- By Business
- By Division
- By Country
- By Region
- By Site Tier
- By Site Ownership
- By Site Classification
- By Site Status



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3M Plant Dashboard

Energy Trend

Btu/Pound of Product

Change¹

Energy Use (MM Btu)

Change

Energy Cost

Change

Energy Cost per MM Btu

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World Class Rating

Plant Energy Program Effectiveness Rating²

90%	90%	90%	90%	90%	85%	87%	87%	92%	92%	92%
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Projects

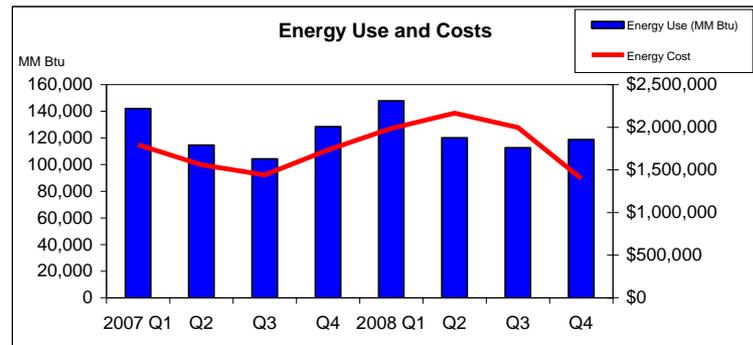
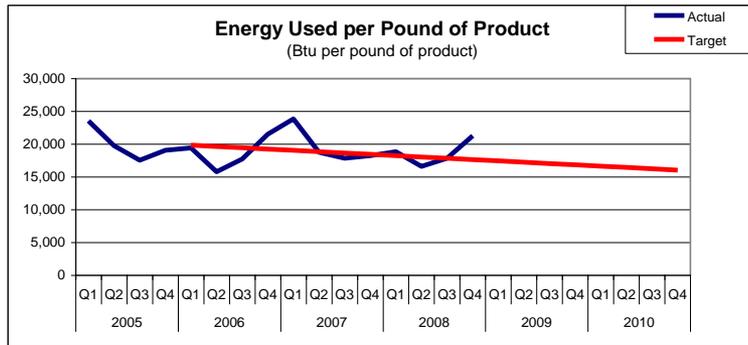
\$ Value of Energy Projects Delivered

\$ Value of Energy Projects Delivered as a %

of Plant Energy Spend³

\$ of Projects Identified, Being Evaluated & Planned

\$109,772	\$63,126	\$63,126	\$195,181	\$431,204	\$261,017	\$155,142	\$144,899	\$144,899	\$32,770	\$477,710
6.1%	4.0%	4.4%	11.3%	6.6%	4%	7.8%	6.7%	7.3%	2.3%	7.3%
NA	NA	NA	NA	NA		\$0	\$0	\$0	\$20,369	\$20,369



Other Critical Metrics

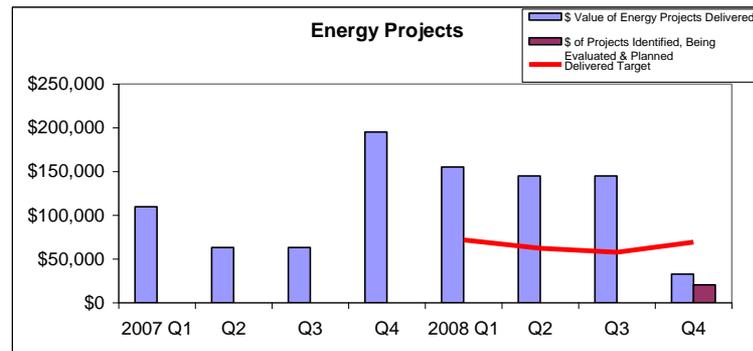
2008 Energy Costs as a Percent of Total Plant Operating Costs	TBD
Potential Savings From Energy Projects Not Yet Completed	\$816,464
Percent Energy Projects Completed	69.26%

