

3M Greenhouse Gas Management

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Environmental Initiatives and Sustainability
3M

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3M



Corporate Profile

- Founded in 1902
- Headquartered in St. Paul, MN, USA
- 2004 Sales: \$20 billion (International only \$12.1 billion)
- R&D and Related Expenditures \$1.1 billion
- 2004 Employees 67,071 (International only 34,423)
- 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





Market Sectors



Consumer and Office Business



Display and Graphics Business



Electro and Communications Business



Health Care Business



Industrial Business



Safety, Security and Protection Services Business



Transportation Business

Leading Product Brands



3M





Greenhouse Gas (GHG) Management Strategy

Voluntary Action to Reduce GHG Emissions

- *Reduce energy consumption*
- *Improve manufacturing processes*
- *Install emission controls*

Energy efficiency is an important part in achieving GHG reductions





GHG Reduction Goals

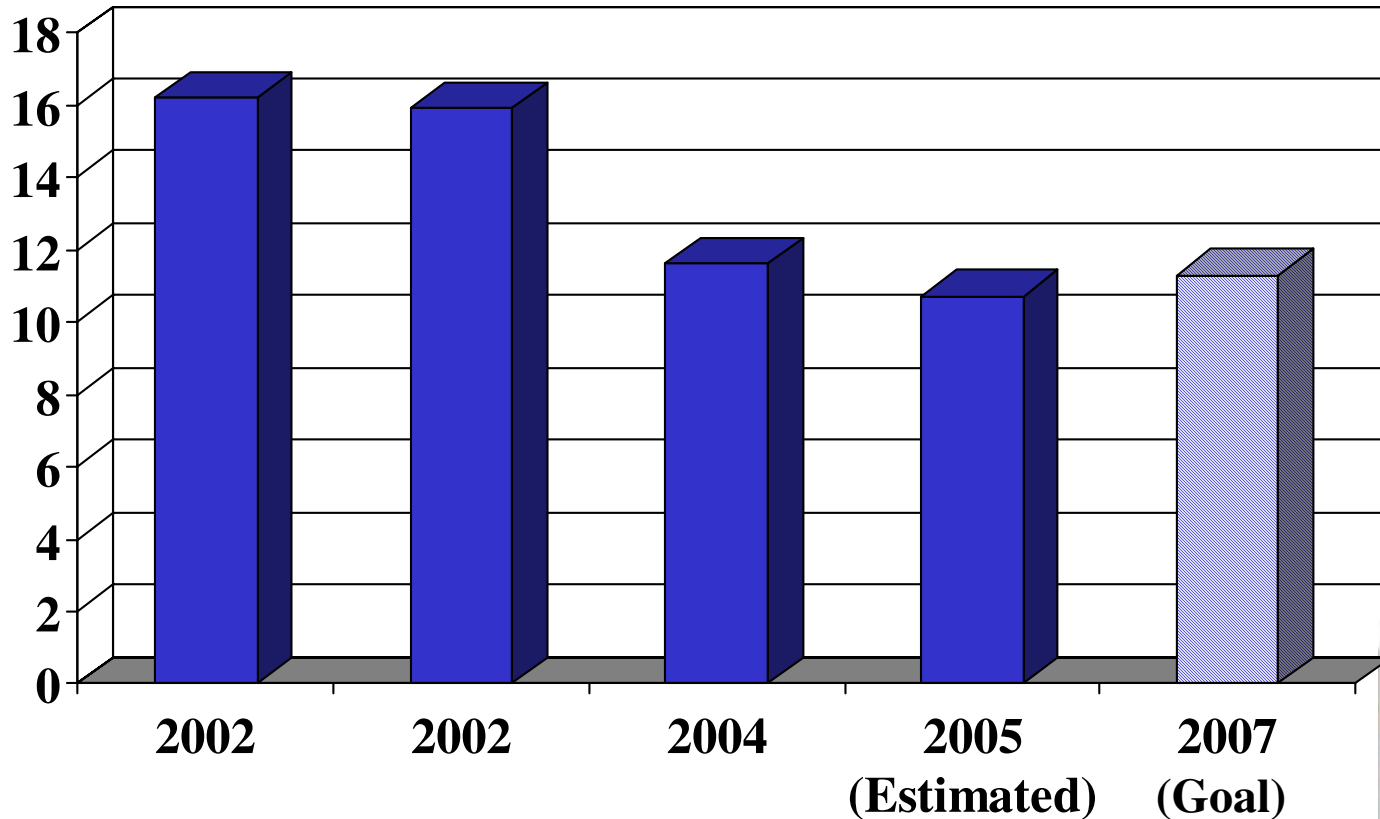
- *U.S.EPA Climate Leaders Program*
 - 30% reduction in absolute GHG emissions in the U.S. from 2002 – 2007
- *Environmental Targets for 2005 (ET'05)*
 - 50% reduction in absolute GHG emissions by the end of 2005 from a 1990 baseline
 - 20% reduction in energy consumption by the end of 2005 from a 2000 baseline (indexed to net sales)





