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Welcome to our 2009/10 Sustainability Report

"This is one of the most exciting times in our industry since mass automobile production began more than a century ago. New technologies are radically transforming some of the most fundamental and enduring elements of the automobile. The companies that lead these changes will create new 'green' jobs and generate profits while reducing fuel use and CO₂ emissions, benefiting both the economy and the environment."

Alan Mulally
President and Chief
Executive Officer

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Blueprint for Sustainability | The Future at Work

CLIMATE CHANGE

Ford has developed a comprehensive, science-based global strategy to reduce greenhouse gas emissions.

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- HIGHLIGHTS:**
- Ford holds the most IIHS Top Safety Picks of any vehicle manufacturer
 - Ford introduces MyFord™, an all-new user interface that connects drivers with in-car technologies
 - SYNC® enables drivers to use cell phones while keeping eyes on the road and hands on the wheel
 - Ford introduces the world's first automotive inflatable seat belts
 - Ford Driving Skills for Life includes modules on avoiding distracted driving
 - Ford named one of the World's Most Ethical Companies by the Ethisphere Institute
 - Ford the only automaker listed among *Newsweek* magazine's "Green Rankings"
 - Ford supports the Schumer bill, which would ban handheld texting while driving
 - In 2009, Ford gained market share in most of our business units across the globe
 - In 2009, Ford achieved its first full year of positive net income since 2005
 - Ford is investing nearly \$14 billion in advanced technology vehicles in the United States
 - Ford makes assembly plants more "flexible" to adapt vehicle production to changing markets
 - Ford boosts production of smaller-sized vehicles
 - Ford employees and retirees provide more than 100,000 hours of community service work
 - Ford launches new "green" initiatives for dealers to reduce carbon footprints
 - Ford makes progress on a major employee safety indicator
 - Ford named among the 10 best companies for supplier diversity
 - Ford has reduced global energy consumption by 44 percent since 2000
 - Ford the first automaker to introduce a soy-foam headliner
 - Ford introduces wheat-grass-reinforced plastics in vehicle interior parts
 - Ford to introduce fuel-efficient EcoBoost™ engines and PowerShift transmissions in Asia in 2010
 - From 2004 to 2009, Ford had the greatest fleet-wide fuel economy improvement of any automaker
 - Ford reduces global water use by more than 16 percent in 2009
 - Ford reduces global waste to landfill by more than 20 percent in 2009
 - Ford continues to streamline dealer and supplier networks
 - Ford's fuel-efficient EcoBoost™ engine attracts new buyers to Ford vehicles
 - Ford's new "C-car" platform will form the base for more than 2 million units per year by 2012
 - The Ford Fiesta will bring best-in-class fuel economy of 40 mpg to the U.S. in 2010
 - Ford had the fewest vehicle defects among all full-line manufacturers at three months in service
 - Ford delivers best-in-class interior quietness with new virtual development technology
 - Ford on track to surpass our goal of a 30 percent reduction in CO₂ emissions from our U.S. and European new vehicles

Ford voluntarily reports greenhouse gas emissions in the United States, Australia, Canada, Mexico, the Philippines, Brazil and China

In 2009, Ford trained more than 180,000 of our suppliers' workers in human rights through outreach programs

Ford's human rights efforts were ranked first in *CRO* magazine's 100 Best Corporate Citizens list

Ford was the only North American automaker invited to participate in the UN Global Compact's Supply Chain Sustainability Advisory Group

Ford is catalyzing integrated sustainable mobility demonstration projects in five major U.S. metropolitan areas

Ford helps to sponsor "Beyond Oil: The Sustainable Communities Initiative," a sustainable mobility conference in Seattle

TOP STORIES FROM THIS YEAR'S REPORT



Our Financial Progress

Read about how we are weathering the economic downturn.

[Learn more ▶](#)



Electrification Strategy

See how Ford is addressing the challenges and opportunities of vehicle electrification.

[Learn more ▶](#)



Driver Distraction

Learn about this critical public safety issue, and what Ford is doing about it.

[Learn more ▶](#)



Blueprint for Sustainability

We have set a goal to reduce our U.S. and EU new-vehicle CO₂ emissions by 30 percent by 2020, compared to 2006. Read about our blueprint for sustainability, which spells out our technology and product strategy to meet this goal.

[Learn more ▶](#)

PERSPECTIVES ON SUSTAINABILITY

See what experts (like Goldman Sachs' Abby Joseph Cohen) say about our efforts.

[Learn more ▶](#)



TOPICS

climate change, downsizing, emissions, governance, employees, human rights, innovation, materiality, mobility, safety, stakeholders, supply chain, technologies, waste

ABOUT THIS REPORT

This report is aligned with the Global Reporting Initiative (GRI) G3 Sustainability Reporting Guidelines, at an application level of A.

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Overview

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- Executive letters
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Our vision for our sustainability reporting is that it is the basis of organizational learning.



This is the eleventh annual nonfinancial report of Ford Motor Company. Our vision for our sustainability reporting is that it is the basis of organizational learning. It demonstrates our values, and both reflects and drives outstanding economic, environmental and social performance. Our most recent previous report was released in June of 2009.

We try to focus our reporting on Ford's most important sustainability issues and those of most interest to report users and our stakeholders. We have formalized this approach through a structured [materiality analysis](#), which has been used to identify our most material sustainability issues. The issues that rated highest in potential impact on the Company and concern to stakeholders are covered in the [Material Issues](#) section of this Web report.

Comprehensive information on a range of other significant issues is included in this report in the [Governance](#), [Economy](#), [Environment](#) and [Society](#) sections. We are also publishing an eight-page summary of this report for use by employees, customers and other stakeholders.

Data in the report are subject to various forms of assurance. Draft and near-final versions of the print report were reviewed by a [Ceres stakeholder committee](#) that included representatives of environmental groups and socially responsible investors.

We see reporting as an ongoing, evolving process, not an annual exercise. Further information about our reporting approach can be found in the [Reporting and Transparency](#) section of this report. We expect our reporting to evolve further and invite your feedback on this report, and our approach to reporting, at sustaina@ford.com.

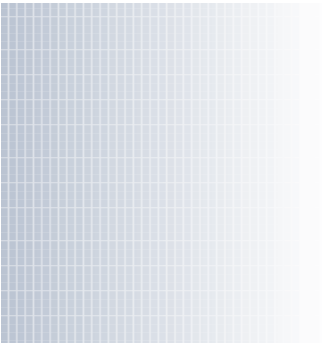
In This Section

This section of our Web report includes our [Chairman's](#) and our [CEO's](#) perspectives on sustainability at Ford, a summary of [2009 performance data](#) and discussion of [assurance](#) of this report.

The Fine Print

This report covers the year 2009 and early 2010. The data are primarily for 2009 (for operations) and for the 2009 and 2010 model years (for vehicles).

This report is aligned with the Global Reporting Initiative (GRI) G3 Sustainability Reporting Guidelines, released in October 2006, at a self-checked application level of "A." See the [GRI Index](#)



for a complete index of GRI indicators. More information on the GRI and the application levels can be found on the [GRI Web site](#).

Consistent with the GRI Guidelines' guidance on boundary setting, the data in this report cover all of Ford Motor Company's wholly and majority-owned operations globally, unless otherwise noted. Data measurement techniques, the bases of calculations, changes in the basis for reporting or reclassifications of data previously reported are noted in the data charts. This report also serves as Ford's annual United Nations Global Compact (UNGC) "Communication on Progress," providing discussion on Ford's implementation of the 10 principles of the UN Global Compact and support for broad UN development goals. Please see the [UNGC Index](#) for information on where the UNGC principles are covered in this report.

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Letter from William Clay Ford, Jr.

"Creating a strong business and building a better world are not conflicting goals – they are both essential ingredients for long-term success."

William Clay Ford, Jr.
Executive Chairman and Chairman of the Board



As we begin the second decade of the 21st century, the automotive industry finds itself at the intersection of three critical global issues: economic growth, energy independence and environmental sustainability. There are concerns about employment and growth, the availability and affordability of fuel, and the impact of carbon dioxide (CO₂) emissions on our climate.

I am optimistic about the possibilities that lie ahead for our Company despite these challenges – in fact, because of them. I think this is one of the most exciting times in our industry since mass automobile production began more than a century ago. In response to the issues confronting us, some of the most fundamental and enduring elements of the automobile are being radically transformed by new technologies. The companies that lead these changes will create new "green" jobs and profits while reducing fuel use and CO₂ emissions, benefiting both the economy and the environment.

This is the strategy Ford Motor Company is pursuing.

In the 20th century, Ford changed the world by applying innovative technology aimed at improving the lives of its customers on a massive scale. That is our heritage going all the way back to the Model T, and it still drives our efforts today.

Like all automakers, Ford was adversely impacted by the extraordinarily difficult economic conditions we faced over the last several years. We knew we had to do more than just cut costs – we had to transform our Company and our products. Our goal was to be green, global and high-tech.

We focused on growing our business by being a leader in the application of technology that makes our customers' lives better. That includes developing breakthrough technologies to address the critical global issues that impact us all.

To do that we followed the path laid out by our ONE Ford plan and created a single global product development organization to maximize economies of scale. That allows us to fully leverage our research and development resources so that we can introduce new technology at a lower cost and a faster pace. A lot of this new technology is aimed at improving convenience and safety, such as our SYNC® communications technology or our rear-seat inflatable seat belt. But the majority of these efforts are aimed at fuel economy leadership.

We are committed to being a leader in fuel economy in every product segment in which we compete. In keeping with our heritage as a company, we introduce new technology on a large scale. Examples of this include our EcoBoost™ engine technology and advanced transmissions.

In addition to these near-term fuel-efficiency actions, we also are working on a full complement of technologies including fuel cells, biofuel and clean diesel engines. But it appears that the most immediate and dramatic improvements in the next few years and beyond could come from electric vehicles.

In 2009 we announced an aggressive plan to bring pure battery electric vehicles, next-generation hybrid and plug-in hybrid vehicles to market more quickly and affordably. Our plan includes introducing five new vehicles in the next three years that will use advanced lithium-ion battery technology.

This year we will offer the battery-powered Ford Transit Connect Electric commercial van vehicle for fleet customers. In 2011 we will introduce a battery-powered passenger vehicle based on the next-generation Ford Focus. Three other vehicles, including two next-generation hybrids and a plug-in hybrid, will launch in North America in 2012 and Europe in 2013.

In total, we are investing nearly a billion dollars to build electric vehicles, and the battery packs that power them. That investment will allow us to bring our battery system design and development in-house so that it can become a core competency for us in the 21st century.

All of our new product investments are dependent on our being a profitable company. I am pleased to report that this is another area in which we have made tremendous progress.

Last year we continued our ongoing transformation in the face of the global economic crisis. By borrowing all we could ahead of the credit collapse and dramatically cutting our costs, we avoided a government bailout. We then went on to achieve one of the greatest financial turnarounds in corporate history, achieving our first full year of positive net income since 2005.

Our outstanding progress confirmed that we are headed in the right direction, but we know our journey is far from over. We are now fighting our way back to prosperity. We continue to aggressively search for new ways, both big and small, to improve our economic and environmental sustainability. Often the actions we take accomplish both goals.

For example, we recently initiated a program that turns off laptop and desktop computers from a central location during off hours. We estimate this program will reduce our carbon footprint by 16,000–25,000 metric tons a year and save us \$1.2 million annually.

We are moving forward in other areas as well. Our continuing progress and leadership in product quality, durability and safety has been confirmed by a number of outside observers and organizations. That includes being ranked among the leaders in the J.D. Power and Associates' 2009 Initial Quality Study, which also marked the eighth year in a row that our quality has improved.

We were especially pleased to be recognized in 2010 as one of the world's most ethical companies by the Ethisphere Institute, a leading business ethics think tank. This award is based on an extensive review of companies' social responsibility efforts, corporate governance and business practices. We were among 100 global companies chosen from a field of thousands of companies in more than 100 countries and 36 industries, and we were the only automaker to receive the honor. Ford was also the only automaker to be listed on *Newsweek* magazine's 2009 "Green Rankings" of America's 500 largest companies.

Creating a strong business and building a better world are not conflicting goals – they are both essential ingredients for long-term success. Perhaps the most gratifying measure of our continued progress is our growing market share around the world. That is proof that we are delivering products that our customers want and value, which is the most basic and essential element of our ongoing success.

In a fiercely competitive global economy there is no room for complacency. We are determined to keep moving forward and will continue to share our progress with you in this report.



William Clay Ford, Jr.
Executive Chairman
June 2010



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Letter from Alan Mulally

"We are providing affordable fuel economy for millions of customers by introducing fuel-saving technologies across a wide range of vehicles."

Alan Mulally
President and Chief Executive Officer



Since our last report was published, the most immediate concern for many companies has been ensuring their economic sustainability amid the worst business environment in generations. By continuing to follow the ONE Ford plan we put in place three years ago, Ford Motor Company successfully weathered the economic storm. During 2009, our Company posted our first full year of positive net income since 2005. And we expect to be profitable in 2010. Our market share grew in North America, Europe and South America, while sales increased in the rapidly growing Asia Pacific and Africa region.

These results, which demonstrate that our business strategy is working, enable us to continue to invest in the development of a full range of vehicles with the best quality, fuel efficiency, safety, smart design and value. A balanced portfolio of best-in-class vehicles will, in turn, enable us to continue moving forward toward our goal of profitable growth.

In these challenging times, we remain completely focused on the four points of our ONE Ford plan – aggressively restructure the business, accelerate development of vehicles people want and need, finance our plan and improve our balance sheet, and work together as one team worldwide leveraging our global assets.

By following our plan, we are building great products, a strong business and a better world.

Continuing Commitment

Along with improvements in our operating results, we continue to make significant progress on a number of the sustainability issues we have identified as top priorities, including improved fuel economy and reduced vehicle greenhouse gas emissions.

In 2007 we launched our "blueprint for sustainability" plan, a series of near-, mid- and long-term product actions that address climate change and energy security and affordability issues. The goal of this plan is to reduce the carbon dioxide (CO₂) emissions of our U.S. and European vehicles by 30 percent by 2020 relative to the 2006 model year. The plan also commits us to being the best or among the best in fuel economy for every vehicle segment in which we compete.

I am happy to report that we are on track to meet or exceed these goals. We are providing affordable fuel economy for millions of customers by introducing fuel-saving technologies across a wide range of vehicles.

According to a report published by the U.S. Environmental Protection Agency (EPA) in November 2009, our overall fuel economy has improved more than any other major automaker since 2004. The EPA rated Ford's combined car and truck fuel economy improvement in the United States at nearly 20 percent, almost double the next-closest competitor.

To help bring advanced fuel-saving technologies to market quickly and affordably, we created a single global product development organization in 2007. This allows us to fully leverage our resources and maximize economies of scale so that we can provide affordable fuel economy for millions of customers across a wide range of vehicles. Along with investments in flexible manufacturing and technologies that help us bring vehicles to market faster, this organization helps us adapt quickly and effectively to changes in consumer preferences and regulatory environments.

It also allows us to tailor global vehicles to local needs and wants.

Our approach is not to pursue every possible solution. Our roadmap allows us to reduce emissions and fossil fuel use in the near term while ensuring we are ready with new technologies as they mature in the mid- and long-term.

As part of our commitment to protecting human rights and implementing the principles of the United Nations Global Compact, we continue to work in our operations and with business partners, other automakers and governments to promote a common approach to protecting human rights in our plants and supply chain. Our leadership was recently recognized when Corporate Responsibility Officer magazine ranked Ford's human rights efforts first among companies on its "100 Best Corporate Citizens" list.

Other priorities we are addressing include vehicle safety and corporate governance. The details of our accomplishments and challenges in these and other high-priority areas can be found in this report.

Emerging Issues and Opportunities

As a global community, we have the opportunity to forge a compelling vision and to contribute collectively to addressing the issues Bill Ford identified in his letter for this report: economic growth, energy independence and environmental sustainability.

Issues of this magnitude require working together on a grand scale. I see two key enablers of progress in these areas: technologies and innovation will provide the solutions, while collaborative partnerships and a systems approach will help us implement them.

For example, over the next three years, we will introduce five new vehicles that are the focal point of our aggressive plan to bring pure battery electric, next-generation hybrid and plug-in hybrid vehicles to market more quickly and affordably. These vehicles will use advanced lithium-ion battery technology.

Vehicle electrification relies on deploying new infrastructure while linking existing elements into smart systems facilitated by information and communication technologies. This calls for unprecedented collaboration and joint action by automakers, utility companies, governments and transportation organizations. Ford has been working with a dozen utility companies and several U.S. cities to explore key issues and solutions to electrification and mobility challenges.

In another collaboration, we recently announced that we will implement the Microsoft Hohm™ energy management application for Ford electric vehicles. Hohm will help owners determine when and how to most efficiently and affordably recharge battery electric vehicles and plug-in hybrid vehicles. It also should help utility companies manage the added demands of electric vehicles on the electric grid to reap the greatest efficiency and CO₂ reduction. This collaboration builds on our successful partnership to develop the award-winning SYNC® technology now found in 2 million Ford automobiles. SYNC is one of the Ford innovations that recently prompted Fast Company magazine to call Ford "America's most surprising consumer-electronics company."

These efforts show that our leadership in connected cars is more than a clever way to deliver entertainment and communication to our customers – it provides the vital platform for future innovation in electrification and sustainable mobility.

We are working collaboratively on other issues as well. For example, Ford Motor Company is taking a leadership position in joining the Carbon Disclosure Project's (CDP) Water Disclosure program, which will establish a water disclosure protocol for companies around the world and promote conservation and stewardship. We are also learning more about carbon emissions in our supply chain by participating in the CDP's Supply Chain Initiative and by road testing the World Resources Institute/World Business Council on Sustainable Development's Scope 3 reporting protocol. Ford is the only automaker participating in these initiatives.

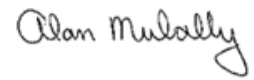
Looking Ahead

We believe that great companies are driven by purpose as well as profit. Our intense focus on improving our cost structure, strengthening our balance sheet and delivering great products will continue going forward. So will our efforts to be a good neighbor locally and a trusted corporate citizen globally.

Ford has a proud heritage of improving people's lives and making their world a better place. We want to build on this heritage by being recognized as a trusted partner and operating responsibly and sustainably wherever we do business. Our Company has been through some tough times, but we have learned from these challenges. We have emerged leaner, stronger and more focused. We know there are more – and probably different – challenges ahead. We also know that the successful companies of the 21st century will be those that understand global sustainability issues and offer viable solutions. Through a decade of work and a disciplined reinvention of our Company,

we have built sustainability into our business model.

With the support of our stakeholders we are creating an exciting and viable company with profitable growth for all.

A handwritten signature in black ink that reads "Alan Mulally". The signature is written in a cursive, flowing style.

Alan R. Mulally
President and Chief Executive Officer
June 2010

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Letter from Sue Cischke

"The companies that make the most progress in addressing sustainability issues are those that integrate sustainability goals and considerations into their most basic business processes. That integration is now well established at Ford."

Sue Cischke

Group Vice President, Sustainability, Environment and Safety Engineering



The theme for our report this year is "Blueprint for Sustainability: The Future at Work." So what do we think is working?

We are implementing the blueprint and meeting or surpassing our key sustainability goals, including our goal to reduce the carbon dioxide (CO₂) emissions of our new vehicles in the United States and Europe by 30 percent by 2020, compared to a 2006 model year baseline. Our new vehicles are winning numerous awards, and their quality is second to none. We have taken a leadership stance for road safety by being the first automaker to call for a ban on handheld text messaging while driving.

We're also making progress in reducing our environmental footprint and addressing our material sustainability issues, from human rights to mobility. In each of these areas, we're leveraging the enablers of progress: integration, innovation and collaboration.

Driving Steady Progress

The companies that make the most progress in addressing sustainability issues are those that integrate sustainability goals and considerations into their most basic business processes. That integration is now well established at Ford and is thoroughly described in the [Governance](#) section.

For this report, I'd like to discuss some results we're seeing from that integration. Throughout our Company, we're addressing risks, reducing negative impacts and seizing opportunities for improvement. We're finding these opportunities because we're looking for them systematically – in our products, of course (which are discussed throughout this report) – but also in our operations and value chain.

Operations

Every Ford plant has targets for reducing its environmental footprint, and managers are accountable for those targets. Since 2005, we have accomplished the following:

- Reduced global energy consumption by 23 percent
- Reduced CO₂ emissions from our facilities by 39 percent
- Cut water use by 49 percent

In addition, in 2006 we adopted the European waste classification system, which has allowed improved benchmarking while we've developed new methods of reducing and better managing waste. Since that time, we have reduced waste to landfill by more than 35 percent.

These results are due to innovative thinking by our plant managers and environmental specialists. For example, we use renewable energy at several plants, including geothermal cooling at the Lima (Ohio) Engine Plant and solar arrays at Valencia (Spain) and Bridgend (England). Ford's Dagenham Diesel Centre in the UK was the first automotive plant in the world to obtain all of its electrical power needs from two on-site wind turbines. At our Genk plant in Belgium, two wind turbines spun into action producing 'green' electricity in October 2009. A third wind turbine will be added to our Dagenham plant in 2010, increasing production of clean wind power at the site by 70 percent.

Our Dearborn (Michigan) Truck plant is covered by one of the world's largest living roofs, a 10.4-acre garden that saves energy and soaks up rainwater. It is one of dozens of pioneering green features at the site.

Value Chain

Increasingly, value chain relationships are about more than economic value. They also reflect suppliers' and customers' mutual interest in aligning their social and environmental values. In our supply chain, for example, we insist that our suppliers align their practices with our Code of Basic Working Conditions, which covers human rights issues in the workplace. We have also worked with suppliers to develop innovative materials for use in our vehicles, like soy-foam seats and recycled fabric for seat covers. We are deepening our engagement with key suppliers around a full range of sustainability issues.

We are pleased to offer our customers a wide range of vehicles that use less fuel. We're also helping them to wring the most out of the fuel they do use: from our pioneering "eco-driving" training in Germany to eco-driving tips on our Web site and in our online drivers' training classes, we're helping customers learn how to drive efficiently. We're also using innovative technologies to coach them in efficient driving. Our hybrids feature SmartGauge™ with EcoGuide, a display that provides drivers with feedback on how well they are maximizing fuel economy, and a similar system is being offered on vehicles in Europe. We recently announced that our next-generation navigation and communication system – MyFord Touch™ – will include EcoGuide to help drivers plan the most fuel-efficient driving route.

We are also encouraging our dealers – who are independent businesspeople – to reduce their carbon footprints by launching a voluntary initiative that includes an energy assessment as well as guidance on tax credits, incentives and the selection of energy-efficient products to help dealers go greener.

Elsewhere in our value chain, our logistics managers are working to document the carbon footprint involved with moving parts and finished vehicles between plants and to market. This work also helps identify ways to reduce that footprint. For example, we reduced inland road-based transport within Spain by 29 percent by expanding from three sea ports of entry to six ports.

Collaboration

Many sustainability challenges can only be successfully addressed by collaborating with the auto industry, governments, academics, NGOs and others to seek solutions to important challenges. For example, during 2009 and early 2010, we:

- Became a founding responder of the Carbon Disclosure Project's Water Disclosure program, which will help the Company assess water use and water-related risks. This is part of our development of a comprehensive strategy that is looking at water issues related to our facilities, the communities in which we operate and our supply chain.
- Announced participation in pilot efforts to measure the carbon footprint of our supply chain.
- Continued cooperation with more than a dozen utilities and other organizations to test our plug-in hybrid electric vehicles and explore issues involved with integrating electric vehicles with electric utilities.
- Announced a partnership to offer the Microsoft Hohm™ energy management application for Ford electric vehicles. Hohm will improve the affordability of electric vehicles by helping owners determine when and how to most efficiently and economically recharge battery electric vehicles and plug-in hybrid vehicles.
- Continued participation in the U.S. Climate Action Partnership, supporting a comprehensive approach to U.S. climate change policy.

These are only a few of the many collaborations that inform and multiply the impact of our own efforts.

Although a lot is working at Ford right now, we have many challenges ahead of us in recovering from the worst recession in decades. And as a society, we've only begun to tackle the most daunting global sustainability challenges. We are pleased that our efforts are showing results, and we will work to continue – and in fact accelerate – the pace of progress.



Sue Cischke
Group Vice President, Sustainability, Environment and Safety Engineering
June 2010



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Performance Summary

Below is a summary of our key performance data. Please also see the [Overview](#) for discussion of data parameters and the [Economy](#), [Environment](#) and [Society](#) data sections for additional indicators, five-year trends and notes on data assurance.

Economy

	2007	2008	2009
GQRS things gone wrong (TGW) (three months in service), total things gone wrong per 1,000 vehicles ¹	1,405	1,206	1,107
GQRS customer satisfaction (three months in service), percent satisfied ¹	76	77	84
Sales satisfaction with dealer/retailer, Ford brand, U.S., net promoter score	82	84	82
Sales satisfaction with dealer/retailer, Ford brand, Europe, net promoter score	80	81	77
Service satisfaction with dealer/retailer, Ford brand, U.S., net promoter score ²	72	74	74
Service satisfaction with dealer/retailer, Ford brand, Europe, net promoter score ²	68	70	67
Shareholder return, percent	-10	-66	337
Net income/loss, \$ billion	-2.7	-14.7	2.7
Sales and revenue, \$ billion	172.5	146.3	118.3

NOTES TO THE DATA

1. The Global Quality Research System (GQRS) is a Ford-sponsored competitive research survey. The GQRS is a good indicator of other quality results.
2. Prior to 2008, only warranty repair visits were measured. Starting in 2009, customer-paid repair and maintenance visits are also included. These additions have had a small negative impact on the 2009 score. The improvement from 2004 is significant.

Environment

	2007	2008	2009
Ford U.S. fleet fuel economy, combined car and truck, miles per gallon (higher mpg reflects improvement) ¹	25.3	26.0	27.1
Ford U.S. fleet CO ₂ emissions, combined car and truck, grams per mile (lower grams per mile reflects improvement) ²	352	340	326
Ford Europe CO ₂ tailpipe emissions per vehicle, grams per kilometer (based on production data for European markets) ³			
Ford	149	146	139
Volvo	190	182	173
Worldwide facility energy consumption, trillion BTUs ⁴	65.6	61.0	51.5
Worldwide facility energy consumption per vehicle, million BTUs ⁵	10.8	12.2	11.2
Worldwide facility CO ₂ emissions, million metric tons ⁴	6.1	5.4	4.9
Worldwide facility CO ₂ emissions per vehicle, metric tons ⁵	1.01	1.09	1.05
North American Energy Efficiency Index, percent (2000 base = 100 percent) (lower percentage reflects improvement) ⁶	74.4	69.9	65.3

NOTES TO THE DATA

1. For the 2009 model year, the Corporate Average Fuel Economy (CAFE) of our cars and trucks increased by 4.2 percent relative to 2008. Preliminary data for the 2010 model year show a 3.2 percent improvement in CAFE for cars and a slight decline of 2.4 percent in CAFE for trucks as compared to 2009. For more information, please see [Fuel Economy and Greenhouse Gas Emissions](#).
2. Improvement is reflected in decreasing grams per mile.
3. Improvement is reflected in decreasing grams per kilometer. European and U.S. fleet CO₂ emissions are not directly comparable because they are calculated in different units and because they are assessed based on different drive cycles. In 2009, we switched from reporting European vehicle CO₂ emissions as a percent of a 1995 base to reporting actual fleet average CO₂ emissions, to parallel our reporting for other regions.
4. Data have been adjusted to account for facilities that were closed, sold or new. This data does not include Automotive Components Holdings (ACH) facilities.
5. Energy consumption and CO₂ emissions per vehicle divides energy used or CO₂ emitted by the number of vehicles produced. Averaging energy and CO₂ emissions by the number of vehicles produced yields a somewhat imperfect indicator of production efficiency. When the number of vehicles produced declines, as it has since 2000, per-vehicle energy use tends to rise because a portion of the resources used by a facility is required for base facility operations, regardless of the number of vehicles produced.

We believe that the long-term trend of declining per-vehicle energy use and CO₂ emissions indicate that more efficient production since 2000 is offsetting the tendency of these indicators to rise during periods of declining production. This interpretation is reinforced by our Energy Efficiency Index, which focuses on production energy efficiency and which has been steadily improving. Our Energy Efficiency Index target also has the effect of driving reductions in CO₂ emissions. These data do not include ACH facilities.
6. The Index, which covers energy use in North America, is "normalized" based on an engineering calculation that adjusts for typical variances in weather and vehicle production. The Index was set at 100 for the year 2000 to simplify tracking against our target of 3 percent improvement in energy efficiency.

Society

	2007	2008	2009
Employee satisfaction, Pulse survey, overall, percent satisfied	64	66	68
Overall dealer attitude, Ford, relative ranking on a scale of 1–100 percent (summer/winter score) ¹	69/64	68/69	80/71
Overall dealer attitude, Lincoln Mercury, relative ranking on a scale of 1–100 percent (summer/winter score) ¹	66/64	64/66	71/66
Ford Motor Company Fund contributions, \$ million	37	33	20
Corporate contributions, \$ million	17	16	9
Volunteer corps, thousand volunteer hours	86	100	100
Lost-time case rate (per 100 employees), Ford Motor Company ²	0.9	0.7	0.6
Lost-time case rate by region (per 100 employees), Ford Motor Company			
Americas	1.2	1.0	0.9
Asia Pacific and Africa	0.1	0.1	0.2
Europe	0.7	0.6	0.5
U.S. safety recalls, number per calendar year ³	15	10	8
U.S. units recalled, number of million units	5.5	1.6	4.5 ⁴
IIHS Top Safety Picks, number of vehicles ⁵	6	14	19

NOTES TO THE DATA

1. Overall dealer attitude is measured by the National Automobile Dealer Association (NADA) Dealer Attitude Survey. Scores are for the summer and winter respectively of the year noted.
2. 2008 are the most recent Bureau of Labor statistics data available.
3. Recalls are by calendar year rather than model year. A single recall may affect several vehicle lines and/or several model years. The same vehicle may have multiple recalls. (Source: U.S. National Highway Traffic Safety Administration.)
4. All but 12,000 of the 4.5 million vehicles recalled in 2009 are older models (1992–2003) that were equipped with faulty Texas Instruments speed control deactivation switches. Although the data shows the majority of the vehicles equipped with these switches do not pose a significant safety risk, we recalled them to reassure customers and eliminate any future concerns.
5. To earn a Top Safety Pick from the Insurance Institute for Highway Safety (IIHS), a vehicle must receive a rating of "good" in offset frontal impact, side impact and rear impact evaluations, and offer electronic stability control. Top Safety Picks are the best vehicle choices for safety within size categories. 2005 (2006 Model Year) was the first year the IIHS issued Top Safety Picks. For 2010, vehicles will also be expected to earn a "good" rating in roof strength tests.



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Ford's Goals, Commitments, and Status

This table summarizes Ford's goals, commitments, targets and progress in our material issue areas and other important performance areas.


KEY ON TRACK IN PROCESS NOT ON TRACK

Sustaining Ford

Goal/Commitment	2009 Progress	On Track?
Execute our "ONE Ford" transformational plan to create a leaner, more-efficient global enterprise.	Offered 42,000 hourly employees two opportunities to accept buyout and early retirement offers. Worked with the UAW to restructure health care coverage for current and future retirees.	
Achieve profitability in 2011.	Posted the first full year of positive net income since 2005. Based on our improving performance, the gradually strengthening economy and our present assumptions, expect to deliver solid profits for 2010 with positive Automotive operating-related cash flow.	
Align capacity to demand.	Continued to globalize vehicle platforms that can be adapted to meet specific regional needs and to produce the vehicles that customers want.	
Reverse the trend of losing money on small car production in the United States.	Continued to increase the production of smaller-sized vehicles in North America and globally. Improving costs to competitive levels. Enhancing revenues through class-leading fuel economy, safety performance and quality.	

Climate Change

Goal/Commitment	2009 Progress	On Track?
Products		
Reduce CO ₂ emissions of our U.S. and EU new products by 30 percent by 2020, relative to a 2006 model year baseline.	Continued fuel economy improvements. Accelerated our electrification strategy. Worked to develop climate policies.	
Ensure that every all-new or redesigned vehicle we introduce will be best in class or among the best in class for fuel economy in its segment.	Followed through on this commitment with vehicles introduced in both the United States and Europe, and we will continue to do so in future product launches.	
Australian Industry-wide National Average CO ₂ Emissions (NACE) ¹ : Voluntary target to achieve industry-wide, national average CO ₂ emissions of 222 g/km for light vehicles under 3.5 metric tons gross vehicle mass by 2010; requires an overall reduction in average CO ₂ emissions of 12 percent between 2002 and 2010.	Met this goal in 2009. Industry is working on a new target for Australia for 2015 and 2020.	
Canadian Greenhouse Gas Memorandum of Understanding: Industry-wide voluntary agreement to reduce greenhouse gases (GHGs) from the Canadian car and truck fleet by 5.3 megatonnes by 2010 compared to projected emissions.	Met the first target in 2007. On track to meet the 2010 target.	
Manufacturing		
Continuous improvement in energy efficiency; 2009 goal is a 3 percent improvement.	Met commitment to reduce facilities emissions by 3 percent in 2009 vs. 2008. Improved energy efficiency in North America by 4.6 percent; improved it globally by 8 percent.	





EU Emission Trading Scheme: Ensure compliance with Trading Scheme requirements, including third-party verification.	Continued to comply with the Trading Scheme requirements.	
Chicago Climate Exchange: Reduce Ford's North American facility CO ₂ emissions by 6 percent between 2000 and 2010 as verified by third-party auditors.	Achieved this goal.	
Alliance of Automotive Manufacturers: Reduce industry-wide U.S. facility GHG emissions by 10 percent per vehicle produced between 2002 and 2012.	On track to meet this commitment.	
Voluntarily report GHG emissions.	Continued to voluntarily report facility CO ₂ emissions to national emissions registries in Australia, Canada, Mexico, the Philippines and the United States, as well as in Chongqing, China. In 2009, added voluntary reporting in Brazil and for all of China.	

1. Previously known as National Average Fuel Consumption (NAFC)





Mobility

Goal/Commitment	2009 Progress	On Track?
Develop partnerships and projects to explore solutions to urban mobility challenges.	Continued to catalyze and conduct dialogues with key regional stakeholders, exploring sustainable mobility projects in Atlanta, Georgia; Richmond, Virginia; Seattle, Washington; Portland, Oregon; and Los Angeles, California.	

Human Rights









Goal/Commitment	2009 Progress	On Track?
Ford Facilities		
Maintain and demonstrate compliance with Ford's Code of Basic Working Conditions.	Completed assessments at Ford-owned plants in Canada, Venezuela, Brazil and Romania, as well as joint-venture plants in Thailand and China.	
Supply Chain		
Overall goal: Leverage Ford's complex, global supply chain to make a positive impact in the markets in which we do business. Target: Build capability/assess suppliers in 17 priority countries by 2009.	Through year-end 2009, trained 1,773 managers at 1,478 supplier companies and assessed more than 600 suppliers in 17 priority countries.	
Align policies and practices with key production suppliers to protect working conditions.	Enabled 24 suppliers to complete Phase 1 (aligned code); 11 suppliers to complete Phase 2 (internal training and compliance management systems); and 7 suppliers to complete Phase 3 (extension of expectations to suppliers with supporting management systems). Held two meetings (in Dearborn, Michigan, and Cologne, Germany) attended by senior management in support of alignment implementation with our Aligned Business Framework (ABF) suppliers. Made e-learning course on responsible working conditions for procurement and supply chain managers available to ABF suppliers through the Automotive Industry Action Group (AIAG).	
Facilitate development of an industry-wide approach to ensuring sound working conditions in the supply chain.	Worked with the AIAG to provide facility-level training to automotive suppliers since 2007: <ul style="list-style-type: none"> China: Trained 461 Tier 1 suppliers; information cascaded to 33,507 people at the Tier 1 supplier level and to more than 3,148 Tier 2 suppliers. Mexico: Trained 494 Tier 1 suppliers; information cascaded to 75,544 people at the Tier 1 supplier level and to more than 10,462 Tier 2 suppliers. <p>In 2009, aligned approach and tool development with OEMs at AIAG and developed e-learning on responsible working conditions for supply chain managers. E-learning launched March 2010. Also with other OEMs at AIAG, began development of customized training programs on responsible working conditions for automotive suppliers in Brazil, India and Turkey. Training to be rolled out in 2010.</p>	

Vehicle Safety

Goal/Commitment	2009 Progress	On Track?
Design and manufacture vehicles that achieve high levels of vehicle safety for a wide range of people over the broad spectrum of real-world conditions.	Continued to achieve high public domain ratings, and remain an industry leader in automotive safety. Nearly all vehicles available with side air bags (the Safety Canopy®). Made electronic stability control or Roll Stability Control™ standard on 84 percent of our 2011 model year North American nameplates. Made SYNC®, which allows drivers to use cell phones and MP3 players more safely, available on nearly every Ford, Lincoln and Mercury vehicle. Offered radar-based accident avoidance features such as Rearview Camera with Guidelines and Volvo's City Safety. Introduced the first automotive inflatable safety belts.	
Meet or exceed all regulatory requirements for safety.	Continue to meet this goal every year. Ford's internal Safety Design Guidelines and Public Domain Guidelines go beyond basic regulatory requirements.	
Provide information, educational programs and advanced technologies to assist in promoting safe driving practices.	Supported the Schumer bill, which would ban handheld texting while driving. Included modules on avoiding distracted driving in our Driving Skills for Life program. Offered MyKey®, allowing parents to program a key for their teenagers that limits certain features, such as top speed and audio volume. Offered a variety of SYNC safety features.	
Play a leadership role in accident research.	Joined with 29 partner organizations to take part in "interactIVe," a European research project that seeks to support the development and implementation of active safety systems. Maintained major research alliances with the Massachusetts Institute of Technology, the University of Michigan, Northwestern University and more than 100 universities worldwide; safety is a central thrust of this work.	