Dashboard Color Signals

¹ Green (-4% or more), Yellow (-3.9% - -2%), Red (-1.9% or less)

² Green (85% or more), Yellow (70% - 84%), Red (69% or less)

³ Green (4% or more), Yellow (3.9% - 2%), Red (1.9% or less)



3M Energy Cost Reduction Projects Database



ECRP v2.5

- ☰ All Programs
- ▶ **By Location**
- ☰ By Business
- ☰ By Division
- ☰ By Program Owner
- ☰ By Program Type
- ▶ By Projects
- ☰ By Savings
- ☰ By Status
- ☰ By Technology Type
- ▶ Administration
- ☰ All Documents
- ☰ Location
- ☰ NxECRPReportDataExpri
- ☰ SCS View
- 👤 Generate Report
- 💡 Submit feedback

New ECRP Edit ECRP Print ECRP Help					
Search in View 'Energy Programs\By Location'					
Search for					Search
	Program Name	Program Owner	Measure Start Qtr	Program Status	Target Sav 12-Months
★	▶ 3M Austin Center				553,378
★	▶ 3M Center - Maplewood				14,430,550
★	▶ Aberdeen				1,340,227
	▼ Alexandria				377,455
★	▶ Awareness				26,000
★	▶ Practice				89,300
	▼ Project				262,155
★	▶ Identified				1,500
★	▶ Being Evaluated				1,500
★	▶ Planned				2,000
★	▶ On Hold				21,000
★	▶ Delivered				221,155
★	▶ Dropped				15,000
★	▶ Amersfoort				18,535
★	▶ Atherstone				1,457,491
★	▶ Austin - Research Blvd.				175,377
★	▶ Aycliffe				535,046
★	▶ Bangalore				31,868
★	▶ Bangor				477,146
★	▶ Beauchamp				1,730,940
★	▶ Bedford				155,724
★	▶ Belle Mead				874,975
★	▶ Bentonville				0
★	▶ Bracknell				1,859,428
★	▶ Bracknell Head Office/CTC				169,125



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Search in View 'Energy Programs\By Technology Type'						
Search for						Search
	Program Name	Program Owner	Measure Start Qtr	Program Status	Target Sav 12-Months	Project C
★	▶ Boilers				17,330,083	
★	▶ Building Envelope				1,500,706	
★	▶ Chiller Systems				9,915,034	
★	▶ Compressed Air Systems				12,019,336	
★	▶ Emission Control Systems				16,190,944	
★	▶ Heating Ventilating and Air Conditioning				32,679,225	
★	▶ Lighting Systems				9,618,149	
★	▶ Motor Systems				6,644,911	
★	▶ Other				30,453,691	
★	▶ Other Electrical Systems				12,607,364	
★	▶ Other Mechanical Systems				2,247,512	
★	▶ Process Improvements				21,146,222	
★	▶ Renewable Energy				2,051,000	
★	▶ Steam and Condensate Systems				18,456,659	
					192,860,833	



July 20, 2009

3M Plant Dashboard

Energy Trend

Btu/Pound of Product
 Change¹
 Energy Use (MM Btu)
 Change
 Energy Cost
 Change
 Energy Cost per MM Btu

