# Environment

We will respect the natural environment and help preserve it for future generations.

We will achieve this by:

- Working to provide effective environmental solutions
- Working to continuously reduce the environmental impacts of our business in line with our commitment to contribute to sustainable development
- Measuring, understanding and responsibly managing our resource use, especially materials of concern and nonrenewable resources
- Working to eliminate waste

Safeguarding – and improving – the environment is a fundamental part of making the world a better place. The environment's prominence as one of the seven Business Principles reflects our focus on this area.

Our products and services are associated with a range of environmental issues that span our value chain, from raw material production through manufacturing operations at our own plants and those of our suppliers, to the distribution, sale and use of our products through their end-of-life.

We have worked steadily over the past several years to integrate environmental considerations into how we do business. Through our core business processes, we set improvement goals and targets and monitor performance (see Pages 33 to 35).

During 2002, we met and exceeded our targets for water use and Volatile Organic Compound (VOC) emission reductions. We cut global facility energy use by 6.2 percent and facility CO2 emissions per vehicle by 2.9 percent and are also on track with our target to improve our production normalized energy efficiency by 14 percent between 2000 and 2005. We now supply 5 percent of our U.S. energy demand from green power sources and have met our commitment under the Environmental Protection Agency (EPA) Green Power Partnership.

In Europe, our brands continue to make progress to reduce vehicle CO<sub>2</sub> emissions in line with a challenging voluntary industry agreement; Ford of Australia made a similar pledge in early 2003. In North America, we saw a slight improvement in the average fuel economy of our fleet. We are introducing new technologies globally to cut emissions and improve fuel economy.

In the Web version of this report, you will find additional information about:

- How our activities affect the environment
- How we address environmental issues, including product design, energy use, materials use, land use, life-cycle assessment and logistics
- How we measure progress
- Additional performance data, including our U.S. Department of Energy 1605(b) report
- · Description of significant penalties paid relating to environmental matters

www.ford.com/go/globalcitizenship

### MANAGING ENVIRONMENTAL ISSUES

We manage our manufacturing and product impact issues using the Ford Environmental System, which is consistent with ISO 14001. Ford was the first auto manufacturer to embrace ISO 14001 and certify all of its manufacturing facilities worldwide.

In our manufacturing operations, our business strategies, objectives, systems and incentives are aligned for continuous environmental improvement. Implementing lean and flexible manufacturing processes at our facilities is one of the highest priorities of our Revitalization Plan. The Ford Production System (FPS), a key business process for managing manufacturing operations, is driving this transformation.

Business plans for each Business Operation establish targets for energy and water use and emissions reductions. These form the basis for target setting by each facility and are incorporated into the FPS. We monitor our environmental performance monthly and annually, along with other areas of manufacturing performance, using a balanced scorecard to monitor progress against key targets.

We have extended what we've learned about environmental management systems to nonproduct facilities and to our suppliers by promoting ISO 14001 certification of additional Ford functions, including product development, and of manufacturing facilities that supply our plants. Both Jaguar and Volvo have certified all of their facilities (including functions like finance and human resources) to ISO 14001. More than 90 percent of our major supplier companies certified at least one location by the end of 2001. In 2002, we focused on certification of all supplier manufacturing sites with potentially high environmental impacts, and approximately 80 percent of these sites were certified. The remaining 20 percent had confirmed plans in place.

"The Ford-Alcan closed-loop aluminum recycling program is a real win/win – environmentally and economically for both companies. It enables Ford to capture and retain the maximum value of this premium alloy, thus reducing its cost of aluminum sheet. For its part, Alcan gains a reliable source of clean, high-quality metal, which is recycled and manufactured for reuse. And we all enjoy the environmental benefits of aluminum recycling – natural resources are conserved, waste is reduced and energy consumption and emissions are both reduced." Tom Gannon

Vice President, Alcan Automotive

#### FAST FACT

A study by Ford, GM and DaimlerChrysler, in cooperation with the aluminum, steel and plastics industries, showed that for a typical North American family sedan (Taurus-class gasoline-powered vehicle): • Vehicle operation generates 87 percent of life-cycle carbon dioxide

 Material production and vehicle assembly generates 65 percent of dust and particulates and 34 percent of life-cycle sulfur oxides

### FORD-ALCAN ALUMINUM RECYCLING PARTNERSHIP

Ford Motor Company's Chicago Stamping Plant is breaking new environmental ground with the launch of a "closed-loop" recycling program for aluminum sheet scrap.