Other Important Issues

Environment (non-climate)

Goal/Commitment	2009 Progress	On Track?
Products		
Expand use of the Product Sustainability Index (PSI) and Design for Sustainability principles in product development.	Designed the 2009 Ford Fiesta using the PSI.	
Increase the use of recycled, renewable and lightweight materials.	Expanded the use of soy foam seating. Introduced a soy foam headliner. Introduced wheat-grass-reinforced plastics. Expanded the use of recycled-content fabrics for seats and headliners. Continued to develop strategy requiring recycled plastics and textile materials for many applications in North America.	
Increase the use of and certification for allergen-free and air-quality-friendly interior materials.	Established global design guidelines for allergy-free materials and in-vehicle air filtration that are being migrated across product lines.	
Reduce the use of substances of concern.	As of 2009, all Ford, Lincoln and Mercury vehicles in the United States are mercury-free with the exception of the Lincoln Town Car, which uses mercury in its high-intensity discharge headlamps. Have eliminated the use of lead wheel weights in North America and Europe.	
Manufacturing		
Goal: Reduce water use. 2009 and 2010 targets: 6 percent reduction per year.	Exceeded the 2009 water-reduction target of 6 percent from 2008 by 10.6 percentage points.	
Goal: Reduce landfill disposal. 2009 and 2010 targets: 10 percent reduction per year.	Exceeded the 2009 landfill disposal target of 10 percent reduction from 2008 by 10.6 percentage points.	
Expand the use of fumes-to-fuel technology in painting facilities and reduce volatile organic compound (VOC) emissions.	Did not expand the use of fumes-to-fuel in 2009. However, did reduce VOC emissions from 24 grams per square meter painted to 21 grams per square meter.	
Develop a comprehensive water strategy addressing environmental and social impacts of water use. Expand the use of new and innovative water- and emissions-reduction technologies.	Became a founding responder of the Carbon Disclosure Project's Water Disclosure, which launched in late 2009 to help institutional investors better understand the business risks and opportunities associated with water scarcity and related issues.	

Expanded our use of minimum quantity lubricant parts machining, which reduces energy and water use and helps to eliminate waste.

Workplace Health and Safety

Goal/Commitment	2009 Progress	On Track?
Safety		
Fatalities target is always zero.	Experienced three employee fatalities and one contractor fatality during 2009.	
Serious injuries target is zero; objective is to be competitive with industry by 2010.	Reduced total from 172 to 128. Failed to reach aggressive 50 percent reduction target. Have active interventions in place in all regions.	
Overall goal is to obtain competitive DART levels and drive continuous improvement; specific targets are set by business units yearly for five years into the future.	Continued the strong continuous improvement trend on overall injury rates in 2009. In early 2010, saw marked improvement in serious injury rate globally.	
Health		
Improve focus on employee personal health through access to health risk appraisal and health promotion programs.	Have active personal health promotion programs in place in most regions. Deployed common global metrics and developed plans to implement in remaining countries.	

Quality

Goal/Commitment	2009 Progress	On Track?
Become global quality leader; strive to be best in class in every phase of vehicle development, from design to pre-delivery.	According to internal and external measures, are making significant quality strides. Initial quality of Ford Motor Company vehicles has surpassed Honda and is in a statistical tie for first place with Toyota.	
Launch new small global cars with the industry's best quality ever, at fewer than 800 "things gone wrong" (TGW) per 1,000 vehicles in the first 90 days of ownership. Continue to improve initial quality and long-term durability by reducing TGW and warranty costs in every vehicle program.	Decreased TGW for sixth straight year. As of the first quarter 2010, had the lowest TGW of any full-line manufacturer, at 1107 per 1000 vehicles. Global warranty spending per unit declined 3 percent in 2009, compared to 2008 (excluding Volvo). Global warranty costs dropped by \$0.8 billion, or 40 percent, over the 24 months from year-end 2007 to year-end 2009. Have plans in place to achieve another 9 percent improvement in warranty spending by 2014.	
Continue to improve customer satisfaction with our vehicles and sales and service divisions.	Increased overall customer satisfaction with Ford, Lincoln and Mercury vehicles and with sales and service in the United States, but saw these measures decline slightly in Europe. Decreased sales satisfaction in the United States and Europe. Service satisfaction remained steady in the United States and declined slightly in Europe.	



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For this report and our previous three reports, [Ceres](#) convened Stakeholder Committees to advise us. Ceres is a network of investors, environmentalists and other public interest groups that works with companies and investors to address sustainability challenges. Ford agreed to work with a stakeholder team that was selected for it by Ceres. The Ceres Stakeholder Committee that was selected is an independent group of individuals drawn primarily from the Ceres coalition and representing a range of constituencies that have expertise in environmental, social and governance issues.

In reviewing this report, the Committee considered whether the Company adequately reported on its sustainability performance and key impacts, including goals, targets, systems, data and initiatives. The Committee met twice: once to review and comment on the report plan, and once to review and comment on a nearly final draft of the material issues sections of the report.

In this report, we have responded to several suggestions the Committee made during reviews of previous reports. In addition, the Committee raised a number of questions and made suggestions for improvements to the report, including:

- Strengthen the discussion of links between environmental performance, fuel economy and economic performance.
- Expand disclosure about public policy and political contributions, including how Ford deals with conflicts between the public policy positions of organizations of which it is a member and Ford's own positions.
- Discuss how Ford's 2020 climate change goal may change as a result of new regulations and scientific data and/or expansion to other regions.
- Expand discussion of the Low Carbon Fuel Standard.
- Discuss human rights impacts in metal mining.
- Comment on potential electromagnetic interference in vehicle safety systems.
- Expand disclosure of water strategy and performance.
- Articulate goals in the supply chain in the next report.

We were able to at least partially address most of these recommendations. For example, we:

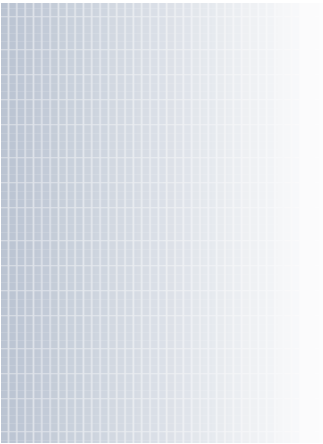
- Created a separate [public policy](#) section that includes expanded discussion of Ford's public policy stances and policies on political contributions; however, we were not able to expand the data provided on political contributions for this report.
- Created a separate discussion on low-carbon fuels in the climate change section. We state how our product CO₂ goal is under constant review but disagree with the Committee's view that the goal, which is based on the science of climate stabilization, should routinely be changed based on regulatory developments.
- Added discussion of how we are assessing potential human rights issues related to the [raw materials used in electric vehicles](#) and how Ford monitors potential issues with [electromagnetic interference](#) in our vehicles.
- Discussed development of our [water strategy](#) and Ford's participation in the Carbon Disclosure Project's Water Disclosure program.

Other Committee recommendations will be considered for future reporting.

Data assurance

Some of the data in our reports have been subject to various forms of internal and third-party verification, as follows.

- Financial data were audited for disclosure in the Ford Annual Report on Form 10-K.



More than two-thirds of Ford's global facility greenhouse gas (GHG) emissions are third-party verified. All of Ford's North American GHG emissions data since 1998 have been externally verified by FINRA, the auditors of the NASDAQ stock exchange, as part of membership in the Chicago Climate Exchange. In addition, all emissions data covered by the EU Emission Trading Scheme (EU-ETS) and voluntary UK Climate Change Agreements are third-party verified. All EU-ETS verification statements are provided to Ford by facility from BSI for UK facilities, Lloyds for Spain, and Flemish Verification Office for Belgium. North American facilities are verified against the World Resources Institute's GHG Protocol. European facilities are verified against the EU-ETS rules and guidelines.

- Ford voluntarily reports facility CO₂ emissions to national emissions registries in Australia, Canada, China, Mexico, the Philippines and the United States.
- Various environmental data are reported to regulatory authorities.
- Ford's facility environmental data are managed using the Global Emissions Manager database, which provides a globally consistent approach to measurement and monitoring.



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Our Operations

2009 HIGHLIGHTS:

- Employed about 176,000 people
- Worked with more than 1,600 production suppliers



We have manufacturing facilities in 23 countries on six continents, and we sold more than 4.8 million vehicles in 2009.

Browse this section to learn more about our business, our locations and the impacts of our operations.

IN THIS SECTION

Products and Services

Find out more about the Company's core and affiliated automotive brands, which include Ford, Lincoln, Mercury and Volvo. The Company provides financial services through Ford Motor Credit Company.

[Read more ▶](#)

Manufacturing

We produce our products in facilities operated by Ford Motor Company and/or joint ventures. See our operations map for manufacturing plants by geographic location and plant type.

[Read more ▶](#)

Our Value Chain and Its Impacts

We have analyzed the most significant sustainability issues we face and the impacts they have at the various stages of our value chain. Some issues do not pertain to a particular life-cycle stage; a number of others apply across the whole value chain.

[Read more ▶](#)



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Products and Services

We market our vehicles under the company's core and affiliated automotive brands, including Ford, Lincoln, Mercury, Volvo and Mazda. The Company provides financial services through Ford Motor Credit Company. Quality Care, Motorcraft, Quick Lane and Extended Service Plan provide customer service support to our dealers. For more information regarding Ford's products, please visit www.fordmotorcompany.com.

IN THIS SECTION

Global Products

Ford offers exciting vehicles in all regions of the world.

[Read more](#)

Automotive Brands



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Global Products

Ford offers exciting vehicles in all regions of the world. Use this [interactive map](#) to explore our global product portfolio.





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Automotive Brands



Dealers*	11,682
Markets	116
Customer assistance	+1 (800) 392-3673 fordvehicles.com fordowner.com



Dealers*	1,376
Markets	30
Customer assistance	+1 (800) 521-4140 lincoln.com lincolnowner.com



Dealers*	1,780
Markets	19
Customer assistance	+1 (800) 392-3673 mercuryvehicles.com mercuryowner.com



Dealers*	2,269
Markets	99
Customer assistance	+1 (800) 458-1552 volvocars.com customercare@volvoforlife.com

* Because many of these dealerships distribute more than one of our brands from the same sales location, a single dealership may be counted under more than one brand.

** Ford Motor Company has announced it has entered into a definitive agreement to sell Volvo Car Corporation and related assets to Zhejiang Geely Holding Group Company Limited. The sale is expected to close in the third quarter of 2010, and is subject to customary closing conditions, including receipt of applicable regulatory approvals.



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Financial Services



Operations Provides a wide variety of dealer and customer financing products and services globally in support of Ford Motor Company vehicle sales

One of the world's largest automotive finance companies, with managed receivables of \$95 billion at year-end 2009

Customer assistance +1 (800) 727-7000
www.fordcredit.com



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Customer Services



Operations	<p>Genuine Parts & Service</p> <p>A total service experience for Ford, Lincoln and Mercury owners available only at Ford and Lincoln Mercury dealerships – designed to deliver customer satisfaction and repeat purchase intent</p> <p>Parts engineered to Ford Motor Company specifications</p> <p>Technicians trained and certified specifically on Ford, Lincoln and Mercury vehicles</p>
Customer assistance	Order Genuine Ford parts at: FordParts.com



Operations	<p>Quick Lane® Tire & Auto Center</p> <p>Ford Motor Company's all-makes quick service brand, successfully occupies a unique niche in the marketplace by offering customers "convenience with confidence." Convenience comes in the form of all-makes-all-models service capabilities, no-appointment-necessary service while you wait, evening and weekend hours, and competitive prices. Confidence comes in the form of factory-trained technicians and quality Motorcraft parts.</p>
Customer assistance	Locate Quick Lane Tire & Auto Centers at: Quicklane.com



Operations	<p>Motorcraft Parts</p> <p>New and remanufactured parts recommended by Ford Motor Company and available in Ford, Lincoln and Mercury franchised dealerships, Ford authorized distributors and thousands of major retail and repair locations</p>
Customer assistance	Order Genuine Motorcraft parts at: FordParts.com



Operations	<p>Custom Accessories</p> <p>Wide variety of customer accessories designed to personalize Ford, Lincoln and Mercury vehicles</p>
Customer assistance	www.fordaccessories.com www.lincolnaccessories.com www.mercuryaccessories.com



Operations	<p>Extended Service Business</p> <p>Providing comprehensive vehicle service contract and maintenance</p>
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programs

Ford Extended Service Plan (ESP)

Major customers include Ford, Lincoln and Mercury vehicle dealers, commercial customers and fleets of Ford Motor Company vehicles

Customer assistance

ESP

+1 (800) 521-4144

ford-esp.com

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Manufacturing

Visit our Web site to view detailed information about our [manufacturing operations](#) around the world.

Ford Motor Company

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About Ford

Operations Map
View detailed information about our manufacturing operations around the world.

All | Assembly | Stamping | Engine | Transmission | Casting and Forging

Search by country or a city

Argentina

Assembly Plants

Patricio Stamping and Assembly
 Buenos Aires
 Total employment: 2,123
 Products: Ford Focus (4 & 5 doors), Ford Ranger (Regular Cab, Super Cab)
 Year opened: 1991
 Local entity: STA
 Plant size (sq ft): 1,750,000
 Site work: 123 acres

Australia

Brookmoss Assembly Plant
 Cammerford, Victoria
 Total employment: 1,000
 Products: F150 Falcon range, F150 Falcon (concealed), 2011 Territory SUV
 Market: Ford Performance Vehicles
 Year opened: 1999
 Local entity: FAVS
 Plant size (sq ft): 1,000,000
 Site work: 25 acres

Drive green.
Big steps to make our carbon footprint small.



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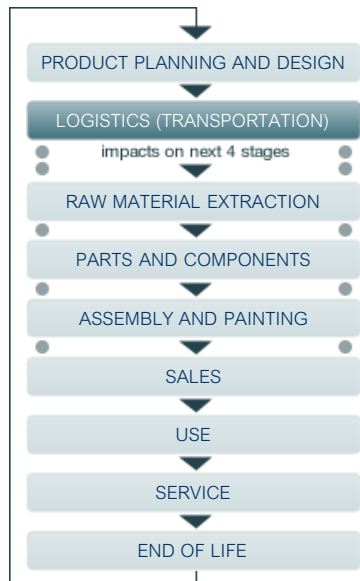
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Our Value Chain and Its Impacts

As a major multinational enterprise, our activities have far-reaching impacts on environmental, social and economic systems. The diagram below organizes the issues by the major stages of our value chain. In this report you will also find a "[materiality analysis](#)" which prioritizes the most significant issues in our value chain.

- RELATED LINKS
- This Report:
 - Materiality Analysis

Some issues are not shown in this diagram because they do not pertain to a particular life-cycle stage.



Value Chain: Overview

A number of broad sustainability challenges set the context for all of the life-cycle stages. These issues apply across the value chain:

- Population growth
- Urbanization
- Poverty
- Education
- Gender equality
- Child mortality
- Maternal health
- Infectious diseases
- Biodiversity
- Loss of ecosystem services
- Downsizing

Click the buttons to the left to see issues for each stage

Product Planning and Design

[back to Overview](#)

Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> Ford Customers Government 	<ul style="list-style-type: none"> Greenhouse gas emissions Fuel economy Smog-forming emissions Material use and recycling Resource use Manufacturing waste In-vehicle air quality
Social issues	Economic issues
<ul style="list-style-type: none"> Vehicle safety Access to mobility Traffic congestion Diversity Infrastructure Emerging markets Design for assembly/ergonomics 	<ul style="list-style-type: none"> Quality Brand value/reputation Health care costs

Logistics (Transportation)

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Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> Ford Government 	<ul style="list-style-type: none"> Greenhouse gas emissions Smog-forming emissions Land use
Social issues	Economic issues

<ul style="list-style-type: none"> ● Vehicle safety ● Health and safety ● Treatment of employees ● Noise ● Community disruption through land use ● Traffic congestion ● Diversity ● Infrastructure 	<ul style="list-style-type: none"> ● Fuel cost
--	---

Raw Material Extraction back to Overview	
Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> ● Suppliers ● Government 	<ul style="list-style-type: none"> ● Greenhouse gas emissions ● Smog-forming emissions ● Resource use ● Waste ● Land use ● Biodiversity impacts
Social issues	Economic issues
<ul style="list-style-type: none"> ● Health and safety ● Diversity ● Human rights ● HIV/AIDS ● Community disruption through land use 	<ul style="list-style-type: none"> ● Commodity prices

Parts and Components back to Overview	
Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> ● Ford ● Suppliers 	<ul style="list-style-type: none"> ● Greenhouse gas emissions ● Smog-forming emissions ● Material use and recycling ● Resource use ● Manufacturing waste ● Land use
Social issues	Economic issues
<ul style="list-style-type: none"> ● Health and safety ● Employee satisfaction ● Diversity ● Human rights ● HIV/AIDS 	<ul style="list-style-type: none"> ● Quality ● Brand value/reputation ● Health care costs

Assembly and Painting back to Overview	
Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> ● Ford ● Government 	<ul style="list-style-type: none"> ● Greenhouse gas emissions ● Smog-forming emissions (especially VOCs) ● Material use and recycling ● Resource use ● Manufacturing waste ● Land use
Social issues	Economic issues
<ul style="list-style-type: none"> ● Health and safety ● Employee satisfaction ● Diversity ● Human rights ● HIV/AIDS ● Community contributions 	<ul style="list-style-type: none"> ● Quality ● Brand value/reputation ● Health care costs

Sales back to Overview	
Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> Ford dealers Other dealers 	<ul style="list-style-type: none"> Land use
Social issues	Economic issues
<ul style="list-style-type: none"> Diversity Human rights Marketing and customer information 	<ul style="list-style-type: none"> Dealer services Brand value/reputation Purchase cost

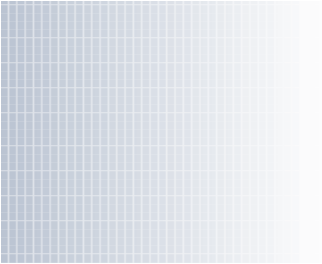
Use back to Overview	
Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> Customers Fuel providers Government 	<ul style="list-style-type: none"> Greenhouse gas emissions Smog-forming emissions Land use Fuel economy In-vehicle air quality
Social issues	Economic issues
<ul style="list-style-type: none"> Vehicle safety Noise Viability of public transport Access to mobility Community disruption through land use Traffic congestion Infrastructure Emerging markets 	<ul style="list-style-type: none"> Fuel costs Brand value/reputation Cost of ownership

Service back to Overview	
Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> Ford dealers Independent servicers 	<ul style="list-style-type: none"> Material use and recycling Waste
Social issues	Economic issues
<ul style="list-style-type: none"> Health and safety Diversity Human rights Marketing and customer information 	<ul style="list-style-type: none"> Quality Dealer services Brand value/reputation

End of Life back to Overview	
Principal actors in this stage	Environmental issues
<ul style="list-style-type: none"> Dismantlers Government Shredder operators Post-shredder treatment operators 	<ul style="list-style-type: none"> Material use and recycling Waste Recovery
Social issues	Economic issues
<ul style="list-style-type: none"> Health and safety Diversity Human rights End of life information 	<ul style="list-style-type: none"> Commodity prices Quality Market demand for recycling/recovery products

Expanding Connections

We recognize that these issues are interconnected at each stage and that positive and negative effects in one part of the chain can reverberate in the other parts.



Increasingly, we are bringing our understanding of a wide range of sustainability issues into the stages of our value chain. Environmentally, we are improving our manufacturing efficiency, cutting the emissions of our vehicles, designing vehicles with end of life in mind and increasing the recyclability of our vehicles and our use of recycled materials. Socially, we seek to strengthen the communities we're part of, expand the connections within them and improve our relationships throughout the value chain. Economically, we are trying to build our capacity to adapt and respond to the variety of challenges and opportunities present at every stage, meeting our customers' needs as well as our stakeholders' expectations.

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Material Issues

In this section, we discuss our most important sustainability issues and how they were identified. We also present perspectives on key issues from external and internal experts.

IN THIS SECTION

Materiality Analysis

Ford uses a rigorous materiality analysis to prioritize key sustainability issues.

[Read more](#)



Climate Change

We're cutting greenhouse gas emissions from our products and operations and pursuing sound climate policies.

[Read more](#)



Mobility

By understanding our customers' and society's changing needs, we can help develop new models of sustainable mobility.

[Read more](#)



Human Rights

We're working with our suppliers and other automakers to promote human rights in the global automotive supply chain.

[Read more](#)



Vehicle Safety

We're delivering innovations in vehicle safety and promoting road safety in mature and emerging markets.

[Read more](#)



Sustaining Ford

In a tough economic climate, we're working to improve our financial performance and competitiveness.

[Read more](#)



Perspectives on Sustainability

Experts from Ford and other institutions offer their perspectives on our key sustainability issues.

[Read more](#)





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Materiality Analysis

For its 2008/9 Sustainability Report, Ford conducted a streamlined update of its materiality analysis, adding key inputs (such as the December 2008 Report to Congress), replacing outdated inputs and gathering feedback from internal experts and the [Ceres Stakeholder Committee](#).

The results are largely similar to the previous analysis. Two groups of material issues – those pertaining to Ford's financial viability and climate change/fuel economy – would have moved up in priority to Ford and stakeholders if they were not already at the highest level.

However, some new issues emerged, some dropped out and others were recast or reorganized. Changes to the most material issues (upper-right part of the materiality matrix) included the following:

- In the financial viability grouping, labor costs, access to capital, the threat of competitor bankruptcy, and dealer and supplier viability were added as new issues.
- In the climate change grouping, low-carbon fuels replaced "clean/alternative fuels," reflecting a sharper focus on the life-cycle carbon emissions of fuels. Ford's electrification strategy was added as an issue, and emissions trading/cost of carbon emerged as a separate issue formerly subsumed within the low-carbon strategy issue.
- Urban mobility was added as an issue under mobility and emerging markets, as the unique characteristics of urban areas present challenges for traditional models of personal mobility and opportunities to develop new products and services.

Other changes included the addition of health care reform as a public policy issue and hazardous pollutants as an operational environmental issue, and a higher level of importance to Ford assigned to the congestion issue.

We have used this analysis to identify issues to cover in our reporting and as an input to our sustainability strategy development.

IN THIS SECTION

Materiality Matrix

Our interactive materiality matrix categorizes issues according to their concern to stakeholders and their current or potential impact on the Company.

[View the Materiality Matrix](#) ▶





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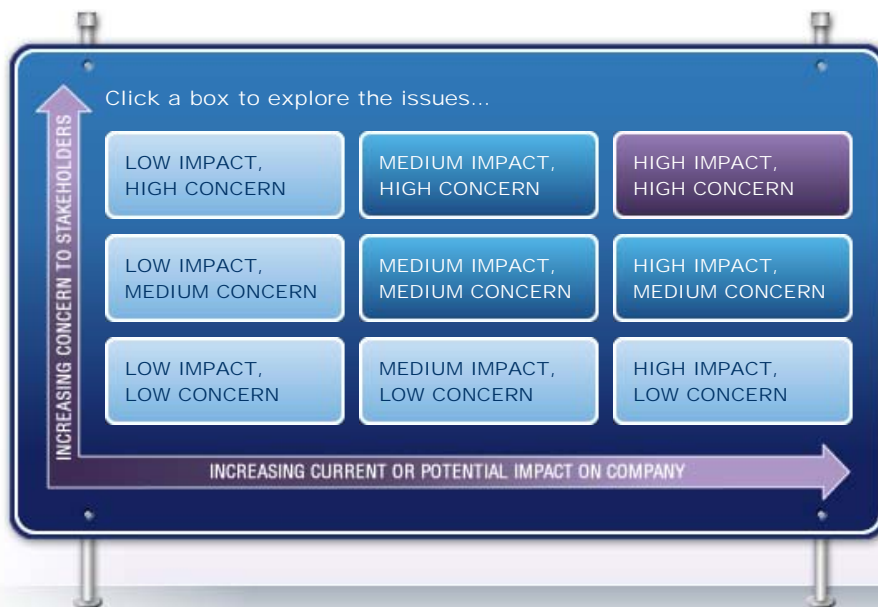
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Materiality Matrix

Below is our interactive materiality matrix. In it, issues are categorized according to their concern to stakeholders and their current or potential impact on the Company. Click each box to see which issues are categorized within each sector.



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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

High Current or Potential Impact on Company

High Concern to Stakeholders

23 material issues have been identified at this level (click on an issue for more details).

	LEVEL OF CONTROL OR INFLUENCE		
	LOW	MEDIUM	HIGH
Ford Financial Viability	<ul style="list-style-type: none"> Competitor and Supplier Viability 	<ul style="list-style-type: none"> Profitability Level and Timing Alignment of Products with Demand Health Care and Legacy Costs Labor Costs Access to Capital – Private and Government Dealer Viability 	<ul style="list-style-type: none"> Quality Managing Downsizing
Climate Change	<ul style="list-style-type: none"> Low-Carbon Fuels Emissions Trading/Cost of Carbon Energy Security 	<ul style="list-style-type: none"> Vehicle GHG Emissions Advanced Clean Vehicle Technology 	<ul style="list-style-type: none"> Low-Carbon Strategy Fuel Economy Electrification Strategy
Public Policy		<ul style="list-style-type: none"> Greenhouse Gas/Fuel Economy Regulations 	
Safety		<ul style="list-style-type: none"> Vehicle Safety 	
Human Rights		<ul style="list-style-type: none"> Other Issues 	<ul style="list-style-type: none"> Supply Chain Practices
Mobility and Emerging Markets	<ul style="list-style-type: none"> Urban Mobility 		<ul style="list-style-type: none"> Emerging Market Products and Services Strategy



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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

Medium Current or Potential Impact on Company

High Concern to Stakeholders

Two material issues have been identified at this level (click on an issue for more details).



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Medium Current or Potential Impact on Company Medium Concern to Stakeholders

10 material issues have been identified at this level (click on an issue for more details).

	LEVEL OF CONTROL OR INFLUENCE		
	LOW	MEDIUM	HIGH
Governance			<ul style="list-style-type: none"> Shareholder Concerns
Operations			<ul style="list-style-type: none"> Operational Environmental Management/Environmental Compliance Hazardous Pollutants
Product		<ul style="list-style-type: none"> End of Life Management 	<ul style="list-style-type: none"> Marketing Communications/Demand Creation/Advertising
Workplace			<ul style="list-style-type: none"> Employees/Labor Practices/Decent Work Diversity/Equal Opportunity
Mobility and Emerging Markets		<ul style="list-style-type: none"> Emerging Market Vehicle and Road Safety 	
Public Policy	<ul style="list-style-type: none"> Health Care Reform 		<ul style="list-style-type: none"> Political Payments and Contributions



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High Current or Potential Impact on Company Medium Concern to Stakeholders

12 material issues have been identified at this level (click on an issue for more details).

LEVEL OF CONTROL OR INFLUENCE	
LOW	MEDIUM
Ford Financial Viability	<ul style="list-style-type: none"> • Manufacturing Efficiency
Sustainability Strategy	<ul style="list-style-type: none"> • Sustainability Vision, Governance and Management
Governance	<ul style="list-style-type: none"> • Ethical Business Practices
Public Policy	<ul style="list-style-type: none"> • Global Environmental Regulation
Operations	<ul style="list-style-type: none"> • Energy Use • Water Use • GHG Emissions
Product	<ul style="list-style-type: none"> • Tailpipe Emissions • Sustainable Materials • Product Compliance
Mobility and Emerging Markets	<ul style="list-style-type: none"> • Congestion
Workplace	<ul style="list-style-type: none"> • Health and Safety



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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

Low Current or Potential Impact on Company

High Concern to Stakeholders

No issues have been identified at this level.

MATRIX NAVIGATOR



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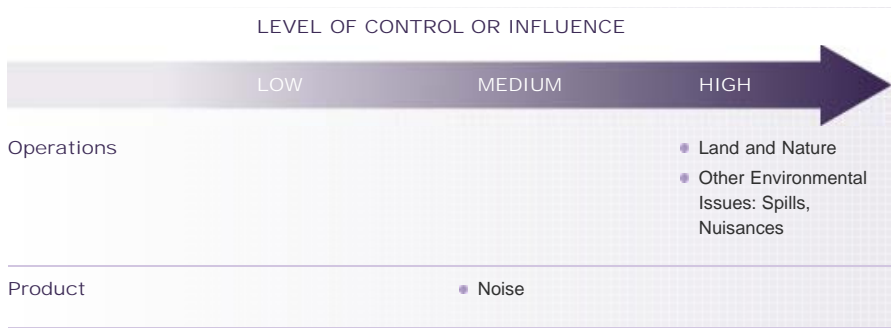
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Click on the boxes in the navigator (right) to explore each level.

Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

Low Current or Potential Impact on Company Medium Concern to Stakeholders

Three issues have been identified at this level.



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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

Low Current or Potential Impact on Company

Low Concern to Stakeholders

One issue has been identified at this level.



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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

Medium Current or Potential Impact on Company Low Concern to Stakeholders

One issue has been identified at this level.



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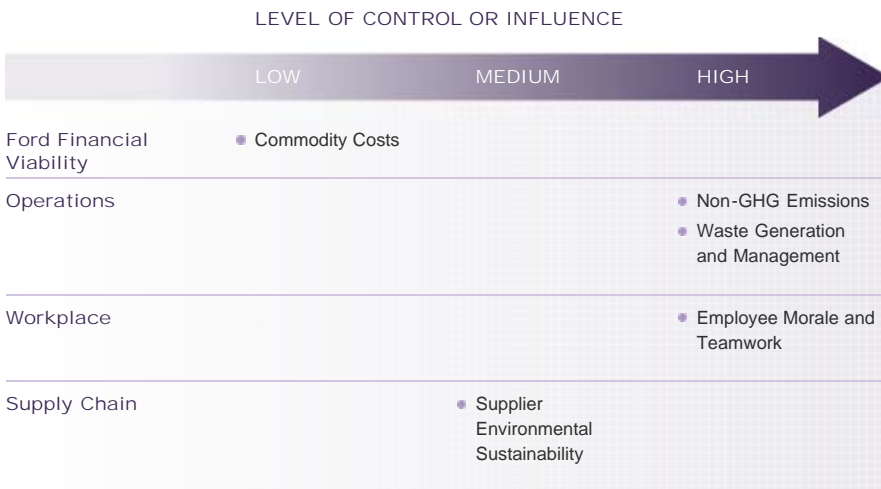
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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

High Current or Potential Impact on Company Low Concern to Stakeholders

Five issues have been identified at this level.