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World Class Rating

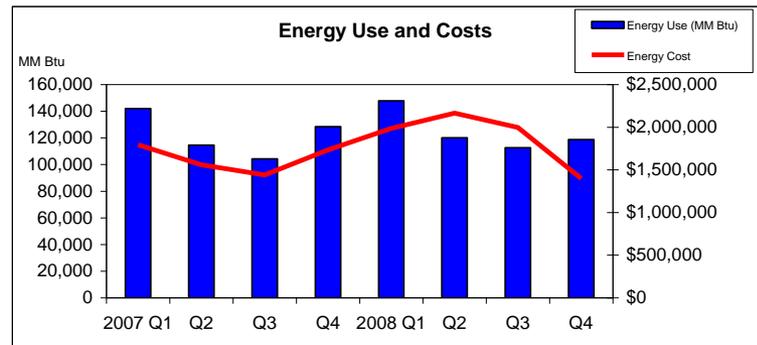
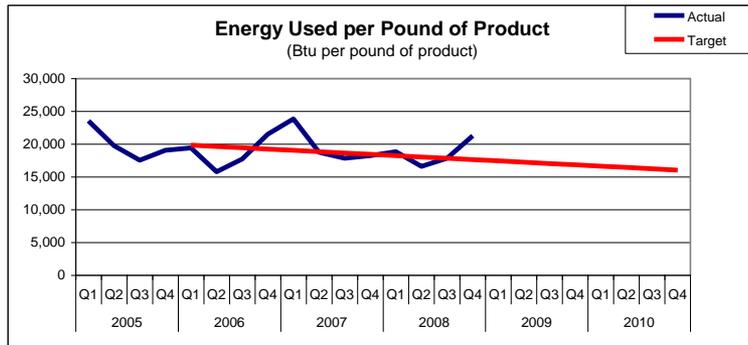
Plant Energy Performance Rating²

	2007 Q1	Q2	Q3	Q4	2007 Total	2008 Goal	2008 Q1	Q2	Q3	Q4	Total 2008
Plant Energy Performance Rating ²	90%	90%	90%	90%	90%	85%	87%	87%	92%	92%	92%

Projects

\$ Value of Energy Projects Delivered
 \$ Value of Energy Projects Delivered as a %
 of Plant Energy Spend³
 \$ of Projects Identified, Being Evaluated & Planned

	2007 Q1	Q2	Q3	Q4	2007 Total	2008 Goal	2008 Q1	Q2	Q3	Q4	Total 2008
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\$ of Projects Identified, Being Evaluated & Planned	NA	NA	NA	NA	NA		\$0	\$0	\$0	\$20,369	\$20,369

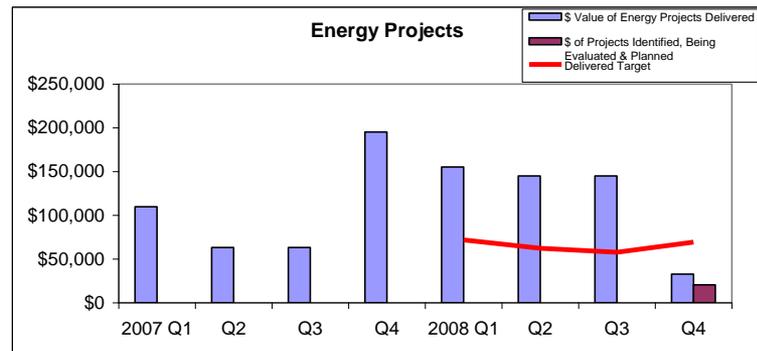


Other Critical Metrics

2008 Energy Costs as a Percent of Total Plant Operating Costs	TBD
Potential Savings From Energy Projects Not Yet Completed	\$816,464
Percent Energy Projects Completed	69.26%

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3M Plant Energy Program Effectiveness Rating

3M Facility Energy Management Assessment For 2009

3M Location: Enter the name of the facility being assessed here			
Team Members: Enter the names of the facility energy team members here			
Scoring Guideline			Improvement Plan For 2009
Score your site energy program on these criteria using a 0 to 5 scale, where 0 = no level of implementation, 3 = some level of implementation, and 5 = all aspects fully implemented. Enter your score in the cells shaded grey.			
Commitment to Continuous Improvement			
<p>A. Senior management actively supports the energy program and promotes energy efficiency in all aspects of site operations.</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>B. Site energy goals and objectives have been established and communicated.</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>C. Plant Energy Team is in place and functioning. The team has active representation from Plant Engineering, Resident Engineering and Production. The team meets monthly.</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>Your Level of Implementation In This Category</p> <p style="text-align: right;">0%</p>
<p>D. The Energy Champion is recognized and empowered having site manager and senior management support. Champion has energy as an expectation on their EC&DP.</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>			
Assess Performance and Opportunities			
<p>A. Metering is in place to track energy use for each major energy using operation within the plant. Energy costs are recharged to the departments in the plant according to their actual usage</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>B. The highest energy using equipment has been identified. The operating efficiency of the highest energy using equipment has been determined. Methods of maintaining the efficiency of this equipment have been put into place.</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>C. Complete walk-through audit of the entire facility has been performed within the last twelve months.</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>Your Level of Implementation In This Category</p> <p style="text-align: right;">0%</p>
<p>D. Energy opportunity assessments by internal or external professionals have been conducted within the last 5 years</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>E. Manufacturing processes have been reviewed. Ideas for improved process energy utilization have been identified</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	<p>F. Local utilities and agencies have been consulted to help identify energy cost saving ideas and to determine whether rebates and incentives are available for energy projects.</p> <p>A score between 0 and 5 is allowed.</p> <p style="text-align: right;">0</p>	