The program, launched in partnership with Alcan Inc., is the first of its kind in the North American automotive industry.

Under the recycling plan, Ford recovers aluminum process scrap from its Chicago Stamping Plant and returns it to Alcan for recycling directly back into autobody sheet metal. Previously, the recovered aluminum was sold into the general scrap market in combination with other metals, thus diminishing both its quality and value, and making it unsuitable for reuse in autobody applications. The new closed-loop process provides significant economic and environmental benefits for both corporations. This loop can be repeated virtually indefinitely because aluminum does not degrade when recycled. Recycling eliminates 95 percent of the greenhouse gas emissions associated with the primary production of aluminum.

Similar programs will be implemented in other Ford stamping facilities where it makes economic sense.

### FOCUS PZEV

The 2003 Focus PZEV is a Partial Zero Emissions Vehicle, meaning that in addition to meeting stringent super-low tailpipe emissions (SULEV), it has more than 100 new parts that virtually eliminate any fuel evaporation.

Major upgrades include a completely unique fuel system from the filler tube and gas tank through fuel lines and into the intake.

The engine is a new 2.3-liter I-4 that produces more horsepower and torque than the current engine. The exhaust system, including the catalytic converter, is new.



### HOW ARE WE DOING?

During 2002, our environmental performance improved (see data trends on Pages 33 to 35).

### Products

Over the life cycle of a vehicle, product use accounts for most of the life-cycle energy consumption and CO<sub>2</sub> emissions. Ford is working to reduce these impacts by developing new products and technologies, including the Escape Hybrid, the PZEV-certified Focus and by tapping years of alternative fuel vehicle leadership. Our Model U concept vehicle, discussed on Page 29, showcases a collection of environmental, safety and customer features that offer new ways of thinking about vehicle design and applications.

We have also made progress in addressing near-term environmental product issues. We have developed comprehensive systems for tracking and managing our materials use. Management systems like the evolving International Material Data System help us document and assess the materials that go into our products, including those provided by suppliers, and reduce or eliminate undesirable materials. Between 2001 and 2002, for example, we reduced mercury use in our products by 98 percent by eliminating mercury-containing switches.

Tools like design for environment and life-cycle analysis help us choose recycled, recyclable and renewable materials and plan for the dismantling and recycling of vehicles at the end of their useful lives. To date, we have developed more than 950 parts that use post-consumer and post-industrial recycled content.

In most of our major markets, vehicle standards for smog-forming and other conventional tailpipe emissions are ratcheting downwards. We are meeting, and in some cases going beyond, the tougher environmental standards. Our 2003 Ford Expedition, for example, qualifies as an Ultra-Low Emission Vehicle, making it the cleanest-running full-size SUV on the market and meeting the new federal standards a year earlier than required. We will introduce a special PZEV version of the popular Ford Focus in 2003. PZEV requires extremely low tailpipe emissions and no



"Lightweight materials are an important aspect in gaining fuel economy, but the vehicles must also be safe during a crash situation. Our goal is to increase fuel economy while maximizing the safety of our vehicles." David Wagner

Staff Technical Specialist, Vehicle Design, Research and Advanced Engineering

### FAST FACTS

By the end of 2002, more than 10,000 suppliers had provided information on 400,000 automotive parts to an industry-wide material data tracking system.

In 2002, we offered Stage IV reduced emissions versions of all our gasoline passenger vehicles sold in Europe – three years before we were required to do so.

Jaguar reduced the amount of hazardous waste produced in total and per production unit by 64 percent during 2002.

evaporative emissions. The Focus PZEV is expected to reach approximately 35,000 units for the 2003 model year and be available in California, New York and Massachusetts. Volvo began offering vehicles meeting PZEV levels of emissions during 2002 in California. Volvo offers ULEV versions of its vehicles in all markets. During 2002, 34 percent of Volvos sold met ULEV standards.