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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

- High Current or Potential Impact on Company
- High Concern to Stakeholders

Competitor and Supplier Viability

Definition/Description	Potential disruptions to supply base due to competitor or supplier bankruptcies
Comments	Concerns about bankruptcy of competitors a new and major concern
Trend (from previous analysis)	NEW
Level of control or influence	Low
More information	<ul style="list-style-type: none"> • Sustaining Ford • Suppliers • Working with Suppliers

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- High Current or Potential Impact on Company
- High Concern to Stakeholders

Profitability Level and Timing

Definition/Description	Broad concerns about Ford's financial performance and future
Comments	A top concern for Ford and stakeholders
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Letter from Alan Mulally • Sustaining Ford • Economy

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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

High Current or Potential Impact on Company

High Concern to Stakeholders

Alignment of Products with Demand

Definition/Description	Ford's realignment of production capacity to lower levels of demand and the shift from trucks and SUVs to cars; supply-base rationalization
Comments	New issue (formerly included in several others) of great concern to Ford and stakeholders, particularly investors
Trend (from previous analysis)	NEW
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Sustaining Ford • Delivering New Products

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High Current or Potential Impact on Company

High Concern to Stakeholders

Health Care and Legacy Costs

Definition/Description	Ford's U.S. cost to provide health care coverage for current employees; health care and pension for retirees; Ford's participation in health care public policy formulation. Significant competitive issue as foreign manufacturers in U.S. have few retirees; may not provide health care to employees in home markets
Comments	High concern to investors; increasing awareness/concern to customers and general public
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Workforce • Working with the UAW • Health as a Strategic Advantage • Ford and Juvenile Diabetes • Public Policy Positions

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High Current or Potential Impact on Company

High Concern to Stakeholders

Labor Costs

Definition/Description	Cost structure including hourly wages, benefits, post-retirement benefits; effect on competitiveness
Comments	Have become a higher-profile issue since they figured in Congressional debate over aid to U.S. automakers
Trend (from previous analysis)	NEW
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Workforce • Restructuring Our Business • Financing Our Plan and Improving Our Balance Sheet

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High Current or Potential Impact on Company

High Concern to Stakeholders

Access to Capital – Private and Government

Definition/Description	Includes impact of credit crisis on availability of private capital and potential need for government loans
Comments	New issue
Trend (from previous analysis)	NEW
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Sustaining Ford • Financing Our Plan and Improving Our Balance Sheet

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- High Current or Potential Impact on Company
- High Concern to Stakeholders

Dealer Viability

Definition/Description	Size of dealer network; profitability and creditworthiness of dealers
Comments	"Dealer relationships" issue redefined as viability due to mismatch of number of dealers with vehicle demand
Trend (from previous analysis)	NEW
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Sustaining Ford • Dealers • Working with Dealers

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High Current or Potential Impact on Company

High Concern to Stakeholders

Quality

Definition/Description	Product quality and customer service/customer relationship management
Comments	Growing recognition of Ford's dramatic quality improvements, but still a key factor in financial viability
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Economy: Progress and Goals • Customer Satisfaction and Quality

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- High Current or Potential Impact on Company
- High Concern to Stakeholders

Managing Downsizing

Definition/Description	Financial impacts on company and business partners; availability of funding for restructuring; employee morale; community impacts of plant closures; managing EH&S impacts of downsizing
Comments	Continued cutbacks present challenges to Ford, employees, dealers, communities and investors
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Handling Downsizing Responsibly • Restructuring Our Business • Society: Progress and Goals • Employees • Community

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High Current or Potential Impact on Company
High Concern to Stakeholders

Low-Carbon Fuels

Definition/Description	Redefinition of clean/alternative fuel issue. Includes renewably produced fuels, biofuels. Sub-issues include infrastructure, fuel availability and cost, competition between food and fuel
Comments	Increasing focus on life-cycle carbon footprint of fuels, indirect effects like land use changes due to biofuel production
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	Low
More information	<ul style="list-style-type: none"> • Fuel • Ford's Sustainable Technologies and Alternative Fuels Plan • U.S. Climate Change Legislation • Electrification: A Closer Look

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- High Current or Potential Impact on Company
- High Concern to Stakeholders

Emissions Trading/Cost of Carbon

Definition/Description	Ford's participation in carbon markets and strategic response to cost of carbon
Comments	New issue reflecting establishment of carbon markets in some regions and likely future establishment in others
Trend (from previous analysis)	NEW
Level of control or influence	Low
More information	<ul style="list-style-type: none"> • Emissions Trading

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High Current or Potential Impact on Company

High Concern to Stakeholders

Energy Security

Definition/Description	Concerns about the stability of energy supplies, particularly oil from politically unstable regions; development of supplies within national boundaries
Comments	Volatility in fuel prices has reinforced concerns, particularly in the U.S.; a driver of interest in alternative fuels including ethanol/E85 and electrification
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	Low
More information	<ul style="list-style-type: none"> Letter from Alan Mulally Climate Change Risks and Opportunities Fuel Electrification: A Closer Look

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- High Current or Potential Impact on Company
- High Concern to Stakeholders

Vehicle GHG Emissions

Definition/Description	Ford's product actions to meet its CO ₂ target
Comments	Increasingly driven by regulatory requirements as well as Ford's voluntary product CO ₂ goal; of increasing interest to government and investors
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> Climate Change Vehicle Letter from Alan Mulally Fuel Economy and Greenhouse Gas Emissions Environment: Progress and Goals

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- High Concern to Stakeholders

Advanced Clean Vehicle Technology

Definition/Description	Ford's development of low-carbon technologies, including hybrids, electric vehicles, clean diesel, fuel cells; also emerging technologies like nanotechnology
Comments	High customer/NGO interest in technologies but also concerns over cost and infrastructure
Trend (from previous analysis)	➔ Greater customer awareness of technology options
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Ford's Sustainable Technologies and Alternative Fuels Plan • Vehicle • Delivering More Fuel-Efficient Vehicles • Products

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High Current or Potential Impact on Company

High Concern to Stakeholders

Low-Carbon Strategy

Definition/Description	Ford's strategy to reduce carbon emissions from products and operations; goals and targets; use of renewable energy and offsets
Comments	Strongly related to other material issues; of increasing interest to government and investors
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	High
More information	<ul style="list-style-type: none"> Climate Change Our Strategy: Blueprint for Sustainability Environment Delivering New Products Electrification: A Closer Look Operational Energy Use and Greenhouse Gas Emissions

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High Current or Potential Impact on Company

High Concern to Stakeholders

Fuel Economy

Definition/Description	Global issue, but particular focus on Ford U.S. fleet
Comments	Increasingly driven by regulatory requirements as well as Ford's voluntary product CO ₂ goal; of increasing interest to government and investors
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Fuel Economy and Greenhouse Gas Emissions • Environment: Progress and Goals • Design for Life-Cycle Sustainability • Delivering More Fuel-Efficient Vehicles • Letter from Alan Mulally • Greenhouse Gas Emissions Overview • Climate Change Risks and Opportunities • Our Strategy: Blueprint for Sustainability • Ford's Sustainable Technologies and Alternative Fuels Plan

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High Current or Potential Impact on Company

High Concern to Stakeholders

Electrification Strategy

Definition/Description	Ford's strategy to deliver electric vehicles to the marketplace and work with partners to address infrastructure and utility interface issues
Comments	New issue reflecting interest in alternatives to fossil fuels and domestically produced energy
Trend (from previous analysis)	NEW
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Migration to Alternative Fuels and Powertrains • Electrification: A Closer Look • Public Policy Positions

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High Current or Potential Impact on Company

High Concern to Stakeholders

Greenhouse Gas/Fuel Economy Regulations

Definition/Description	Regulation of vehicle emissions globally, state-by-state regulation in U.S.; USCAP and likelihood of federal climate change legislation in U.S.
Comments	With passage of new CAFE requirements in U.S. and new EU requirements in Europe, focus is increasingly on economy-wide policy approaches.
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • U.S. Climate Change Legislation • U.S. Greenhouse Gas and Fuel Economy Regulation • Incentives for Fleet Renewal • European Policy • Climate Change Risks and Opportunities • Emissions Trading • Greenhouse Gas Emissions Overview • Public Policy Positions

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Vehicle Safety

Definition/Description	Active and passive safety; pedestrian safety; customer interest in and demand for safe vehicles; increasing regulation generally with focus on active safety; challenge of evolving in-vehicle technology
Comments	Developed and emerging market issues differ
Trend (from previous analysis)	➔ Ford increasingly emphasizing market opportunity for safer products
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> Vehicle Safety Public Policy Positions

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- High Concern to Stakeholders

Other Issues

Definition/Description	Code for Ford facilities, HR practices in broader community; indigenous people; environmental justice
Comments	High interest to communities, NGOs
Trend (from previous analysis)	➡ Already at the highest level
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> Human Rights Employees Community

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- High Concern to Stakeholders

Supply Chain Practices

Definition/Description	Issues covered by Ford's working conditions code; need for industry cooperation
Comments	High interest to communities, suppliers, NGOs
Trend (from previous analysis)	➡ Already at the highest level
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Human Rights • Ford and the Automotive Industry Supply Chain • Collaboration within the Automotive Industry

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- High Current or Potential Impact on Company
- High Concern to Stakeholders

Urban Mobility

Definition/Description	Ford's product and services strategy for urban areas in developed and developing countries
Comments	New issue: Unique conditions in urban areas present challenges for traditional models of personal mobility and opportunities to develop new products and services
Trend (from previous analysis)	NEW
Level of control or influence	Low
More information	<ul style="list-style-type: none"> Mobility Steve Marshall

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- High Current or Potential Impact on Company
- High Concern to Stakeholders

Emerging Market Products and Services Strategy

Definition/Description	Ford's approach to emerging markets: vehicles v. mobility services; base of the pyramid strategy; infrastructure development; Ford's target customer and position relative to emerging market OEMs; Ford's impacts/contributions in emerging markets (other than products and services), including local sourcing, pollution, potential for partnerships
Comments	Key drivers of the issue include congestion, shifting demographics, urbanization and social equity
Trend (from previous analysis)	➔ Already at the highest level
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Mobility • Increasing Global Integration • Letter from William Clay Ford, Jr. • Letter from Alan Mulally • 2009 Sales and Highlights

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Medium Current or Potential Impact on Company

High Concern to Stakeholders

Community Engagement

Definition/Description	License to operate, NGO relationships and specific community concerns like breast cancer, obesity, compliance
Comments	High concern to communities and NGOs
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> Community Society: Case Studies Engaging with Communities

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Medium Current or Potential Impact on Company

High Concern to Stakeholders



Community Impacts and Contributions

Definition/Description	Encompasses a range of direct and indirect economic impacts, including local hiring and sourcing and philanthropic donations to the community; also local environmental impacts
Comments	High concern to communities
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> Community Human Rights Sustaining Ford Financial Recovery Plan Manufacturing Economic Impacts of the Auto Industry

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Medium Current or Potential Impact on Company

Medium Concern to Stakeholders

Shareholder Concerns

Definition/Description	Primarily concerns raised through shareholder resolutions
Comments	Rose in importance to Ford because of increasing focus on governance issues
Trend (from previous analysis)	↑ Increased in importance to Ford
Level of control or influence	High
More information	<ul style="list-style-type: none"> Corporate Governance – Board of Directors Who Are Our Stakeholders?

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Medium Current or Potential Impact on Company
Medium Concern to Stakeholders

Operational Environmental Management/Environmental Compliance

Definition/Description	High-level environmental operation concerns, including environmental management; environmental compliance; sustainable production and consumption; tradeoffs between energy use and air quality (e.g., incineration of paint fumes)
Comments	Environmental compliance a concern to communities
Trend (from previous analysis)	➔ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Sustainability Governance • Sustainability Management • Our Strategy: Blueprint for Sustainability • Environment • Compliance

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Medium Current or Potential Impact on Company
 Medium Concern to Stakeholders

Hazardous Pollutants

Definition/Description	Hazardous substances in products, manufacturing and supply chain
Comments	Higher level of concern to Ford reflects increasing public interest
Trend (from previous analysis)	NEW
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Sustainable Materials • Facilities-Related Emissions • Waste Management • Non-CO₂ Tailpipe Emissions • Emissions (VOC and Other)

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Medium Current or Potential Impact on Company

Medium Concern to Stakeholders

End of Life Management

Definition/Description	Trend towards "extended producer responsibility;" waste; design for recyclability; health and safety issues at dismantling facilities
Comments	Less of a concern relative to other issues
Trend (from previous analysis)	↓ Lower level of concern to Ford
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • End of Life • Quantifying Our Environmental Impacts • Design for Life-Cycle Sustainability • Life-Cycle Vehicle CO₂ Emissions

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Medium Current or Potential Impact on Company

Medium Concern to Stakeholders

Marketing Communications/Demand Creation/Advertising

Definition/Description	Advertising and other communications with customers
Comments	Within Ford, primarily a compliance issue; for NGOs/multi-stakeholder groups, concern over whether Ford can only react to consumer desires or can lead them, e.g., toward more sustainable products
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Building Customer Awareness • Understanding Changing Customer Needs • Customers

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Medium Current or Potential Impact on Company

Medium Concern to Stakeholders

Employees/Labor Practices/Decent Work

Definition/Description	Ford's employment practices, including wages, wage ratios, benefits, permanent v. temporary positions; training and education; turnover; impact of aging workforce
Comments	High concern to communities and investors
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Employees • Human Rights • Restructuring Our Business

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Medium Current or Potential Impact on Company

Medium Concern to Stakeholders

Diversity/Equal Opportunity

Definition/Description	Diversity of Ford Board and management; harassment programs and monitoring
Comments	Relatively high concern to NGOs/stakeholders who see diversity as global strategic issue
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Diversity and Inclusion in the Workplace • Corporate Governance – Board of Directors • Code of Basic Working Conditions • Engagement and Community

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Medium Current or Potential Impact on Company

Medium Concern to Stakeholders

Emerging Market Vehicle and Road Safety

Definition/Description	Road safety as a public health issues: safety for motorists and non-car users; infrastructure; driver education
Comments	Increasing focus of Ford's outreach to customers
Trend (from previous analysis)	↑ Increased in importance to Ford
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> Vehicle Safety: Challenges and Opportunities How We Manage Vehicle Safety

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Medium Current or Potential Impact on Company
 Medium Concern to Stakeholders

Health Care Reform

Definition/Description	Collaborative efforts to improve quality and reduce cost of health care; potential for legislative overhaul of U.S. health care system
Comments	Formerly subsumed in health care costs; identified as a separate issue due to its impact on Ford and new administration's commitment to reform
Trend (from previous analysis)	NEW
Level of control or influence	Low
More information	<ul style="list-style-type: none"> Working with the UAW Health as a Strategic Advantage Public Policy Positions

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Medium Current or Potential Impact on Company
 Medium Concern to Stakeholders

Political Payments and Contributions

Definition/Description	Company donations to candidates and campaigns; lobbying costs; employee Political Action Committee; indirect giving through trade associations, etc.
Comments	Stakeholders, including shareholders, are showing increasing interest and advocacy for "political accountability" or transparency around the various forms of corporate political donations
Trend (from previous analysis)	➔ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> Public Policy Participation in the Policy-Making Process Policy Letters and Directives

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Manufacturing Efficiency

Definition/Description	Includes reduced complexity of products, lean and flexible manufacturing, flexible work rules
Comments	Key element of Ford's ability to respond to changing markets; part of public discussion about aid to automakers
Trend (from previous analysis)	NEW
Level of control or influence	High
More information	<ul style="list-style-type: none"> Increasing Global Integration Improving New Product Development Process

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Sustainability Vision, Governance, and Management

Definition/Description	Includes governance structures, goals and indicators, business case, stakeholder engagement, reporting
Comments	Governance added to vision and management, reflecting growing investor and NGO interest in integrating sustainability into business processes
Trend (from previous analysis)	➔ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> Letter from William Clay Ford, Jr. Letter from Alan Mulally Letter from Sue Cischke Sustainability Governance Sustainability Management Sustainable Mobility Governance Code of Basic Working Conditions How We Manage Vehicle Safety Environmental Management

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Ethical Business Practices

Definition/Description	Concerns covered by codes of conduct, e.g., corruption and anti-competitive behavior; also concerns about Board independence
Comments	Among stakeholders, of most concern to investors
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Ethical Business Practices • Corporate Governance – Board of Directors • Sustainability Governance

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Global Environmental Regulation

Definition/Description	Trend toward greater regulation and the cost of compliance
Comments	Not a new issue but now under a "public policy" heading
Trend (from previous analysis)	➡ Same position
Level of control or influence	Medium
More information	<ul style="list-style-type: none"> • Climate Change Risks and Opportunities • Climate Change Policy and Partnerships • Public Policy Positions

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Energy Use

Definition/Description	Operations/facilities: concerns about cost and availability; energy security
Comments	High concern to communities
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Environment: Progress and Goals • Operations • Environment: Case Studies • Operational Energy Use and CO₂ Emissions

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Water Use

Definition/Description	Includes impacts on water sources; water management, cost of water and discharges to water
Comments	Particular concern in areas of water scarcity; issue gaining a higher public profile
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Environment: Progress and Goals • Water Use • Environment Data: Water Use • Water: More Than Just Environmental Concerns

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

GHG Emissions

Definition/Description	Includes cost of controlling GHG emissions
Comments	Less of a concern than GHG emissions from vehicles, but rated high for Ford and NGOs/stakeholders
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Greenhouse Gas Emissions Overview • Environment: Progress and Goals • Our Strategy: Blueprint for Sustainability • Operational Energy Use and Greenhouse Gas Emissions • Renewable Energy Use • Environment: Data

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Tailpipe Emissions

Definition/Description	Air-quality impacts of vehicle emissions other than GHGs; trend toward greater regulation
Comments	High concern to customers/NGOs/stakeholders; more impact on Ford due to increased and inconsistent regulation
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Non-CO₂ Tailpipe Emissions • Environment: Progress and Goals • Ford's Sustainable Technologies and Alternative Fuels Plan • Environment Data: Tailpipe Emissions

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Ratings of control or influence reflect Ford's contribution to an issue through its operations and product offerings. Factors that can reduce Ford's control or influence include, among other things, technology limitations, costs and consumer demand.

High Current or Potential Impact on Company

Medium Concern to Stakeholders

Sustainable Materials

Definition/Description	Cradle-to-cradle approach; use of renewable, recycled, recyclable materials
Comments	Formerly "materials use;" increased interest within Ford as a way to address life-cycle impacts
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> Environment: Progress and Goals Choosing More Sustainable Materials Product Sustainability Index

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Product Compliance

Definition/Description	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services
Comments	GRI item; of concern to Ford due to potential cost and impact on reputation
Trend (from previous analysis)	➡ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Environment: Progress and Goals • Non-CO₂ Tailpipe Emissions • U.S. Safety Recalls • Compliance

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Congestion

Definition/Description	Key mega-trend with distinct manifestations in emerging and developed markets including infrastructure, public transportation; policy responses such as congestion pricing
Comments	Increasing importance to Ford as urban areas place restrictions on private vehicle use; driver of mobility strategy
Trend (from previous analysis)	↑ Increased in importance to Ford
Level of control or influence	Low
More information	<ul style="list-style-type: none"> • Mobility

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High Current or Potential Impact on Company

Medium Concern to Stakeholders

Health and Safety

Definition/Description	Health and safety management systems; ergonomics
Comments	Emerging issue is managing H&S impacts of downsizing
Trend (from previous analysis)	➔ Same position
Level of control or influence	High
More information	<ul style="list-style-type: none"> • Workplace Health and Safety • Working Conditions in Ford Plants • Ford and the Automotive Industry Supply Chain • Workplace Safety

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Climate Change

2009 HIGHLIGHTS:

- Introduced the new Fiesta global small car in Europe and China
- On track to surpass our goal of a 30 percent reduction in CO₂ emissions from our U.S. and European new vehicles



Our blueprint for sustainability details our near-, mid- and long-term product plans to meet our CO₂ emissions goal.

Concerns about climate change and growing constraints on the use and availability of carbon-based fuels affect our operations, our customers, our investors and our communities. The issue warrants precautionary, prudent and early actions to enhance our competitiveness, protect our profitability in an increasingly carbon-constrained economy and do our share to prevent or reduce the potential for environmental harm due to climate change.

We have responded to the significant risks and opportunities presented by the climate change issue by developing a comprehensive global strategy to reduce greenhouse gas (GHG) emissions from our products and processes while working cooperatively with the public and private sectors to advance climate change solutions. We are taking a holistic approach to the climate change issue, recognizing that it affects all parts of our business and is interconnected to other important issues, from water availability and energy security to human rights.

We are making progress in implementing our strategy, improving the fuel economy of our vehicles and reducing GHG emissions from our products and operations. According to the U.S. Environmental Protection Agency (EPA), for example, no automaker has posted a larger fleet-wide gain in fuel economy in the past five years than Ford. Based on EPA measurements, Ford's combined car and truck fuel economy has improved nearly 20 percent since 2004 – almost double the gain of the next-closest competitor. In addition, Ford's 2009 fleet-wide average carbon dioxide (CO₂) emissions were 5 percent lower than in 2008. In Europe, we have reduced the average CO₂ emissions of the vehicles we sell by more than 27 percent compared with a 1995 baseline (excluding Volvo).

We believe our commitment to addressing the climate change issue in a comprehensive and strategic way is one of the factors that has helped transform our Company's current and future products and prospects.

Our Commitment

In early 2008, Ford announced a goal to reduce CO₂ emissions¹ from its U.S. and European new vehicles by 30 percent by 2020, relative to a 2006 model year baseline. We also set out a technology migration plan – embodied in our blueprint for sustainability – that details our near-, mid- and long-term plans to meet this goal. Our commitment and plan are aligned with doing our part to achieve a 450 ppm climate stabilization pathway² (see figure below). Despite challenging economic conditions, we are making significant progress in implementing the plan and are on track to surpass the goal.

PERSPECTIVES ON SUSTAINABILITY



David Chock

Former Ford Scientist (1989–2009), Current Member of the Science Advisory Board (SAB), U.S. Environmental Protection Agency

[Read more](#)

RELATED LINKS

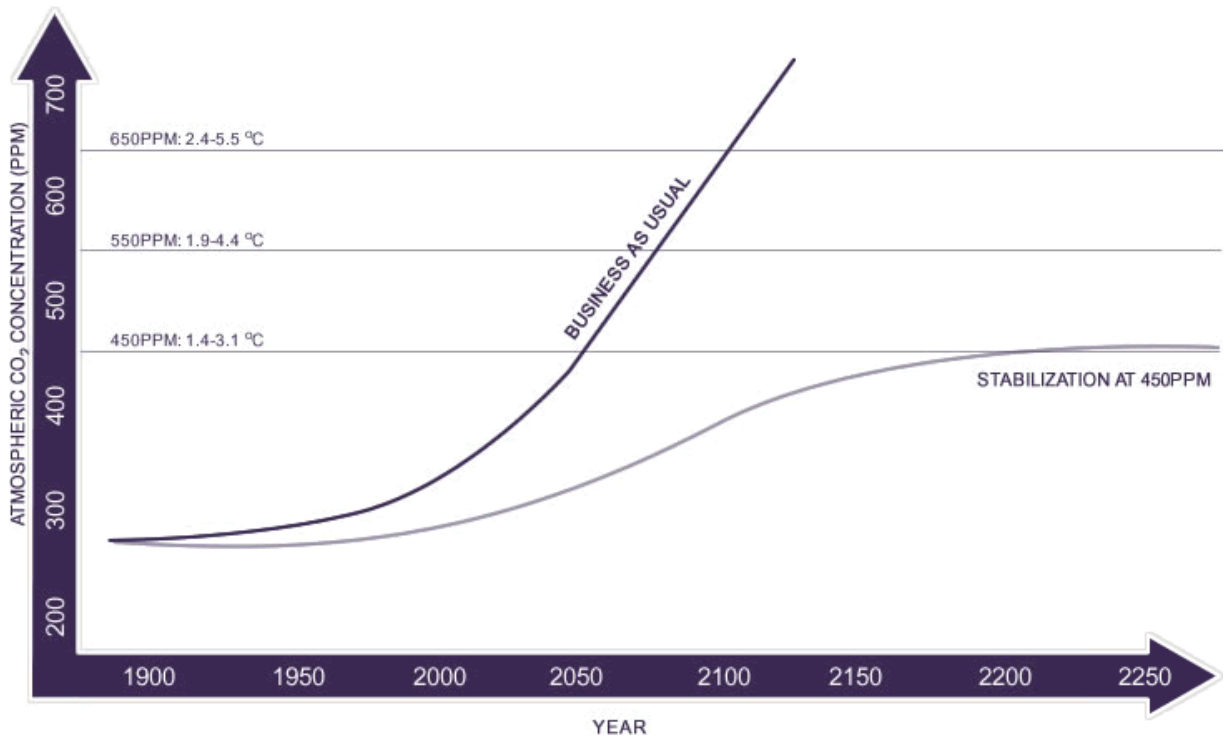
This Report:

[Delivering more Fuel-Efficient Vehicles](#)

External Web Sites:

[U.S. Climate Action Partnership](#)

Stabilizing Atmospheric CO₂ Levels



We have also announced an ongoing commitment, beginning with the 2010 model year, that all new or significantly refreshed vehicles will be best in class, or among the best in class, for fuel economy in their segment. We are committed to reducing CO₂ emissions from our operations, and we are exploring carbon emissions in our supply chain through participation in the Carbon Disclosure Project's supply chain initiative and the World Resources Institute/World Business Council on Sustainable Development's Scope 3 road testing project. These and other climate change commitments are summarized in the [Climate Change: Related Commitments and Progress](#) table.

During 2009, we expanded our analysis of GHG emission reductions to include the products we sell in Brazil and China. In this analysis, we compared our current product plans to potential reductions aligned with long-term CO₂ stabilization at 450 ppm and considered the impact of low-carbon fuels. This is a step toward developing goals for these markets.

Our climate change strategy is based on delivering products that our customers want while doing our share to stabilize GHG concentrations in the atmosphere at levels generally accepted to minimize the effects of climate change. It encompasses our products, operations and, increasingly, our customers, dealers and suppliers.

Ford cannot achieve climate stabilization alone. Reducing emissions by the amount required calls for an integrated approach – a partnership of all stakeholders, including the automotive industry, the fuel industry, government and consumers. It can only be achieved by significantly and continuously reducing GHG emissions over a period of decades in all sectors of the economy. In the transportation sector, this means increases in vehicle fuel economy globally, as well as the development of lower-carbon fuels along with price signals to align consumers with climate stabilization goals.

We are committed to advocating effective and appropriate [climate change policy](#) in the United States and around the world. We are an active member of the U.S. Climate Action Partnership (USCAP), a coalition of diverse stakeholders that released its Blueprint for Legislative Action in January 2009, setting out consensus recommendations for U.S. climate protection legislation. The USCAP blueprint includes an aggressive emission-reduction schedule, a proposed scope of coverage for a cap-and-trade program, and recommendations for how to include as much of the U.S. economy under the cap as administratively and politically feasible. It is a balanced and integrated approach to key linked issues that must be addressed in any national climate legislation; however, we recognize that the blueprint recommendations are not the only possible path forward.

Our CO₂ product goal is aligned with the USCAP recommendations and with the broad goal of climate stabilization. It also aligns our product plans to meet or exceed new fuel economy requirements in the United States and Europe. We recognize that future developments in technologies, markets, policy actions and even the natural manifestations of climate change are all uncertain. Accordingly, we will continue to monitor and adjust our goal based on changing

conditions.

In This Section

In this section of our sustainability report we provide an [overview of GHG emissions](#), including data on the contribution of light-duty vehicles, life-cycle CO₂ emissions from a typical vehicle, Ford's own climate "footprint" and stabilization pathways. We also discuss the [risks and opportunities](#) the climate change issue poses for Ford, our [climate change strategy – including our blueprint for sustainability](#) – and how we are addressing [climate change public policy](#) issues.

1. CO₂ is the major long-lived greenhouse gas. Greenhouse gases trap heat in the Earth's atmosphere, contributing to global climate change. CO₂ is the most prevalent GHG associated with the manufacture and use of our products, so our targets are set for CO₂ rather than all GHGs. See the [Beyond CO₂](#) section for discussion of Ford's other GHG emissions.
2. It is generally accepted that stabilization of CO₂ in the range 450–550 ppm is required to avoid the most serious impacts of climate change. Our target is aligned with a 450 ppm stabilization pathway and assumes that fuel providers, consumers, governments and other energy sectors deliver their contributions.



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Climate Change: Related Commitments and Progress

Commitment	Target	Progress
Products		
Ford U.S. and EU new products	Reduce CO ₂ emissions by 30 percent by 2020, relative to a 2006 model year baseline	On track
Australian Industry-wide National Average CO ₂ Emissions (NACE), previously known as National Average Fuel Consumption (NAFC) (industry)	Voluntary target to achieve national average CO ₂ emissions of 222 g/km for light vehicles under 3.5 metric tons gross vehicle mass by 2010. Requires an overall reduction in average CO ₂ emissions of 12 percent between 2002 and 2010	Met in 2009; industry is working on a new target for Australia for 2015 and 2020
Canadian Greenhouse Gas Memorandum of Understanding (industry)	Industry-wide voluntary agreement to reduce GHGs from the Canadian car and truck fleet by 5.3 megatonnes by 2010 compared to projected emissions	First target met in 2007; on track to meet 2010 target
Operations		
Global manufacturing energy efficiency (Ford)	Improve facility energy efficiency by 3 percent during 2010	On track
EU Emission Trading Scheme (Ford)	Ensure compliance with European Union CO ₂ Emission Trading Scheme requirements annually, including third-party verification	Met
Chicago Climate Exchange (Ford)	Reduce North American facility emissions by 6 percent between 2000 and 2010, as verified by third-party auditors	Met
Alliance of Automotive Manufacturers (industry)	Reduce U.S. facility GHG emissions by 10 percent per vehicle produced between 2002 and 2012	On track
Voluntary GHG reporting (Ford)	Voluntarily report facility CO ₂ emissions to national emissions registries in Australia, Canada, Mexico, the Philippines and the United States	Met; added all of China and Brazil in 2009



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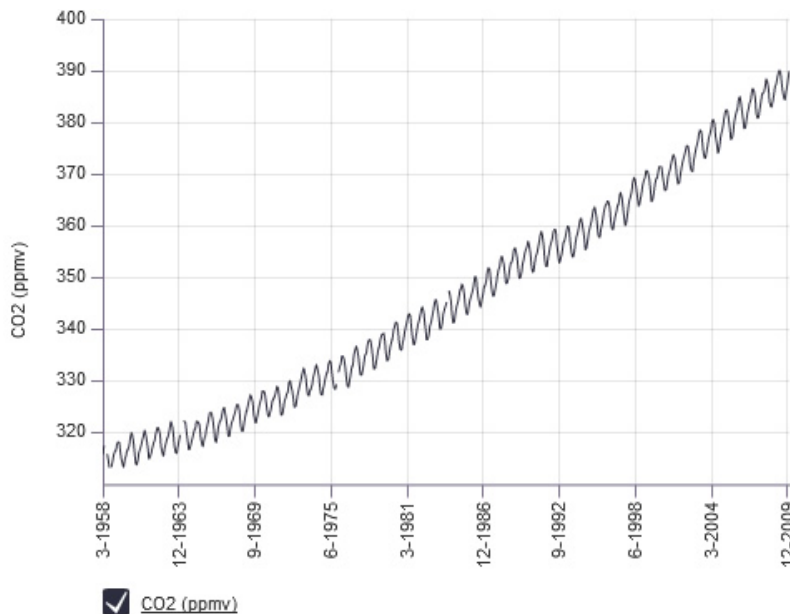
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Greenhouse Gas Emissions Overview

Climate change is the result of an increase in heat-trapping (greenhouse) gases in the atmosphere. Carbon dioxide (CO₂) is the major long-lived greenhouse gas (GHG). The burning of fossil fuels (to provide electricity, heat and transportation, and to support industry and agriculture), as well as deforestation, lead to emissions of CO₂ and increased levels of atmospheric CO₂ (see Figure 1).

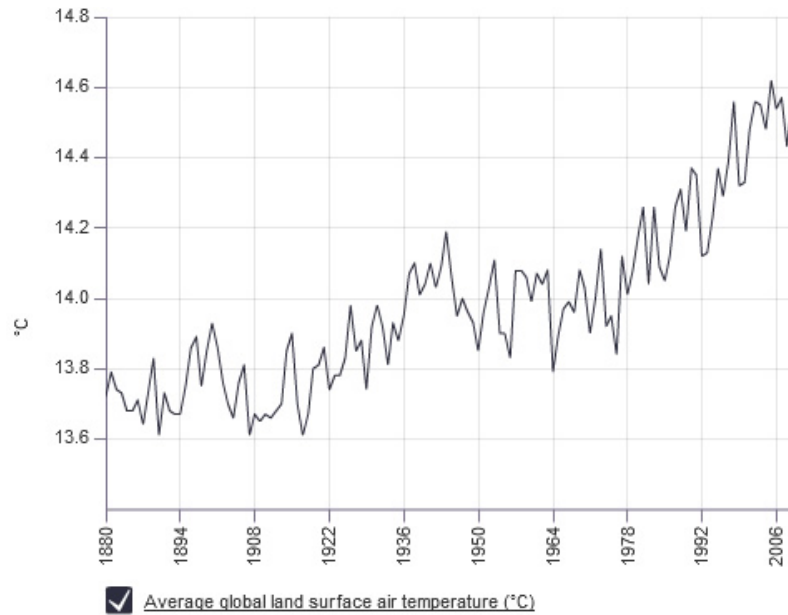
There has been discussion recently in the media regarding the integrity of the temperature record. Specifically, it has been claimed that climate scientists at the Climate Research Unit (CRU) at the University of East Anglia in the UK have misrepresented the instrumental temperature record. This has become known as "Climategate." We do not believe these developments undermine the broad scientific basis for concern about climate change. Indeed, we continue to monitor original research and discussion pertaining to climate change and support the vigorous application of the scientific method in this and other fields of inquiry. We also note that the temperature record independently reported by scientists at the National Aeronautics and Space Administration (NASA) shows a distinct warming trend. As seen in Figure 2, the past decade was the warmest decade in the instrumental temperature record. Moreover, independent measurements of an increase of sea level and ocean acidification are consistent with the impact of rising GHG concentrations and global temperature.

Figure 1: CO₂ concentration measured at the observatory in Mauna Loa, Hawaii



Data source: NOAA (2010)

Figure 2: Global temperature



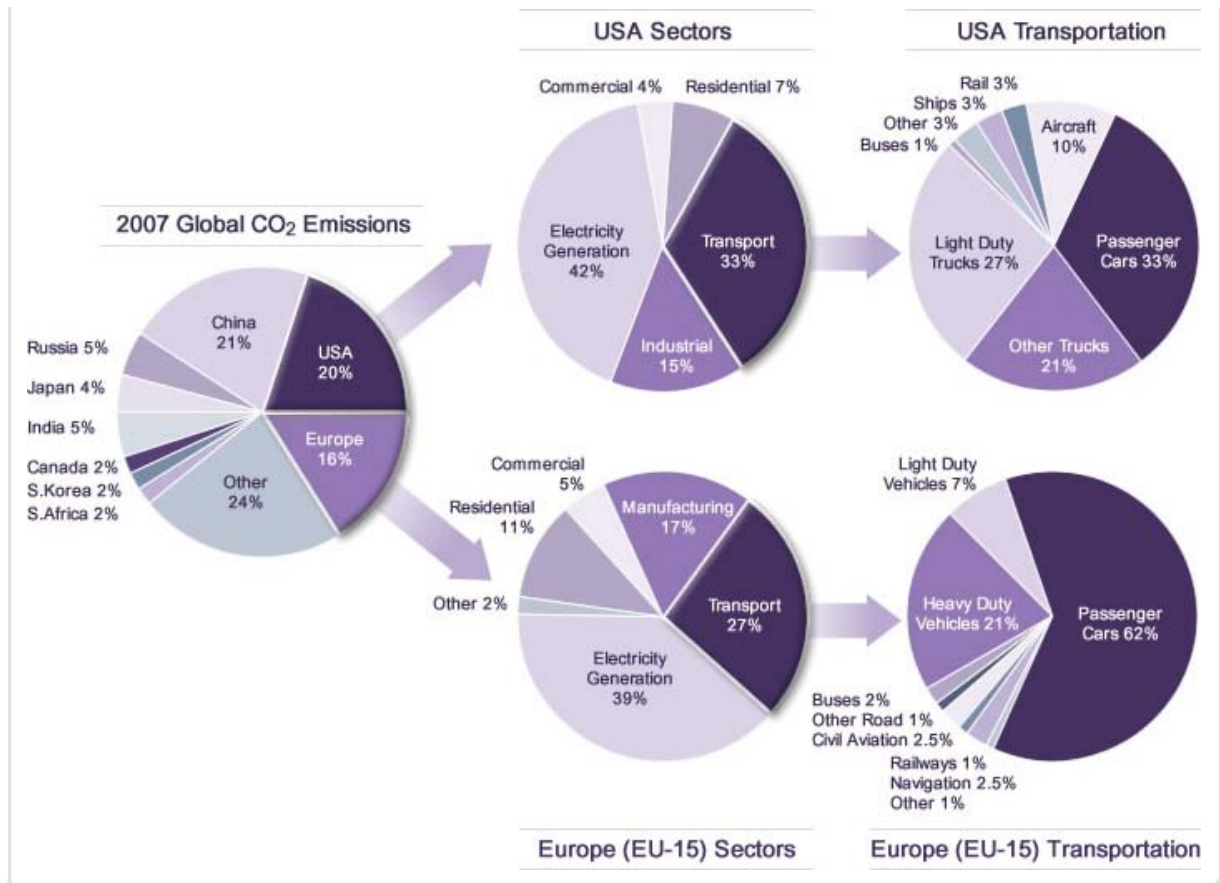
Data source: NASA (2010)

Global CO₂ Emissions

Figure 3 (below) provides a breakdown of estimated 2007 fossil fuel CO₂ emissions by region. For the United States and Europe, the emissions are further broken down by sector and by mode in the transportation sector. The data were taken from reports published by the International Energy Agency, European Environment Agency and U.S. Environmental Protection Agency. Globally, emissions from cars and light-duty trucks comprise about 11 percent of all fossil fuel CO₂ emissions. In the United States, cars and light-duty trucks account for approximately 20 percent of fossil fuel CO₂ emissions, or approximately 4 percent of global fossil fuel CO₂ emissions. In Europe, passenger cars and light-duty trucks account for approximately 19 percent of fossil fuel CO₂ emissions, or about 3 percent of global fossil fuel CO₂ emissions.

Until recently, the United States was the largest CO₂ emitter. In 2007, however, emissions from China surpassed those from the United States. It is expected that the gap between emissions from China and the United States will widen in the future, although per-capita emissions of CO₂ in the U.S. remain higher (by approximately a factor of four) than those in China.

Figure 3: Distribution of Fossil Fuel CO₂ Emissions 2007



Life-Cycle Vehicle Emissions

The GHG emissions attributable to Ford's activities include emissions from our facilities, from the transportation of our products and people, from the vehicles we produce once they are in use by customers, and from our suppliers. In this report, we provide data on CO₂ emissions from our facilities and our U.S. and European new products. Additional information on our GHG footprint is found in the [Life-Cycle Vehicle CO₂ Emissions](#) section.

Most of the life-cycle CO₂ emissions from vehicles are released when the vehicles are driven, rather than when they are manufactured, maintained or recycled at end-of-life. As vehicle fuel efficiency improves and lower-carbon fuels are made available, we expect that the relative contribution of CO₂ emissions from the fuel-consumption phase will decrease (see [Life-Cycle Vehicle CO₂ Emissions](#)).

Greenhouse Gas Emissions Snapshot

In 2001, we estimated the greenhouse gas emissions from our operations and products as part of an assessment of the impact of the climate change issue on our Company. We updated this estimate for our 2006/7 report. Many assumptions were required to generate the estimate, and we do not control all of the factors that influence its magnitude. Therefore, we do not use this estimate as an ongoing performance measure. We intend to continue to reduce our facility GHG emissions, improve the energy efficiency of our operations and the vehicles we sell, closely track those results and update the estimate in the future.

Supply Chain

We are currently evaluating climate change risks and opportunities across our supply chain and searching for new opportunities and relationships that will enhance supplier environmental performance. (See the [Progress and Performance](#) section for details of our participation in initial efforts to assess GHG emissions in our supply chain.) Within the Aligned Business Framework agreement with suppliers, environmental leadership is integral to overall business performance metrics. Climate-change-related activities are highlighted as potential leadership opportunities. In addition, our requirement that suppliers implement robust environmental management systems will better enable them to understand, measure and report their emissions. We also will seek out opportunities to partner with suppliers to improve the greenhouse gas emissions performance of our products and processes, and improve energy efficiency throughout the vehicle life-cycle, including in the supply chain.