GHG Emissions Reductions

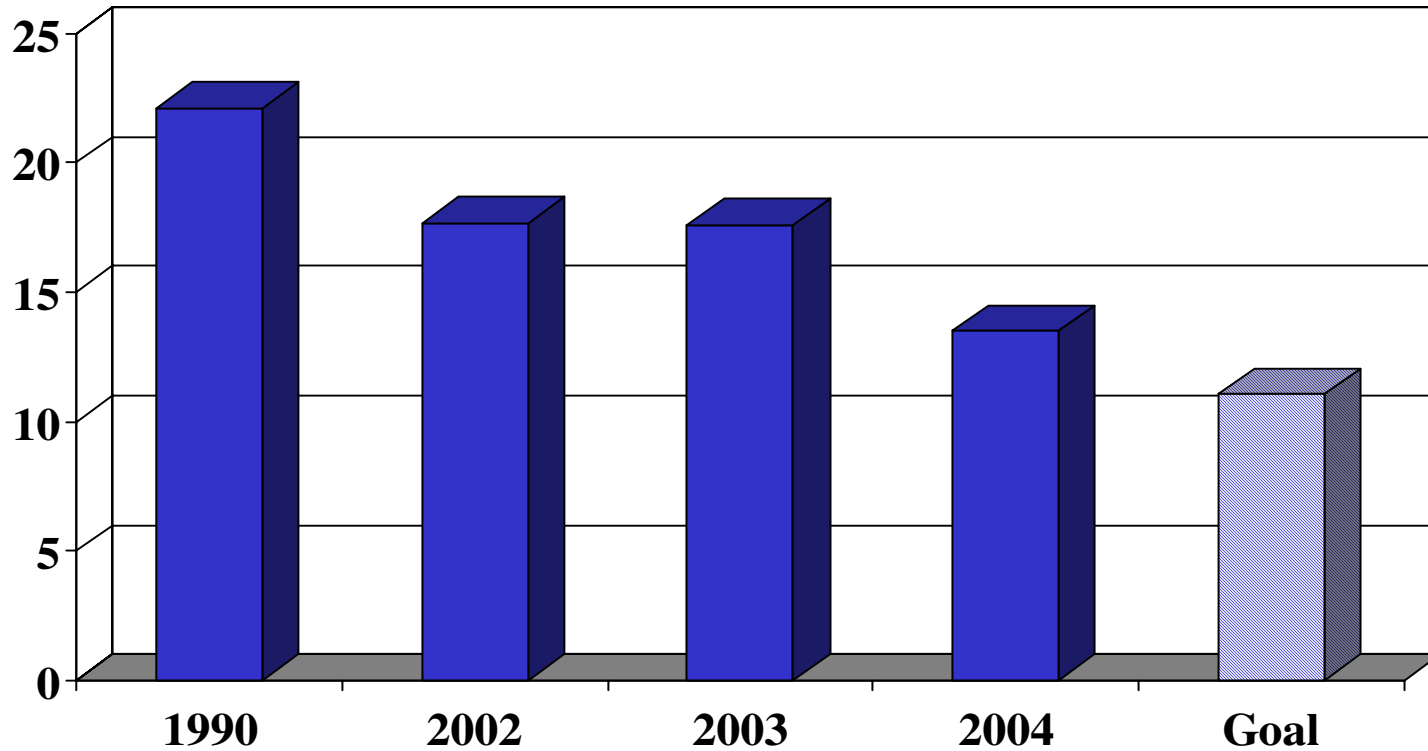
U.S. Greenhouse Gas Emissions (million metric tons of CO₂-equivalent emissions)