Reducing the greenhouse gas (GHG) emissions from our fleet through improved fuel economy remains a challenge, as discussed in 'Addressing Climate Change' on Page 36.

### Manufacturing

Our focus on environmental targets through our balanced scorecard has resulted in steady performance improvements, and we continue to develop the systems to support continued progress.

- Our emissions of VOCs and U.S. Toxic Release Inventory emissions have continued to drop. We are reviewing the complex trade-offs involved in choices about paint technologies to identify the best path toward continued reductions in energy use and VOC emissions, as well as quality improvements.
- We continued to cut water use worldwide by 2.4 percent in 2002.
- Our 2002 energy efficiency index was 90.2, reflecting a near 10 percent improvement in our manufacturing energy efficiency over a 2000 baseline. The energy efficiency index is "production normalized," based on an engineering calculation that adjusts for fixed and variable portions of energy use and production to track production energy efficiency. The index was set at 100 for the year 2000 to simplify tracking. Our target is an index of 85 in 2006.

### FORD'S NEW WASTEWATER RECYCLING PROCESS IS A WORLD FIRST

Ford's spare parts manufacturing plant in Cologne, Germany, is testing a new wastewater treatment process believed to be the world's first application of its kind in the automotive industry.

The innovative project uses nanofiltration technology that has been integrated in the vehicle's paint process. The nanofiltration process separates heavy metal ions from the wastewater stream that results from the phosphate pre-treatment of metal vehicle parts such as doors, hoods or fenders. By recirculating these heavy metals into the production process, the overall use of phosphate can be reduced by 20 percent, while the heavy metal content of zinc, manganese and nickel in the remaining wastewater sludge is reduced by 98 percent. Simultaneously, process water is regenerated and recirculated so that the need for fresh water has also been considerably reduced. Thus, in line with the Company's overall Reduce-Reuse-Recycle strategy, the process reduces the environmental impact in several complementary ways while guaranteeing the same product quality.

The project, which integrated several state-of-the-art technologies in a new way, was developed over three years as a joint project between Ford and Henkel Surface Technologies. It is expected to provide valuable experience and knowledge for possible future application within Ford facilities worldwide.



# Data

### AUTOMOTIVE OPERATIONS

A and B Our U.S. fleet fuel economy and average C02 emissions improved slightly for model year 2002 vehicles compared to model year 2001. We expect further improvements for model year 2003.

**C** See Pages 16 to 17 for discussion of SUV fuel economy performance.

**D** Ford brands in Europe have reduced their average CO<sub>2</sub> emissions by 10 percent to 21 percent compared to a 1995 base, reflecting improvements in fuel economy.

### A Ford U.S. corporate average fuel economy

Miles per gallon



## В

Ford U.S.  $CO_2$  tailpipe emissions per vehicle (combined car and truck fleet average  $CO_2$  emissions) Grams per kilometer

1998	237
1999	233
2000	229
2001	238
2002	237
2003	230 *

Passenger cars and trucks. Includes Ford, Jaguar, Aston Martin, Volvo (2000 and later) and Land Rover (2001 and later).

\*2003 is a preliminary estimate.

### С

Progress toward SUV fuel economy target of 25% improvement by 2006  $\rm MY$ 

Percent improvement relative to 2000 MY

2001	(model year)		7.2	
2002	(model year)			8.4
2003	(model year)	5.2 *		

\*2003 is a preliminary estimate.

## D

European  $CO_2$  performance, passenger vehicles - percent of 1995 base (1995 base = 100 percent)

### ACEA - average of European manufacturers

1998	96
1999	94
2000	91
2001	89
2002	88
Ford	
1998	94
1999	90
2000	88
2001	86
2002	83
Jaguar	
1998	99
1999	93
2000	92
2001	85
2002	79
Land Rover	
1998	87
1999	87
2000	89
2001	87
2002	86
Volvo	
1998	96
1999	89
2000	89
2001	89
2002	90
	22

**E and F** Facilities worldwide cut overall energy consumption (direct and indirect) by 6.2 percent from 2001 and energy consumption per vehicle by 4.5 percent.