Beyond CO₂

We have a holistic view of climate change and have addressed non-CO₂ long-term greenhouse gases such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrous oxide (N₂O) and sulfur hexafluoride (SF₆). We have prohibited SF₆ in tires and PFCs in open systems since 1999. We have conducted scientific research to determine the relative contribution of a wide range of long-lived greenhouse gases to radiative forcing of climate change and have published our results to reduce uncertainties in the scientific assessments. We are working with our suppliers to optimize air conditioning efficiency, reduce refrigerant leakage rates and investigate alternatives. We are also actively conducting research to evaluate the environmental fates of potential alternative air conditioning refrigerants that may replace HFC-134a and have made our research data available to the scientific community. Scientific reports on the environmental impact of hydrofluoroolefins as potential replacements for HFCs have been published in peer-reviewed scientific literature. We prohibited the use of SF₆ in magnesium casting as of January 2004 through our Restricted Substance Management Standard. Given the impressive reductions in the emission of criteria pollutants (hydrocarbons, NO_x, particulate matter and carbon monoxide) enabled by improvements in engine and exhaust after-treatment technology, we believe that the contribution to climate change by such short-lived pollutants from light-duty vehicles will be of relatively minor importance in the future.¹

While carbon dioxide is by far the most important greenhouse gas associated with the use of motor vehicles, small amounts of other greenhouse gases are also emitted, notably methane (CH₄), N₂O and HFC-134a. A small amount of methane is formed in the engine and emitted into the atmosphere. We have assessed the contribution to climate change made by methane emissions from vehicles as about 0.3 to 0.4 percent of that of the CO₂ emissions from vehicles. We have assessed the contribution to climate change from N₂O emissions from vehicle tailpipes (not including potential emissions associated with fuel production) as about 1 to 3 percent of that of the tailpipe CO₂ emissions from vehicles. Finally, we have estimated that the radiative forcing contribution of HFC-134a leakage from an air-conditioner-equipped vehicle is approximately 3 to 5 percent of that of the CO₂ emitted by the vehicle.² When expressed in terms of "CO₂ equivalents," the contribution of vehicle emissions to radiative forcing of climate change is dominated by emissions of CO₂.

1. T.J. Wallington, J.E. Anderson, S.A. Mueller, S. Winkler, and J.M. Ginder, "Emissions omissions," *Science*, 327, 268, (2010).
2. T. J. Wallington, J. L. Sullivan, and M. D. Hurley, "Emissions of CO₂, CO, NO_x, HC, PM, HFC-134a, N₂O and CH₄ from the Global Light Duty Vehicle Fleet," *Meteorol. Z.*, 17, 109 (2008).



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Life-Cycle Vehicle CO₂ Emissions

Life-cycle assessment tracks emissions generated and materials consumed for a product system over its entire life-cycle, from cradle to grave, including material production, product manufacture, product use, product maintenance and disposal at end of life. For vehicles, this includes the environmental burdens associated with making materials (e.g., steel, aluminum, brass, copper, plastics, etc.), fabricating them into parts, assembling the parts into a vehicle, operating the vehicle over its entire lifetime, producing fuel for the vehicle, maintaining the vehicle and finally disposing of the vehicle at the end of its life. Life-cycle assessment is an essential tool when thinking about the environmental impacts of complex systems.

The table below details the results of a life-cycle analysis for a representative midsize car and SUV in the United States. At present, life-cycle CO₂ emissions from vehicles are dominated by CO₂ released during fuel consumption. Product disposal has a minor impact on airborne emissions and energy consumption relative to other phases of the product system. As vehicle fuel efficiency improves and lower-carbon fuels are made available, the relative contributions of CO₂ emissions from the fuel-consumption phase will likely decrease. We are working on life-cycle emission estimates for electrified vehicles (i.e., plug-in hybrids and battery electric vehicles).

This analysis incorporates many assumptions, some of which reflect factors over which we have little or no control. Therefore, we do not expect to use the estimate as an ongoing performance measure. The analysis did, however, enable us to gain a better perspective of life-cycle emissions and hence understand the opportunities for reducing emissions.

	Midsize car		Midsize SUV	
	Metric tons of CO ₂	% of total	Metric tons of CO ₂	% of total
Raw material production (steel, aluminum, plastics, ...)	3.5	5.6%	4.3	5.2%
Manufacturing/assembly	2.6	4.2%	2.6	3.2%
Ford manufacturing logistics	0.3	0.5%	0.3	0.4%
Fuel (120,000 miles [192,000 km] [well to wheels])	55.1	88.6%	74.6	90.4%
Maintenance and repair	0.6	1.0%	0.6	0.7%
End of life/recycling	0.1	0.2%	0.1	0.1%
Total life-cycle	62.2	100%	82.5	100%

RELATED LINKS

This Report:
[Quantifying Our Environmental Impacts](#)



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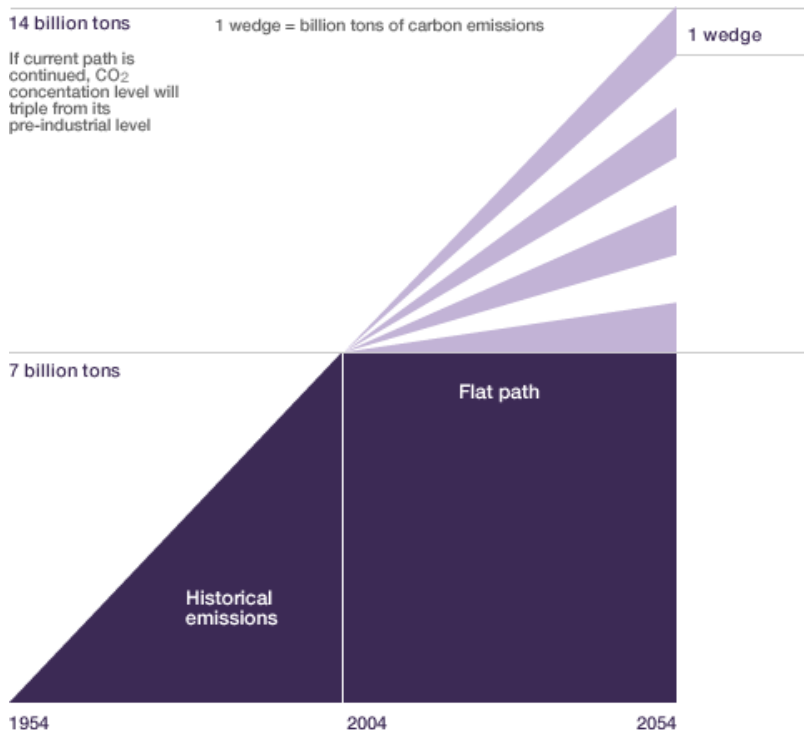
The assessment of the science of global warming issued in February 2007 by the Intergovernmental Panel on Climate Change concluded that, "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic [man-made] greenhouse gas emissions." It also concluded that the effects of this warming, such as melting snow and ice and rising sea levels, are being felt, and that, "Continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century."¹

Ford researchers have played a leading role in scientific research to understand and quantify the contribution of vehicles to climate change. We have also worked with a variety of partners to understand the current and projected man-made GHG emissions and the steps that can be taken to reduce them. Many scientists, businesses and governmental agencies have concluded that stabilizing the atmospheric concentration of CO₂ at approximately 450 parts per million (ppm) may help to forestall or substantially delay the most serious consequences of climate change.

The Carbon Mitigation Initiative, a research partnership based at Princeton University and supported by BP and Ford, has examined what it would take to stabilize atmospheric CO₂ at 500 ppm compared with the 2010 level of approximately 388 ppm and the pre-industrial level of approximately 270–280 ppm. Researchers broadly identified a set of high-level stabilization strategies they call "wedges."² Each wedge represents the implementation of a strategy that could cut global annual carbon emissions by 1 billion metric tons by 2054.³ The wedges concept is a powerful tool to demonstrate the scale of the climate stabilization challenge, the need for an approach that includes many different economic sectors (power, transportation, agriculture, industry), and the options that are available.

RELATED LINKS

- External Web Sites:
- Intergovernmental Panel on Climate Change
 - Carbon Mitigation Initiative



To explore which vehicle and fuel technologies might be most cost-effective to stabilize CO₂ at 450–550 ppm, we have worked with colleagues at Chalmers University in Gothenburg, Sweden, to

include a detailed description of light-duty vehicles in a model of global energy use in 2010 to 2100. Nine technology cost cases were considered. We found that variation of vehicle technology costs over reasonable ranges led to large differences in the vehicle technologies utilized to meet future CO₂ stabilization targets. We concluded that given the large uncertainties in our current knowledge of future vehicle technology costs, it is too early to express any firm opinions about the future cost-effectiveness or optimality of different future fuel and vehicle powertrain technology combinations.⁴ This conclusion is reflected in the diversity of fuel and vehicle technologies included in our sustainability strategy.

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1. *Climate Change 2007: The Physical Science Basis Summary for Policymakers*, Intergovernmental Panel on Climate Change, February 2007.
 2. cmi.princeton.edu/wedges/
 3. S. Pacala, R. Socolow, "Stabilization Wedges: Solving the Climate Problem for the Next 50 Years with Current Technologies," *Science*, 305, 968 (2004).
 4. M. Grahn, M. I. Williander, J. E. Anderson, S. A. Mueller, T. J. Wallington, "Fuel and Vehicle Technology Choices for Passenger Vehicles in Achieving Stringent CO₂ Targets: Connections between Transportation and Other Energy Sectors," *Environ. Sci. Technol.*, 43, 3365 (2009).



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Climate Change Risks and Opportunities

Over the past decade, concerns about climate change, the price of fuel and energy security – along with the global recession – have dramatically reshaped the automotive business. This creates substantial risks for automakers but also opportunities to grow and expand. Below we discuss the general trends driving change in our markets and take a closer look at several key markets. We also discuss the physical and supply chain risks to our business posed by climate change.

Our Markets

During 2009, the global economic recession took its toll on the market for new automobiles, with sales down significantly in the United States, and South America. In Europe, passenger car sales held steady, spurred by government incentives, while commercial vehicle sales declined. In China, sales continued to grow. By the end of the year, China had surpassed the United States as the world's largest market for new automobiles. Other factors influencing our markets included the following:

- The policy landscape is becoming more complex and interconnected with other market forces. The [Public Policy](#) section of this report discusses regulatory developments in detail, but in brief, all of our major markets are increasingly shaped by government actions to regulate fuel economy and CO₂ emissions and provide incentives to shift consumer and business behavior. Many governments are also actively involved in promoting research and development into new vehicle and battery technologies.
- Although the cost of gasoline and diesel fuels moderated during 2009, concern about the potential for rising fuel prices and price volatility continues to drive a long-term trend toward smaller and more fuel-efficient vehicles.
- In many markets, governments and consumers are seeking to rely as much as possible on domestic sources of transportation fuel and reduce imports of petroleum products.
- Investors are showing greater concern about climate change as a material risk for many companies. A variety of voluntary public registries and information services (like the Carbon Disclosure Project) are providing information on greenhouse gas emissions to investors, while in some countries companies are required to disclose information about their climate risks. Most recently, the U.S. Securities and Exchange Commission (SEC) issued guidance to help publicly traded companies assess whether climate-related impacts on their businesses will require disclosure to the SEC. Thus, providing climate-change-relevant information to investors and shaping our business strategy with climate change in mind are important elements of maintaining access to capital.

These market shifts are very significant to our Company. Everywhere we operate, the financial health of our Company depends on our ability to predict market shifts of all kinds and to be ready with the products and services our customers demand. Our actions to improve the fuel economy of our vehicles, along with their quality, performance and features, have helped us take advantage of these changes and gain market share in North America, Europe and South America. However, continued uncertainty about the GHG regulatory framework, particularly in the United States, and the possibility that fuel prices could decline mean that there is also a risk that consumer preferences will shift back toward less fuel-efficient vehicles.

Our product globalization strategy is designed to help us respond to changing markets and regional preferences. We are leveraging our best technology from around the world to create global platforms that offer superior fuel economy, safety, driving dynamics and customer features. We then tailor each global platform to national or regional preferences and requirements. New technology is also cutting the time required to bring new vehicles to market, which helps us respond more effectively to the ever-increasing pace of change in our markets.

Please see the [Economy](#) section for further discussion of our changing markets and how we are

RELATED LINKS

- This Report:
- [Delivering More Fuel-Efficient Vehicles](#)
 - [Climate Change Policy and Partnerships](#)

responding to them, and the [Our Strategy: Blueprint for Sustainability](#) section for discussion of Ford's strategic response to the risks and opportunities posed by the climate change issue.

REGIONAL MARKET TRENDS

North America

New regulations (discussed in the [Climate Change Policy and Partnerships](#) section) and concerns about fuel prices, [energy security](#) and the impacts of climate change are encouraging the sales of more fuel-efficient vehicles. Between 2005 and 2009, the car share of the U.S. market increased from 45.4 percent to 52.5 percent, while truck sales declined from 54.6 percent to 47.5 percent of the market. Sales of small cars increased from 17.1 percent to 23.7 percent of all sales. Hybrid electric vehicles made up about 3 percent of the market in 2009.

Europe

In Europe, the long-term trend of high-priced fuel and more fuel-efficient vehicles has continued the market shift toward diesel-powered vehicles, which now make up more than half of all new vehicle sales. This trend is reinforced by sales incentives in some European countries designed to encourage new vehicle sales, with the aim of reducing carbon dioxide emissions from older, less-efficient vehicles. Some of these incentives are bound to upper limits of CO₂ emissions of 160 g/km and less, which has boosted sales of small cars. Other schemes are linked to regulatory emissions standards (e.g., Euro 4). In addition, tough new CO₂ emission regulations have come into effect, which will continue to drive fuel-economy improvements in new automobiles. Automakers, including Ford, have begun to introduce and announce plans for hybrid electric, battery electric and plug-in hybrid electric vehicles for the European market.

Asia

As auto sales slumped in North America during 2009, the Asian auto market continued to grow, and China surpassed the United States to become the largest single automobile market in the world. Rising incomes are fueling growth in all segments of the market.

The Chinese government is promoting hybrids and electrics and supporting research in those areas, based on an interest in growth balanced with a desire for energy security and a cleaner environment. The government currently provides limited incentives to fleet purchasers of "new energy vehicles" (mostly electric) under local government control through a pilot program in 13 cities. Both domestic and global automakers are considering the introduction of electric vehicles, and some hybrids are currently available.

South America

In Brazil, our largest market in South America, the use of biofuels is widespread as a result of national policy and consumer preference. All gasoline in Brazil is blended with 20 to 25 percent ethanol, and pure ethanol is also widely used. Most new vehicles offered are flexible fuel. While fuel economy and CO₂ emissions are not currently regulated in Brazil, a voluntary fuel-economy labeling program is already in place, along with a star ranking program for light vehicles that favors low-emission, low-CO₂, ethanol, flexible-fuel and hybrid vehicles. Consumers tend to choose vehicles with small engines, and 90 percent of new vehicles purchased have flexible-fuel capabilities. Several hybrid vehicles are currently offered or are planned for introduction to Brazil.

Physical Risks

Global climate change raises the potential for shifting patterns of extreme weather and other risks to our facilities. For insurance purposes, we assess the risks each of our facilities faces (with input from third-party engineers) at least annually. This risk assessment is updated based on new data and takes into account the risk of exposure to hurricanes, tornadoes, other storms, flooding and earthquakes. As a result of this process, we believe we have a good understanding of the physical risks faced by our facilities and how those risks are changing over time.

Extreme weather has the potential to disrupt the production of natural gas, a fuel necessary for the manufacture of vehicles. Supply disruptions raise market rates and jeopardize the consistency of vehicle production. To minimize the risk of production interruptions, Ford has established firm delivery contracts with natural gas suppliers and installed propane tank farms at key manufacturing facilities as a source of backup fuel. Higher utility rates have prompted Ford to revisit and implement energy-efficiency actions that previously did not meet our internal rate of return.

Climate change also has the potential to affect the availability and quality of water. We are examining this issue as part of the development of our [water strategy](#).



Supply Chain Risks

Our suppliers, which are located in more than 60 countries, are subject to market, regulatory and physical risks as a result of GHG regulation and the impacts of climate change. These risks could affect their competitiveness or ability to operate, creating the potential for disruptions to the flow of supplies to Ford. For example, suppliers may be subject to reporting requirements, fees or taxes, depending on where their operations are located. See the [Progress and Performance](#) section for a discussion of actions we are taking to better understand the climate risks of our suppliers and promote a competitive supply chain.

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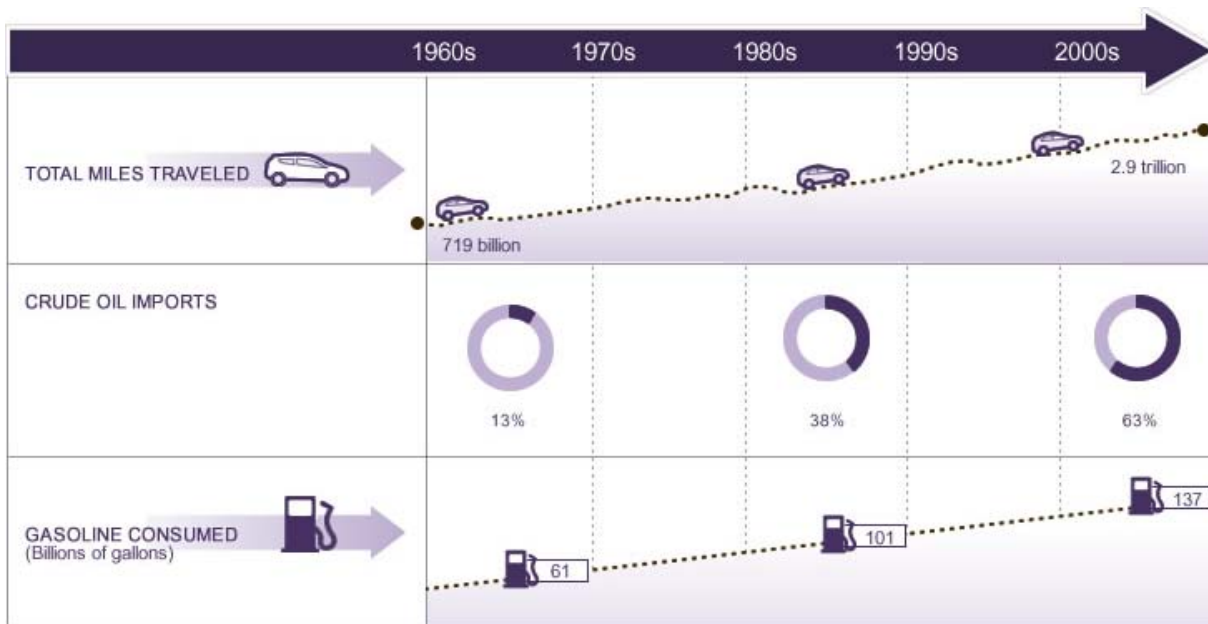
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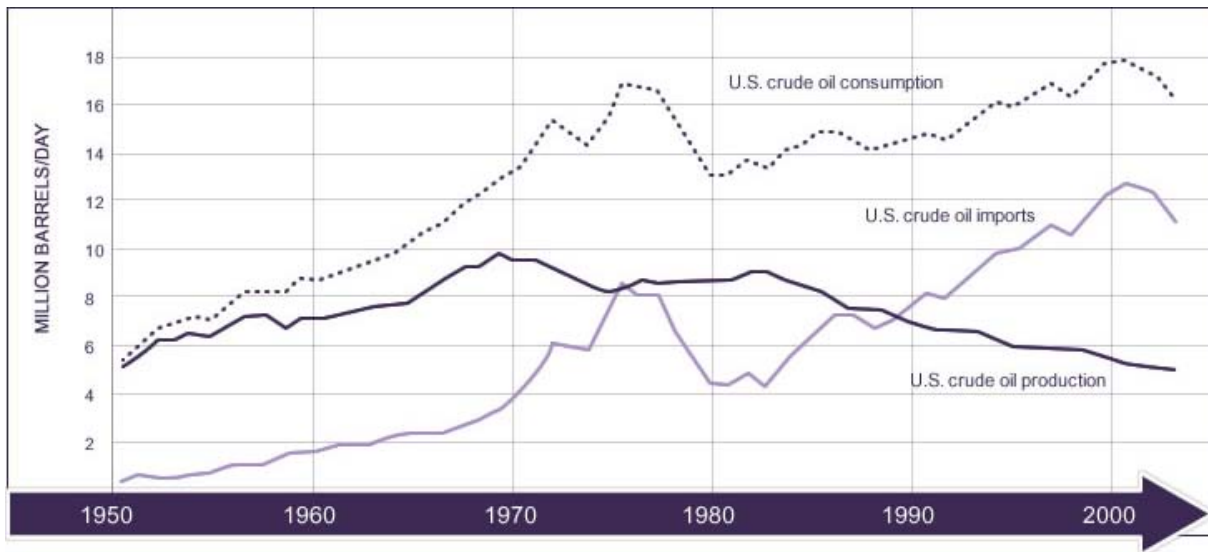
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U.S. Energy Security

The following charts illustrate the primary issue underlying concerns about U.S. energy security – crude oil consumption is increasing, while domestic energy production is decreasing. Therefore, the United States is increasingly reliant on imported crude oil. The first chart shows the increase in the number of miles U.S. drivers are traveling, the increasing consumption of gasoline, and the increasing percentage of fuel consumption being filled by imported crude oil. The second chart shows the increase in U.S. demand for crude oil and the simultaneous decrease in U.S. crude oil production.



U.S. Crude Oil Consumption, Imports and Production





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Our Strategy: Blueprint for Sustainability

To respond to the risks and opportunities posed by the climate change issue, our long-term strategy is to contribute to climate stabilization by:

- Continuously reducing the greenhouse gas emissions and energy usage of our operations.
- Developing the flexibility and capability to market more lower-GHG-emission products, in line with evolving market conditions.
- Working with industry partners, energy companies, consumer groups and policy makers to establish an effective and predictable market, policy and technological framework for reducing GHG emissions.

We have set a goal to reduce our U.S. and EU new-vehicle CO₂ emissions by 30 percent by the year 2020, compared to a 2006 model year baseline. Our blueprint for sustainability, which spells out our technology and product strategy to meet this goal, is based on [modeling](#) of vehicle and fuel contributions to emission reductions and an analysis of market and regulatory trends (see figure below). The blueprint encompasses a series of [commitments](#) the Company has made, or participated in, to reduce the greenhouse gas emissions from our products and operations.


Product Sustainability Process



In addition, we have conducted dialogues with stakeholders, exploring sustainable mobility projects to demonstrate potential approaches to urban mobility that would integrate private and public transportation by multiple modes, enabled by information technology. Please see the [Mobility](#) section for more details.

The blueprint's product strategy – called the [Sustainable Technologies and Alternative Fuels Plan](#) – details the near-, mid- and long-term steps we are taking to develop and deploy vehicle and fuel technologies. The blueprint is supported by our [sustainable mobility governance](#), which establishes structures and accountability for implementing the strategy.

We believe this strategy is already showing results by positioning our Company to take advantage of opportunities created by shifts in markets. Our commitment to outstanding fuel economy aligns well with consumer interest in fuel-sipping vehicles. During 2009, for example, our U.S. market share grew for the first time since 1995, driven in part by the popularity of several of our vehicles (including the Ford Fusion and Mercury Milan) that achieve best-in-class fuel economy.



For the longer term, we are preparing to provide regionally appropriate approaches based on global platforms to advanced vehicle technologies, including electric vehicles, biofuel vehicles and hydrogen fuel cell vehicles.

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Sustainable Mobility Governance

To plan and implement our blueprint for sustainability, we have established sustainability-related governance systems, which include a strong focus on fuel economy and CO₂ improvements. The strategic direction is provided by a senior executive committee, made up of vice president and executive stakeholders, who guide the development of the vision, policy and business goals. (See [Governance and Management Structures](#).)

Related executive planning teams are responsible for developing detailed and specific policy, product and technical analyses to meet objectives. These teams base their plans on scientific data and promote actions that will help achieve the Company's environmental ambitions, recognizing the need to use a holistic approach to effectively protect the environment. Metrics have been established and are reviewed regularly to ensure satisfactory progress. We have also developed [strategic principles](#) to guide our approach.

During 2009, several climate-change-related issues were reviewed at Ford's top-level Special Attention Review and Automotive Strategy meetings, including climate policy and cap-and-trade systems, electrification (including electric vehicle infrastructure), biofuels and global alternative fuels.

During 2009, the senior executive committee reviewed progress on key elements of the climate change strategy.



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Climate Change Strategic Principles

Our approach to GHG stabilization is aligned around the following key strategic principles:

1. Technical, economic and policy approaches to climate change need to recognize that all CO₂ molecules (or GHG equivalents) produced by human activities make the same contribution to the atmosphere's concentration of greenhouse gases. Once those molecules reach the atmosphere, they contribute to the greenhouse effect, regardless of the source. However, the cost of reducing those emissions varies significantly depending on their source, and we should attempt to achieve the most economically efficient solutions possible.
2. The transportation sector represents a closely interdependent system, characterized by the equation: "Vehicle + Fuel + Driver = GHG emissions." Each link in this chain depends on the others. For example, vehicle manufacturers can bring to market flexible-fuel vehicles, but successfully reducing GHG emissions with them will depend on fuel companies providing renewable biofuels, as well as consumer demand for the vehicles and fuels.
3. Future developments in technologies, ever-changing markets, consumer demand and political uncertainties require flexible solutions. The business strategies that Ford implements, and the public policies that we encourage, must have the flexibility to succeed in a range of potential scenarios.
4. Early affordable steps to reduce GHG emissions from our products and processes may delay the need for drastic and costly reductions later. Lack of agreement on long-term solutions cannot be used as an excuse to avoid near-term actions.



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A Look Inside the "Black Box"

In 2004, Ford's internal Climate Change Task Force faced a dilemma. After an extensive study, it was clear to the cross-functional group of senior executives that several forces were converging to fundamentally change vehicle markets, especially in North America and Europe. Current and anticipated climate change and fuel economy regulation, rising fuel prices and growing consumer awareness of the climate change issue all pointed to a shift in sales toward cars rather than trucks and toward smaller and more fuel-efficient vehicles. We needed to rapidly reorient our product offerings.

But what should drive new product goals? As a practical matter, the Company needed to be able to meet new regulatory mandates. Beyond that imperative, we had taken to heart our responsibility to contribute to meeting the challenge of climate change. So, Task Force members decided to base product planning on the goal of climate stabilization, and they asked Ford's in-house scientists to devise a way to test scenarios for meeting that goal.

In 2005, Ford's scientists began development of a CO₂ model. To create it, they modified the Sustainable Mobility Project model (developed by the International Energy Agency) and combined it with global carbon dioxide (CO₂) emission-reduction pathways for varying levels of atmospheric CO₂ stabilization (as described by the Model for the Assessment of Greenhouse-gas Induced Climate Change, developed by the National Center for Atmospheric Research). The scientists then calculated the CO₂ emission reductions required of new light-duty vehicles up to the year 2050 for a range of CO₂ stabilization levels and different regions of the world, using a simplifying assumption that the rates of CO₂ emission reduction should be the same across all sectors.

At the lower CO₂ stabilization levels, the required emission reductions are extremely challenging and cannot be accomplished using vehicle technology alone. Joint investigations with BP provided insight into how the best new vehicle technologies and low-carbon alternative fuels can jointly and realistically fulfill the low-CO₂ emission requirements. Ford's CO₂ model and other modeling tools were combined to explore assumption sensitivities around vehicle technologies, baseline fuels, biofuels, costs and consumer response. The CO₂ model is not intended to provide "the answer," but rather a range of possible vehicle and fuel solutions that contribute to a pathway to CO₂ reductions, and eventually, climate stabilization. Our blueprint for sustainability – and the technology and product actions it spells out – are based on options developed through this modeling exercise.

The model and its results have been a centerpiece of discussions with a variety of stakeholders. Below are some of the questions that have been raised through these discussions, and answers to them.

How does the model account for emissions growth or reduction in developing countries?

We recognize that developing countries generally have relatively low per-capita energy use but high rates of emissions growth, reflecting growing economies. The CO₂ model uses a science-based approach that allows for equitable growth in developing countries, to derive CO₂ reduction targets for light-duty vehicles consistent with 450 parts per million (ppm) to 550 ppm CO₂ stabilization pathways.

Since fuel use is the dominant cause of CO₂ emissions, how does the model account for projected changes in the carbon footprint of automotive fuels?

Ford has studied multiple scenarios in which the auto industry and the energy industry work together to reduce overall well-to-wheels CO₂ emissions from the light-duty transportation sector. These joint strategy scenarios (see figure below) allow us to develop a least-cost vehicle technology roadmap. For the carbon footprint of fuels, we rely on the well-to-tank CO₂ emissions

for different alternative fuels estimated by different region-based models, including the Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (GREET) model for North America, and the EUCAR/JRC/CONCAWE analysis for Europe.

Are you continuing to test alternative scenarios?

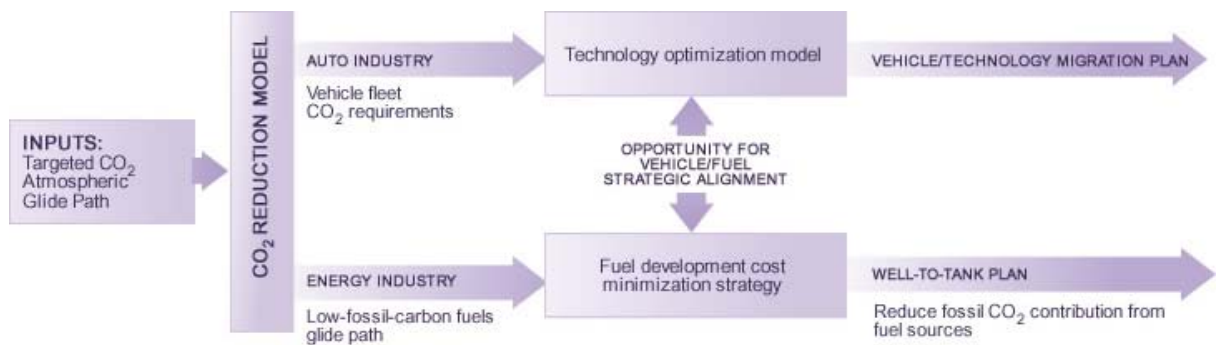
In the long run, the roles of consumers, governments and fuel availability will be pivotal in dictating actual CO₂ emission reductions, and Ford continues to take them into consideration in fine-tuning a truly viable and sustainable CO₂ stabilization pathway.

How does the model consider the cost of technologies and alternative fuels?

The costs of technologies and alternative fuels that are not yet in the market are separately estimated. These estimates obviously have large uncertainties, but are useful for planning purposes. Ford has other models that look into potential market response to fuel/vehicle cost variations.

In a separate study, Ford has developed a model that looks into minimal-cost scenarios across different sectors and explores assumption sensitivities around vehicle technologies, fuel technologies, connections between the different energy sectors, and biofuels. The model provides information on the combinations of options that will yield the required emissions reductions at an affordable cost to consumers. We have used this model to develop scenarios to assess the global lowest-cost vehicle and fuel technology solutions consistent with CO₂ stabilization.

Ford's Sustainability Framework for CO₂ and Technology Migration Development





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Ford's Sustainable Technologies and Alternative Fuels Plan

IN THIS SECTION

Improving Fuel Economy

This section outlines our plans for improving the fuel economy of traditional gas and diesel engines. These actions include implementing advanced engine and powertrain technologies, improving aerodynamics and reducing weight.

[Read more ▶](#)



RELATED LINKS

This Report:
[Fuel Economy and Greenhouse Gas Emissions](#)

Migration to Alternative Fuels and Powertrains

Our plans for migrating to alternative fuels and powertrains include implementing vehicles that run on renewable biofuels, increasing advanced clean diesel technologies, increasing our hybrid vehicle applications and introducing battery electric vehicles and plug-in hybrids. We are also working to advance hydrogen internal combustion engine and hydrogen fuel cell vehicle technologies.

[Read more ▶](#)



Ford's Green Partnerships with the Federal and State Governments

Ford is working with federal and state governments to advance the development and commercial implementation of technologies that improve fuel efficiency and increase the use of alternative fuels and powertrains.

[Read more ▶](#)

In the very early years of our industry, automotive engineers experimented with a variety of methods for powering vehicles, including electricity and biofuels. The internal combustion engine using petroleum-based gas and diesel rose to the top fairly quickly and has been the standard vehicle power source for the past hundred years or so. Reminiscent of those early years in the industry, we are now in a period of intense experimentation and adoption of new vehicle technologies and fuels. This time, however, there may be no single winner in the race for the vehicle of the future.

Ford is taking a portfolio approach to developing sustainable technologies and alternative fuel options. Our goals are to diversify the fuels our vehicles can use and to improve their energy efficiency and long-term sustainability. Traditional gasoline- and diesel-powered vehicles based on internal combustion engines will continue to be part of the mix for quite some time. That is why we are working to improve the fuel efficiency of the engines and transmissions of our current vehicles, along with every vehicle subsystem. In fact, in the next two years, we will be implementing 30 new powertrains that will improve the fuel efficiency of internal combustion engines and transmissions, as well as continuing to improve vehicle aerodynamics and reduce weight.

In addition, a variety of alternative powertrain technologies and alternative fuels are currently under

development. At this point, we do not see a single clear winner. Rather, we believe a wide range of options will be needed to serve different kinds of consumers and different markets, depending on the regional availability of fuels and other factors. For example, biofuels may make sense for consumers in the Midwestern United States and much of South America – where biofuels are widely available – while battery electric vehicles and plug-in hybrids may make sense for urban drivers across the globe who have access to recharging opportunities. Other alternative fuels like compressed natural gas (CNG) and propane or liquid petroleum gas (LPG) may be most appropriate for fleet users who have access to central refueling infrastructure and who have well-defined driving patterns. As refueling infrastructure for these alternative fuels becomes more widespread, these vehicles will be attractive to more and more of our customers.

To prepare for this more complex future for vehicle technologies and fuels, we are developing a range of energy-efficient, alternative fuel and advanced powertrain technologies.

Most importantly, we are developing global vehicle platforms that are compatible with a wide range of fuels and powertrain technologies. This will allow us to offer a portfolio of options to our customers, target options to regions where they make the most sense, and evolve our vehicles as technologies and markets develop. Global platforms that have "plug-and-play" compatibility with a wide range of technologies will also allow us to make the range of fuel and powertrain options available more affordably.

For example, at present we produce 14 flexible-fuel vehicle models across our global markets that can run on either regular gas or E85 (a blend of 85 percent ethanol and 15 percent gasoline). Though biofuels are not available in every market, they are widely available in the Midwestern United States and throughout South America, so it makes sense for us to provide this option to customers who can take advantage of it. In addition, biofuel availability is expected to increase in Europe, as the EU's renewable energy directive mandates that 10 percent of energy in the transportation sector come from renewable fuels by 2020. Ford's flexible-fuel vehicles, which are provided at no or low additional cost, allow consumers to choose fuels based on availability and price.

We are also making CNG- and LPG-ready engines available on select vehicle models, enabling their conversion to run on one of those fuels. And, we are working with qualified vehicle modifiers to ensure that conversion to those fuels meets our quality, reliability and durability requirements. For example, we recently announced that the new Transit Connect, which went on sale in the United States in early 2010, is available with a CNG/LPG conversion-ready engine package. Our F-Series trucks and E-Series vans are also available with a propane-ready engine. In Europe, we recently introduced a Ford Mondeo that can run on regular gasoline, E85 ethanol or LPG.

CNG and LPG are good options for fleet customers, such as taxi companies and delivery services, that use a central refueling system. In addition, CNG and LPG are widely available as vehicle fuels throughout South America and Europe. We are delivering CNG/LPG-ready engines to provide another lower-carbon option to those customers for whom this option makes sense.

