3M Global Energy Management Program - Driving Improvements In Energy Efficiency

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Topics to be Discussed

- 3M Overview
- 3M Values - Supporting Reasons for Managing Energy
- Global Program - Objectives, Strategy, Key Components
- Program Execution - What We Do
- Global Corporate Results
- Energy Matters Specific to Brazil and LA
- Activities and Results at 3M Brazil and LA
- Lessons Learned
3M Global Energy Management Program

Driving Improvements in Energy Efficiency
Six Market-Leading Businesses
Net Sales (billions)

Solid Top-Line Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Net Sales (billions)</th>
</tr>
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<tbody>
<tr>
<td>2003</td>
<td>$18.2</td>
</tr>
<tr>
<td>2004</td>
<td>$20.0</td>
</tr>
<tr>
<td>2005</td>
<td>$21.2</td>
</tr>
<tr>
<td>2006</td>
<td>$22.9</td>
</tr>
<tr>
<td>2007</td>
<td>$24.5</td>
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Leading Through Innovation
Enhancing safety and security
Making life better around the home
Improving the quality of health care
Solving Problems Everywhere

- Operate companies in more than 60 countries and sell products in more than 200
- 63 percent of sales are outside the United States
- More than 42,000 employees internationally
- We provide ‘borderless customer success’
Our Values

- Act with uncompromising honesty and integrity in everything we do
- Satisfy our customers with innovative technology and superior quality, value and service
- Provide our investors an attractive return through sustainable, global growth
- Respect our social and physical environment around the world
- Value and develop our employees’ diverse talents, initiative and leadership
- Earn the admiration of all those associated with 3M worldwide
Environmental Results Worldwide

Our progress toward sustainability

- Prevented the generation of 2.7 billion pounds of pollutants since 1975 with more than 6,800 3P projects.
- Cut volatile organic air emissions indexed to net sales 69% since 2000 (on top of a 93% reduction from 1990 – 2000).
- In 2008, again received the ENERGY STAR Sustained Excellence Award for Energy Management.
- 3M reduced absolute greenhouse gas emissions by 54% from 1990-2006.
Corporate Goals - Energy Reduction

• **Corporate Goal:**
  
  • 20% reduction in energy use / net sales from 2006 – 2010

• **Supporting Positions:**
  
  • Corporate Energy Policy
  
  • Corporate Energy Management Group leads program
  
  • CEO and Executive Conference Members receive quarterly progress updates
Corporate Energy Management

Provide Global Leadership to

- Control Energy Costs
- Improve Operational Efficiency
- Reduce Environmental Impacts
- Ensure Reliable Supplies of Energy Are Available for 3M Operations

Making Energy Efficiency a Competitive Advantage
Resources Available

- **Plant Program, Implementation Guide, Best Practices**
- **Technology Specific Programs**
  - *HVAC Recommissioning, Lighting, Compressed Air*
- **Web Page, Energy Database, Projects Database**

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- **Energy Dashboard and Reports**
- **Regional Meetings, Conference Calls and Web-meetings, Internal Awards**
Resources Available

- Engineering Technology Chapters
  - Focus on Energy Conference Calls with Plant Energy Teams
  - Oven and Thermal Oxidizers
- Plant Energy Opportunity Assessments
  - Internal
  - External
- Lean Six Sigma
  - Energy Kaizens and Value Stream Mapping
Successful Projects

- **Compressed Air System Upgrades**
  - 3M Cynthiana, Kentucky - Provide adequate compressor capacity along with dryers, storage, and demand sequencers to properly operate the compressed air system.
  - $137,000 annual savings, $350,000 cost to implement

- **Adjustable Frequency Motor Controllers**
  - 3M Kamen, Germany – Install adjustable frequency motor controllers to control speed of chilled water pumps and eliminate bypass valves.
  - $90,000 annual savings, $25,000 cost to implement
Successful Projects

- **3M Sumare - Brazil – Compressed Air**

  - Implemented new air compressed and improve air quality;
  - Increase efficiency from 3590 to 6400 CFM/MWh;
  - Reduced US$ 96,000/year
Successful Projects

- 3M Sumare - Brazil – Chillers Retrofit

- Replacement of condenser/evaporator
- Change body and components;
- Installation of Microprocessed Controller

Efficiency increases 20%
Successful Projects

- 3M Sumare - Brazil – IT/Data Center cool system

<table>
<thead>
<tr>
<th>Cool System</th>
<th>MWh/m before</th>
<th>MWh/m after</th>
<th>Reduction</th>
</tr>
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<tbody>
<tr>
<td>Data Center</td>
<td>70.84</td>
<td>42.86</td>
<td>-39%</td>
</tr>
<tr>
<td>IT room</td>
<td>18.28</td>
<td>5.96</td>
<td>-67%</td>
</tr>
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Reduction of 265 MWh/year
Savings US$ 28,900/year
3M Global Energy Improvement

Btu’s used per $ of Sales

Actual

Target

Btu’s per $ Net Sales

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010
3M is the only industrial company in the U.S. to earn the ENERGY STAR Sustained Excellence Award five years in a row!
International Recognition

The Energy Efficiency Accreditation Scheme is the UK’s only independent award recognising achievements in reducing energy use by leading organisations in industry, commerce and the public sector.

José Antonio Díaz, Electrotelecommunications and Image Director, 3M México, Santa Fe shown receiving the National Energy Saving Award from the Minister of Energy, Mexico government.
3M Sumare - Brazil

Energy Management Awards

2004 Silver Level Award
Sumare Energy Team

2005 Bronze Level Award
Sumare Energy Team

2007 Bronze Level Award
Sumare Energy Team

2008 Platinum Level Award
Sumaré Energy Team

Mr. Bucley - 3M CEO and Sumare Energy Team
Lessons Learned

- Corporate Goal
- Executive Management Engagement
- Corporate Energy Management Group
- Accountability at Operations Level
- Resources
- Recognition and Motivation