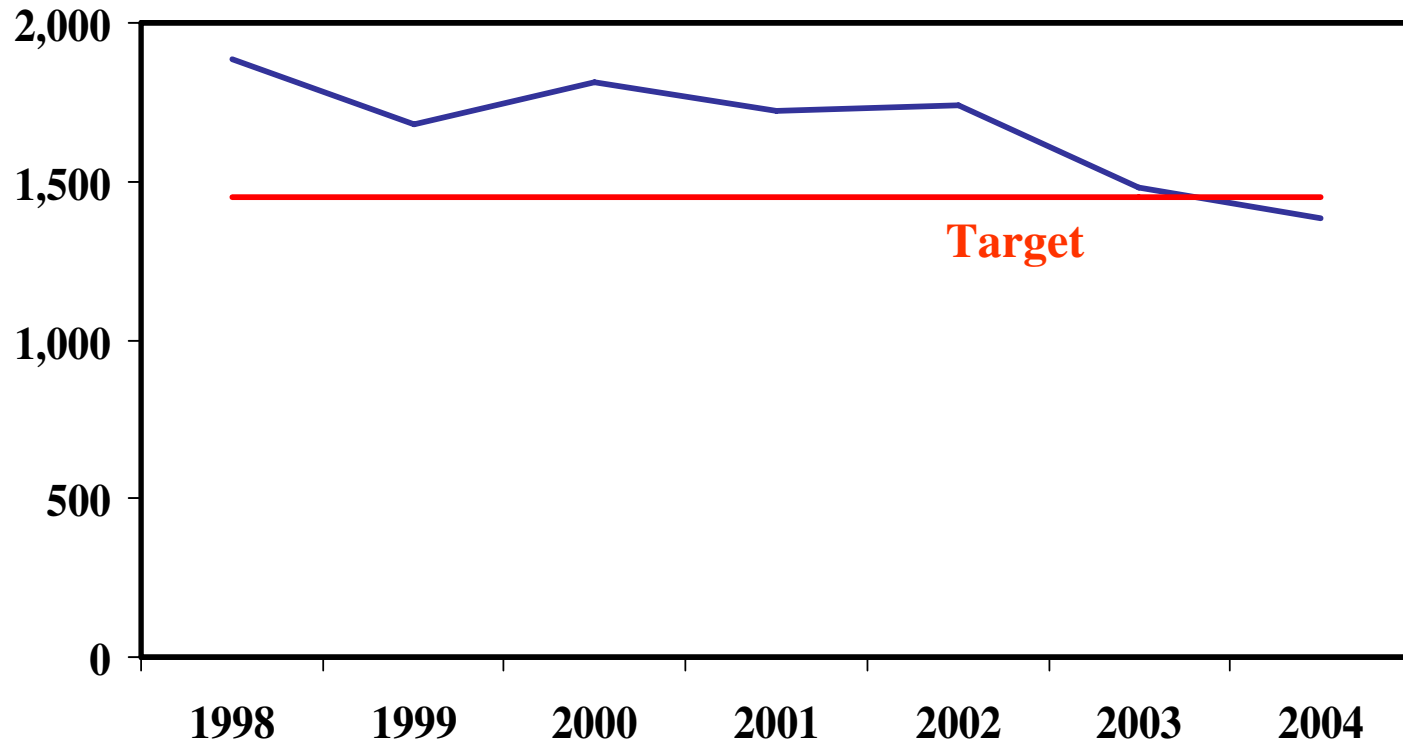
GHG Emissions Reductions

Worldwide Greenhouse Gas Emissions
(million metric tons of CO₂-equivalent emissions)



3M *Reductions in Energy Consumption*

Worldwide Energy Use
(millions btus / millions dollars net sales)





GHG and Energy Awards

- *2005 U.S. EPA Climate Protection Award*
- *2005 Energy Star Sustained Excellence Award*





GHG Inventory

- *Global Inventory*
- *Developed using WRI/WBCSD GHG Protocol*
 - Scope 1 & 2 emissions
- *Includes Kyoto & Non-Kyoto GHGs*
- *3M's 2002 base year data verified by CH2M Hill*
- *3M's 1990, 1995, & 2000 years inventory data validated by CH2M Hill*