We are also developing a range of electrification technologies, including hybrid electric vehicles, battery electric vehicles and plug-in hybrid vehicles. Battery electric and plug-in hybrid vehicles may initially make the most sense for urban drivers and fleet users who have daily commutes under 40 miles. However, as battery and recharging options continue to advance, we expect these vehicles to work for a wider range of our customers. In the longer term, we are working on vehicles that can run on hydrogen fuel cells, as these fuels become available and commercially viable.

This section describes our current actions and future plans to develop a wide range of energy-efficient technologies, alternative fuels and advanced powertrain technologies that will give our customers near-, mid- and longer-term options for more sustainable vehicles.

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Improving Fuel Economy



This section outlines our plans for improving the fuel economy of traditional gas and diesel engines. These actions include implementing advanced engine and transmission technologies, weight reductions and aerodynamic improvements, as well as increasing the efficiency of vehicle sub-systems.

For more information about each of our fuel efficiency technologies please click on the icons in the graphic above.

EcoBoost™

2007	2011	2020	2030
NEAR TERM	MID TERM	LONG TERM	
Begin migration to advanced technology	Full implementation of known technology	Continue to leverage advanced fuel-efficiency technologies and increase deployment of alternative powertrains and energy sources	
Significant number of vehicles with EcoBoost™ engines	EcoBoost engines available in nearly all vehicles	Increase percentage of internal combustion dependent on renewable fuels	

The centerpiece of our near-term fuel-economy improvement efforts is the EcoBoost engine, which uses turbocharging, direct injection and reduced displacement to deliver significant fuel-efficiency gains without sacrificing engine power or performance. EcoBoost engines improve vehicle fuel economy 10–20 percent and reduce CO₂ emissions up to 15 percent compared to larger-displacement engines.

EcoBoost is also more affordable than many other fuel-efficiency technologies. Due to its affordability relative to competing technologies, and its compatibility with most of the gas-powered vehicles we produce, we will be able to spread EcoBoost's fuel-economy benefits throughout our product lineup and to more of our customers more quickly. Our rapid deployment of EcoBoost in high volumes across a wide array of our vehicle nameplates will also help us make a dramatic step forward in CO₂ emission reductions.

EcoBoost was introduced first in North America as a 3.5-liter V6 engine on the 2010 Lincoln MKS, Lincoln MKT, Ford Taurus SHO and Ford Flex. This engine provides similar performance to a normally aspirated V8 engine, but with the fuel economy of a V6 engine. Thanks largely to EcoBoost technology, the V6, Taurus SHO and Lincoln MKT deliver unsurpassed fuel economy in their respective segments.

EcoBoost has already been a great success in North America. For example:

- EcoBoost is influencing many consumers to consider and buy Ford vehicles who were not previously Ford customers. EcoBoost is proving especially attractive to 35- to 55-year-old males, an important demographic segment that has been less likely to purchase Ford vehicles in past years.
- EcoBoost is also increasing Ford's "conquest rate" – i.e., the number of customers who are switching from other manufacturers to buy Ford vehicles. The Taurus SHO with EcoBoost has the second-highest conquest rate in its segment, and the Flex EcoBoost had a 75 percent conquest rate during its first year on sale.

In addition to these commercial successes, the EcoBoost engine has received multiple awards, including *Popular Mechanics* magazine's Breakthrough award and a "10 Best Engines" award from Ward's Automotive.

We are continuing to expand the application of EcoBoost technology to more engine types and vehicles. For example:

- We have announced plans to make the 3.5-liter V6 EcoBoost available on the Ford F-150. Later this year, Ford will introduce the new 2.0-liter I-4 EcoBoost in the new Edge and the all-new Explorer. In both vehicles, the 2.0-liter I-4 EcoBoost is expected to deliver best-in-class fuel economy, but with the performance feel of a traditional V6. The Explorer will feature fuel economy that is at least 25 percent better than the current model.

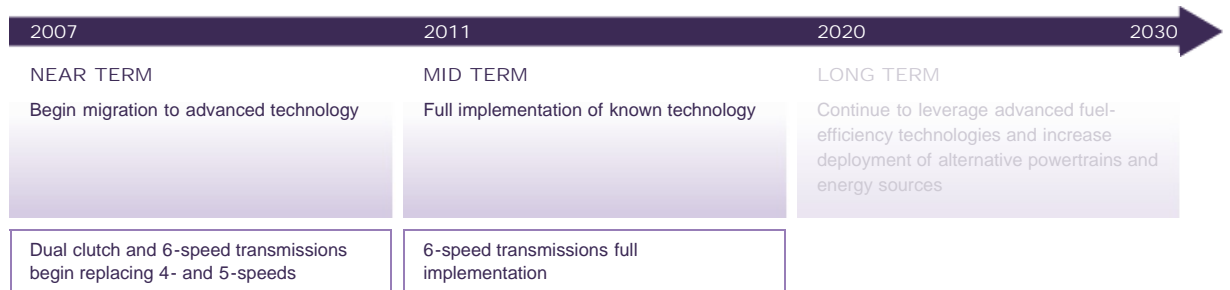
In 2010 we also began taking the EcoBoost engine global:

- In European markets, we have introduced a 2.0-liter I-4 EcoBoost engine on the Ford Galaxy, S-MAX and Mondeo and a 1.6-liter I-4 EcoBoost engine on the Ford C-MAX. We have also announced plans to use the 1.6-liter I-4 EcoBoost engine in the all-new Ford Focus, which will launch in Europe in 2010.
- In 2010, we will also launch the EcoBoost engine in China on the Ford Mondeo.
- In 2011, we will introduce a 2.0-liter I-4 EcoBoost engine to the Australian market on the Ford Falcon.
- Ultimately, we plan to launch an advanced 1.0-liter, three-cylinder EcoBoost engine for use in Europe and other global markets.

These EcoBoost engines illustrate Ford's plans to use smaller, power-boosted engines to deliver improved fuel economy and performance throughout our vehicle lineup.

By 2013, Ford plans to offer EcoBoost engines on 80 percent of our global nameplates, with an annual volume of vehicles with EcoBoost at 1.5 million globally.

PowerShift Transmission



To further improve the fuel economy of our vehicles, we are implementing a dual-clutch transmission system. This technology, called PowerShift, combines manual and automatic transmission technologies to deliver the fuel efficiency of a manual with the driving ease of an automatic. PowerShift uses six speeds instead of the four or five on most automatics, which further increases fuel efficiency. PowerShift technology increases fuel efficiency by up to 9 percent compared to traditional automatic transmissions, depending on the application.

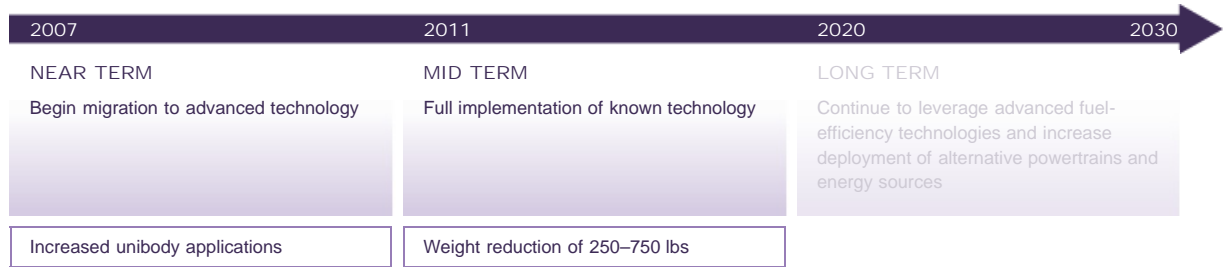
- A "wet clutch" version of this technology has already been implemented in Europe on the Ford Focus, C-MAX, Kuga, S-MAX, Galaxy and Mondeo in combination with a 2.0-liter Duratorq

TDCi diesel and is the standard transmission for the new 2.0-liter EcoBoost engine on the Ford Mondeo, S-MAX and Galaxy.

- A "dry clutch" version was introduced globally in April 2010 on the all-new Ford Fiesta; it will also be introduced globally on the new Ford Focus in November 2010. The dry clutch version gets even better gas mileage. Unlike wet clutch systems, the six-speed dry PowerShift transmission does not use an oil pump, making the system more efficient with the same weight as a traditional four-speed automatic transmission.

We are also introducing regular six-speed transmissions to replace less-efficient four- and five-speed transmissions in a range of vehicles. Six-speed transmissions improve fuel economy by 4 to 6 percent compared to typical four- and five-speed gearboxes; they also provide better acceleration, smoother shifting and a quieter driving experience. By the end of 2012, 98 percent of Ford's North American transmissions will be advanced six-speed gearboxes. And by 2013, we plan to offer advanced six-speed transmissions – both Powershift and regular six-speed technology – on 100 percent of our new, non-hybrid vehicles in Europe and North America and many new vehicles in other regions.

Weight Reductions

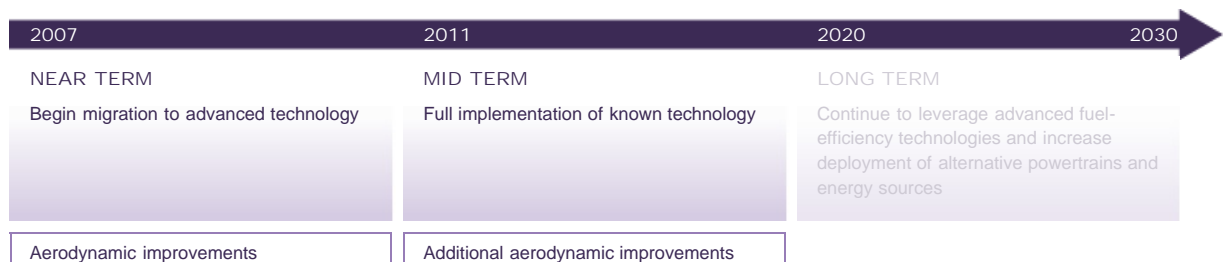


We are also working to improve fuel economy by decreasing the weight of our vehicles by using unibody vehicle designs, lighter-weight components and lighter-weight materials.

- We are increasing our use of unibody vehicle designs, which reduce weight by eliminating the need for the body-on-frame design used in truck-based products. Unibody-based crossover vehicles provide many of the benefits of truck-based SUVs, such as roominess, all-wheel drive and higher stance, with significantly reduced total vehicle weight. The new 2010 Ford Explorer will use a lightweight unibody design, as do the current Ford Edge and Lincoln MKX crossovers.
- We are increasing the use of lighter-weight components. For example, the EcoBoost engine technology allows us to use a smaller, lighter engine system while delivering more power and better fuel economy. Similarly, the dual-clutch PowerShift system weighs up to 30 pounds less than the four-speed automatic transmission it is replacing.
- We are using lighter-weight materials, such as advanced high-strength steel; aluminum; magnesium; natural fibers; and nano-based materials. These "lightweighting" efforts can reduce the weight of our vehicles by 250 to 750 pounds, without compromising vehicle size, safety, performance or customer-desired features. The 2010 Lincoln MKT crossover, for example, has an advanced lightweight magnesium and aluminum liftgate. Also, we use an aluminum hood on the Ford F-150 and high-strength, lighter-weight steels in more than 50 percent of the F-150 cab. We are also expanding our use of aluminum engine parts and all-aluminum engines. For example, the 2011 Mustang will have an aluminum engine. This lighter-weight engine, combined with other fuel-efficiency improvements, is expected to result in class-leading fuel economy at 19 mpg city/30 highway with six-speed automatic transmission, a 25 percent improvement over the 2010 model.

Please see the [Environment](#) section for further information on materials-based weight reductions.

Aerodynamics



We are improving vehicle aerodynamics to improve the fuel economy of our global product lineup. Using a systems engineering approach, we combine aerodynamic improvements and other fuel-economy technologies to ensure that we maximize the fuel efficiency of every vehicle we develop. Systems engineering uses interdisciplinary and collaborative design and development processes to ensure that engineers who are developing adjacent areas of the vehicle work together to maximize vehicle attributes like fuel economy. During the development process, we use advanced computer simulations and wind tunnel testing to deliver vehicle designs that deliver up to 5 percent better fuel economy. In addition, we are developing simulation systems that will allow us to replicate on-the-road driving conditions during the virtual design phase of vehicle development, to further improve the real-world benefits of aerodynamic improvements.

Using these approaches, we made significant improvements to the aerodynamics of our 2009 model year vehicles. For example:

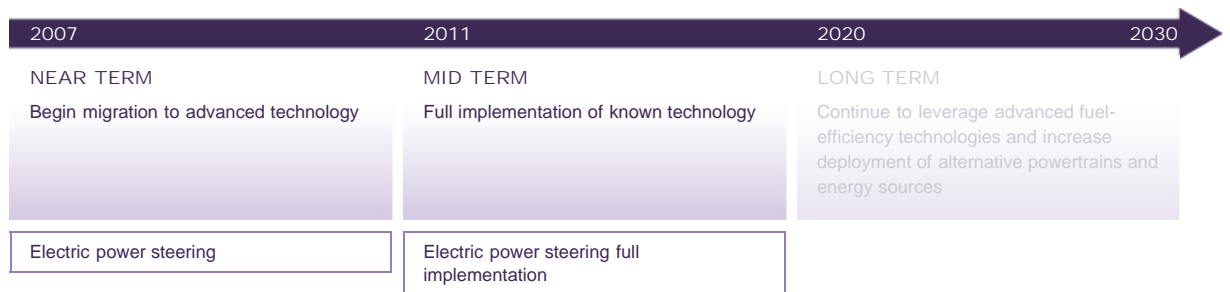
- The 2009 Ford Flex is the most aerodynamic vehicle in its class.
- The 2009 Ford Escape has 6 percent lower aerodynamic drag than previous models.
- The 2009 F-150 has an average of 8 percent better fuel efficiency than previous models due in part to aerodynamic improvements.
- In Europe, we improved the fuel efficiency of the 2009 Ford Focus and Fiesta ECONetic models through aerodynamic improvements such as lowering the vehicle, adding an aerodynamics kit and using low-rolling-resistance tires.

In 2010 we are continuing to build on these achievements in aerodynamics. In North America, we improved the fuel efficiency of Ford's midsize family sedans, including the 2010 Ford Fusion, Mercury Milan and Lincoln MKZ, by reducing aerodynamic drag by 5 percent. We accomplished this by further streamlining the exterior design and lowering the vehicles' ride height. These aerodynamic improvements were a key enabler for the Ford Fusion Hybrid's 41 mpg rating, which makes it the most fuel-efficient midsize sedan available in North America.¹ We have also reduced the aerodynamic drag of the 2010 Mustang by 4 percent for the V6 model and 7 percent for the V8 model. These aerodynamic improvements resulted in a 0.5 mpg and 1 mpg improvement in fuel economy at 70 mph cruising speeds, for the V6 and V8 models respectively.

For 2011, we have plans to continue to improve vehicle aerodynamics. For example, we are developing an active grille shutter technology that reduces aerodynamic drag by up to 6 percent, thereby increasing fuel economy and reducing CO₂ emissions. This technology will be implemented first on our European vehicles and will be migrated to North American vehicles in future model years.

1. Midsize sedan segment based on the R.L. Polk segment definition.

⊕ Electric Power-Assisted Steering



We are phasing in electric power-assisted steering (EPAS) technology, which typically will improve fuel economy by 0.09 to 0.17 gallons per 100 miles and will decrease CO₂ emissions by up to 3.5 percent over traditional hydraulic systems, depending on the vehicle and powertrain application. For example, on the 1.4-liter Duratorq Diesel Fiesta, which is available in Europe, EPAS provides a 3 to 4 percent improvement in fuel efficiency compared with a hydraulic-based power steering system. By combining EPAS with aerodynamic improvements, we improved the gas mileage of this vehicle by approximately 8 percent compared to the previous model year. In addition, EPAS supports other fuel-saving activities we plan to introduce. For example, "automatic start/stop" technology can be introduced without degrading steering assist to the driver. (For details on this technology see "[Automatic Start/Stop](#).")

We began implementing EPAS in 2008 in North America on the Ford Escape and Mercury Mariner gasoline and hybrid vehicles. In Europe, we introduced EPAS on the new Ford Fiesta, which launched in the summer of 2008, and will be launched in the United States in 2010. In 2009, we

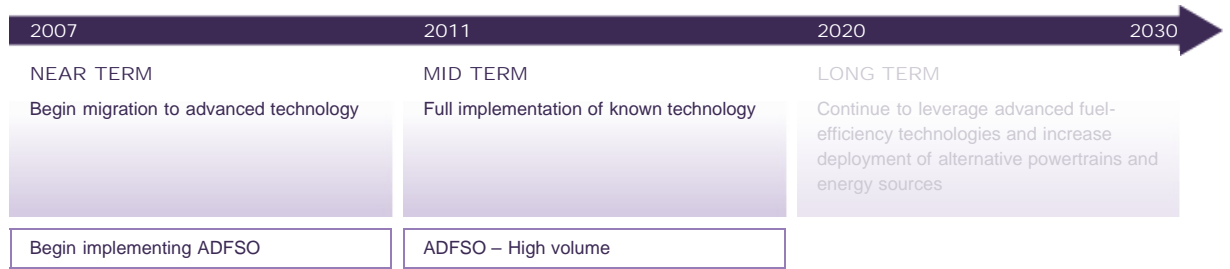
added EPAS to the North American Ford Fusion, Mercury Milan, Ford Flex and Lincoln MKS with the EcoBoost engine, and in Europe we implemented EPAS on the 2009 Ka. Several additional launches of this technology are planned for 2010, including on the new Ford Mustang and Ford Explorer in North America and the new C-MAX and Focus in Europe. Ultimately, we will introduce EPAS into all of our passenger cars and light-duty vehicles.

Battery Management Systems (BMS)



Electrical systems are another area in which we are making progress. By reducing vehicle electricity loads and increasing the efficiency of vehicle electrical systems, we can improve fuel efficiency. Our Battery Management Systems (BMS), for example, control the power supply system (in particular the alternator) to maximize the overall efficiency of the electrical system and reduce its negative impacts on fuel economy. This is accomplished by maximizing electricity generation during the most fuel-efficient situations, such as during vehicle deceleration. In less fuel-efficient situations, the alternator's electricity generation is minimized to meet in-vehicle electrical requirements (e.g., for entertainment systems). BMS has already been launched in Europe and will be incorporated in the United States beginning with the 2011 Edge. We have also introduced more-efficient alternators, which improve fuel economy.

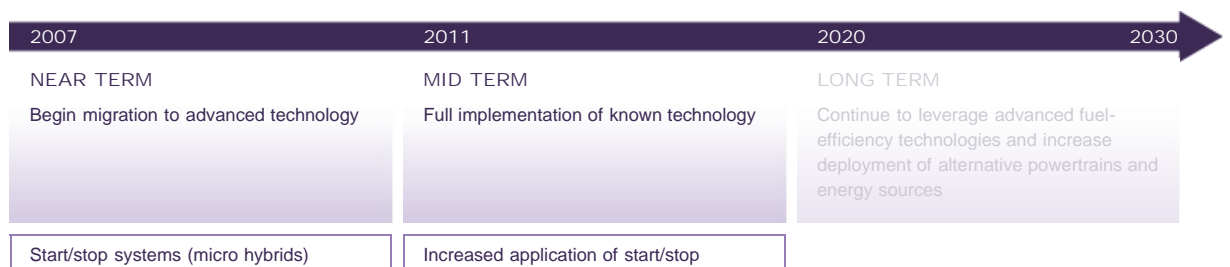
Aggressive Deceleration Fuel Shut-Off



We are deploying Aggressive Deceleration Fuel Shut-Off (ADFSO) technology to improve fuel efficiency. ADFSO allows fuel supply to the engine to be shut off during vehicle deceleration and then automatically restarted when needed for acceleration or when the vehicle's speed approaches zero. This new system builds on the Deceleration Fuel Shut-Off technology available in our existing vehicles by extending the fuel shut-off feature to lower speeds and more types of common driving conditions, without compromising driving performance or non-CO₂ emissions reductions.

This improved fuel shut-off will increase fuel economy by an average of 1 percent. An additional benefit of the ADFSO technology is increased deceleration rates, which should extend brake life and improve speed control on undulating roads. This technology was implemented in mid-2008 on the new Ford Flex and the Lincoln MKS and in late 2008 on the 2009 model year Ford F-150, Ford Expedition and Lincoln Navigator regular and extra-long models, as well as the Ford Escape and Mercury Mariner. In the next two to three years we plan to implement this technology on as many vehicles as possible, beginning with front-wheel-drive, six-speed-transmission vehicles.

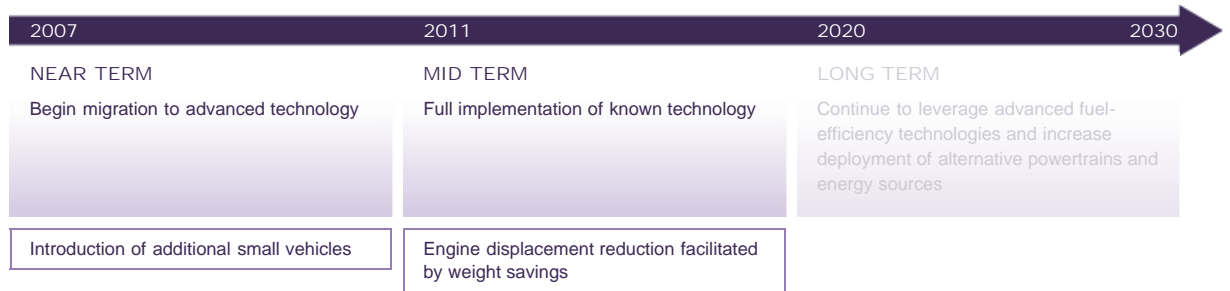
Automatic Start/Stop



We have developed a "start/stop" technology that shuts down the engine when the vehicle is stopped and automatically restarts it before the accelerator pedal is pressed to resume driving. This technology maintains the same vehicle functionality as a vehicle without the technology, but it improves city driving fuel economy by up to 6 percent.

Start/stop technology includes sensors to monitor functions such as cabin temperature, power supply state and steering input, so that vehicle functioning remains exactly the same to the driver as when the engine remains on continuously. If the system senses that a vehicle function has been reduced and will negatively impact the driver's experience, the engine will restart automatically. Start/stop technology is already being used in our hybrid vehicles and will eventually provide a cost-effective way to improve fuel efficiency on a large volume of non-hybrid vehicles. In the United States, we are planning to introduce the technology into non-hybrid, automatic transmission vehicles by the 2013 model year. In Europe, auto start/stop is already available on the [Ford Focus EConetic](#). By 2016, 90 percent of our vehicle nameplates will be equipped with start/stop technology.

Smaller Vehicles



Smaller vehicles provide consumers with another way to get better fuel economy. We are planning to launch additional small cars to provide more fuel-efficient options. For example:

- We are introducing subcompact vehicles commonly referred to as "B-cars." These include the all-new Ford Fiesta, which was introduced in Europe in 2008 and in the Asia Pacific region in 2009, and will be available in the Americas in 2010.
- In addition, we brought the European Transit Connect small commercial van to North America. This vehicle fills an unmet need in the U.S. market by offering the large cargo space that small business owners need in a fuel-efficient, maneuverable, durable and flexible vehicle package.
- We have also announced plans to bring the next-generation European Focus to North America. This vehicle, which will be our new global "C-sized" or compact offering, was revealed at the 2010 North American International Auto Show. It includes the first in a series of powertrain technology developments we are introducing that will give our new global C-car segment offerings a combination of power, performance and unsurpassed fuel economy. Ford has disclosed that North American models of the new Focus will be equipped with a responsive, fuel-efficient combination of a 2.0-liter I-4 engine with Twin Independent Variable Camshaft Timing and direct injection plus a dual-clutch PowerShift transmission.

All of these smaller vehicles illustrate Ford's actions to provide consumers with a wider range of fuel-efficient options as well as our efforts to leverage the best of our global products to offer new choices and solutions to customers in all of our global regions.



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PHEVs



Renewable Biofueled Vehicles



H₂ICEs



FCVs

Our plans for migrating to alternative fuels and powertrains include implementing vehicles that run on renewable biofuels, increasing advanced clean diesel technologies, increasing our hybrid vehicle applications and introducing battery electric vehicles and plug-in hybrids. We are also working to advance hydrogen internal combustion engine and hydrogen fuel cell vehicle technologies.

For more information on our plans to advance alternative fuels and powertrain technologies, please click on the Ford vehicle for each fuel or technology above.



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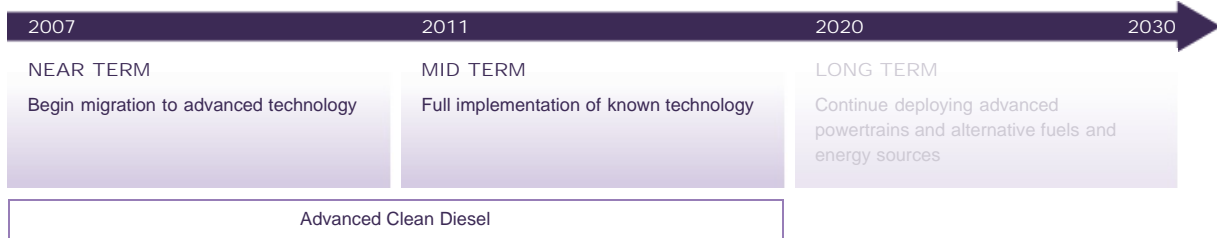
FCVs



Advanced Clean Diesel

Ford Fiesta ECONetic

Ford offers the ECONetic line of super-fuel-efficient, low-carbon-emission diesel vehicles in Europe. In the United States, we are introducing advanced clean diesel technologies on our diesel truck engines.



Modern diesels offer some significant advantages over traditional gasoline engines. They consume 30 to 40 percent less fuel, and on a well-to-wheels basis they emit 15 to 30 percent less CO₂¹. In addition, direct-injection diesel engines provide exceptional power and torque, resulting in better driving performance and towing capabilities.

In Europe, diesel-powered vehicles account for more than 50 percent of new vehicle sales and make up approximately 30 percent of the total vehicle fleet on the road. Ford continues to improve its strong lineup of fuel-efficient and clean diesel vehicles in Europe. For example, we continue to introduce ECONetic versions of Ford models that deliver improved fuel economy and emissions. The ECONetic lineup currently includes versions of the Ford Focus, Mondeo, Fiesta and Transit. Several of the ECONetic models use diesel engines, which meet the stringent EU V emissions standards and achieve less than 100 g/km CO₂ emissions. For example, the Fiesta ECONetic has fuel economy of 3.7 liters/100 km and emits just 98 g/km of CO₂. This vehicle is powered by a specially calibrated version of the 90 PowerShift 1.6-liter Duratorq TDCi, combined with a coated diesel particulate (soot) filter.

In North American markets, diesels all but disappeared in the light-duty passenger vehicle market years ago, for a variety of reasons. However, with the introduction of low-sulfur diesel fuels in 2007 and advances in clean diesel technology, there is new opportunity for the expanded use of diesel in North America. Ford engineers are developing next-generation diesel technologies that will maintain the fuel economy advantages of diesels while minimizing emissions to meet strict U.S. air

pollution standards. These technologies include diesel particulate filters and NOx-reduction catalysts, along with advanced combustion systems that will significantly reduce the particulate matter and NOx emissions associated with diesel engines. These advances will provide another route to more fuel-efficient and cleaner mobility.

In the North American medium-duty truck market there is a large demand for diesel products, with diesel engines accounting for more than 50 percent of sales. In response to this demand, Ford will introduce, for the 2011 model year, the next-generation F-Series Super Duty® truck with a new state-of-the-art diesel engine. The 6.7-liter PowerStroke® V8 diesel is cleaner and more powerful than previous engines. As a result of the new engine and a transmission upgrade, the 2011 Super Duty will deliver best-in-class fuel economy and towing capability.

This new diesel engine also meets the Environmental Protection Agency's strict 2010 heavy-duty truck emission regulations, which require 80 percent lower NOx emissions than the 2007 regulations. The new Super Duty uses a range of advanced technologies to meet these new regulations. First, the new 6.7-liter PowerStroke engine employs an innovative exhaust gas recirculation system to efficiently recycle the combustion gases. The system runs the engine with the least amount of oxygen possible, in order to reduce NOx emissions without degrading performance and fuel economy. In addition, the Super Duty uses a three-part "after-treatment" system, including:

- a diesel oxidation catalyst that converts and oxidizes hydrocarbons into water and carbon dioxide;
- a selective catalytic reduction that uses an ammonia and water solution to convert the NOx in the exhaust stream into water and inert nitrogen, which is present in the atmosphere and harmless; and
- a diesel particulate filter that traps any remaining soot and periodically burns it away when sensors detect the trap is full.

The engine will also use a high-precision, common-rail fuel-injection system featuring piezo-electric injectors. This system uses a stack of more than 300 wafer-thin ceramic platelets to control the fuel injector nozzle, allowing it to operate faster than other electro-mechanical fuel injectors, to decrease fuel consumption and reduce emissions.

The 2011 Super Duty will also be Ford's first vehicle in North America that is B20 compatible, meaning it can run on fuel composed of 20 percent biodiesel and 80 percent ultra-low-sulfur diesel. Biodiesel is a renewable fuel made from soybean oil and other fats. We went through extensive testing to ensure that the new Super Duty would meet performance and durability requirements when fueled with B20, including running durability cycles on multiple blends of diesel and biodiesel fuels to ensure the robustness of the system. Previously, Ford Super Duty products in North America were approved to use B5 fuel, which is composed of 5 percent biodiesel and 95 percent petroleum diesel. In Europe, our vehicles are also compatible with B5, and we are working with European fuel standards organizations to establish fuel-quality standards for biodiesel blends greater than B5. The use of biodiesel helps reduce dependence on foreign oil and reduces life-cycle CO₂ emissions. For more information on biofuels, please see the [Renewable Biofueled Vehicles](#) section.

1. Values based on J.L. Sullivan, R.E. Baker, B.A. Boyer, R.H. Hammerle, T.E. Kenney, L. Muniz, and T.J. Wallington, 2004, "CO₂ Emission Benefit of Diesel (versus Gasoline) Powered Vehicles," *Environmental Science and Technology*, 38: 3217-3223.



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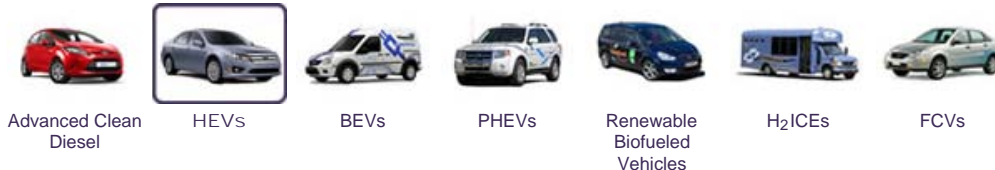
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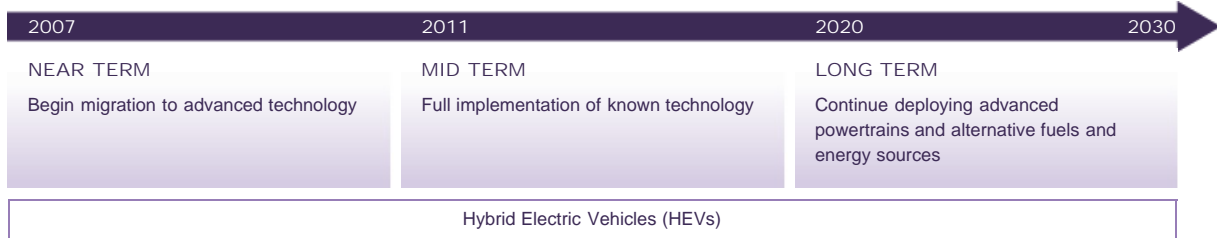
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Hybrid Electric Vehicles (HEVs) Ford Fusion

Ford currently offers four hybrid models in the United States. By 2013, we will offer seven hybrid models in the United States and Europe.



In 2004, Ford introduced the world's first hybrid SUV, the Ford Escape Hybrid. We followed up with the Mercury Mariner Hybrid in 2005. In early 2009 we further expanded our hybrid vehicle lineup by introducing the Ford Fusion and Mercury Milan Hybrids. All of these vehicles are full parallel hybrids, meaning they can run exclusively on battery power, exclusively on gas power or on a combination of both to deliver the best overall energy or fuel efficiency. As of early 2010, we had produced more than 125,000 hybrids worldwide. We are currently increasing our hybrid volume, targeting a cost reduction of more than 30 percent in our 2012 next-generation hybrid systems and preparing for hybrid capability across our highest-volume global product platforms.

The Ford Fusion Hybrid has an Environmental Protection Agency fuel economy rating of 41/36 mpg city/highway, making it the most fuel-efficient midsize sedan in the United States today.¹ The Fusion Hybrid's fuel economy significantly exceeds that of its nearest midsize sedan competitor, and it can go more than 700 miles on a single tank of fuel. It includes an innovative new SmartGauge™ with EcoGuide instrument cluster that coaches hybrid drivers to maximize fuel efficiency. With the Fusion and Milan Hybrids, we doubled the number and volume of our hybrid lineup in the United States.

In 2010, we will launch the Lincoln MKZ Hybrid, which is expected to be the most fuel-efficient luxury sedan in America. In 2012 we plan to deliver our next-generation hybrid vehicles, including a hybrid based on a compact or "C-car" platform. The next-generation system, already under development, will be even more efficient and more cost-effective than the current system and will

use lithium-ion battery cells. All of Ford's electrified products, including hybrids, plug-in hybrids and battery electric vehicles, will use lithium-ion battery cells by 2012.

As part of our global electrification plan, we will extend our hybrid vehicle technology to Europe. By 2013, we plan to introduce two next-generation hybrid vehicles and a plug-in hybrid in Europe. The European HEVs will be based on our global "C-car" platform and our "CD-car" (or midsize) sedan. The European PHEV will be based on the all-new C-MAX, a derivative of our global "C-car" platform.

1. Midsize sedan segment based on the R.L. Polk segment definition.



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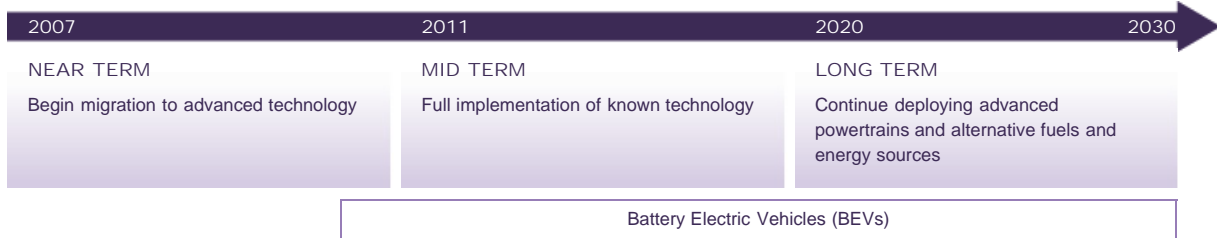
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Battery Electric Vehicles (BEVs)

Transit Connect Electric

Ford will introduce a BEV version of the Transit Connect in the United States in 2010, followed by the Focus Electric in 2011. We will introduce these BEVs in Europe in 2011 and 2012.



Ford has announced an expanded, comprehensive electric vehicle strategy aligned with growing public interest in advanced technologies that can help reduce the use of gasoline and diesel. We are employing a comprehensive approach to electrification that will tackle commercial issues such as battery cost, standards development and infrastructure deployment. Strategic partnerships are an important part of this new approach. We are working with partners to develop appropriate battery cells, collaborate on government policy and define the infrastructure needed to speed the commercialization and acceptance of electric vehicles. This global electrification strategy is not a test program. It is a vital element of our business plan going forward and is aimed at making Ford a leader in sustainable transportation. To read more about Ford's approach to vehicle electrification, please see [Electrification: a Closer Look](#).

Battery electric vehicles do not have an internal combustion engine and do not use any on-board gasoline. Instead, they use a high-voltage electric motor, which gets its power from a high-voltage battery pack charged by plugging into a standard 110-volt or 220-volt outlet in the United States, or a 230-volt outlet in Europe. Our early BEV test vehicles charge in six hours when plugged into a 220-volt outlet. The production models will be rechargeable in seven to eight hours from 230- and 220-volt outlets or 14–16 hours from a 110-volt outlet. As fast-charge technology standards are developed, Ford's BEVs will be designed to take advantage of this capability. Ford is actively working to help develop the standards to ensure that plug-in and charge stations work for all BEVs and to also ensure that the technology is reliable and durable for customers.

