

3M's Energy Management Program

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3M Environmental Initiatives &
Sustainability

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Agenda

- Introduction
- Greenhouse Gas Management
- Energy Goals & Progress
- Corporate Strategic Energy Management Plan
- Facility Energy Management
- Renewable Energy Investments

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Corporate Profile

- **Founded in 1902**
- **Headquartered in St. Paul, MN, USA**
- **2006 Information**
 - **Sales:** \$22.9 billion (61% Internationally)
 - **R&D and Related Expenditures:** \$1.2 billion
 - **Employees:** 69,315 (52% Internationally)
- **Diversified Technology Company**
 - 40 technology platforms (e.g. adhesives, abrasives, nanotechnology, microreplication)
 - Over 50,000 products
 - Operations in more than 60 countries and products sold in nearly 200 countries
- **3M is one of 30 companies in the Dow Jones Industrial Average**

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Market Sectors



**Display and
Graphics**



**Consumer
and Office**



**Industrial and
Transportation**



**Electro and
Communications**



**Safety, Security
and Protection
Services**



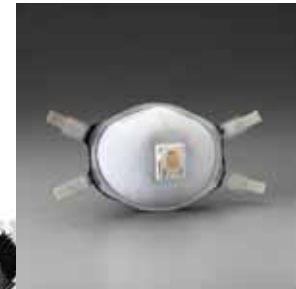
**Health
Care**

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3 Products



Managing Greenhouse Gases

- **Global Greenhouse Gas (GHG) Inventory according to the GHG Protocol**
 - 2002 base year third-party verified
 - 1990 inventory third-party validated
- **Greenhouse Gas Emissions Targets**
 - **Global GHG Target:** 50% reduction in absolute GHG emissions globally (from a 1990 base year)
 - **RESULTS:** 54% reduction in 2006
 - **U.S. EPA Climate Leaders Goal:** 30% reduction in absolute GHG emissions in the U.S. from a 2002 baseline to 2007
 - **RESULTS:** 50% reduction in 2006
- **Greenhouse Gas Reductions:** manufacturing process improvements, **energy conservation, renewable energy**, and additional pollution control equipment

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Corporate Energy Reduction Goals - 2007

- **Internal Plant Goals:**

- 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 4% of 2006 Energy Spend

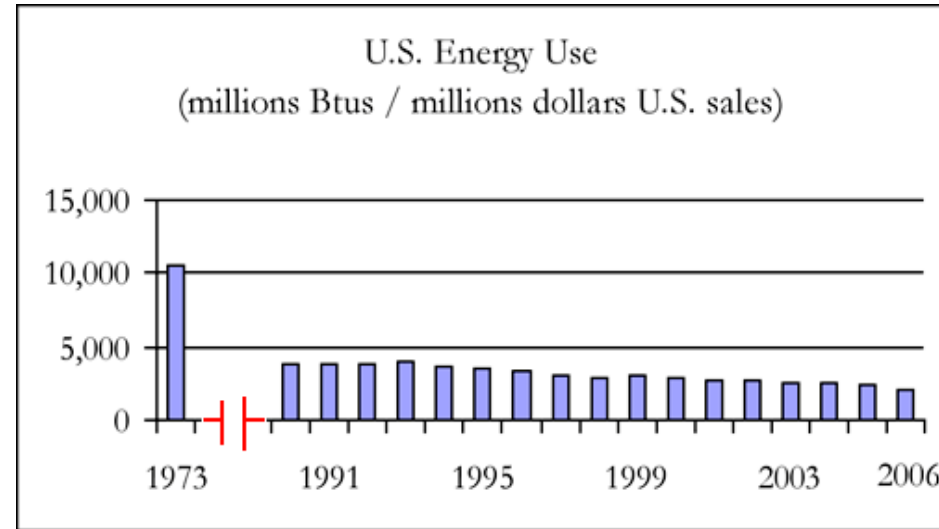
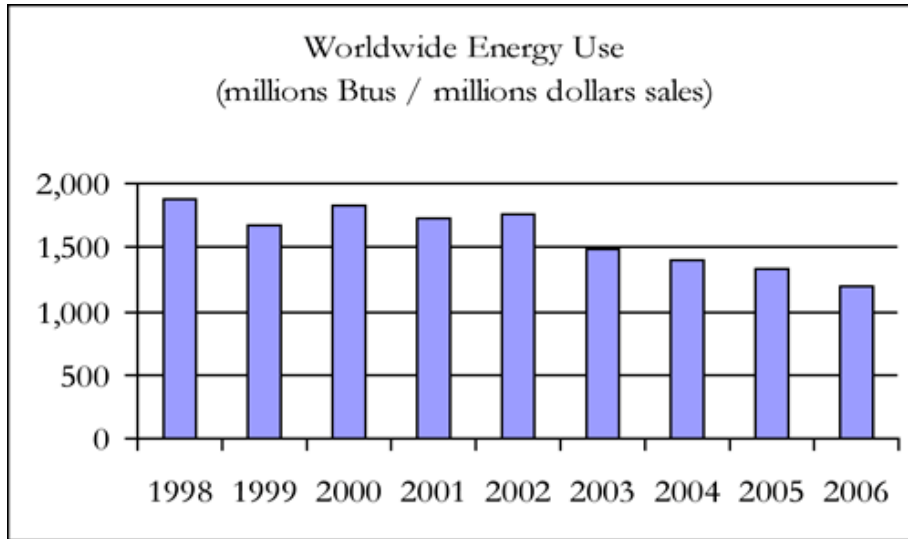
- **Corporate External Goal:** 20% reduction in energy use / net sales from 2006 – 2010.