**G** and **H** Facilities worldwide cut C0<sub>2</sub> emissions by 5.4 percent in total and 2.9 percent from 2001 on a per-vehicle basis.

J We launched 85 new parts containing recycled content in 2002, bringing the total to more than 950.

K and L Manufacturing facilities worldwide cut water use by 2.4 percent from 2001 and per vehicle water use by 5.3 percent.

### Е

Worldwide facility energy consumption Trillion BTUs

1998						91.0
1999						94.3
2000						98.7
2001						89.7
2002					8	4.1
	Direct	1998 56.8	1999 59.7	2000 63.0	2001 55.6	2002 52.0
	Indirect	34.2	34.6	35.7	34.1	32.1

### F

Worldwide facility energy consumption per vehicle *Million BTUs* 

1998						13.1
1999						13.4
2000						13.6
2001						13.6
2002						12.8
	BTUs/vehicle direct BTUs/vehicle indirect	1998 8.2 4.9	1999 8.5 4.9	2000 8.7 4.9	2001 8.4 5.2	2002 7.9 4.9

GWorldwide facility  $CO_2$  emissions



## H

Worldwide facility  $CO_2$  emissions per vehicle Metric tonnes



### J

Cumulative number of parts launched containing recycled non-metallic materials Parts

_		
1998	460	
1999	580	
2000	790	
2001	870	D
2002		955

# Energy efficiency index

1998		93.4
1999		96.5
2000		100.0
2001		95.1
2002	9	0.2

The index is 'production normalized' based on an engineering calculation that adjusts for fixed and variable portions of energy use and production to track production energy efficiency. The index was set at 100 for the year 2000 to simplify tracking against our target of improving our energy efficiency by 14 percent globally by 2005, equal to 85 percent.

E–H Energy consumption and CO<sub>2</sub> emissions per vehicle divides energy used or CO<sub>2</sub> emitted by vehicles produced. Data has been restated to include Jaguar, Volvo, Land Rover and Aston Martin for all years. Visteon has been spun off and data is not included for any year. Direct energy and emissions are those associated with the generation of electricity, heat or steam by sources owned or controlled by Ford Motor Company. Indirect energy and emissions are those associated with the generation of electricity, heat or steam purchased or imported by Ford Motor Company. CO<sub>2</sub> emissions were calculated consistent with the World Resources Institute (WRI)/World Business Council for Sustainable Development Greenhouse Gas Protocol.

## Κ

Global manufacturing water use *Million cubic meters* 

2000	100.6
2001	96.1
2002	93.8

Includes all global manufacturing facilities with greater than 50 percent Ford ownership that consumed more than 30,000 cubic meters in calendar year 2000. Data for 2000 and 2001 has been restated to include a facility that began reporting in 2002.

### L

## Global manufacturing water use per vehicle

2000	14.7
2001	15.0
2002	14.2

M We expanded coverage of our comprehensive waste generation data to Mexico; waste generation for the United States, Canada and Mexico declined by 0.3 percent from 2001.

N Operations in North America exceeded the VOC reduction target of 31 grams per square meter by cutting VOC emissions to 30 grams per square meter of surface area coated.

**0** and **P** We continue to reduce emissions of substances tracked under the U.S. Toxic Release Inventory. Total releases declined by nearly 20 percent in 2001 (the most recent year for which data is available) compared to 2000, while releases per vehicle declined by nearly 8 percent.