In 2010, we will deliver a BEV version of our Transit Connect light commercial utility van for use by small business owners and fleet customers in the United States. This vehicle is being developed in partnership with Azure Dynamics, a world leader in the development and production of hybrid electric and battery electric commercial vehicles. In 2011 we will deliver a Focus BEV, called the Focus Electric, which will be aimed at U.S. retail customers. We are working with Magna International for the supply and integration of several of the BEV components for this vehicle. This car will have a driving range of approximately 100 miles on a single charge of its lithium-ion high-voltage battery. We are targeting urban markets with this vehicle and expect to sell between 5,000 and 10,000 units annually to start. We will be ready to ramp up to higher volumes as the infrastructure develops and customer demand grows.

We recently announced plans to expand our BEV lineup to Europe. We will launch the Transit Connect Electric in 2011 followed by the Ford Focus Electric in 2012. The Focus Electric will be based on Ford's next-generation Focus model and is one of up to 10 vehicles that will be developed from the company's new global C-car platform. We also plan to introduce two next-generation hybrid-electric vehicles and a plug-in hybrid in Europe in 2013. In preparation for the launch of these vehicles in Europe, Ford will participate in BEV test trials in the UK and Germany with Transit commercial vehicles equipped with a pure electric powertrain as well as battery electric prototype passenger car vehicles, to test the technology's suitability in real-world situations.

In North America, the Society of Automotive Engineers, with Ford's participation, successfully aligned all major original equipment manufacturers on a standard charge connector and communication protocol that will enable all plug-in vehicles to use common charge points. This will be a key enabler for adoption in North America; the same connector is under consideration in Europe and China. Ford also recently announced it is partnering with Microsoft to deliver a new energy management software program called Microsoft Hohm™ that will help owners of Ford BEVs assess the most efficient times to recharge their vehicles. For more information on this partnership, please see [Electrification: a Closer Look](#).

Ford's aggressive new electrification plan represents the next step in the Company's sustainability plan. The plan includes a commitment to greater vehicle fuel economy and lower CO₂ emissions as part of Ford's longer-term commitment to addressing climate change and energy security.



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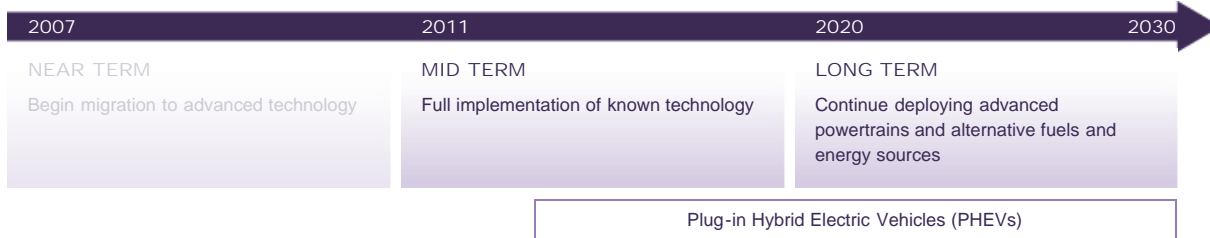
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Plug-in Hybrid Electric Vehicles (PHEVs)

Ford Escape

Ford plans to have a plug-in hybrid vehicle available commercially in North America in 2012 and in Europe by 2013.



We are currently developing and testing plug-in hybrids in preparation for bringing them to market in 2012. PHEVs are similar to HEVs in that they are equipped with both an electric battery and a gas-powered engine. Unlike today's hybrids, however, PHEVs are equipped with a high-capacity battery that can be charged from a private household or public electric outlet. In addition, while regular HEVs maintain a roughly constant battery charge, plug-in hybrids discharge the battery while driving to provide additional fuel savings. PHEVs have the potential to reduce tailpipe emissions to near zero when running on battery power. However, the vehicle's overall life-cycle emissions depend on the electrical power source and the performance characteristics of the vehicle. PHEVs could be significantly less expensive for consumers to operate because they allow drivers to travel on grid-based electricity stored in batteries instead of more costly gasoline.

In 2007, Ford committed to a collaborative project with Southern California Edison to develop a fleet of plug-in hybrid Ford Escapes as part of a PHEV demonstration project. The project seeks to provide real-world usage data and to understand critical implementation issues, including the vehicle-utility interface, the impact of plug-ins on utility operations and emissions, and the value to users, utility companies and vehicle manufacturers. Since the project began, numerous organizations have joined the partnership and helped to evaluate our PHEVs in different geographical locations. These partners include the Electric Power Research Institute, the New York State Energy Research and Development Authority, the New York Power Authority, American Electric Power, ConEdison of New York, DTE Energy, National Grid, Progress Energy, Southern Company-Alabama Power, Pepco Holdings and Hydro Quebec. For more information on some of

the key learnings generated by this collaboration so far, please see [Electrification: A Closer Look](#).

In 2008, Ford also announced a program with the U.S. Department of Energy (DOE) to identify a sustainable pathway toward accelerated, successful mass production of plug-in hybrid electric vehicles. The program includes a three-year demonstration project with a vehicle fleet deployed by DOE and energy partners to collect real-world battery performance data and evaluate PHEV and grid performance. Ford was awarded a \$10 million contract by DOE in support of this work. In 2008 and 2009, Ford deployed 20 vehicles with its utility partners and DOE.

The PHEV demonstration fleet uses a blended, or parallel, hybrid configuration. Parallel hybrids can be propelled by an electric motor or a gasoline internal combustion engine, or both can work together seamlessly to provide the most efficient combination. This parallel system enables flexibility and efficiency in battery sizing while maximizing battery life and investment.

In early 2010, Ford announced that we are partnering with Microsoft on a new energy management software that will help customers determine when and how to most efficiently and affordably recharge BEVs and PHEVs. For more information on this technology, please see [Electrification: A Closer Look](#).

The Plug-In Hybrid Escapes demonstration vehicles have two distinct operational modes: charge depletion and charge sustaining. In charge depletion mode, which is used when the high-voltage battery is above a predetermined state of charge, the vehicle will draw the majority of the power required for operation from the battery. During normal driving, this usually translates into full-electric operation when the vehicle is traveling less than roughly 40 mph. When the power demand of the driver exceeds the power output capacity of the high-voltage battery, the gasoline engine will automatically start up to provide the difference. However, even when the engine is used to supplement power while in charge depletion mode, the battery still provides the vast majority of the power required to propel the vehicle, giving the driver a sense that the engine is merely idling, even at highway speeds.

In charge sustaining mode, which is used when the high-voltage battery is below a predetermined state of charge, the vehicle will rely mainly on the engine to meet the driver's power demand. The high-voltage battery will be charged during braking events and discharged during acceleration events to improve the overall fuel economy of the vehicle – similar to the operation of today's conventional hybrids.

Initial field data shows significant improvements in fuel economy when operated in charge depleting mode. The data also shows that in city environments, a fully charged Plug-in Escape is capable of an all-electric range in excess of 25 miles when driven below 40 mph and if aggressive acceleration events are avoided.

Ford's PHEV demonstration fleet vehicles use advanced lithium-ion batteries. We plan to have a plug-in hybrid vehicle available commercially in North America in 2012 and in Europe by 2013 as part of our overall plan for vehicle electrification. The European PHEV will be based on the all-new C-MAX and the U.S. PHEV platform is still being determined.



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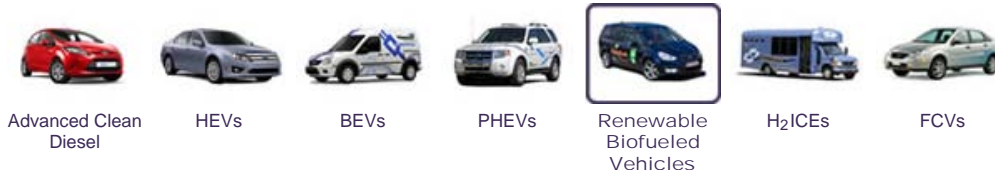
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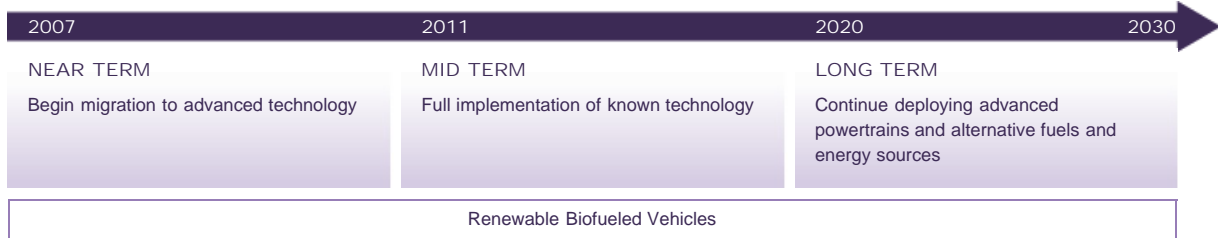
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Renewable Biofueled Vehicles Ford Galaxy

Ford currently offers 14 vehicle models globally that run on biofuels. We are working to advance the development of next-generation biofuels that will further reduce life-cycle CO₂ emissions.



Current Generation Biofuels

Ford has a long history of developing vehicles that run on renewable biofuels. Our founder, Henry Ford, was a strong proponent of biofuels, and we produced our first flexible-fuel vehicle approximately 100 years ago; the Ford Model T was capable of running on gasoline or ethanol.

Biofuels are an important component of our sustainability strategy for three reasons. First, biofuels can help to address economic, social and environmental sustainability as well as helping us meet our CO₂-reduction goals. Second, the use of biofuels requires relatively modest modifications to existing vehicle and fueling technology, which makes them a viable near-term option. Third, biofuels offer synergies with our other strategies. For example, the high octane of ethanol would enable the use of higher compression ratios and higher levels of boost, thereby improving the efficiency of and generating more torque from our future downsized engines, provided this fuel is available. Similarly, we can use biofuels to fuel the internal combustion engine portion of our plug-in hybrid electric vehicles, which will further lower their carbon footprint. We are aware that there are fundamental limitations associated with the scale of biofuel production, and therefore we do not see biofuels as the only solution to providing sustainable mobility. Nonetheless, we do see biofuels as part of the solution.

Ford has taken a leadership position on implementing biofuels. Since 1997, we have offered flexible-fuel vehicles (FFVs) capable of running on gasoline or E85 ethanol – a blended fuel that

contains up to 85 percent ethanol and at least 15 percent petroleum-based gasoline. To date, we have more than 5 million E85-capable vehicles on the road globally, including more than 2.5 million in North America and nearly 2 million in Brazil. In the United States, we have introduced more than 550,000 FFVs over the last two years alone. In Europe, Ford is a market leader and pioneer in bioethanol-powered FFVs, with more than 70,000 vehicles delivered to customers since 2001. Ford FFV models are now available in 17 European markets, with Sweden, Germany, the Netherlands, Spain and France showing the strongest demand.

Ford currently offers 14 vehicle models in the United States, Europe, Asia and South America that can run on E85. These include the Ford Crown Victoria, Mercury Grand Marquis, Lincoln Town Car, Ford Fusion, Mercury Milan, Ford Escape, Mercury Mariner, Lincoln Navigator, Ford Expedition, Ford Econoline and Ford F-150 in North America; the Ford Focus, C-MAX, Mondeo, S-MAX and Galaxy in Europe; the Ford Fiesta, EcoSport and Focus in Brazil; and the Ford Focus in Thailand. In 2009 in Europe we launched a tri-fuel version of the Ford Mondeo capable of running on gasoline, E85 or propane (LPG).

Next-Generation Biofuels

We are continuing to develop the next generation of biofueled vehicles, including vehicles capable of running on advanced biofuels. Our current research focuses on two primary biofuels: bioethanol and biodiesel. Bioethanol (used for example in E85) is a gasoline alternative derived from plant material. Most bioethanol in the United States is made from corn. In other parts of the world it is made from other locally available crops, including sugar cane in Brazil and sugar beets in Europe. All modern gasoline vehicles can run on E10, a gasoline/bioethanol mixture of up to 10 percent by volume bioethanol.

Biodiesel is a diesel alternative made from vegetable oils obtained from oil seeds, including soy, canola, palm and rapeseed, or from animal fat. In the United States, most biodiesel is currently made from soybeans. In the United States and Europe all of our diesel vehicles can run on B5, a blend of 5 percent biodiesel and 95 percent petroleum diesel. We have worked with fuel standards organizations to allow the use of biodiesel blends of greater than B5 in our future products. For example, our 2011 F-Series Super Duty® trucks with a new 6.7-liter diesel engine are compatible with B20, which is 20 percent biodiesel and 80 percent petroleum-based diesel. In addition, the gasoline version of these vehicles will be compatible with gasoline, E85, or any ethanol-gasoline blend between E0 and E85.

Bioethanol, biodiesel and other renewable fuels have significant advantages. They can be made with locally available raw materials, reducing the need for foreign-supplied oil and increasing energy security, and they produce fewer lifetime CO₂ emissions. However, important issues remain regarding biofuels' energy density, the best way to use these fuels to reduce greenhouse gas (GHG) emissions, and their ability to meet fuel needs without diminishing food supplies. (These issues are discussed in more detail later in the [Biofuel Challenges](#) section.)

Ford is working to support and promote the next generation of biofuels, including cellulosic biofuels. These are fuels made from plant cellulose – stalks, leaves and woody matter – instead of from sugars, starches or oil seeds. Cellulosic biofuels have many advantages. They minimize possible market competition between food and fuel. They allow the more-efficient use of crops such as corn and soybeans by using more of the plant. In addition, cellulosic biofuels can be made from crops that require less energy-intensive farming, such as switchgrass and wood, further reducing the total CO₂ footprint of fuels used for operating vehicles. We are also investigating the potential for algae-based biofuels to provide another feedstock for future biofuels.

Biofuel Infrastructure

To make an impact on GHG emissions and energy security, biofuels must become more widely available. In the United States, Ford has committed to doubling the number of FFVs in our lineup by 2010. And, if the market dictates and the supporting infrastructure is in place, we have committed to expanding FFV output to 50 percent of total vehicle production by 2012. Despite this commitment, E85 refueling infrastructure remains inadequate. Out of more than 160,000 refueling stations in the United States, approximately 2,200 (or less than 2 percent) offer E85. In order for consumers to have a true transportation fuel choice, increased access to biofuels is necessary.

United States Renewable Fuel Standard and the Future of Biofuels

The Energy Independence and Security Act of 2007 established a new renewable fuel standard (RFS) requiring a significant increase in the use of biofuels – 36 billion gallons per year by 2022. In addition, this law requires that, beginning in 2010, a certain portion of biofuels must be advanced and/or cellulosic-based fuels. Ethanol blended into gasoline is expected to supply a large percentage of this biofuel mandate and could displace nearly 20 percent of U.S. gasoline demand by 2022.¹ The use of biodiesel in the United States is also likely to increase in the coming years. However, it will not likely increase to the same levels as ethanol, because the RFS mandates lower volumes of biomass-based diesel and because a relatively small percentage of light-duty passenger vehicles in the United States use diesel.

Using low-level ethanol blends such as E10, which is the current compatibility limit for all non-FFV light-duty vehicles, would achieve approximately 40 percent of the RFS-mandated biofuel use by 2022. Therefore, meeting the full RFS biofuel requirement will require the use of more E85-capable FFVs and/or the development of vehicles that can use mid-level blends of ethanol (i.e., between E10 and E85). Furthermore, the expanded use of E85-compatible vehicles would require a corresponding increase in the E85 fueling infrastructure in the next 10 to 20 years. An approach using mid-level blends would require that all new vehicles be designed for higher ethanol capability, and the existing fueling infrastructure would need to be redesigned for higher ethanol compatibility. For any of these cases to work in the real world, the new fuels will have to provide value to give consumers a compelling reason to buy ethanol-blend fuels. Regardless of the specific strategy used, coordinated efforts will be required between automakers, fuel suppliers, consumers and the government to meet the RFS mandate while ensuring the compatibility of vehicles and ethanol-blended fuel.

Biofuel Challenges

Much of the interest in biofuels results from their potential to lessen the environmental impacts of transportation fuels while contributing to energy independence. Biofuels are made from domestic and renewable resources, they provide an economic boost to farmers, and they help to reduce greenhouse gas emissions because the plants from which they are made absorb CO₂ while they are growing. But are biofuels the solution to our growing fuel-related environmental, economic and political problems? The issues are complex. We believe biofuels are an important part of the equation for addressing climate change and energy security. We recognize, however, that major advances need to be made in production processes, source materials and fuel types to achieve the full promise of biofuels.

Some of the challenges relating to today's biofuels include the following.

Energy density

The energy density of ethanol is approximately two-thirds that of gasoline.² This means there is approximately one-third less energy in a gallon of ethanol than in a gallon of gasoline. As a result, drivers using blends with a high amount of ethanol will have to refuel more frequently to drive the same distance. Biodiesel has approximately the same energy density as conventional diesel.

Life-cycle greenhouse gas emissions

The plants used to produce biofuels capture as much carbon dioxide during their growth as they release when burned. However, current farming and production processes utilize fossil fuels in the production of bioethanol and biodiesel, so the production of these biofuels for use in vehicles results in a release of some fossil-fuel-based GHG emissions on a life-cycle basis. Recent studies have suggested that nitrous oxide (N₂O) emissions from the fertilizers required to grow biofuel feedstocks may have been underestimated, and that these emissions reduce the GHG benefits attributed to biofuels. N₂O emissions from biofuel production need to be carefully considered for all types of biofuel feedstocks and farming techniques on a full life-cycle basis, including allocation of emissions to co-products derived from biofuel production. Government and academic studies suggest that current E85 ethanol from corn results in 20 to 30 percent fewer life-cycle GHG emissions than today's gasoline, on an energy-equivalent basis. In addition, GHG emissions related to petroleum can vary greatly depending on the source. Producing crude oil from tar sands, for example, results in a greater release of GHGs than producing crude oil from conventional sources. The use of renewable energy sources in the production of bioethanol and biodiesel production can reduce their life-cycle GHG emissions further. We believe that developing cellulosic or biomass-based biofuels with next-generation processes will significantly decrease the GHG emissions associated with biofuels, perhaps by up to 90 percent.³

Competition with the food supply

Another concern about current corn- and soybean-based biofuels is that they compete in the marketplace with food supplies and are one of the factors that increase food prices. Demand for corn used directly for human food (including high-fructose corn syrup) comprises less than 10 percent of the total corn supply. Approximately 42 percent of the corn produced in the United States is used for animal feed. In 2009, about 32 percent of the corn harvest in the United States was used to produce ethanol. The ethanol process removes only the starch from the corn – the remaining portion is a highly valued feed product (called distiller grains) and a good source of energy and protein for livestock and poultry. If next-generation biofuels can efficiently utilize biomass such as plant stalks, woodchips or grasses and be grown on marginal land with little irrigation, then competition with food crops should be minimized.

Land use conversion for biofuel production

Recent studies have looked at the overall CO₂ and N₂O impacts of converting natural ecosystems to farmland for the production of biofuels. This is an important and complex issue. Converting natural lands to croplands for fuel production can lead to the release of carbon stored in above- and below-ground biomass. Releasing this carbon in the form of CO₂ during land conversion to

energy crops creates a carbon "debt," which may take a very long time to repay through the greenhouse gas benefits of biofuel use. The use of degraded pastures or abandoned farmland, by contrast, rather than natural ecosystems, would incur minimal carbon debt, because there is limited CO₂ storage in these previously altered ecosystems.

At Ford, we are following the debates about biofuels closely. As we proceed, we need to consider how biofuels are derived and carefully review issues such as the potential net greenhouse gas benefits; political, economic, social and environmental concerns related to biofuel and petroleum use; and the management of land, food and water resources. We agree with the general consensus among scholars and industry experts that the current generation of biofuels (e.g., corn-based bioethanol and soybean-based biodiesel) have modest environmental benefits and are a first step toward cleaner vehicles and energy independence. We are actively investigating next-generation biofuels that have greater environmental, energy security and economic benefits. We believe that improvements in the efficiency of farming technologies and biomass production processes, and the development of advanced biofuels, will significantly increase the benefits and long-term sustainability of biofuels. Even with these improvements, solving our climate change and energy security problems will require a multifaceted set of solutions, including new fuels, improvements in vehicle fuel economy and changes in consumer driving patterns and practices.

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1. J.E. Anderson, R.E. Baker, P.J. Hardigan, J.M. Ginder, T.J. Wallington. Society of Automotive Engineers Technical Paper 2009-01-2770. *Energy Independence and Security Act of 2007: Implications for the U.S. Light-Duty Vehicle Fleet.*
 2. J.B. Heywood, *Internal Combustion Engine Fundamentals*, McGraw-Hill, New York 1988.
 3. *Ethanol: The Complete Energy Lifecycle Picture*, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, March 2007.



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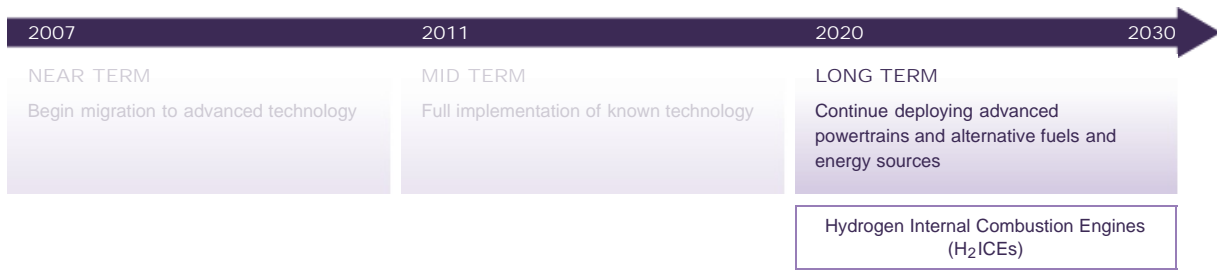
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Hydrogen Internal Combustion Engines (H₂ICEs)

450 H₂ICE shuttle buses

Ford was the first automaker to develop commercially available hydrogen-powered internal-combustion engines, which virtually eliminate CO₂ emissions.



Ford was the first automaker to develop commercially available hydrogen-powered internal combustion engines (H₂ICEs), which use the same basic technology as gasoline-powered engines but run on hydrogen fuel. We view this as a possible bridge technology to hydrogen-powered fuel cells, because it is less expensive than fuel cells and uses existing engine manufacturing capability.

We currently have a fleet of 13 E-450 H₂ICE shuttle buses on the road in North America. These E-450 shuttle buses use a 6.8-liter supercharged Triton V10 engine with a hydrogen storage system equivalent to 29 gallons of gasoline. We have placed 10 of the H₂ICE shuttles with the Canadian government in Vancouver, Prince Edward Island, Ottawa and Toronto in support of their vision for a hydrogen-based economy. We also have buses on the road in California and Pennsylvania. Our H₂ICE buses formerly located in Detroit, Las Vegas, Pennsylvania and Missouri have returned to Ford after successfully completing their fleet evaluations. At year-end 2009, our H₂ICE fleet had successfully logged 332,000 miles in operation.

H₂ICEs still face considerable challenges. Like all hydrogen-powered vehicles, H₂ICEs are limited by fuel storage, fuel infrastructure issues and concerns about hydrogen safety. For example, current H₂ICE vehicles have a driving range of 150 to 200 miles, due to fuel storage limitations. The vehicles are also still very expensive. However, if these problems can be overcome, H₂ICEs have the potential to deliver significant environmental benefits, including near-zero CO₂ and other

tailpipe emissions and 13 percent better fuel economy than traditional vehicles.

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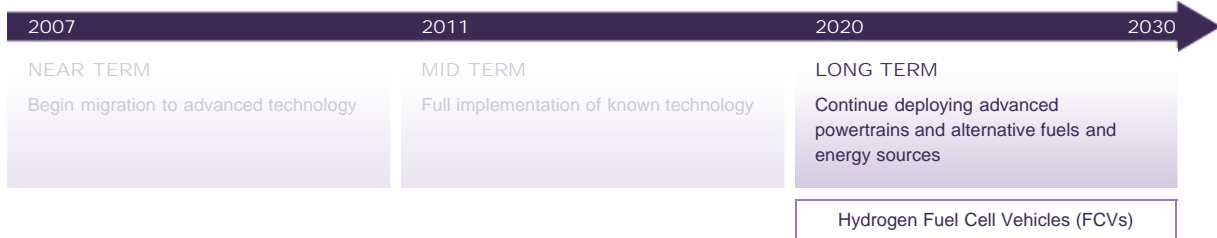
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Hydrogen Fuel Cell Vehicles (FCVs) Ford Focus

Ford has a decade-long history of fuel cell vehicle development and technology demonstration, including a five-year demonstration project with vehicles that accumulated more than a million driving miles without significant technical problems.



Fuel cell vehicles, like battery electric vehicles, produce zero tailpipe emissions. Unlike BEVs, however, which must be recharged via an external power source, FCVs use an on-board fuel cell to create electrical power through an electro-chemical reaction based on hydrogen fuel and air. Vehicles using fuel cells as the primary source of motive power can also be hybridized with a high-voltage battery, to improve vehicle performance and better optimize the cost and robustness of the fuel cell system. In fact, all of our efforts to improve high-voltage electronics and battery technology on HEVs, BEVs and PHEVs will be applicable to FCVs, if and when these vehicles become more commercially viable.

We believe that hydrogen-powered fuel cell vehicles may be an important long-term solution for reducing GHGs, if hydrogen fuel emerges as a viable low-carbon energy carrier. Therefore, Ford has committed to significant hydrogen fuel cell research and development.

Ford has a decade-long history of fuel cell vehicle development and technology demonstration. The Company developed the first research prototype FCV in 1999. In 2004, we introduced the first production-intended FCV using the Ford Focus as a base vehicle. The Focus FCV uses a Ballard fuel cell technology, called HyWay1. It is one of the industry's first hybridized fuel cell vehicles, meaning it has a battery system as well as a fuel cell system.

From 2004 to 2009, Ford participated in a technology demonstration program, partially funded by the U.S. Department of Energy (DOE), as well as other demonstration programs in Canada and

Europe. A total of 30 Ford Focus FCVs have been in operation in these programs. These vehicles have been tested to demonstrate durability and reliability; for example, they were subjected to driving tests at sub-zero temperatures and high altitudes to prove vehicle performance under a range of customer-encountered driving environments. By 2009, these vehicles had accumulated over a million driving miles without significant technical problems, thereby demonstrating the reliability of fuel cell powertrain systems in real-world driving conditions. The data collected from this fleet is critical for the further development of fuel cell technology. Based on the knowledge gained from the Focus FCV test fleet, we have completed the development and laboratory validation of our new fuel cell technology, called HyWay2/3. This new technology improves the robustness and "freeze start" capability of the fuel cell propulsion system.

Even with the advances we have made in hydrogen technology over the past 10 years, however, we still have many challenges to overcome before hydrogen FCVs can compete in the market with current vehicle technology. The cost and durability of the fuel cell system are the most significant challenges. These challenges remain too significant to allow for the commercialization of FCVs at this point, even with the incremental improvements in current state-of-the-art fuel cell technology. For example, extensive DOE analysis has not yet revealed an automotive fuel cell stack that meets the DOE's cost targets for real-world commercialization, or that maintains proper performance throughout the targeted lifetime while staying within the targeted cost. There are also still significant challenges related to the cost and availability of hydrogen production, hydrogen distribution and on-board hydrogen storage. To overcome these challenges, and to make fuel cell vehicle technology commercially viable, we believe that further scientific breakthroughs are required.

Given these significant challenges to commercialization, we believe that further investment in demonstrating hydrogen FCVs and integrating current FCV technology into existing vehicles are not high-value investments for Ford. Therefore, Ford is now reprioritizing its resources to concentrate on fundamental fuel cell research that will help increase the commercialization potential of FCV technology. For example, Ford is focusing on materials development, basic scientific research into reducing the costs and increasing the durability of the fuel cell stack and system, and the development of improved analytical models. We are working on these critical issues with our alliance partners: Daimler AG and Automotive Fuel Cell Corporation, a Vancouver-based company owned by Ballard, Daimler and Ford.

Our materials research is focused on the membrane electrode assembly (MEA) and bipolar plates, which make up key elements of the fuel cell stack. Currently, these components are made from expensive materials. We are working to find alternatives to replace these materials, such as developing new catalyst membranes and corrosion-resistant bipolar plates. Simultaneously, we are working to increase the density of fuel cell materials, which will improve the utilization of the expensive materials used in the MEA and bipolar plate. Fuel cell catalyst research is also crucial to our ability to optimize fuel cell stack operating conditions and reduce system complexity.

We are also developing advanced computational modeling that will help us understand the mechanisms underlying ideal fuel cell functioning and anticipate failure modes under the real-world usage profiles. These modeling tools will assist with our materials research.

Hydrogen storage on-board the vehicle is another critical challenge to the commercial viability of hydrogen FCVs. We recognize that compressed hydrogen storage, which is currently used in the demonstration vehicles, may not be sufficient to achieve commercialization goals. We are therefore pursuing research on materials-based on-board hydrogen storage technology, including complex hydride and novel hydrogen sorbent technologies, which show technical potential.

Producing and distributing hydrogen fuel is another important hurdle on the road to implementing hydrogen-powered FCVs. The GHG reduction benefits of hydrogen fuel depend on what procedures and feed stocks are used to produce hydrogen. Currently, the most state-of-the-art procedure for producing hydrogen is a distributed natural gas steam reforming process. However, when FCVs are run on hydrogen reformed from natural gas using the current processes, they do not provide significant environmental benefits on a well-to-wheels basis that take into account GHG emissions from the natural gas reformation process. It would be necessary to employ carbon sequestration technologies in hydrogen production from fossil fuels or increase the use of renewable energy sources to make hydrogen for hydrogen-fueled FCVs to provide significant environmental benefits.

Even if the challenges of producing hydrogen can be overcome, there is still no widespread hydrogen fueling system. Therefore, new infrastructure must be designed and executed throughout the country to make hydrogen FCVs feasible.

Working alone, Ford will not be able to overcome all of the challenges hydrogen vehicles face. That is why Ford is collaborating with a wide range of partners on the development of hydrogen vehicles, fuels and fueling systems. In addition to our work with Ballard and Daimler described above, we are working with:

- The Freedom CAR and Fuel Partnership: a partnership between Ford, General Motors, Chrysler, five energy providers and the DOE to develop vehicles and fuels that will provide

freedom from imported oil and carbon-based fuel emissions, and

- The Clean Energy Partnership Berlin: a consortium of 13 corporate partners and the German government that is working to demonstrate the suitability of hydrogen as a fuel for everyday use.

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Ford's Green Partnerships with the Federal and State Governments

The 2007 Energy Independence and Security Act (EISA) continued the effort to transition the interactions between automakers and the government on fuel economy standards from an adversarial relationship to a partnership. EISA authorized tough standards for new vehicle fuel economy while creating the Section 136 Advanced Technology Vehicle Manufacturing Incentive Program. Section 136 authorized the Secretary of Energy to make direct loans to eligible applicants for projects that reequip, expand or establish manufacturing facilities in the United States to produce advanced technology vehicles or qualifying components and also for engineering integration costs associated with such projects.

Last summer, Ford Motor Company was the first automaker deemed by the government to be among the best companies with the best technologies in American manufacturing and fuel efficiency. This green partnership between Ford and the U.S. government will help to accelerate the development of advanced technologies for even better fuel economy while maintaining jobs in the United States.

In total, Ford is investing nearly \$14 billion in advanced technology vehicles in the next seven years in the United States, and the advanced technology loans will help Ford achieve its ambitious goals for fuel-efficient vehicles and technologies. We expect to receive a direct loan of up to \$5.9 billion through our partnership with the Department of Energy. This loan program was not part of the Troubled Asset Relief Program, the emergency taxpayer assistance provided to prevent ailing U.S. companies from going out of business. Instead it represents an affirmation of Ford's leading fuel-efficiency technologies and the beginning of a partnership with the federal government to advance these technologies more quickly.

An outstanding example of how Section 136 partnership funds are going to be used is the Ford Focus produced at the Michigan Assembly Plant (MAP). MAP is being transformed from a large SUV factory into a modern, flexible small car plant to produce the global Ford Focus. The new Focus will be one of up to ten unique models to be built from Ford's new C-car platform, which is expected to generate total sales in all regions of 2 million units annually by 2012. In addition to beginning production of the Focus this year at MAP, we will also produce the Focus Electric next year and next-generation hybrid and plug-in hybrid vehicles in 2012 at MAP.

The Focus exceeds Section 136's Advanced Technology Vehicle requirements by combining key technologies to achieve class-leading fuel economy, including: an advanced combustion engine, six-speed transmission, deceleration fuel shut-off, electric power-assisted steering, improved aerodynamics and lightweight materials.

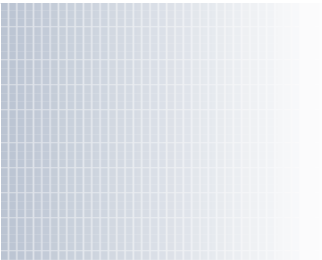
Ford is investing approximately \$550 million to introduce the North American market to Ford's global C-platform, which underpins the Focus. This investment will support more than 4,000 high-tech manufacturing and engineering jobs, not to mention more than 10,000 supplier jobs and 175,000 dealership positions.

Ford's sustainability commitments have received state government support as well. Working in close partnership with the state of Michigan, Ford received incentives and tax credits totaling \$188 million to help in the continuous transformation of MAP. In addition to building the next-generation hybrid in Michigan, the incentives enabled Ford to bring advanced lithium-ion battery system design, development and assembly in house.

Ford also received a \$2 million grant from the state of Michigan to install a large stationary battery-based energy storage facility with 750 kw capacity and 2 MWh of storage. This facility will support the state's "smart-grid" development initiatives as well as Ford's efforts to develop battery technology and secondary uses for vehicle batteries. As part of this facility, Ford will demonstrate the possibility for using vehicle batteries as stationary power storage devices after their useful life as vehicle power sources is over. Ford is participating in this project in partnership with DTE Energy, a Michigan-based energy provider. DTE Energy will install a 500 kw solar photovoltaic (PV)

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 - [Capacity Alignment](#)
- Vehicle Web Sites:
 - [Ford Focus](#)



electricity generation system at the demonstration facility, which will produce some of the energy to be stored in Ford's stationary battery storage facility. When commissioned at the end of 2010, it is anticipated that it will be the largest PV array in Michigan. This solar PV system, which will feed into the battery facility, is being funded by DTE Energy to support Ford's sustainability efforts and to help the state of Michigan meet its renewable energy production requirements. As part of this project, Ford will also develop 10 electric vehicle charging stations, which will demonstrate advanced battery charging technologies and associated integration with renewable energy and other smart-grid advances.

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Progress and Performance

How is Ford doing in its quest to reduce GHG emissions? Based on analyses of [life-cycle vehicle CO₂ emissions](#), approximately 80 to 90 percent of GHGs are emitted while the vehicle is in use, rather than during its manufacture or disposal. The in-use emissions depend on three major factors:

1. The fuel economy of the vehicles, which in turn depends on many characteristics of the vehicles themselves (such as their weight, powertrain and aerodynamics).
2. The well-to-wheels greenhouse gas profile¹ of the fuels used in the vehicles.
3. How the vehicles are used and maintained by their drivers.

Our shorthand for this is "[Vehicle](#) + [Fuel](#) + [Driver](#) = GHG emissions." This section reviews our progress reducing these emissions, as well as our progress reducing emissions from our [facilities](#), our [logistics](#) and our [supply chain](#).

-
1. In other words, emissions resulting from making, distributing and using the fuel.



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Vehicle

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- Vehicle Web Sites:
- Ford Fusion Hybrid
 - Mercury Milan Hybrid
 - Lincoln MKZ Hybrid
 - Ford Fiesta
 - Ford Transit Connect
 - Ford EOnetic vehicles

In the United States, for the 2009 model year, our fleet CO₂ emissions decreased (i.e., improved) by approximately 5 percent relative to the 2008 model year and 12 percent compared to the 2006 model year. Preliminary data for the 2010 model year shows a 3.2 percent improvement in Corporate Average Fuel Economy (CAFE) for cars and a slight decline of 2.4 percent in CAFE for trucks as compared to 2009. The increase for cars is due to increased customer demand for the more fuel-efficient medium-sized cars, which rose by 18 percent. This includes increased demand for the newly introduced 2010 Fusion Hybrid. The decrease in truck CAFE can be attributed to increased demand for standard pickup trucks and larger SUVs, which increased by 6 percent and 5 percent respectively.