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Energy Efficiency at 3M

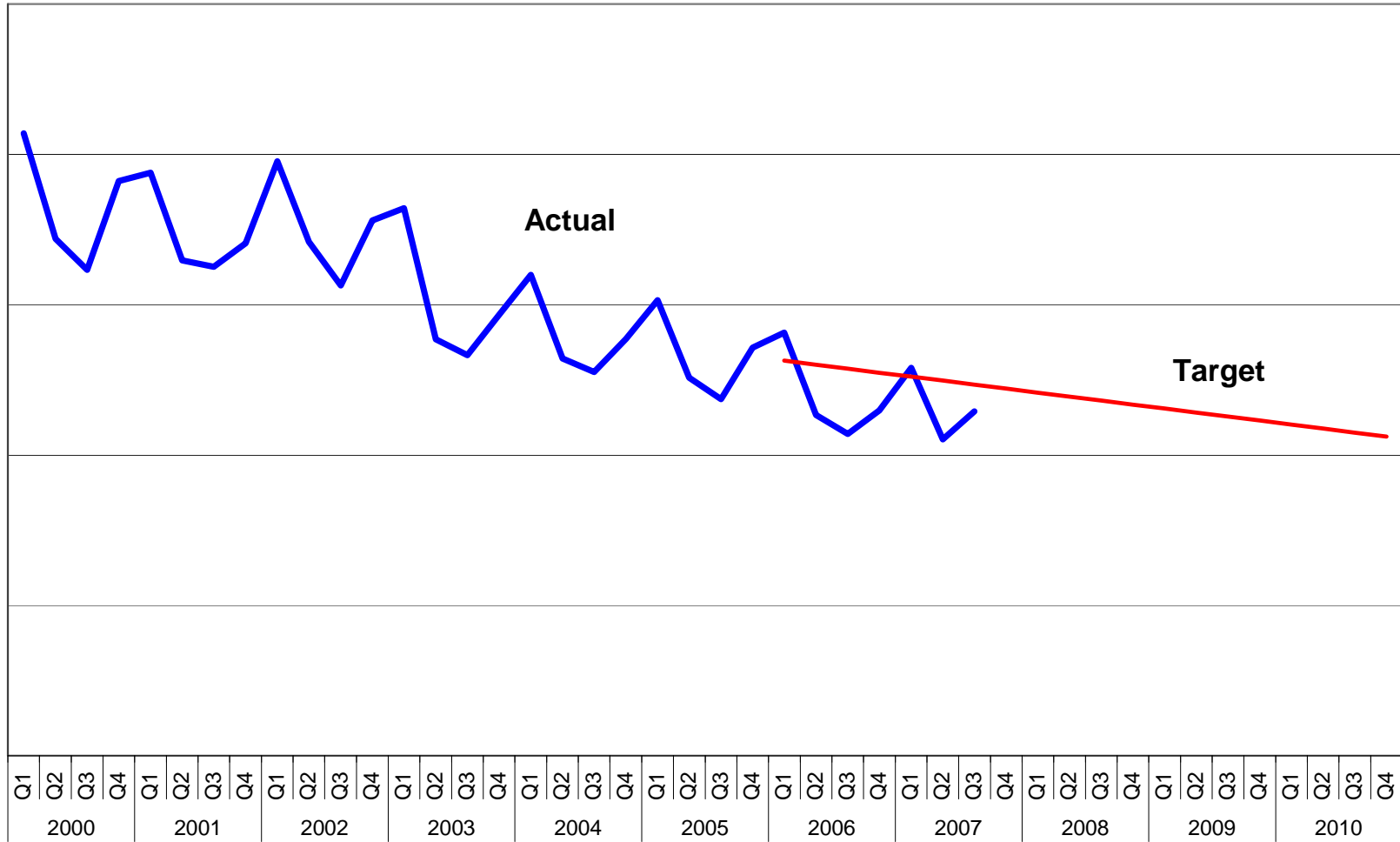
- 3M has had an Energy Management program since 1973.