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3M Plant Dashboard

Energy Trend

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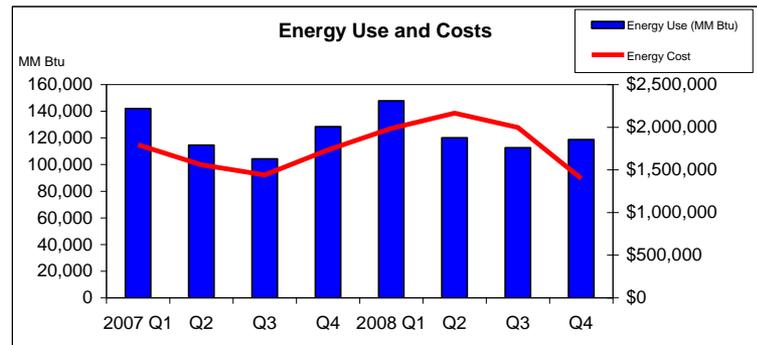
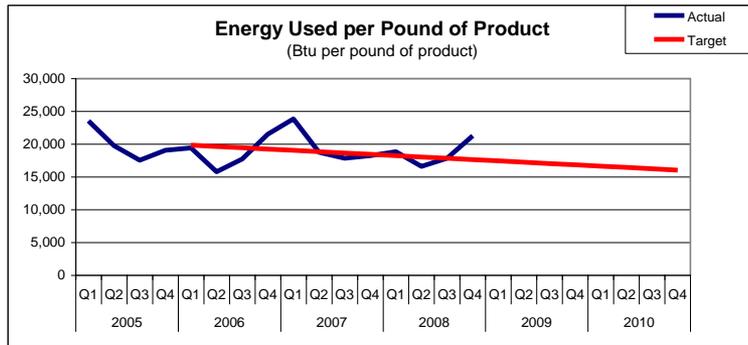
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6.1%	4.0%	4.4%	11.3%	6.6%	4%	7.8%	6.7%	7.3%	2.3%	7.3%
NA	NA	NA	NA	NA		\$0	\$0	\$0	\$20,369	\$20,369

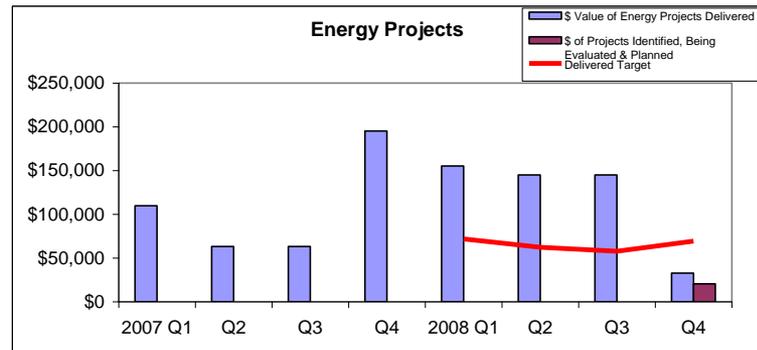


Other Critical Metrics

2008 Energy Costs as a Percent of Total Plant Operating Costs	TBD
Potential Savings From Energy Projects Not Yet Completed	\$816,464
Percent Energy Projects Completed	69.26%