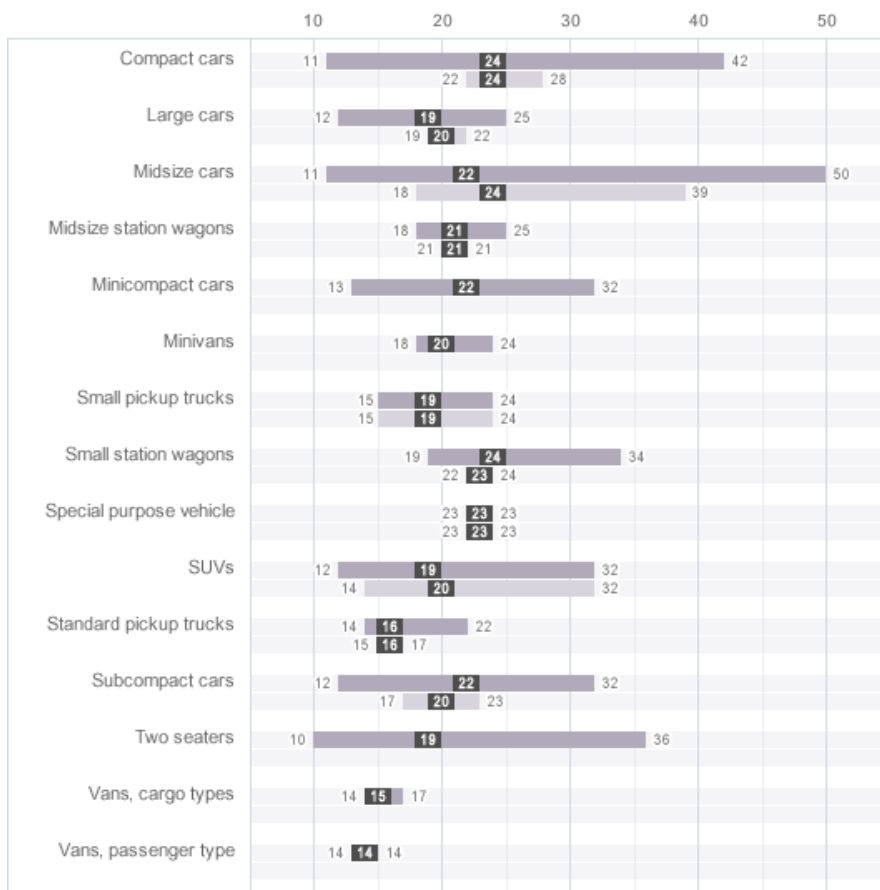
As seen in the [Fuel Economy of U.S. Ford Vehicles by EPA Segment](#) graphic (below), compared to the industry fuel economy average, Ford's 2010 model year U.S. vehicles rank better than average in four of 10 categories, worse in two and the same in four.

In Europe, we achieved a significant reduction in average vehicle CO₂ emissions of 8.1 g/km from 2008 to 2009. This was largely due to changed model mix, or selling a higher proportion of smaller cars, which was likely caused by the economic downturn in 2009. We have reduced the average CO₂ emissions of the vehicles we sell by 27.1 percent compared with a 1995 baseline and 6.7 percent compared to the 2006 model year.¹ We have achieved this through the introduction of a variety of innovations, such as advanced common rail diesel engines available across the European model range – including the EOnetic range of low-CO₂ vehicles – and the use of lightweight materials.

These improvements – and progress in other regions – are the result of delivering on our climate change product strategy by introducing new vehicles and improving existing ones to deliver lower CO₂ emissions, along with better performance and features customers want. Some examples of actions by region are below. (Also see [Improving Fuel Economy.](#))

Fuel Economy of U.S. Ford Vehicles by EPA Segment

Miles per gallon



KEY Industry MIN AVG MAX
Ford Fleet MIN AVG MAX

Miles per gallon

Vehicle Category	Industry			Ford		
	Minimum	Average	Maximum	Minimum	Average	Maximum
Compact cars	11	24	42	22	24	28
Large cars	12	19	25	19	20	22
Midsized cars	11	22	50	18	24	39
Midsized station wagons	18	21	25	21	21	21
Minicompact cars	13	22	32	-	-	-
Minivans	18	20	24	-	-	-
Small pickup trucks	15	19	24	15	19	24
Small station wagons	19	24	34	22	23	24
Special purpose vehicle	23	23	23	23	23	23
SUVs	12	19	32	14	20	32
Standard pickup trucks	14	16	22	15	16	17
Subcompact cars	12	22	32	17	20	23
Two seaters	10	19	36	-	-	-
Vans, cargo types	14	15	17	-	-	-
Vans, passenger type	14	14	14	-	-	-
Total	10	21	50	14	21	39

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North America

In North America, we continued to introduce new vehicles and technologies that offer outstanding

fuel economy. For example, during 2009 and early 2010, we:

- Launched two new hybrid vehicles – the Ford Fusion Hybrid and Mercury Milan Hybrid – and announced the launch in 2010 of the Lincoln MKZ Hybrid, which will be the most fuel-efficient luxury sedan available in North America.
- Introduced the Transit Connect to North America, creating a new class of nimble commercial vans with outstanding fuel economy. The Transit Connect will be the basis for Ford's first 21st century battery electric vehicle.
- Prepared for the launch of our global compact car, the Ford Fiesta. When it launches in the United States in 2010, it is expected to have best-in-class fuel economy in its segment.
- Announced plans for the 2011 Mustang, which will be the first car ever to achieve 300-plus horsepower and 30-plus miles per gallon. The 2011 Ford Mustang equipped with a six-speed transmission and V6 engine is certified by the EPA at 31 mpg on the highway and 19 mpg in the city.
- Announced plans for the all-new Ford Explorer, which will have 25 percent better fuel economy than the previous model.

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Europe

Ford already offers one of the broadest low-CO₂ vehicle portfolios in Europe. With the launch of the new generation of the Focus EONetic,² we extended the availability of best-in-class or among-best-in-class, extremely low-CO₂ vehicles, which now include the following:

- The all-new Fiesta 1.6-liter 90 PS TDCi, available since January 2009, is the most fuel-efficient five-seat family car in the UK at 63.6 mpg, and it emits only 98 g/km of CO₂.
- The second generation of the Ford Focus EONetic, 1.6-liter 109 PS TDCi with conventional technology has class-leading 104 g/km CO₂ emissions (which corresponds to a fuel consumption of 4.0 l / 100 km).
- The second-generation Focus EONetic equipped with optional start/stop technology achieves 99 g/km CO₂, corresponding with a fuel consumption of 3.8 l / 100 km.
- A 139 g/km CO₂ Mondeo 1.8- and 2.0-liter TDCi (115–125 PS), since autumn 2008.

After the successful introduction of the new EcoBoost™ gasoline engine family in the United States, Ford will launch 2.0- and 1.6-liter EcoBoost engines in Europe in 2010. These turbocharged, direct-injection gasoline engines will deliver up to 20 percent better fuel economy and fewer CO₂ emissions compared to conventional gasoline engines.

In addition, our global electric vehicles plan is extending to Europe with five full electric or hybrid vehicles. Specifically, Ford will launch two zero-emission full battery electric vehicles, including the Transit Connect Electric light commercial vehicle in 2011 followed by the Ford Focus Electric in 2012. Three other vehicles – two next-generation gasoline hybrid vehicles and a plug-in hybrid – will be introduced in 2013.

Ford of Europe's innovative Product Sustainability Index (PSI) shows how the vision of sustainability can be made operational. By combining comprehensive sustainability criteria into the earliest stages of the product development process, Ford's PSI provides a ground-breaking design-for-sustainability tool. Designers can use it to assess the life-cycle CO₂ emissions of a vehicle, and consumers can use it to understand a vehicle's footprint.

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Asia Pacific

In our Asia Pacific and Africa region we are focusing our near-term fuel efficiency efforts on implementing [EcoBoost](#) engines and our [PowerShift transmission](#) technology, which we plan to introduce across our vehicle lineup in this region in the next few years. In China we will introduce the Ford Mondeo with an EcoBoost engine and PowerShift transmission in 2010. We expect it to be best in its segment for fuel economy when it launches. We also will be launching the Ford Fiesta with a 1.6-liter Ti-VCT powertrain and six-speed PowerShift transmission throughout our Asian markets. This vehicle will be the first in the "B-car" segment to offer consumers this level of sophistication in powertrain technology, and it will be among the leaders in its segment in fuel economy. In India, we recently introduced the Ford Figo, which has very fuel-efficient 1.4-liter TDCi diesel and 1.2-liter gas engine options. This introduction is highly significant to our success in India, as fuel economy is the most important criteria in purchase consideration in that country.

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South America

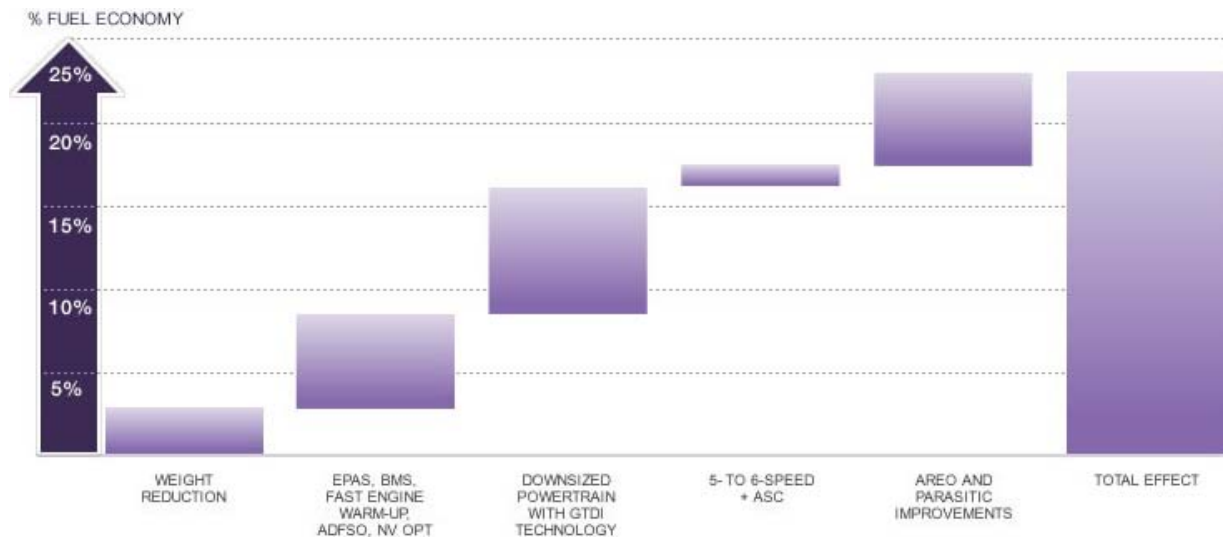
In South America, we are improving fuel economy by introducing some of the efficient engine and transmission technologies currently used in North America, and by using technologies specifically relevant to the widespread use of biofuels in Brazil. For example, we have implemented improved engine compression ratios – or the ratio in which the air and fuel mixture is compressed in the engine combustion chamber – on flexible-fuel vehicles in Brazil. This optimizes fuel efficiency in vehicles using biofuels, which have a higher octane rating than petroleum-based gasoline. We have also improved the gearing ratios and aerodynamics of our South American models, further increasing fuel economy, and we will introduce a more fuel-efficient engine in the Focus in 2010.

The figures below show how we are leveraging complementary technologies to cut CO₂ emissions significantly.

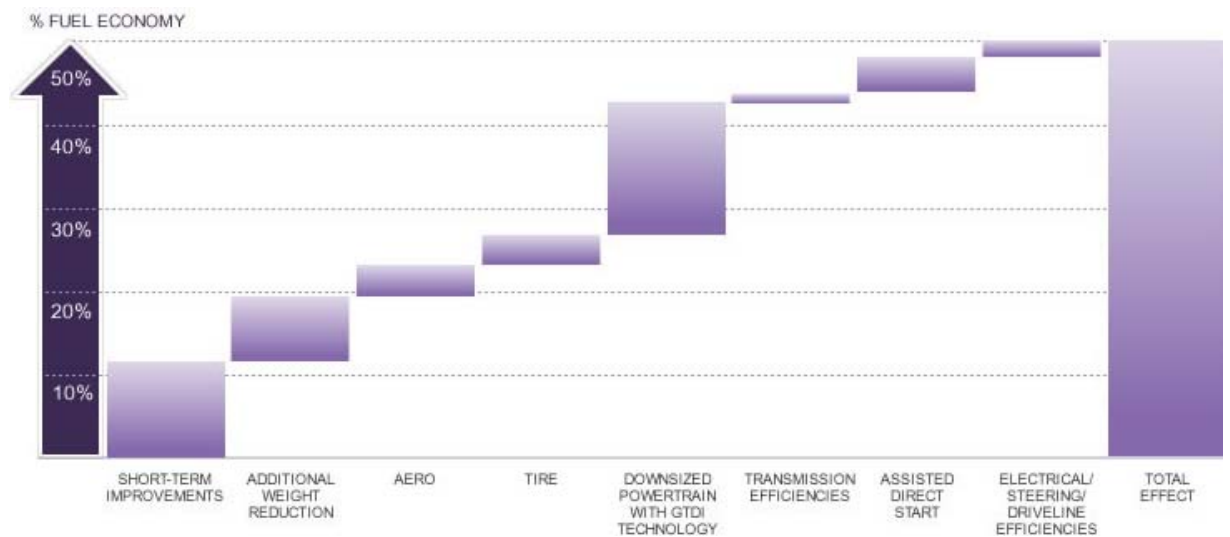
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Typical Near-Term Fuel Economy Improvements

Midsize Utility



Small Car



For an explanation of the terms used in these figures, see the [glossary](#).

Please note that improvements in fuel economy resulting from the use of the technologies identified in the above charts are often not additive or linear. The charts depict approximate percentage improvements estimated for particular technologies in a generic vehicle; actual improvements will vary depending on the characteristics of each specific vehicle.

- 
-
1. These data do not include Volvo.
 2. ECONetic vehicles are only available in Europe. The ECONetic fuel economy calculations are based on European Fuel Economy Directive EU 93/116/EEC, which uses European drive cycles. They differ from fuel economy calculations developed in the United States and other regions of the world.

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Fuel

To reduce the life-cycle GHG emissions to the levels required for CO₂ stabilization requires the development of fuels with lower fossil carbon content,¹ in order to augment the improvements in the fuel economy of our vehicles.

Electrification

Running vehicles partly or wholly on electricity reduces or eliminates CO₂ and other emissions from the vehicles and shifts the emissions to the electricity generation facility. The overall emission benefits depend on the fuel or mix of fuels used to make the electricity. Electrification addresses both energy security and climate change concerns because electricity can be made from a wide variety of fuels, including domestic sources and renewable energy. It also offers flexibility in tailoring lower-carbon solutions based on locally available fuels and technology options like carbon capture and storage. Our plans to introduce electric vehicles include the following:

- We will introduce the Transit Connect battery electric vehicle, a compact commercial utility van, for sales to fleets in North America in 2010 and then to Europe in 2011.
- By 2011, we will bring a battery electric Ford Focus to North America and then to Europe in 2012.
- We will introduce our next-generation hybrid technology and plug-in hybrid vehicles in North America in 2012 and in Europe in 2013.

Expanding electrification holds tremendous promise, but a range of implementation challenges must be considered. These challenges relate to cost, battery technology, the development of charging infrastructure, the interface with utilities and how to ensure that potential emissions-reduction benefits are realized. We have partnered with the U.S. Department of Energy, the Electric Power Research Institute, the New York State Energy Research and Development Authority and Southern California Edison to explore these and other issues involved in expanding the use of plug-in hybrid electric vehicles. This partnership was expanded in early 2009, and through it Ford has supplied plug-in vehicles to 10 additional partners for real-world testing:

- Alabama Power of Birmingham, Alabama, and its parent, Atlanta-based Southern Company
- American Electric Power of Columbus, Ohio
- Consolidated Edison of New York
- DTE Energy of Detroit, Michigan
- Hydro Quebec
- National Grid of Waltham, Massachusetts
- New York Power Authority
- New York State Energy and Research Development Authority
- Pepco Holdings
- Progress Energy of Raleigh, North Carolina

Electrification issues and our partnerships are discussed in more detail in the [Electrification](#) section.

Biofuels

Biofuel use is expanding globally, with bioethanol made from corn, beets or sugar cane substituting for gasoline, and biodiesel derived from plant oils substituting for diesel fuel. In the United States, 2007 legislation expanded the Renewable Fuel Standard (RFS), mandating a significant increase in the use of biofuels by 2022.

While current corn-based bioethanol production in the United States is estimated to provide a modest reduction in vehicle GHG emissions on a well-to-wheels basis, next-generation biofuels

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- [Electrification: A Closer Look](#)
- [Renewable Biofueled Vehicles](#)

such as lignocellulosic bioethanol could offer up to a 90 percent GHG reduction benefit. Building a substantial fleet of flexible-fuel vehicles (FFVs) provides a bridge to the widespread use of lower-carbon biofuels in the future.

Ford has a long history of developing vehicles that run on renewable biofuels. We produced the first flexible-fuel vehicle approximately 100 years ago: a Model T capable of running on gasoline or ethanol. Globally, Ford offers 14 models in the United States, Europe, Asia and South America that can run on E85, a blend of up to 85 percent bioethanol mixed with gasoline. Ford has manufactured more than five million FFVs, including 2.5 million in the United States and nearly 2 million in Brazil.

In Europe, Ford is a market leader and pioneer in bioethanol-powered FFVs, with more than 70,000 vehicles delivered to customers since 2001. Ford FFV models are now available in 17 European markets, with Sweden, Germany, the Netherlands, Spain and France showing the strongest demand.

In the United States, we have committed to doubling the number of FFVs in our lineup by 2010. Assuming continuing incentives that encourage the manufacture, distribution and availability of renewable fuels and the production of FFVs, we stand ready to expand FFV output to 50 percent of total vehicle production by 2012.

Alternative fuels pose a classic chicken-and-egg problem – automakers can produce a range of products capable of running on fuels with varying carbon content, but the benefits are only realized if energy providers bring the fuels to market and consumers demand both the vehicle and the fuel.

In the long term, we believe that next-generation biofuels made from a variety of feedstocks, including agricultural wastes (particularly lignocellulosic material) will be an important part of the GHG emission-reduction equation and will help address concerns about current-generation biofuels, including the potential competition between food and fuel crops and the conversion of natural lands to fuel production. These issues are explored in more detail in the [Sustainable Technologies and Alternative Fuels Plan](#).

-
1. Of course, there is not only a need to reduce the fossil carbon content of the fuel itself, but to reduce any fossil-based CO₂ emitted during feed-stock excavation, fuel production and distribution.
 2. *Ethanol: The Complete Lifecycle Picture*, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy, March 2007.



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Driver

Paradoxically, the "driver" portion of the GHG emissions equation holds the potential for substantial emission reductions at minimal cost, but it is often overlooked. Ultimately, drivers decide which vehicles and fuels they will purchase and how those vehicles will be driven. While our major focus is on the vehicles we make, we have also reached out to drivers around the world to promote the practice of "eco-driving." We do this by providing training, information and vehicle technology that helps drivers learn how to drive using the least fuel possible.

Information Technology

The Ford Fusion Hybrid and Mercury Milan Hybrid come equipped with Ford's award-winning SmartGauge™ with EcoGuide digital instrument cluster. SmartGauge is designed to coach Ford hybrid owners to maximize fuel efficiency. High-resolution, full-color LCD screens can be configured by the driver to show different levels of information, including fuel and battery power levels, as well as average and instant miles per gallon. The technology gives the customer real-world feedback to make the most of their hybrid, acting as a good "coach" and engaging drivers in real time to help them achieve maximum fuel economy.

In Europe, the Ford EcoMode system that was first presented in the new Focus ECONetic has been made available in a wider range of vehicles. Like SmartGauge, Ford EcoMode is an all-new driver information system that helps to educate the driver to achieve improved real-world fuel economy. The system will be implemented as an option in more European Ford models in the future.

In early 2010, Ford announced that its new in-vehicle system – MyFord Touch™ – will offer an array of real-time information on fuel-economy performance that can coach drivers to get more miles to the gallon and save on fuel costs. In addition, MyFord Touch's map-based navigation system offers an Eco-Route option that quickly calculates the most fuel-efficient route a driver can take to get from A to B. Ford testing shows that Eco-Route can help achieve fuel economy gains of up to 15 percent. MyFord Touch launches this summer on the 2011 Ford Edge and will be available globally on the 2012 Ford Focus. MyLincoln Touch will be standard equipment on new Lincoln vehicles beginning with the 2011 Lincoln MKX.

Eco-Driving Information and Training

Ford has demonstrated that drivers who practice "eco-driving" can improve their fuel economy by an average of 24 percent. [Eco-driving tips](#) are available to the public on Ford's website, and online training is available through the [Ford Driving Skills for Life \(FDSFL\)](#) program. In addition, a web-based eco-driving program has been available to all U.S. salaried Ford employees since 2006.

Ford began work on the eco-driving concept in 2000, when we first offered an eco-driving program through our German dealerships, in partnership with the German Federation of Driving Instructor Associations and the German Road Safety Council. That program trains drivers in conservation-minded driving and vehicle maintenance habits. It uses specially trained and certified instructors to run programs for several target groups, including fleet drivers and customers. By the end of 2009, more than 16,000 German drivers had been "eco-trained" under real-world conditions.

In Asia, Ford launched the FDSFL driver training program in 2008 with a "train-the-trainers" workshop in Bangkok, Thailand, in March. At the workshop, Ford professionals from Germany trained two to three representatives from the Philippines, Vietnam, Thailand and Indonesia. The FDSFL program was customized to address the higher average age of beginner drivers in the region, as well as the unique driving environments within each market. It places equal emphasis on safe driving and eco-driving, as customers in the region are interested in both.

In 2009, we continued with the successful roll-out of the program to additional markets. FDSFL is now in Indonesia, the Philippines, Thailand, Vietnam, China, Taiwan and India. During 2009 in


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[Eco-Driving: Ten Easy Tips for Saving Fuel](#)

External Web Sites:

[Driving Skills for Life: Eco-Driving](#)



these markets, Ford provided training for roughly 11,000 licensed drivers and several thousand Ford India employees.

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Facilities

Ford has been a leader in facilities-related GHG and energy-use reductions, public reporting of our GHG emissions, and participation in GHG reduction and trading programs. Between 2000 and 2009, we:

- Reduced global energy consumption by 44 percent
- Reduced energy consumption per vehicle by 17.7 percent
- Reduced our total facilities-related carbon dioxide emissions by approximately 50 percent, or 4.8 million metric tons
- Reduced facilities-related CO₂ emissions per vehicle by 27 percent

In 2009, Ford improved energy efficiency in its North American operations by 4.6 percent, resulting in savings of approximately \$15 million. To drive continued progress, we have set targets to improve our facility energy efficiency by 3 percent globally and 3 percent in North America in 2010.

These improvements have resulted from a sustained focus on improving energy efficiency. In early 2010, for example, we implemented a PC power management system to power down all of our desktop and notebook computers at night. We expect the program to reduce our annual energy costs by \$1.2 million and our annual CO₂ emissions by 16,000 to 25,000 metric tons.

In several locations, we are using renewable energy to provide power and cut CO₂ emissions. Ford's Dagenham Diesel Centre in the UK, for example, was the first automotive plant in the world to obtain all of its electrical power needs from two on-site wind turbines, which have been in operation since 2004. A third two-megawatt wind turbine will be installed at Dagenham in 2010. In November 2009, we began powering the Genk, Belgium, plant with two wind turbines which will provide a significant portion of the plant's electrical power needs.

The U.S. Environmental Protection Agency and U.S. Department of Energy awarded Ford a 2010 Energy Star Sustained Excellence Award, which recognizes Ford's continued leadership and commitment to protecting the environment through energy efficiency. This is Ford's fifth consecutive year winning this prestigious award. For more information on our energy efficiency and renewable energy programs, please see the [Environment](#) section.

RELATED LINKS

This Report:
[Operational Energy Use and Greenhouse Gas Emissions](#)



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Logistics

Our logistics operations provide for the safe and efficient transport of parts from our supply base to our manufacturing plants and of finished vehicles from the end of our assembly lines to our dealerships. Though logistics accounts for a relatively small percentage of total vehicle life-cycle emissions, we are working hard to maximize the efficiency of these operations to reduce costs and environmental impacts. We have taken steps to quantify the CO₂ footprint of our logistics operations and reduce it through a variety of measures, such as shifting to rail and sea shipping and other efficiency measures. Please see the [Environment](#) section for more details.

RELATED LINKS

This Report:

[Supply Chain: Logistics](#)



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Supply Chain

In 2009 and early 2010, we took significant steps to better understand the risks and opportunities of GHG regulation and climate change for our suppliers and, by extension, for Ford. We have worked hard to reduce GHG emissions from our products and operations, which enhances our competitiveness, and we hope to help promote similar competitiveness throughout the automotive supply chain.

Ford has signed on to be a "road tester" of the World Resources Institute/World Business Council for Sustainable Development's Scope 3 Greenhouse Gas Reporting Protocol. Ford road tested the widely used and respected Scope 1 (direct GHG emissions) and Scope 2 (indirect emissions, e.g., from electricity production) protocols. The Scope 3 protocol covers outsourced activities, supplier manufacturing and product use. The draft standards were developed through a global, collaborative multi-stakeholder process, with participation from over 1,000 volunteer representatives from industry, government, academia and nongovernmental organizations. The road testing process will provide real-world feedback to ensure the standards can be practically implemented by companies and organizations from a variety of sectors, sizes and geographic areas around the world. The final standards are scheduled to be published in December 2010. Ford's contribution will be to request data from selected Tier 1 production suppliers, representing close to 30 percent of Ford's \$65 billion in annual procurement spending, and to provide feedback on practical aspects of using the protocol.

Ford has also joined the Carbon Disclosure Project's Supply Chain initiative. Through this effort, Ford is working with selected suppliers to gather qualitative as well as quantitative information about the suppliers' climate risks and emissions and how they are managing them.

RELATED LINKS

External Web Sites:

[WRI/WBCSD Greenhouse Gas Protocol](#)

[Carbon Disclosure Project Supply Chain Initiative](#)



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Climate Change Policy and Partnerships

During 2009, the climate change policy landscape continued to evolve. The recession put economic issues at the top of government and public agendas. The Copenhagen summit fell short of producing a binding global agreement, and climate change legislation did not pass the U.S. Congress.

In the United States and elsewhere, we continue to actively advocate for comprehensive policy approaches that will provide a coherent framework for greenhouse gas (GHG) emission reductions, so that companies can move forward in transforming their businesses with a clear understanding of their obligations. GHG regulations can have a critical impact on an automaker's business, because they can have the effect of regulating what vehicles we are allowed to build and sell. Carbon dioxide (CO₂) emissions standards for motor vehicles are functionally equivalent to fuel economy standards, because the amount of CO₂ produced by a vehicle is proportional to the amount of fuel used.

Our global approach to product planning and policy participation is based on the science of climate stabilization. We accept that simply "not getting worse" is not good enough. The auto industry must work together with suppliers, government, the fuel industry and consumers to reduce CO₂ levels from transportation so we can help stabilize atmospheric CO₂ concentrations. Accomplishing this goal will require that all sectors of the economy, including the transportation sector, do their share. To achieve real and lasting results, all global stakeholders must make long-term commitments for a sustainable future.

In our major markets, the regulation of fuel economy and/or vehicle CO₂ emissions is becoming increasingly complex. In addition to competing federal and regional regulations, governments are taking diverse approaches to incentives for emission reduction through rebates, fees, "feebates," privileges for low-emitting vehicles and penalties for high-emitting vehicles. This creates a very complex policy environment, and it is one important driver of our strategy to develop fuel-efficient and advanced technology platforms that can be shared globally and tailored to the needs of our customers.

We hope that the information that follows helps to illustrate the diverse array of GHG and fuel economy regulations and incentives that are now shaping our markets. This section provides more detail on developments and Ford's involvement in:

- [U.S. policy](#)
 - [Climate change legislation](#)
 - [Greenhouse gas and fuel economy regulation](#)
 - [Incentives and market-based mechanisms](#)
- [European policy](#)
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U.S. Policy

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External Web Sites:

U.S. Climate Action Partnership

National Highway Traffic Safety Administration

California Air Resources Board

Climate Change Legislation

In the United States, the policy debate surrounding climate change intensified in 2009, particularly at the end of the year. Among other developments: the U.S. government took an active role in the Copenhagen climate negotiations; Senator Cantwell introduced legislation that would cap greenhouse gases (GHGs) and return revenues from the program back to U.S. citizens; Senator Murkowski introduced an amendment that would have prevented the U.S. Environmental Protection Agency (EPA) from regulating greenhouse gases under the Clean Air Act; and Senators Kerry, Lieberman and Graham proposed a framework outlining principles for a comprehensive approach to climate and energy legislation.

Ford has been one of the more supportive companies on climate policy for some time. In 1999, we discussed greenhouse gases in our first corporate citizenship report. In late 2005, we published a special report on the Business Impact of Climate Change, and in 2007 we joined the United States Climate Action Partnership (USCAP) to support the prompt enactment of climate legislation.

These experiences, as well as our participation in carbon markets globally, have helped to shape Ford's position on climate policy. The linked issues of climate change and energy security create an urgent need to transform the country's economy into one with lower greenhouse gas emissions, higher energy efficiency and less dependence on fossil fuels and foreign oil. This transformation will require changes in all sectors of the economy and society. A comprehensive legislative framework is needed to spur these changes.

We believe we need a national, market-based approach to reducing GHG emissions if the United States is going to reduce emissions at the lowest cost per ton. Thus, we support the creation of an efficient, economy-wide cap-and-trade framework with mechanisms to avoid unintended adverse effects on the economy. An economy-wide cap-and-trade program would provide flexibility to regulated entities while allowing market mechanisms to determine where GHG reductions can be achieved at the lowest cost. The environment doesn't care where reductions occur, but the economy does, and given the potentially high cost of abatement, it is important to achieve the lowest cost possible.

This position is consistent with that of USCAP, a group of businesses and leading environmental organizations that have come together to call on the federal government to quickly enact strong national legislation to require significant reductions of GHG emissions.

Ford has been criticized for taking this position. On one side of the argument, some stakeholders do not think Ford should be supporting climate legislation and question our membership in groups like USCAP. To those, we say that without a cohesive national energy and climate policy that places a price on carbon, we could be caught in a cycle of starting and stopping technology development. That is simply not good policy or good business, particularly when the technology development requires billions of dollars of investment. We need predictability in order to plan our products.


On the other side are stakeholders who urge Ford to be more aggressive and want us to drop out of groups like the U.S. Chamber of Commerce that may have views and actions on climate change that potentially conflict with Ford's position. To them we say that despite differences on this specific issue, Ford has not changed its position on climate change.

The Chamber has been a critical ally on a broad range of business and environmental issues important to Ford and the global auto industry, including the One National Program, vehicle scrappage program, trade issues, anti-counterfeiting parts actions and legal reforms. It is important to our business, our customers and other stakeholders that we remain a member of the Chamber.

Yet Ford will always speak with its own voice. We will do so on climate change (and other issues, for that matter) where it is essential to our business that we articulate our position separately from that of any association of which we are a member.

We believe our position on climate change is very clear. You know it by our actions. You see it in our commitment to reduce the CO₂ emissions from both our products and facilities. Bottom line – we are doing what's right for our customers and the environment.

We will continue to advocate for effective climate change policies that drive down GHG emissions and provide a framework for sound business and product planning.

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Greenhouse Gas and Fuel Economy Regulation

Since our last report, a number of significant developments have taken place in the United States with respect to regulatory programs that would set greenhouse gas emissions or fuel economy standards for motor vehicles.

- In May 2009, President Obama announced an agreement in principle among the EPA, the National Highway Traffic Safety Administration (NHTSA), the state of California and the automotive industry to implement a National Program for motor vehicle greenhouse gas and fuel economy standards.
- In September 2009, the EPA issued a final rule mandating greenhouse gas reporting. The rule requires facilities that emit 25,000 metric tons or more carbon dioxide equivalent per year to submit annual reports to the EPA. It also imposes new reporting requirements on heavy-duty engine and vehicle manufacturers, who must measure and report CO₂ beginning in the 2011 model year, methane in the 2012 model year, and N₂O in the 2013 model year.
- In December 2009, the EPA finalized its endangerment finding that greenhouse gas concentrations in the atmosphere threaten public health and the welfare of current and future generations. This finding is a prerequisite to establishing federal regulations for greenhouse gas emissions.
- On April 1, 2010, the EPA and NHTSA published a joint final rule that implements the National Program agreement by establishing harmonized Corporate Average Fuel Economy and greenhouse gas emissions standards for the 2012 to 2016 model years. The standards target an overall industry fleet-wide average for fuel economy of 35.5 mpg (250 g/mi CO₂). After the 2016 model year, the standards are expected to increase year-over-year, approaching 40 mpg by 2020.
- The EPA and NHTSA are planning to set greenhouse gas and fuel economy standards for medium- and heavy-duty trucks. The EPA plans to publish draft greenhouse gas regulations for these vehicles in mid-2010, with a phase-in beginning in 2014 model year, while NHTSA's fuel economy standards are not expected to take effect until the 2016 model year. The focus will be on complete vehicles with 8,500–14,000 lb. gross vehicle weight rating.


The finalization of the National Program for fuel economy and greenhouse gas emissions sets the regulatory path forward that we need to carry out our plans and achieve the goals of improved fuel efficiency, increased energy security and reduced GHG emissions. The National Program will employ an attribute-based vehicle target-setting methodology, which allows manufacturers to build a single light-duty fleet that would satisfy all of the requirements under both programs.

From an environmental standpoint, the National Program avoids a patchwork of competing state and federal regulations that would have led to unnecessary duplication, market disruption and increased compliance costs. This program addresses our concerns about state-by-state overlapping and competing regulations.

The National Program also gives us flexibility to meet the final standards by making the progression toward the 2016 goal more linear, allowing us the time needed to phase in advanced technology on future models. The National Program also allows for fleet averaging on a nationwide basis, which is critical to vehicle manufacturers. Since a manufacturer's fleet mix at the state level can vary considerably from its overall national fleet mix, state-specific standards would likely lead to product restrictions and reduced consumer choice in some states. Nationwide fleet averaging avoids this problem with no loss of environmental benefits.

We support the manner in which President Obama and the federal agencies have harmonized fuel economy and greenhouse gas emissions rules into a single National Program. Ford views the One


National Program as a significant and positive step for all stakeholders toward our common goals of energy security and reduced greenhouse gas emissions. We are committed to working constructively with the Obama administration, Congress and federal regulators at NHTSA and EPA toward the implementation of One National Program beyond the 2016 model year.

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Incentives and Market-Based Mechanisms

In June 2009, the U.S. Congress passed and the President approved a "Cash for Clunkers" program. For two months over the summer, the program provided a popular consumer incentive for trading in a less fuel-efficient vehicle for a new, more fuel-efficient one. The Ford Focus and Ford Escape were among the top new vehicles purchased in the Cash for Clunkers program. Ford increased production to meet demand and saw sales rise significantly during those months. Ford supported the legislation, as did several associations of which it is a member, including the Alliance of Automobile Manufacturers and the U.S. Chamber of Commerce. The benefits of this program in terms of reduced fuel consumption and lower carbon emissions from the vehicle fleet have been significant and will be realized over the coming years as these more-efficient vehicles continue to operate.

Ford also supports comprehensive legislation that will create a price signal for consumers. Thoughtful and comprehensive national energy and climate policy that places a price on carbon is needed to support the billions of dollars being invested into low-carbon and fuel-efficient vehicle technologies. Without a cohesive policy that includes a price signal, we could be caught in a cycle where development of the advanced technologies needed to help address climate change and energy security is sporadic.

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European Policy

During 2009, the EU finalized CO₂ car targets based on car weight, part of an ambitious European energy and climate change package to which the industry will continue to contribute. The European auto industry is ready to meet the new law's standards for passenger cars, despite the sudden dramatic economic downturn that has severely limited the resources available to respond.