## Μ

North American manufacturing waste (United States, Canada and Mexico) Metric tonnes

2001				685,177
2002				682,983
		2001	2002	
	Industria	l 19,228	22,473	
	Mineral	380,084	376,000	
	Organic	38,718	62,070	
	Packagir	ng 81,833	72,987	
	Sludge	74,261	69,399	
	Solid	85,192	74,100	
	Solvent	5,540	5,633	
	Universa	ıl 321	321	
Indust	rial	includes acidic and a	Ikaline solutions	, etc.
Minera	al	includes glass, miner	al fibers, sand, e	etc.
Organ	ic	includes mineral oils,	greases and wa	axes, etc.
Packa	ging	includes wood, paper	; cardboard, etc.	
Sludge	9	includes electrocoat s sludges from machin	sludge, phospha ing, etc.	ting sludge, oily
Solid	waste	includes textiles, com matter, etc.	postable and no	on-compostable
Solver	nts	includes halogenated	and non-haloge	enated solvents
l Iniver	eal	includes toner cartrid	nes light hulbs	etc

### Ν

## North America volatile organic compounds released by assembly facilities

Grams/square meter of surface area coated

2001		32
2002	30	

### 0 Ford I

Ford U.S. TRI releases

winnon	poundo		
1998			15.7
1999			15.3
2000			14.1
2001		11.3	

## P

Ford U.S. TRI releases per vehicle

	-			
1998				4.5
1999			4.2	
2000		3.8		
2001		3.5		

## Q

### Ford Canada NPRI releases

Metric	tonnes	
1998		1,875
1999		2,089
2000		1,986
2001		1,666

### R

Ford Canada NPRI releases per vehicle

Metric tonnes

1998	0.0030
1999	0.0030
2000	0.0032
2001	0.0033

### S

Ford Australia National Pollutant Inventory releases Total air emissions (kilograms per year)

1999-2000		920,003
2000-2001	742,771	
2001-2002	519,924	

**0–S** Releases reported under the U.S. TRI, Canada NPRI and Australia NPI are all in accordance with the law, and many of them are subject to permits.

## Т

### Manufacturing plant notices of violations

Ford received 12 notices of violations (NOV) from government agencies in 2002. Nine of the NOVs received were in the United States, two in South America and one in the Philippines.

The issuance of an NOV is an allegation of noncompliance with anything from a minor paperwork requirement to a permit limit, and does not mean that the Company was in noncompliance or received a penalty.

### U

### Ford had no significant spills in 2002.

We define significant spills as any that go beyond the facility's property line.

### V

In 2002, Ford paid approximately \$340,000 in fines and penalties globally pertaining to environmental matters.

# A closer look

ADDRESSING CLIMATE CHANGE

Reducing greenhouse gas emissions is a key environmental and business issue that we face as we enter our second century. Though uncertainty remains about the magnitude, the climate appears to be changing, and the changes appear to be outside natural variation (see figure on Page 38). The auto industry, as a major manufacturing sector, consumes significant amounts of energy and therefore generates greenhouse gas emissions. The indirect influence of any manufacturer is even greater if emissions that result from their products are considered – in our case, vehicles as our customers use them. Climate change is a societal challenge, and all stakeholders need to share the responsibility and the burden of reducing greenhouse gas emissions, while at the same time continuing sustained economic growth.

Our impact on greenhouse gas emissions relates primarily to the fuel efficiency of vehicles we offer to the marketplace – subject to market demand – and to the greenhouse gases emitted due to the manufacture of the vehicles. Fuel providers offer fuels with varying levels of carbon content. Consumers make decisions regarding the vehicles they purchase and the type and amount of driving incurred to meet their transportation needs. Governments set incentives and policies that can encourage or discourage emission reductions. Interest groups seek to influence those policies. A combination of technological, behavioral and policy shifts across multiple sectors is required to achieve meaningful and sustainable long-term reductions.

We recognize the need both to act within our immediate sphere of influence and to cooperate with others. We have taken a series of steps that begin to address a range of greenhouse gas reduction opportunities and issues.

### COMMITMENTS AND PROGRESS

We have made a series of commitments to cut greenhouse gas emissions from our products and our manufacturing facilities. Our 2002 performance is shown in the table opposite.

We are making substantial progress in reducing our facility energy use and CO<sub>2</sub> emissions and increasing our use of energy from Our impact on areenhouse aas emissions relates primarily to the fuel efficiency of vehicles we offer to the marketplace - subject to market demand and to energy consumed during vehicle manufacture. To achieve long-term reductions we recognize the need to act within our immediate sphere of influence and cooperate with others. renewable sources. In 2002, our per-vehicle energy use and CO2 emissions were 4.5 percent and 2.9 percent lower than in 2001, respectively.