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Results



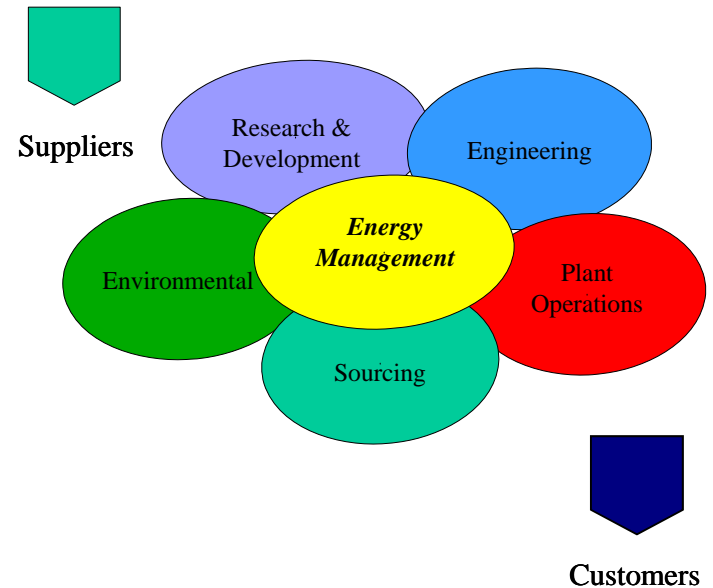
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Corporate Energy Management

Provide Global Leadership to

- **Control Energy Costs**
- **Improve Operational Efficiency**
- **Reduce Environmental Impacts**
- **Ensure Reliable Supplies of Energy Are Available for 3M Operations**
- **Develop and Implement Strategic Energy Management Plan**



Making Energy Efficiency a Competitive Advantage

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Strategic Energy Management Plan

- Developed Annually by Corporate Energy Management Team
- Outlines annually energy strategy and prioritizes tactics
- Sets oversight and guidance for Division and plant level planning processes
- Integrated into the Corporate strategic planning process

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Tools to Implement Strategic Energy Management Plan

- Road Map for Action
- Gaps in the Map
- Business and Country Energy Plans
- Facility Energy Teams
- Facility Energy Assessments
 - Internal resources
 - External resources