GHG Inventory Emission Sources

- *Energy related emissions (CO_2 , CH_4 , & N_2O)*
 - Fuel use
 - Electricity use
- *Incinerators (CO_2 , CH_4 , & N_2O)*
- *3M owned landfills (CH_4)*
- *Solvent incineration in thermal oxidizers & fume incinerators (CO_2 , CH_4 , and N_2O)*
- *Industrial process emissions*





GHG Inventory Emission Sources (continued)

- *Mobile sources (CO₂, CH₄, and N₂O)*
 - Fleet vehicles (sales & general fleet)
 - Owned/leased trucking
 - 3M corporate jets
 - Facility equipment
- *3M owned wastewater treatment (CO₂ & CH₄)*
- *Refrigeration (HFCs and PFCs)*





GHG Inventory Management System

- *Developed utilizing 3M's existing laboratory quality system (ISO/IEC 17025 certified)*
- *GHG Inventory Management System*
 - Inventory Management Plan
 - GHG Inventory Database
 - Emissions information (by location and emissions type)
 - Annual & Historic GHG boundary & source reports
 - SOPs

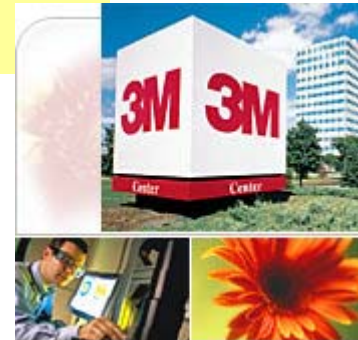




Corporate Energy Management Strategy

Provide Global Leadership to

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





Energy Reduction Projects

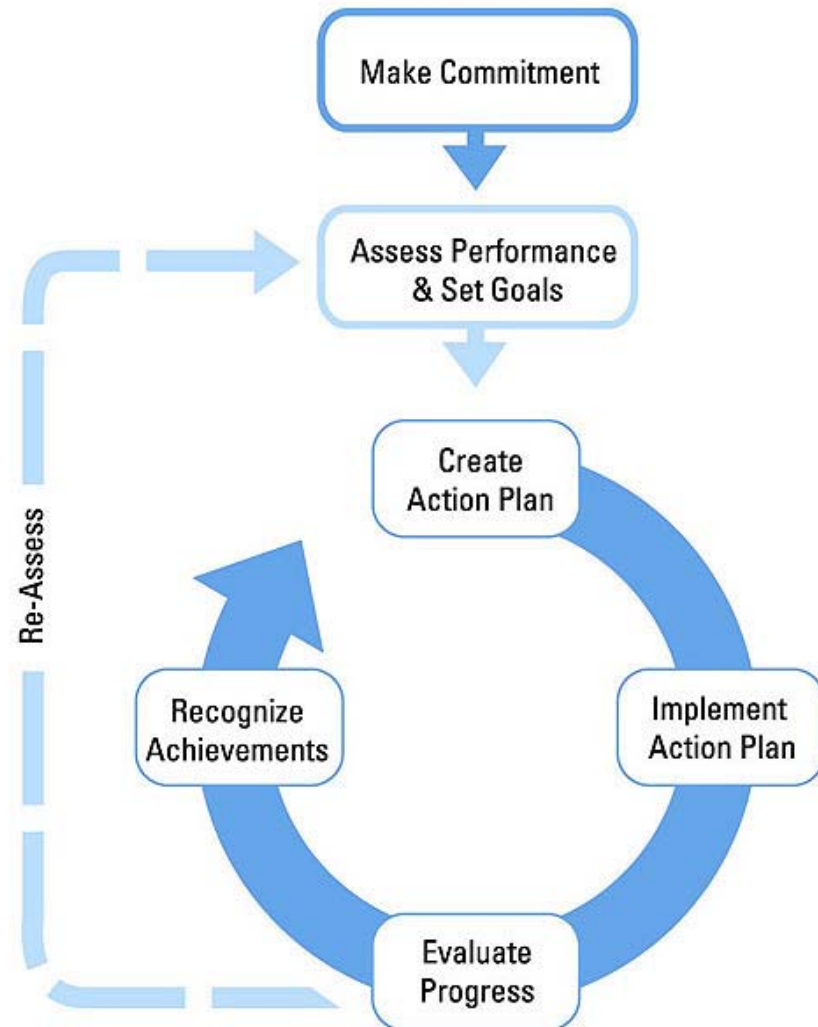
- *Completed 207 projects in 2004*
 - Delivered \$9.2 million in savings
 - Improved energy efficiency by 6.3% from 2003 (by 30% from 2000 baseline)
- *Nearly 170 Six Sigma energy projects launched in 2004*
- *Total of 346 projects active in 2004*