In the United States, we now supply 5 percent of our energy needs through alternative power, more than double the amount in 2001. This includes self-generated hydropower and cogeneration, as well as new purchases of power from waste blast furnace gases.

Our brands in Europe have cut CO<sub>2</sub> emissions by 13 to 17 percent under the automotive industry's voluntary agreement to reduce greenhouse gas emissions.

In 2003, Ford Australia joined with other Australian automakers in a voluntary commitment that set a target to reduce the average fuel consumption of the Australian passenger vehicle fleet to 6.8 liters per 100 kilometers by 2010 from the 2001 level of 8.28 liters per 100 kilometers. This is approximately an 18 percent reduction.

We are developing near-term and longer-term technologies that offer the promise of significantly reducing greenhouse gas emissions from our vehicles by using different fuels, engines or improvements to powertrains (see Pages 26 to 28). We are also working with public and private organizations to explore ways of meeting future mobility needs.

In the nearer term, we are improving the fuel economy of our vehicles that use conventional engines by introducing new technologies such as:

- New family of high-efficiency, low-emission I-4 engines, beginning with the Mondeo (Europe) and the Ranger (United States). The I-4 makes extensive use of lightweight aluminum components, resulting in improved weight distribution front-to-rear and higher power-to-weight ratio
- Variable cam timing, now used on the Range Rover and being considered on other SUVs
- Electronic throttle control, now used on the Lincoln LS and the Ford Thunderbird, planned for the Ford Explorer in 2004
- Continuously variable transmission, planned for the Ford Five Hundred and the Ford Freestyle (2004)

FAST FACTS Energy management and efficiency projects in North America saved Ford \$18 million in 2002.

Improvements to Ford's logistics system for transporting parts to plants cut 18.5 million miles of truck travel in 2002.

### STATUS OF FORD COMMITMENTS RELEVANT TO CLIMATE CHANGE

 On track (with relevant reductions or start-up requirements)
Progress made, but target may not be achieved Achieved COMMITMENT DESCRIPTION TARGET STATUS PAGE PRODUCT European Automobile Manufacturers Association European Union fleet average of 140 g/km by 2008; European automotive industry voluntary commitment CO<sub>2</sub> commitment Chart D (p.33) compliance with this target translates into an average CO<sub>2</sub> reduction of 25 percent for newly registered cars compared to 1995 SUV goal Ford voluntary commitment for U.S. SUVs Improve average fleet fuel economy of U.S. SUVs by Chart C (p.33) 25 percent by 2005 Page 16-17 Australia fuel economy commitment Voluntary commitment by Australian auto industry to Cut the amount of fuel used by new petrol passenger cars Page 36 to 6.8 liters per 100 km by 2010 from the 2001 level of improve fuel economy of passenger vehicles 8.28 liters per 100 km MANUFACTURING 14 percent production-normalized energy efficiency Ford Manufacturing Energy Efficiency Target Global manufacturing operations commitment to improve Chart I (p.34) facility energy efficiency manufacturing target between 2000-2005 UK Emissions Trading Scheme 5 percent absolute reduction target over 2002-2006 Voluntary, government-sponsored "cap and trade" Page 38 GHG trading program for UK emissions timeframe based upon average 1998-2000 baseline Chicago Climate Exchange Multi-industry voluntary CO2 emissions trading project 4 percent absolute reduction target over 2003-2006 Page 38 timeframe based upon average 1998-2001 baseline Alliance of Automotive Manufacturers commitment AAM commitment with U.S. Dept. of Energy to voluntarily 10 percent reduction target per vehicle produced \_ under U.S. Department of Energy Business Challenge reduce GHG emissions from U.S. plants and facilities between 2002-2012 U.S. Department of Energy GHG Registry Recognized voluntary "bank" for emissions reductions Continue to track and submit annual GHG inventory Web site reports to DoE Ford Australia Greenhouse Challenge Cooperative agreement between Ford Australia and Variety of specific product and manufacturing Commonwealth governments commitments; verification; reporting to government U.S. Environmental Protection Agency Green Voluntary commitment in partnership with U.S. EPA 2 percent of U.S. energy from green power Page 30 Power Partnership (0.1 percent new sources)