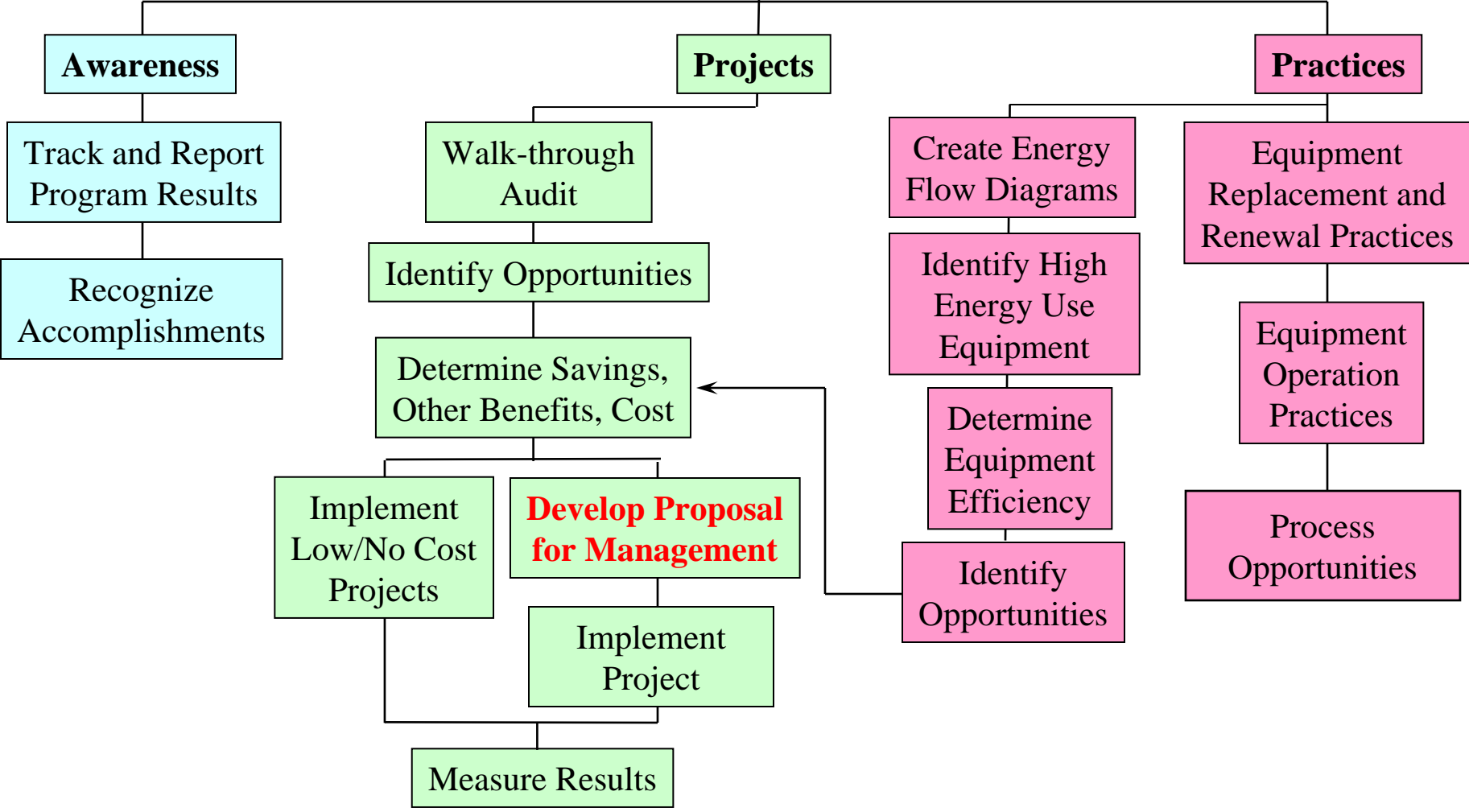
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Plant Energy Teams

Track Program Activities



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Energy Reduction Projects

- Completed 189 projects in 2006
 - Delivered \$18.2 million in savings
 - Energy use was reduced 2.9% from 2005
- Nearly 52 Six Sigma energy projects launched in 2006
- Total of 372 projects active in 2006

Energy Practices

- Significant Opportunity

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Quarterly Reviews with Senior Management

EHS Scorecards:

- All Facilities & Divisions
- Includes:
 - Energy per lb product
 - Total energy use

Energy Dashboards:

- Tier I Facilities (59 Largest Energy Users)
- Plant, Division, & Business Unit Level
- Includes:
 - Energy per lb product
 - Total energy use
 - Cost of energy
 - Energy team assessment
 - Value of energy projects implemented