ENERGY STAR[®] Guidelines

- *An excellent model for program management*
- *3M is using this management approach recommended by ENERGY STAR*



3M Energy Program Dashboard

A 3M Plant										
January 30, 2004	2002 Q1	Q2	Q3	Q4	2002 Total	2003 Goal	2003 Q1	Q2	Q3	Q4
Energy Trend										
Btu/Pound of Product	9,678	8,364	8,253	8,534	8,697	8,262	7,318	6,450	6,550	
Change ¹					-15.02%	-5%	-24.38%	-22.88%	-20.63%	
Energy Use (MM Btu)	132,010	118,291	117,109	124,210	491,619	467,038	115,425	100,858	97,625	
Change ²					-12.28%	-5%	-12.56%	-14.74%	-16.64%	
Energy Cost	\$674,961	\$732,881	\$732,869	\$766,581	\$2,907,292	\$2,718,318	\$897,660	\$766,669	\$781,374	
Change ³					-20.34%	-6.50%	32.99%	4.61%	6.62%	
Energy Cost per MM Btu	\$5.11	\$6.20	\$6.26	\$6.17	\$5.91		\$7.78	\$7.60	\$8.00	
World Class Rating										
World Class Energy Assessment Score ⁴					72%	85%	75%	89%	90%	
Projects										
\$ Value of Energy Projects Secured & Delivered	\$0	\$0	\$34,300	\$34,300	\$68,600	\$188,974	\$40,779	\$109,383	\$90,563	\$90,610
\$ Value of Energy Projects Secured as a % of Plant Energy Spend ⁵	0.0%	0.0%	4.7%	4.5%	2.4%	6.50%	4.5%	14.3%	11.6%	
\$ of Projects Identified, Being Evaluated & Planned	\$0	\$0	\$0	\$0	\$0		\$2,425	\$35,936	\$40,967	\$44,717

Dashboard Color Signals

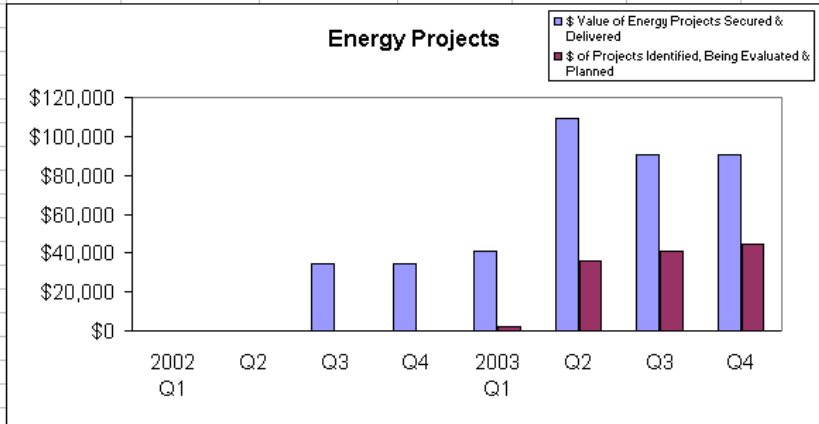
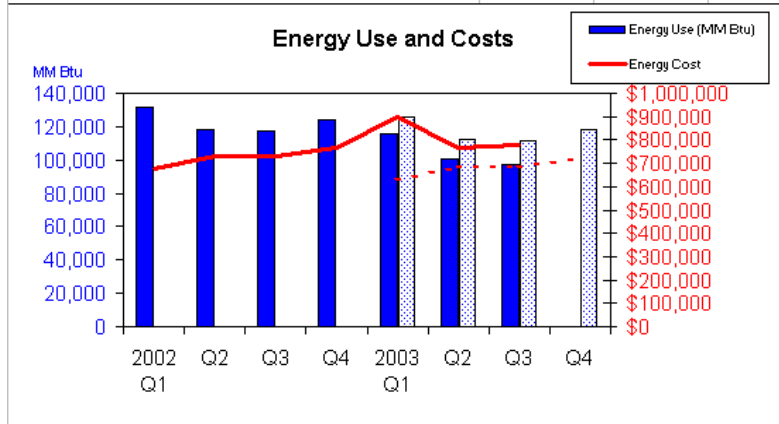
¹ Green (-5% or more), Yellow (-4.9% - -1%), Red (0.9% or less)