 Six-speed automatic transmission, available in the 2003 model year Ford Mustang, Ford Focus, Mazda Miata, Jaguar XK, Jaguar S-Type, Aston Martin Vanquish, Vantage and Volante models and other vehicles. According to U.S. EPA estimates for the 2003 model year, Ford offers more models equipped with six-speed transmissions than any other manufacturer. In 2002, Ford and GM agreed to co-develop a six-speed, front-wheeldrive automatic transmission that would offer an estimated 5 percent fuel economy improvement over a traditional four-speed step-gear automatic transmission.

### TRACKING AND ACCOUNTING FOR EMISSIONS

In June of 2002, we voluntarily submitted our 1998–2001 U.S. emissions to the U.S. Department of Energy 1605(b) Greenhouse Gas Registry. We will submit this data on an annual basis. Ford has actively participated in, and supported the development of, the World Resources Institute/World Business Council on Sustainable Development Greenhouse Gas Reporting Protocol because of the need for a common voluntary greenhouse gas accounting and reporting standard.

### ADDRESSING CLIMATE CHANGE (CONTINUED)



### LOOKING BEYOND CO2

We are addressing other greenhouse gases like hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrous oxide (N2O) and sulfur hexafluoride (SF6). Low N2O emission is a requirement for exhaust treatment systems. We have prohibited SF6 in tires and PFCs in open systems since 1999. We restrict the use of HFCs in vehicle air conditioning and prohibit the use of HFCs in other on-board vehicle applications (e.g, as used in some spare tire kits). We will prohibit the use of SF6 in magnesium casting as of January 2004 through our Restricted Substance Management Standard. We are working with our suppliers to optimize air conditioning efficiency, reduce leakage rates and investigate alternatives.

### PARTNERSHIPS AND PILOT PROJECTS

We participate actively in partnerships that explore technological and policy approaches to reduce greenhouse gas emissions. These include FreedomCAR, which leverages the resources of U.S. automakers and the federal research labs to address critical issues in transitioning to hydrogen, and the California Fuel Cell Partnership, which is testing fuel cell vehicles and infrastructure in real-world conditions.

To gain practical experience in cost-effectively reducing greenhouse gas emissions, and to help shape public policy, we have joined two pioneering efforts that will develop the systems for greenhouse gas emissions trading:

Ford, along with 11 other companies and the City of Chicago, founded the Chicago Climate Exchange, committed to reduce U.S. facility GHG emissions by 4 percent by 2006, based upon an average 1998–2001 baseline period. The Exchange marks the first time in the United States that major companies in multiple industries have made a voluntary binding commitment to use emissions trading for reducing their greenhouse gas emissions. The Exchange will enable participants to receive credit for their reductions and buy and sell credits to find the most cost-effective way of achieving reductions.

### Above: Man-made global CO<sub>2</sub> emission sources (approximately 28 gigatons per year).

Source: H. P. Lenz and C. Cozzarini, "Emissions and Air Quality," Society of Automotive Engineers, Warrendale, PA, 1999.

Right: Earth's surface temperature over period 1000–2100 A.D. 1000–1861: Northern Hemisphere proxy data 1861–2000: Global instrumental record 2000–2100: Projections based upon different emission scenarios from the Intergovernmental Panel on Climate Change (IPCC).



 Ford was also one of the original companies to join the UK Emissions Trading Scheme, the first formal, economy-wide, cross-industry greenhouse gas trading program. Ford Motor Company Limited (UK) entered the program in March 2002, committing to a 5 percent CO<sub>2</sub> reduction target for eligible plants and facilities over five years. In April 2002, Ford Motor Company Limited completed its first CO<sub>2</sub> transaction.