Dashboard Color Signals

¹ Green (-4% or more), Yellow (-3.9% - -2%), Red (-1.9% or less)
² Green (85% or more), Yellow (70% - 84%), Red (69% or less)
³ Green (4% or more), Yellow (3.9% - 2%), Red (1.9% or less)

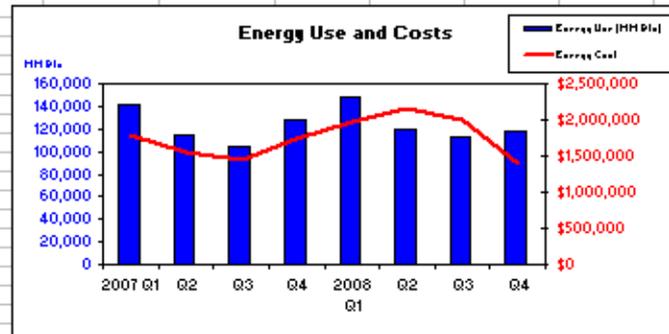
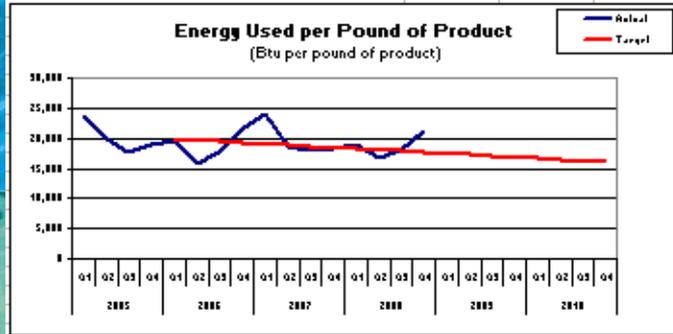


July 20, 2009

3M Plant Dashboard

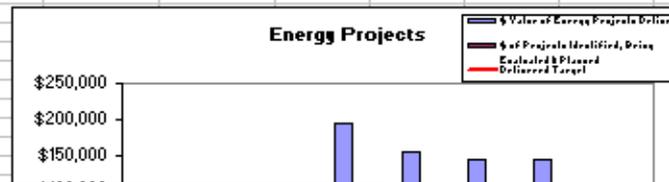
	2007 Q1	Q2	Q3	Q4	2007 Total	2008 Goal	2008 Q1	Q2	Q3	Q4	Total 2008
Energy Trend											
Btu/Pound of Product	23,843	18,761	17,845	18,255	19,617	18,833	18,838	16,593	17,853	21,271	18,510
Change ¹						-4%	-20.99%	-11.56%	0.08%	16.52%	-5.64%
Energy Use (MM Btu)	141,360	114,554	104,194	128,370	489,079	469,515	147,804	120,083	112,512	118,650	499,049
Change							4.12%	4.83%	7.98%	-7.57%	2.04%
Energy Cost	\$1,792,949	\$1,559,032	\$1,441,025	\$1,732,413	\$6,525,420	\$6,264,403	\$1,985,083	\$2,164,435	\$1,996,674	\$1,397,109	\$7,543,300
Change							10.72%	38.83%	38.56%	-19.35%	15.60%
Energy Cost per MM Btu	\$12.63	\$13.61	\$13.83	\$13.50	\$13.34		\$13.43	\$16.02	\$17.75	\$11.78	\$15.12
World Class Rating											
Plant Energy Program Effectiveness Rating ²	90%	90%	90%	90%	90%	85%	87%	87%	92%	92%	92%
Projects											
\$ Value of Energy Projects Delivered	\$109,772	\$63,126	\$63,126	\$195,181	\$431,204	\$261,017	\$155,142	\$144,899	\$144,899	\$32,770	\$477,710
\$ Value of Energy Projects Delivered as a % of Plant Energy Spend ³	6.1%	4.0%	4.4%	11.3%	6.6%	4%	7.8%	6.7%	7.3%	2.3%	7.3%
\$ of Projects Identified, Being Evaluated & Planned	NA	NA	NA	NA	NA		\$0	\$0	\$0	\$20,369	\$20,369