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Energy Dashboard Example

3M Energy Program Dashboard

3M May 18, 2004	2003 Q1	Q2	Q3	Q4	2003 Total	2004 Goal	2004 Q1	Q2	Q3	Q4
Energy Trend										
Btu/Pound of Product	5,044	4,272	4,844	4,071	4,475	4,251	4,772	4,772	4,772	4,772
Change ¹	-0.38%	-8.64%	0.58%	-2.45%	-2.98%	-4%	-5.39%	11.69%	-1.49%	17.22%
Energy Use (MM Btu)	35,174	37,366	39,227	31,988	143,733	136,546	38,622	38,622	38,622	38,622
Change	7.34%	19.69%	20.39%	9.12%	14.18%		9.80%	3.36%	-1.54%	20.74%
Energy Cost	\$427,278	\$499,812	\$512,885	\$415,380	\$1,854,355	\$1,733,822	\$471,602	\$471,602	\$471,602	\$471,602
Change	9.64%	21.61%	18.57%	7.09%	14.39%		10.37%	-5.64%	-8.05%	13.53%
Energy Cost per MM Btu	\$12.15	\$13.38	\$13.07	\$12.99	\$12.90		\$12.21	\$12.21	\$12.21	\$12.21
World Class Rating										
World Class Energy Assessment Score ²	90%	88%	91%	92%	92%	85%	92%	88%	75%	85%
Projects										
\$ Value of Energy Projects Secured & Delivered	\$6,990	\$165	\$165	\$165	\$7,485	\$74,174	\$12,729	\$12,729	\$12,729	\$12,729
\$ Value of Energy Projects Secured as a % of Plant Energy Spend ³	1.6%	0.0%	0.0%	0.0%	0.4%	4%	2.7%	2.7%	2.7%	2.7%
\$ of Projects Identified, Being Evaluated & Planned	\$0	\$0	\$0	\$12,729	\$12,729		\$0	\$0	\$0	\$0

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Facility Energy Assessments-Internal Resources

- Facility Program Self-Assessment Tool
- Energy Audit Check Lists
- Corporate Energy Assessment Program
- Quarterly Energy Review Programs (top 20 energy users)
- HVAC Recommissioning Program
- Best Practice Sharing
 - Energy Projects Database
 - Regional Energy Management Meetings
 - Focus on Energy Conference Calls
 - Engineering Energy Mini-Chapter / Life Cycle Management Energy Forum
 - Energy Web site
- Recognition Programs

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2007 Annual Energy Recognition Program

- 4 Award Levels (Bronze – Platinum)
- Winning teams are recognized through various levels of prizes ranging from certificates to award dinners with management
- Tier I Locations
 - Based on a Point System Using Energy Dashboard Results
- Tier II Locations
 - Self Nomination



3M Energy Program Dashboard

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0
4
3
7

Btu per
Pound of
Product Reduction

Plant Energy
Program
Effectiveness
Rating

Projects
Secured – % Delivered
Compared
To Plant Spend

Points

15 = Platinum

12 – 14 = Gold

9 – 11 = Silver

7 – 8 = Bronze

4%	90%	4%	5
3 – 4%	85%	3 – 4%	4
2 – 3%	80 – 85%	2 – 3%	3
1 – -%	70 – 79%	1 – 2%	0
0 – 1%	69% -	0 – 1%	0

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External Resources

Save Energy Now: A New DOE Initiative

The campaign will:

- Conduct 200 energy savings assessments of the most energy-intensive U.S. plants
- Work with partners to create awareness and find energy savings solutions
- Disseminate energy savings information & tools to 50,000 plants to help reduce natural gas and electricity use.



3M Locations Participating: Brownwood, TX; Nevada, MO; Decatur, AL; Guin, AL; and Austin Center, TX

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Investing in Cost Effective Renewable Energy

- Livestock-derived methane at 3M Prairie du Chien
 - 11% of its plant-wide energy use offsetting approximately 1,908 metric tons of greenhouse gas emissions.
- 2,000 square foot solar wall on the south side of the warehouse at 3M's Perth, Canada plant facility
 - Displace 329 million Btu's of electricity for the site each year.
 - preheats the air and reduce the building transmission loss.
- Wind energy at its Austin, Texas center.
 - Purchasing since March of 2001.
 - approximately 1,250,000 kWh annually equaling 13% of its annual energy use.
- 3M is also exploring opportunities to utilize landfill gas, on-site and off-site wind energy, and biodiesel at other 3M locations.

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