We offer Eco-Driving training courses in Germany and are currently exploring expansion of the concept to other locations. This "realworld" training gives participants knowledge and experience on how to reduce fuel consumption through more efficient driving practices. Thousands of participants have confirmed that, on average, they can save up to 25 percent of fuel used and money spent while achieving the same average speed for a journey. Ford is also the co-chair and one of five sponsors of the UN's Environment Programme Internet-based "Greener Driving" campaign (www.greener-driving.net), along with BMW, the German Road Safety Council (DVR), Michelin and Renault.

Ford is in the third year of its \$15 million Carbon Mitigation Initiative partnership with Princeton University and BP, a program with a vision to "lead the way to compelling and sustainable solutions to the carbon and climate change problem." The partnership seeks to



"We are proud of our partnership with Ford. They have provided the resources and, more importantly, the insight into implementation in real-world situations that allow better partnerships to be formed to understand, create and implement innovative new environmental strategies." David H. Marks

Director, Laboratory for Energy and Environment, Massachusetts Institute for Technology

resolve fundamental scientific, environmental and technological issues key to public acceptance of carbon management strategies. The initiative is carrying out projects addressing carbon capture, storage, science, economics and policy.

We have long been a sponsor of the Massachusetts Institute of Technology Joint Program on the Science and Policy of Global Change (web.mit.edu/globalchange/www/) and the Alliance for Global Sustainability (//Ifee.mit.edu/programs/mitags). The former seeks to integrate the natural and social science aspects of the climate issue, primarily through an interactive set of computer models that have been particularly important for assessing sensitivities and uncertainties in future climate projections. The latter addresses a wide variety of environmental challenges associated with the projected future demand for energy through multidisciplinary research, international partnerships, education and outreach.

### ENGAGEMENT

During 2002, we engaged with several organizations that have expressed interest in our approach to the climate change issue, including the Coalition for Environmentally Responsible Economies (CERES), the Union of Concerned Scientists (UCS) and the Interfaith Center for Corporate Responsibility (ICCR).

In late 2002, The Sisters of St. Dominic of Caldwell, New Jersey, and other members of ICCR filed a proposal that asked us to issue a report on (1) estimated greenhouse gas emissions from our plants and products; (2) ways for the Company to significantly reduce greenhouse gas emissions from our vehicles by 2012 and 2020; and (3) an evaluation of new public policies to enable such emissions reductions.

The proposal highlighted that climate change is a matter of environmental and fiduciary responsibility. After productive discussions, The Sisters of St. Dominic withdrew the proposal because of commitments to continue the dialogue and work toward a mutually agreeable response. We will continue to work closely with them and other groups to find ways to meet our We don't have all the answers in addressing the broader risks and opportunities of climate change; however, we are committed to developing solutions and making steady progress. shared goal of responding to climate change and reducing greenhouse gas emissions proactively, affordably and in line with the interests of our shareholders and other stakeholders.

### PUBLIC POLICY

In 2002, NHTSA proposed an increase in the corporate average fuel economy standards for light duty trucks. A new rule, passed in April 2003, raises the current standard of 20.7 miles per gallon to 21.0 mpg for 2005 MY, 21.6 for 2006 MY and 22.2 for 2007 MY. We recognize the need to improve light truck fuel economy and worked constructively with NHTSA throughout the rule-making process.

We support cohesive, market-driven policies that promote energy efficiency and conservation. Advanced vehicle technologies – like alternative fueled vehicles (e.g., hydrogen internal-combustion engine), hybrids, fuel cells and clean diesels – hold the long-term promise to reduce the consumption of fossil fuels without sacrificing customer utility, affordability or safety. The challenge for us is to implement these technologies in ways that customers value and can afford, and that can be done in high volume for maximum positive impact.

We have supported policies that encourage the development of markets for advanced environmental vehicles by providing consumer incentives to help offset the initial higher cost of these vehicles. For our positions and perspectives on key public policies, see the public policy section of www.ford.com.

### GOING FORWARD

We are working to reduce greenhouse gas emissions, including our advanced product research, manufacturing targets and product commitments. We will continue seeking collaborations with governments and other partners in support of marketoriented, performance-based and flexible policies. We don't have all the answers in addressing the broader risks and opportunities of climate change; however, we are committed to developing solutions and making steady progress.