Award Points	
5	out of 5
5	out of 5
15	Platinum Level Award
Possible Award Levels:	
	Platinum
	Gold
	Silver
	Bronze



Other Critical Metrics

2008 Energy Costs as a Percent of Total Plant Operating Costs	0%
Potential Savings From Energy Projects Not Yet Completed	\$816,464
Percent Energy Projects Completed	63.26%



3M Energy Management Program Results Year-end 2010

Business	ET'10 2005 to 2010 Change Goal: -20%	2010 Energy Per Pound of Product Change Goal: -4%	Energy Costs 2009 2010 % Change	Savings from Energy Projects in 2010
Consumer & Office Supply	-xx.x%	-x.x%	\$xx,xxx,xxx \$xx,xxx,xxx xx.x%	\$x,xxx,xxx
Display & Graphics	-xx.x%	-x.x%	\$xx,xxx,xxx \$xx,xxx,xxx x.x%	\$x,xxx,xxx
Electro & Communications	-xxx%	x.x%	\$x,xxx,xxx \$x,xxx,xxx xx.x%	\$xxx,xxx
Health Care	-xx.x%	-x.x%	\$x,xxx,xxx \$x,xxx,xxx xx.x%	\$xxx,xxx
Industrial & Transportation	x.x%	-x.x%	\$xx,xxx,xxx \$xx,xxx,xxx xx.x%	\$xxx,xxx
International	-xx.x%	-xx.x%	\$xxx,xxx,xxx \$xxx,xx,xxx xx.x%	\$x,xxx,xxx
S, S & P	xx.x%	-xx.x%	\$x,xxx,xxx \$x,xxx,xxx x.x%	\$x,xxx
Corporate Services	-x.x%	-xx.x%	\$xx,xxx,xxx \$xx,xxx,xxx xx.x%	\$x,xxx,xxx
Corporate Total	-x.x%	-xx.x%	\$x \$x xx.x%	\$x



Energy Recognition Program

- Tier I Locations
- Based on a Point System Using Energy Dashboard Results
- Team Award – Entire Plant Energy Team Qualifies
- Annually
- Self Nomination
 - *Tier II Locations*
 - *Maximum Award – Gold Level*



Award Levels

Award Level	Dinner	Lunch/ Coffee	Certificate
Platinum	Team with Significant Others		X
Gold		Team Box Lunch	X
Silver		Team Coffee, Cookies	X
Bronze			X



2011 Plant Energy Award Winners!

Platinum	Gold	Silver	Bronze
Cordova Cynthiana Decatur Prairie du Chien Tonawanda Brockville Tape Hilden Kamen Ribeirao Preto Seefeld Sumare Yang-Mei	Brookings Greenville Hutchinson Nevada Gendorf Higashine Neuss Xin Qiao	3M Center Brownwood Corona Cottage Grove Guin Knoxville Pittsboro Springfield Gorseinon London, Ontario San Luis Potosi Tilloy	New Ulm Wausau
* For results achieved in 2010			