² Green (-5% or more), Yellow (-4.9% - -1%), Red (-0.9% or less)

³ Green (-6.5% or more), Yellow (-6.4% - -2%), Red (-1.9% or less)

⁴ Green (85% or more), Yellow (84% - 60%), Red (59% or less)

⁵ Green (6.5% or more), Yellow (6.4% - 2%), Red (1.9% or less)





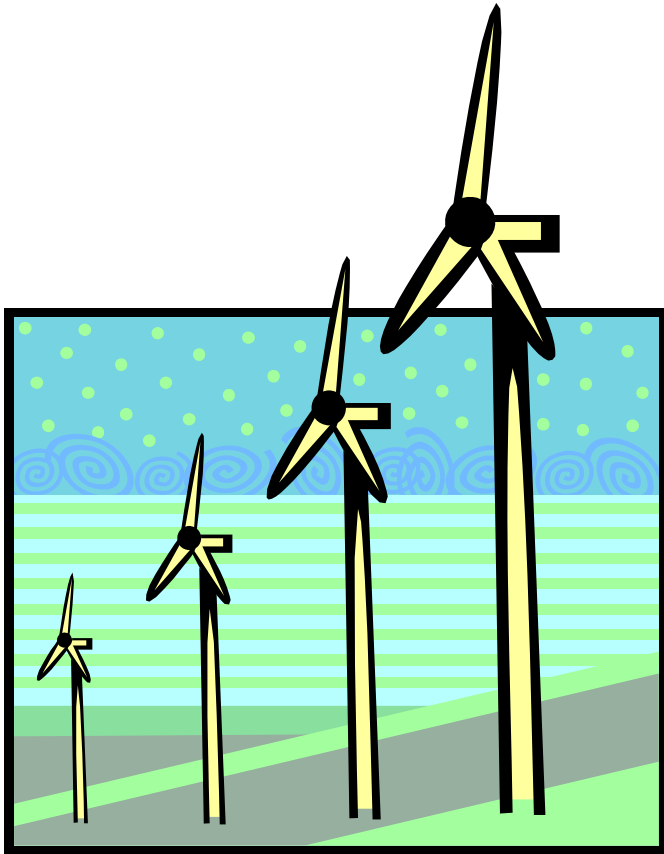
Life Cycle Management Process

Moving 3M toward Sustainability

		Suppliers		3M			Customer	
STAGES	IMPACTS	Material Acquisition	R&D Operations	Manufacturing Operations			Product Use, Reuse, Maintenance	Recycle, Final Disposal
		A	B	Process	Packaging	Wrhs, Distrb, Transport	F	G
ENVIRONMENT								
Air	1							
Water	2							
Solid Waste	3							
ENERGY RESOURCE USE	4							
	5							
HEALTH								
Chemical	6							
Physical	7							
Biological	8							
SAFETY								
Chemical	9							
Electrical	10							
Mechanical	11							



Renewable Energy



- *Two 3M Locations Purchasing a Portion of Electricity from Renewable Sources*
- *Reduced Emissions*
- *Founding Partner - EPA Green Power Partnership*





GHG Management Summary

- *GHG Inventory*
- *GHG Inventory Management System*
- *Voluntary Actions/Commitments*
 - U.S.EPA Climate Leaders
 - Business Roundtable Climate Resolve
- *GHG Management/Reductions*
 - Reduce energy consumption
 - Improve manufacturing processes
 - Install emission controls
 - Life Cycle Management approach
 - Renewable energy