Plant Energy Award Winners



**3M Sumare, Brazil Energy Team Receiving 2008
Platinum Energy Award from 3M CEO**



Energy Award Celebrations

3M Senior Vice President
John Woodworth

Corporate
Communications

Engineering Leaders

Plant Energy Champion

Vice President , 3M
Environmental, Health and Safety



**3M Team Accepting 2010 ENERGY STAR Award in
Washington, D.C.**



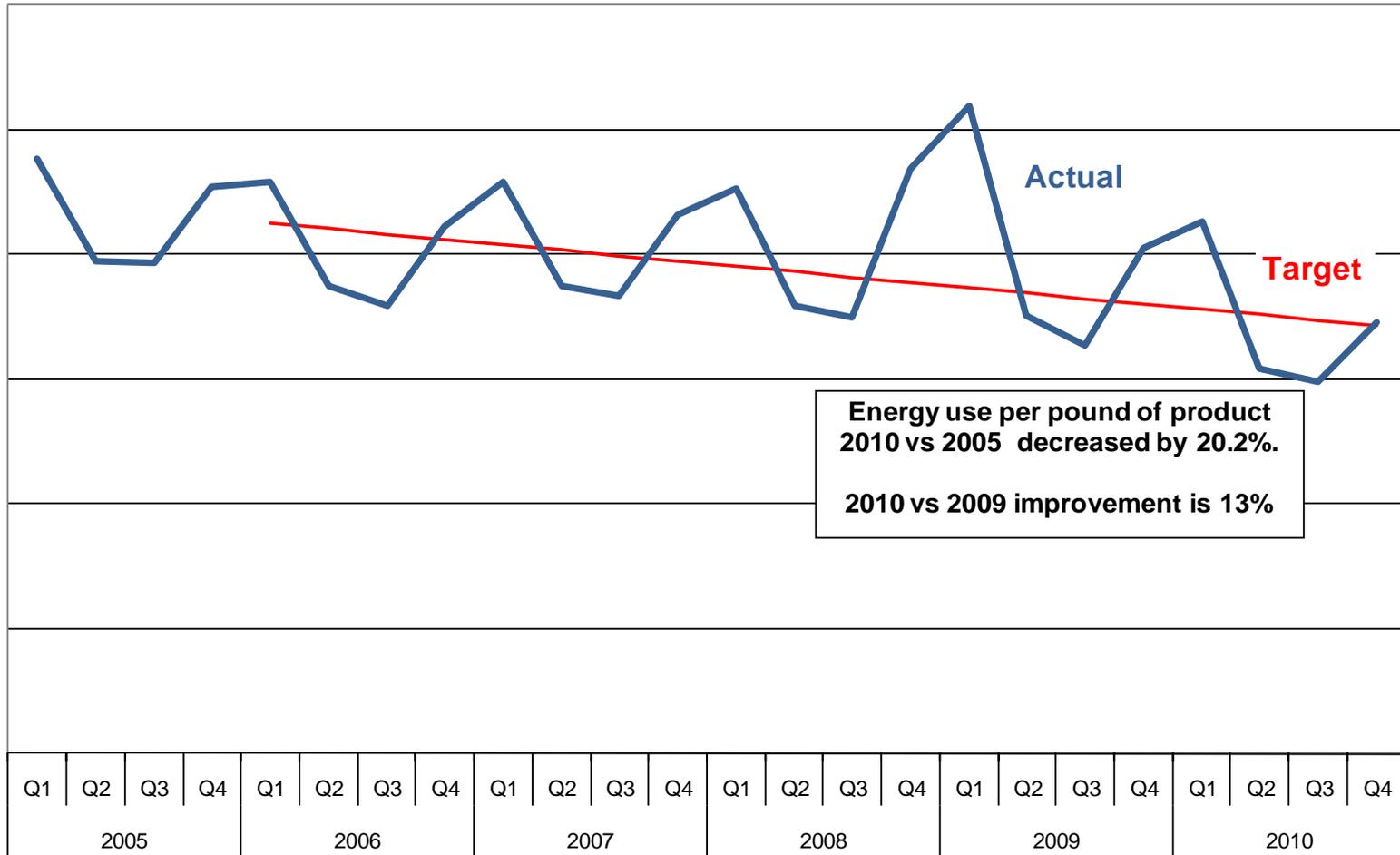
Energy Award Celebrations



3M Decatur, Alabama Team Accepting Save Energy Now Award at Gulf Coast Industrial Energy Efficiency Forum



Results – Btu's per Pound of Product





Seventh Consecutive Year !



Innovation



Last Webinar in the Replication Series

- **Thank you** for participating
- Check the **DOE Website** for copies and tools:
http://www1.eere.energy.gov/industry/saveenergynow/leader_webinars.html
- DOE will advise you of **future happenings**



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lbixby@bcs-hq.com