Under the new rules, manufacturers are required to ensure that the industry average fleet CO₂ emissions – for all the vehicles they make that are registered in the EU – are below 130 g/km. In 2012, 65 percent of each manufacturer's fleet must comply with this target. The percentage increases to 75 percent in 2013, 80 percent in 2014 and 100 percent in 2015. The long-term target for CO₂ emissions is set to 95 g/km; it will be reviewed again in 2013.

This approach gives the auto industry the necessary lead-time to adjust its development and production cycles to the legal requirements and to limit the financial risks caused by largely unpredictable factors, including consumer preferences, market trends, economic developments and legal requirements in different fields.

In some member states, CO₂ taxation is in place to encourage the early introduction of low-CO₂ vehicles with major tax break points, often around 100 g/km, 120 g/km and 160g/km. Unfortunately, these tax break points are not harmonized between the European countries.

Commercial vehicle targets have also been proposed of 175 g CO₂/km (with phase in during 2014 to 2016, with 75 percent of the fleet to comply in 2014, 80 percent in 2015 and 100 percent in 2016) and 135 g CO₂/km in 2020 for commercial vehicles. European policy makers are now urged to perform a thorough analysis of the proposal's impact on the economy, employment and the environment, in particular with regard to the long-term target.

The industry will continue to invest heavily in research and development and new product programs in order to reach the short-term targets. The long-term target will require technological breakthroughs, new refuelling infrastructure and a swift renewal of the car fleet on Europe's roads.



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Canadian Policy

In April 2010, Environment Canada released a draft greenhouse gas emissions regulation for 2011 to 2016 model year passenger automobiles and light trucks. This proposal attempts to align emission standards and test procedures with those of the United States. The proposal provides companies with similar compliance flexibilities to those available under the EPA's GHG proposal, including advanced technology credits, air conditioning leakage and efficiency credits, flexible-fuel vehicle credits through the 2015 model year, and credit transfer among fleets. A final rule is expected to be published in 2010.

The Provinces of Quebec and British Columbia are participants in the Western Climate Change Initiative and have committed to follow California's lead on vehicle CO₂ regulation. Quebec has adopted a GHG regulation based on the California standards, but California has agreed to defer to the U.S. federal program for the 2012 to 2016 model years. We are hopeful that, like California, the provinces will see the benefit of a single continental standard that includes the United States and Canada. Ford has participated in regulatory discussions on this issue, providing technical expertise and supporting a tough aligned standard.



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Asia Pacific Policy

In Ford's Asia Pacific and Africa region, sales in China are growing rapidly. Economic growth is a key priority of the Chinese government, to be balanced with energy security and a cleaner environment.

The China Automotive Technology and Research Center released for comment a draft national standard on the Stage III fuel economy limits for passenger cars, with phase-in of implementation targeted for the 2012 model year. During the phase-in period, the ratio of the Corporate Average Fuel Consumption to the Target Corporate Average Fuel Consumption must meet a declining ratio from 109 percent in 2012 to 100 percent in 2015.

The Chinese government provides limited incentives for electric vehicle fleet purchasers under local government control in 13 cities initially, with plans to expand to others up to 2012. Diesel use is discouraged in passenger car applications in the near term, due to fuel availability concerns.

Japan, South Korea and Taiwan have released new or modified fuel economy limits, while Hong Kong, South Korea and Taiwan have linked tax incentives to fuel economy and CO₂ targets.



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South American Policy

In Brazil, our largest South American market, the use of biofuels is a national policy, with 100 percent of gasoline blended with 20 to 25 percent ethanol, and extensive use of pure ethanol as motor fuel. Most new vehicles are designed to accommodate varying amounts of ethanol. A minimum of 5 percent biodiesel must be added to diesel. Emission requirements are periodically updated by an emissions-control program. A voluntary fuel economy labeling program is also in place. A star ranking for light vehicles was recently introduced, favoring low-emission, low-CO₂, ethanol, flexible-fuel or hybrid vehicles. Diesel use in light vehicles under 1.0 ton payload is not allowed, except for combined usage vehicles with special off-road characteristics. The government is also studying incentives for hybrids and electric vehicles.

Ford has supported the region's biofuels initiatives since the 1970s and offers a wide range of vehicles capable of running on 100 percent ethanol. We also provide light- and heavy-duty vehicles that meet biodiesel requirements.

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Renewable Fuel Policies

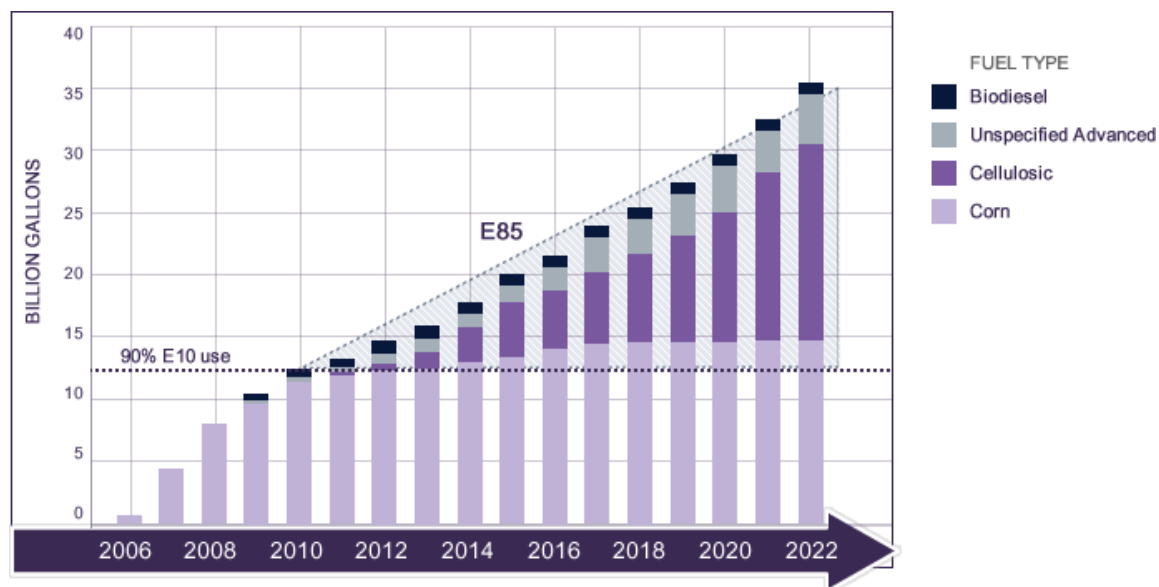
Today, more than 80 percent of global oil reserves are limited to 10 countries, while biofuels made from sugarcane can be produced in more than 100 countries. First-generation biofuels are playing an important role in building consumer awareness and spurring capital investment in infrastructure and facilities that can be used for more promising second-generation biofuels.

Policies across the globe are aimed at increasing the use and availability of biofuels. The United States adopted the Renewable Fuel Standard requiring 36 billion gallons of biofuels by 2022, including more than 20 billion gallons of low-carbon advanced biofuels. The EU Renewable Energy Directive establishes a 10 percent renewable energy target for transportation energy in 2020. And Brazil has had a very aggressive domestic ethanol program for years.

But these policies aren't enough. Providing value is critical to engage consumers and get them to use alternative energy sources. Hundreds of millions of vehicles in operation today were designed to use ethanol blends containing less than 10 percent ethanol, and our transportation energy infrastructure was set up to deliver petroleum-based fuels.

Ford is a leader in providing vehicles that can operate on biofuels. We are expanding our offerings of flexible-fuel vehicles because of the tremendous opportunities with biofuels. Ford's vision for biofuels is for them to be an alternative to gasoline rather than simply a gasoline additive – where accelerated use of renewable fuels delivers increased energy security, enhances economic development and helps to address climate change. This vision will require rapidly expanding the number of vehicles that can operate on biofuels, increasing the number of stations offering biofuels, developing the fuel distribution network to support customer choice and value, and achieving technology breakthroughs to commercialize advanced biofuels.

U.S. Renewable Fuel Standard





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Partnerships and Collaboration

Addressing the linked issues of climate change and energy security requires an integrated approach – a partnership of all stakeholders, including the automotive industry, the fuel industry, other industries and enterprises, governments and consumers. It will also require the best thinking from all of these sectors.

Ford is involved in numerous partnerships and alliances with universities, coalitions, nongovernmental organizations and other companies to improve our understanding of climate change. For example, Ford is:

- A member of USCAP, an alliance of major businesses and leading climate and environmental groups that have come together to develop an economy-wide, market-driven approach to reduce greenhouse gas emissions, as discussed in the [U.S. Climate Change Legislation](#) section.
- Working closely with BP to explore vehicle technologies and low-carbon fuel technologies.
- A founding member of the Carbon Mitigation Initiative at Princeton University to study the fundamental scientific, environmental and technical issues related to carbon management.
- A charter member of the Sustainable Transportation Energy Pathways Program at the University of California, Davis Institute of Transportation Studies, which aims to compare the societal and technical benefits of alternative sustainable fuel pathways.
- A member of the Massachusetts Institute of Technology's Joint Program on the Science and Policy of Global Climate Change.

Our participation in these and other partnerships helps us to formulate improved strategies for products and policies that will in turn help to address climate change and energy security. The following are links to the above organizations and others with which we cooperate on climate change issues:

- 25x25 ([Energy Future Coalition](#))
- [BP](#)
- Center for Clean Air Policy's [Climate Policy Initiative](#)
- [Diesel Technology Forum](#)
- [Governors' Ethanol Coalition](#)
- Harvard University, [Belfer Center for Science and International Affairs](#)
- [MIT Joint Program on the Science and Policy of Global Change](#)
- [Growth Energy](#)
- Princeton University's [Carbon Mitigation Initiative](#)
- [United States Climate Action Partnership](#)
- University of California at Davis, Institute of Transportation Studies [Sustainable Transportation Energy Pathways Program](#)
- [Worldwide Business Council for Sustainable Development](#)
- [World Resources Institute](#)



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Emissions Trading

Emissions trading is a key tool in both voluntary and mandatory greenhouse gas emissions-reduction programs. Ford was an early participant in carbon markets, with a goal of gaining experience that will be valuable in an increasingly carbon-constrained world.

For example, Ford, along with 11 other companies and the City of Chicago, founded the Chicago Climate Exchange (CCX) in 2003. The CCX is a GHG emissions-reduction and trading program for emission sources and projects in North America. It is a self-regulated, rules-based exchange designed and governed by CCX members. Ford is the first and only auto manufacturing participant in the Exchange.

Through the CCX, we committed to reducing our North American facility emissions by 6 percent between 2000 and 2010. 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 to reduce their North American GHG emissions. The Exchange enables participants to receive credit for their reductions and to buy and sell credits to find the most cost-effective way of achieving reductions.

Ford was also one of the original companies to join the UK Emissions Trading Scheme, the first government-sponsored, economy-wide, cross-industry GHG trading program. Ford Motor Company Limited (UK) entered the program in March 2002, committing to and achieving a 5 percent CO₂ reduction for eligible plants and facilities over five years.

Ford now participates in the EU Emission Trading Scheme, which commenced in January 2005 and is one of the policies being introduced across Europe to reduce emissions of carbon dioxide and other greenhouse gases. The second phase of this program runs from 2008 to 2012 and coincides with the first Kyoto Commitment Period. Additional five-year phases are expected to follow.

Despite Ford facilities' low-to-moderate CO₂ emissions (compared to other industry sectors), the EU Emission Trading Scheme regulations apply to eight Ford and Volvo facilities in the UK, Belgium, Sweden and Spain. The trading scheme requires us to apply for emissions permits, meet rigid emissions monitoring and reporting plans, arrange for third-party verification audits and manage tax and accounting issues related to emissions transactions.

Ford is actively involved in an ongoing evaluation of the EU Emission Trading Scheme at both EU and member-state levels. We have used the experience gained from participating in the market-based mechanisms described above to ensure that we operate in compliance with the scheme's regulatory framework. Ford anticipated the start of the EU Emission Trading Scheme and established internal business plans and objectives to maintain compliance with the new regulatory requirements.

Comprehensive reporting forms the foundation for all emissions trading. We voluntarily report GHG emissions in Australia, Canada, China, Mexico and the Philippines. This reporting, which has won several awards, is discussed in the [Environment](#) section.

RELATED LINKS

External Web Sites:

[Chicago Climate Exchange](#)

[EU Emissions Trading Scheme](#)



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Electrification: A Closer Look

During 2009, most major global automakers, including Ford, announced plans to make all-electric vehicles. Utilities are also working to understand how to provide power to plug-in electric vehicles in a way that is effective in meeting consumer needs, efficient for electricity providers and environmentally sound.

Why the rise in interest and activity? The electrification of vehicles could cut greenhouse gas (GHG) emissions from vehicles, increase the use of domestic energy sources, decrease pressure on petroleum stocks and reduce urban air pollution. With the benefit of information technologies and "smart grids," electrified automobiles could also improve the efficiency of the power grid – thereby lowering electricity costs – and facilitate the use of renewable energy sources, such as wind and solar.

But many challenges remain. For example, to fulfil their potential to cut lifecycle GHG emissions from automobiles, low-carbon electric generation must make up a greater part of the total supply, and electric vehicles must become functioning parts of "smart grids." Battery technologies are still evolving, and the cost of new-generation batteries remains high. Securing adequate supplies of lithium, rare earth metals and other materials may also pose social and environmental challenges.

This section provides an overview of Ford's electrification strategy. It also explores electrification technologies and their environmental benefits, and discusses how Ford is addressing key challenges and opportunities related to vehicle electrification. For more details on our electric vehicle technologies and other fuel-efficiency, advanced powertrain and alternative fuels technologies, please see the [Sustainable Technologies and Alternative Fuels Plan](#).

Ford's Electrification Strategy

Ford's electrification strategy foresees a future that includes different types of electrified vehicles, depending on customers' needs. There will not be a one-size-fits-all approach, but a more diverse, smart application of different types of electrified vehicle technologies. Our strategy includes the following.

Bring a Range of Electric Vehicles to Market

Ford already offers four hybrid electric vehicles (HEVs): The Ford Escape Hybrid, Mercury Mariner Hybrid, Ford Fusion Hybrid and Mercury Milan Hybrid. These HEVs are ideal for customers who drive a range of distances in varied driving conditions. Their most significant benefits come under urban stop-and-go driving conditions.

In 2009, we announced plans to introduce two battery electric vehicles (BEVs) in North America. We will introduce a BEV version of the Transit Connect utility van, targeted at commercial markets, in 2010. We are developing this vehicle in partnership with Azure Dynamics Vehicles, a leading electric adapter of commercial vehicles. In 2011, we will introduce a Focus BEV, called the Focus Electric, developed with our strategic supplier Magna International. Both of these BEVs will be ideal for customers who routinely travel relatively short distances (e.g., 80–100 miles) between charges.

Below is a detailed look at the components that will make up the new electrified vehicles.

FORD ALL-ELECTRIC VEHICLE

1. Motor Controller and Inverter
2. High Voltage Electric HVAC Compressor
3. Electric Water Pump
4. Traction Motor
5. Electric Power Steering



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[Ford's Sustainable Technologies and Alternative Fuels Plan](#)

[Increasing Global Integration](#)
[New Global C-Car Platform Illustrates ONE Ford Plan in Action](#)

Vehicle Web Sites:

- [Ford Fusion](#)
- [Ford Escape](#)
- [Ford Focus](#)
- [Ford Transit Connect](#)
- [Mercury Milan](#)
- [Mercury Mariner](#)

6. Gearbox
7. Modular Powertrain Cradle
8. Electric Vacuum Pump
9. High Voltage PTC Electric Coolant Heater and Controller
10. Vehicle Control Unit
11. Battery Pack and Battery Cells
12. AC Charger
13. DC-DC Converter



* Image based on prototype, not production vehicle.

1 Motor Controller and Inverter

The motor controller monitors the motor's position, speed, power consumption and temperature. Using this information and the throttle command by the driver, the motor controller and inverter convert the DC voltage supplied by the battery to three precisely timed signals used to drive the motor.

2 High Voltage Electric HVAC Compressor

The high voltage air conditioning system is specifically designed for hybrid vehicle applications, drawing electrical energy directly from the main battery pack. An inverter is included in the compressor.

3 Electric Water Pump

The electric drive water pump circulates coolant for the traction motor, inverters, battery and heater.

4 Traction Motor

The traction motor performs the conversion between electrical and mechanical power. Electric motors also have efficiencies three times higher than that of a standard gasoline engine, minimizing energy loss and heat generation.

5 Electric Power Steering

Electro-hydraulic steering pump was installed to assist a retuned steering rack. A production vehicle would be designed with electric power steering.

6 Gearbox

The transmission has the identical role as in a conventional vehicle; however, it has different design considerations due to the higher RPM range available from the electric motor and increased emphasis on efficient and silent operation. The transmission is a single-speed unit with a 5.4:1 reduction.

7 Modular Powertrain Cradle

A structure for monitoring all engine compartment EV components and providing isolation from the vehicle body through traditional engine mounts.

8 Electric Vacuum Pump

The vacuum pump supplies vacuum to the brake system for power assist.

9 High Voltage PTC Electric Coolant Heater and Controller

Heating systems are specifically designed for hybrid vehicle applications. Energy efficient PTC technology is used to heat the coolant that circulates to the passenger car heater. Heat also may be circulated to the battery.

10 Vehicle Control Unit

The VCU communicates with the driver as well as each individual vehicle system to monitor and control the vehicle according to the algorithms developed by the vehicle integration team. The VCU manages the different energy sources available and the mechanical power being delivered to the wheels to maximize range.

11 Battery Pack and Battery Cells

The battery pack is made up of 7 battery modules of 14 cells, 98 cells total for 23 kWh of power. The batteries are air cooled using existing vehicle cabin air. The pack includes an electronic monitoring system known as the BMS that manages temperature and state of charge of each of the cells.

12 AC Charger

Power electronics are used to convert the off-vehicle AC source from the electrical grid to the DC voltage required by the

battery, thus charging the battery to its full state of charge in a matter of hours. The current charger is air cooled. The production design will accommodate both 110 and 220 voltage sources.

13 DC-DC Converter

A DC-DC converter allows the vehicle's main battery pack to charge the on-board 12V battery, which powers the vehicle's various accessories, headlights, etc.

In North America, we are also planning to introduce a Plug-in Hybrid Electric Vehicle (PHEV) commercially in 2012, along with our next-generation HEV technology. All of these will use lithium-ion batteries. We already have a test fleet of Ford Escape PHEVs on the road in partnership with a number of utility companies.

We recently announced plans to expand our electrified vehicle lineup to Europe. We will launch the Transit Connect Electric light commercial utility van in 2011 followed by the Ford Focus Electric in 2012. We also plan to introduce two next-generation gasoline HEVs and a PHEV in Europe in 2013. In preparation for the launch of these vehicles, Ford will participate in BEV test trials in the UK and Germany with Transit commercial vehicles equipped with a pure electric powertrain, as well as battery electric prototype passenger cars, to test the technology's suitability in real-world situations.

Use Global Platforms

Because the platforms on which these future Ford products will be based are our highest-volume global platforms, they offer tremendous opportunities for production economies of scale. The Focus Electric, for example, will be based on Ford's next-generation Focus model. It is one of up to 10 vehicles that will be developed from the Company's new global "C-car" platform, which is expected to deliver as many as 2 million vehicles annually. We will be producing the vehicles on flexible manufacturing lines capable of producing a BEV, HEV, PHEV or efficient gasoline- or diesel-powered vehicle. We also share many of the electrified components between the different vehicles. These strategies are key to making electrified vehicles affordable.

Collaborate

Gearing up for the development and diffusion of these new technologies will be a global challenge. Major advances have already been made on the electrical technology at the core of the next-generation electrified vehicles, and there's more to come. In Ford's vision, a coalition of automotive manufacturers and other stakeholders will work together to develop technologies, standards and cost efficiencies to commercialize electrified vehicles. It will take a collaborative approach of automakers, battery producers, suppliers, fuel producers, utilities, educators and researchers, as well as policy makers and opinion shapers, to help us make the transition and realize the full benefits of electrification.

Traditional automotive suppliers transforming themselves for electrification are being joined by new suppliers adapting electronics to the automotive environment. Significant possibilities exist for innovation in battery technology, power electronics and the development of motors, generators, high-voltage systems and other components.

Ford's plan calls for strategic partnering with key suppliers who bring technical expertise, financial solidity and collaborative spirit. We believe that working with a range of partners will allow us to gain greater understanding of the connectivity of vehicles to the electric grid, promote the necessary infrastructure and bring down the costs of the technology to make it more accessible for consumers.



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Comparing Electrification Technologies

Electricity plays a role in all current vehicle technologies. In the early 1900s, for example, conventional gasoline and diesel vehicles began using a lead-acid battery to provide power to start the vehicle instead of a hand crank. Recently, in the quest for better fuel economy and lower greenhouse gas emissions, automakers have begun to design a variety of vehicles that use electric power for more functions, including providing some or all of the power necessary to move the vehicle.

A range of vehicle types, from conventional gasoline to pure electric, is shown in the table below. In the near- and mid-term, the largest volume of electrified vehicles will likely be hybrid electric vehicles, which use both a gas engine and a battery electric motor but do not plug into the electric grid. In 2009, approximately 700,000 HEVs were sold globally. In the United States, HEVs make up approximately 3 percent of the market for new vehicles.

In the longer term, electrified vehicles that get some or all of their energy directly from the electric grid, including plug-in hybrid electric vehicles and battery electric vehicles, are likely to play an increasingly significant role. The table below provides a generalized overview of the relative benefits and impacts of these different electrified vehicle technologies, based on an average compact or "C-car" sedan like the Ford Focus. The numbers in the table represent approximations based on Ford's testing and modeling research; they are not precisely representative of any current or future Ford products.

RELATED LINKS

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	Internal Combustion Engine	Micro-Hybrid ¹	HEV	PHEV	BEV
Technology Overview	Traditional gas or diesel engine.	Traditional gas or diesel engine and powertrain with stop/start capability, which shuts down the engine when the vehicle is stopped and automatically restarts it before the accelerator pedal is pressed to resume driving. Regenerative brake recharging improves fuel economy.	Uses both a gas or diesel engine and an electric motor. Can run exclusively on battery power, exclusively on gas power or on a combination of both. Also has stop/start capability and regenerative braking – a key to efficiently recharging the battery.	Uses a high-capacity battery that can be charged from an ordinary household 110 volt outlet. When the battery is depleted, the PHEV runs like a regular HEV ² .	Uses only a battery-powered electric motor, no gas or diesel engine. Runs entirely on electricity from batteries, which can be charged from household outlets or specialized charging stations.
Ideal Driving Conditions	Flexible for a wide range of uses.	Flexible for a wide range of uses. Improved fuel economy in urban driving.	Flexible for a wide range of uses. Excellent urban fuel economy. Improved highway fuel economy.	Flexible for a wide range of uses. Dramatically improved fuel economy in city driving. Suitable for customers who have access to a plug for overnight recharging and drive a combination of urban and longer commute distances.	Ideal for customers with access to a plug at home or work who have shorter, predictable daily trips of less than 80 miles total.

Technology Benefits/Costs based on Compact or "C-sized" Sedan³

Fuel Economy ⁴ (Roughly real-world fuel economy for a compact sedan)	~ 30 mpg	~31–32 mpg	~45 mpg ⁵	Not applicable. Similar to HEV when running on gasoline. No gasoline used when running on electricity from the grid.	Not applicable.
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Range on Tank/Charge ⁶	~405 miles/tank	~425 miles/tank	~610 miles/tank	An all-electric equivalent operating range of 10–40 miles, depending on battery size. A minimum 800-mile range when combining electric and gas. Range could be much greater than 600 miles/tank based on the number of times the battery is charged.	Up to 80 miles on a charge.
Fueling/Charging Time	Minutes	Minutes	Minutes	2–4 hours with a 220-volt outlet and 4–8 hours with a 110-volt outlet.	6–8 hours with a 220-volt outlet and 12–16 hours with a 110-volt outlet.
CO ₂ emissions ⁷					
Well to Tank	~35 g/km		~23 g/km	Current Grid: ⁸ ~91 g/km	Current Grid: ⁸ ~114 g/km
Tank to Wheels	~150 g/km		~101 g/km	Current Grid: ⁸ ~26 g/km	Current Grid: ⁸ 0 g/km
Well to Wheels ⁹	~185 g/km		~124 g/km ¹⁰	Current Grid: ⁸ ~117 g/km ¹¹	Current Grid: ⁸ ~114 g/km ¹²
Purchase Price Premium	\$0	\$300–\$500	\$2,500 to \$5,000	\$10,000 to \$20,000	\$15,000 to \$25,000
Annual Fuel Cost	~\$1,200 annual fuel costs ¹³	~\$1,150 annual fuel costs ¹⁴	~\$800 annual fuel costs ¹⁵	~\$450 annual fuel costs ¹⁶	~\$350 annual fuel costs ¹⁷
Payback Period ¹⁸	NA	~4 to 7 years	~9 to 12 years	~19 to 26 years	~28 to 34 years

- Some automakers consider this a form of hybrid vehicle. However, Ford views and is implementing these technologies as part of our strategy to improve the fuel economy of conventional internal combustion engine vehicles.
- Another type of PHEV, often called an Extended Range Electric Vehicle, runs entirely on battery power until the battery is depleted, and then the onboard gas-powered engine runs to recharge the battery. The wheels are driven only by the electric motor, and the engine's sole purpose is to recharge the battery.
- These numbers are for comparison purposes only. They are based on modeling and testing calculations and do not necessarily represent the numbers that would be achieved in real-world driving conditions, nor do they represent actual products that Ford currently makes or may produce.
- The internal-combustion engine fuel economy estimate is based on the calculation used by the U.S. Environmental Protection Agency to develop Combined Fuel Economy (city/highway) values for the labels affixed to new vehicles. The Combined Fuel Economy value is intended to represent the approximate fuel economy that most consumers can expect based on a typical mix of city and highway driving. Estimates for the other technologies are based on the metro-highway drive cycle used for the U.S. fuel-economy regulations. Fuel economy calculations for all of the technologies are based in U.S. gallons and on U.S. drive cycles.
- In general, HEVs deliver approximately 40–50 percent better fuel economy than comparably sized non-hybrids.
- All estimates are based on a 13.5-gallon tank except for the BEV, which has no fuel tank.
- In vehicles using internal combustion engines, the fuel feedstock is assumed to be petroleum. In micro-hybrid vehicles, the fuel feedstock is also assumed to be petroleum.
- "Current grid" assumes average current emissions from U.S. power generation.
- "Well to wheels" carbon dioxide (CO₂) includes all CO₂ emissions generated in the process of producing the fuel or electricity as well as the CO₂ emissions created by burning the fuel in the vehicle itself. It is useful to break this down into "well to tank" emissions, which measure the CO₂ emissions generated by excavating the feedstocks and producing and distributing the fuel or electricity, and "tank to wheels" emissions, which include the CO₂ generated by burning the fuel in the vehicle. "Well to tank" emissions are based on the GREET v. 1.8a model developed by the Argonne National Lab. "Tank to wheels" calculations are based on Ford's own calculations using the metro-highway drive cycle and energy use for electric vehicles. However, official methods for calculating CO₂ emissions from PHEVs and BEVs have not yet been defined.
- In HEVs, the fuel feedstock is assumed to be petroleum.
- In PHEVs, the "well to tank" emissions are based on the percentage of emissions from petroleum fuel production and distribution and electric power generation, and the "tank to wheels" emissions are based on the percentage of time the vehicle is driven using petroleum-based fuel.
- In BEVs, "well to tank" emissions include emissions related to electric-power generation, and "tank to wheels" emissions are zero, because no CO₂ is produced by running the vehicle on batteries charged with electrical power.
- Based on 12,000 miles/year, 30 mpg and \$3/gallon.
- Based on 12,000 miles/year, 32 mpg and \$3/gallon.

15. Based on 12,000 miles/year, 45 mpg and \$3/gallon.

16. Based on 12,000 miles/year, 75 percent in electric mode at 3.6 miles/kWh and 10 cents/kWh, and 25 percent in gasoline-engine mode at 45 mpg and \$3/gallon.

17. Based on 12,000 miles/year, 3.6 miles/kWh and 10 cents/kWh.

18. Based on the purchase price without any possible government incentives such as tax credits.



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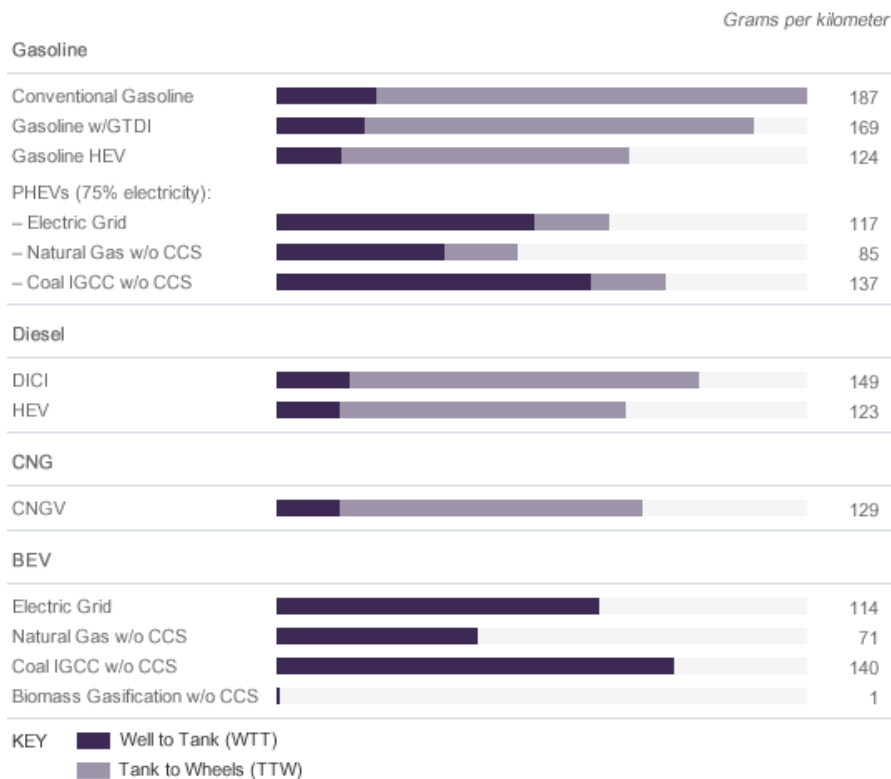
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Environmental Benefits of Electrified Vehicles

Full BEVs are considered "zero emission" because they don't release greenhouse gases or other pollutants during use. But that term can be misleading. Operating an electric vehicle can cause emissions, but the location of the emissions is shifted from the vehicle to the power plant. Electric vehicles do reduce pollutants generated by burning petroleum fuel in the vehicle in proportion to the reduction in vehicle fuel consumption. However, replacing gasoline with electricity generated from coal, for example, could result in emissions at the power plant, including carbon dioxide, nitrous oxides, sulfur dioxide, volatile organic compounds, carbon monoxide and particulate matter. As a result, the environmental benefits of PHEVs and BEVs depend largely on the fuels used to power the electrical grid. Operating a PHEV or BEV on the current average U.S. electrical grid, which relies heavily on coal power, has only a small emissions advantage over an HEV.

Plug-in vehicles could help reduce overall CO₂ and other emissions if the electricity used to charge them was generated from cleaner fuels, and ideally renewable resources, which produce significantly fewer emissions than the coal or natural gas that are often used for power generation. In addition, "smart grids" that include grid-to-vehicle communications would enable utilities to make more efficient use of electricity supplies, thereby potentially reducing emissions and electricity costs.

WTW Fossil CO₂ Emissions for 2010 Compact-Size Vehicle



Grams per kilometer

	WTT	TTW	WTW
Gasoline			
Conventional Gasoline	35	152	187

Gasoline w/GTDI	31	137	169
Gasoline HEV	23	101	124
PHEVs (75% electricity)			
– Electric Grid	91	26	117
– Natural Gas w/o CCS	59	26	85
– Coal IGCC w/o CCS	111	26	137
Diesel			
DICI	26	123	149
HEV	22	101	123
CNG			
CNGV	22	107	129
BEV			
Electric Grid	114	0	114
Natural Gas w/o CCS	71	0	71
Coal IGCC w/o CCS	140	0	140
Biomass Gasification w/o CCS	1	0	1

Note that the numbers are not precise and are shown for directional purposes only.


Abbreviations: GTDI – gasoline turbo with direct injection, or EcoBoost™; CCS – carbon capture and storage; IGCC – integrated gasification combined cycle; DICI – direct injection and compression ignition; CNGV – compressed natural-gas vehicle; HEV – hybrid electric vehicle; PHEV – plug-in hybrid electric vehicle; BEV – battery electric vehicle. In this table, "well to tank" CO₂ emissions are based on the GREET v. 1.8a model developed by the Argonne National Lab. "Tank to wheels" calculations are based on Ford's own calculations using the metro-highway drive cycle and energy use for electric vehicles. However, official methods for calculating CO₂ emissions from PHEVs and BEVs have not yet been defined.

Using renewable energy: Recharging using electricity generated by renewable energy sources (such as solar, wind, hydropower or biomass) can cut CO₂ emissions dramatically, but production from these sources can be variable and unpredictable. Smart vehicle-to-grid communication can help utilities better use renewable energy sources. For example, it can allow vehicles to recharge at times that wind power is most available (usually at night) or during the day from solar arrays, depending on the renewable source available and its output. As the power-generation sector continues to improve its fuel mix and explore technologies such as carbon sequestration (i.e., collecting CO₂ emissions from power generation and storing them), the environmental impact of driving a plug-in vehicle will diminish substantially – perhaps even toward zero.

"Smart grids:" The development of "smart grid" technologies, which can provide utilities and customers with real-time information on energy use and energy prices, is a key enabler of efficient integration of electric vehicles and grids.

Smart charging would allow utilities to control the current going into the vehicle battery and thereby help to ensure that electric vehicles generate as little incremental CO₂ as possible. Armed with the knowledge of how much energy is needed and by when, a smart grid would be able to use the batteries in electric vehicles to store excess electricity or to shut off the current when there is a sudden demand elsewhere. This control would help to smooth the peaks and valleys of supply and demand at both the micro and macro level. Vehicles could also be taken off the grid completely, by charging with electricity from small individual generation units, such as household solar electric and wind power systems.

Smart grids will also help make the electrical grid and electrical vehicle charging more efficient by channelling vehicle recharging to times when electrical grid resources are currently underutilized. Since demand for electricity fluctuates (generally peaking in the afternoon and dropping off at night), utilities typically use a mix of fuels and power plant types to meet demand. That means that the environmental impacts of electric vehicle use will vary depending on where and when the vehicles are charged. During certain seasons and particularly at night, utilities generally have excess generation capacity – unused resources that create financial inefficiency. Charging PHEVs and BEVs during these off-peak hours, when this excess capacity is available, can increase the overall efficiency of the electric grid – potentially reducing CO₂ emissions, as well as the cost of electricity. But if PHEVs and BEVs are charged at peak times, that could create increased CO₂ emissions from power generation and also create demand for additional power plants. Utilities have a role to play in educating electrified-vehicle users and providing them with incentives to charge their vehicles at the most beneficial time.



With all these variables, utilities will be key partners in defining and developing electricity supply systems for electric vehicles that are efficient, affordable and environmentally sound. That's why Ford has partnered with several utilities throughout the United States and Canada, as well as the U.S. Department of Energy for its PHEV pilot program.

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To realize the potential benefits of vehicle electrification, a range of issues must be addressed, including the significant issues of cost and customer convenience. Vehicle and fuel technologies interact in a complex system that includes vehicle technologies, battery technologies, fuel types and energy-generation technologies, all of which determine potential impacts on the environment and energy security.

Costs and Savings

The current cost to make plug-in vehicles is substantially higher than that of conventional vehicles, largely due to the cost of batteries. Depending on electricity costs, however, the energy cost to operate an all-electric car is in the range of 2 to 3 cents per mile, compared to about 8 to 10 cents¹ per mile for a conventional gasoline-powered vehicle. So, lower operating costs can help offset the higher initial purchase costs of electric vehicles (EVs).

Automakers will need to invest billions of dollars to develop next-generation electrification technologies and electrified vehicles. Utilities will need to invest to increase electricity generation and transmission capacity, with generally higher costs for green electricity sources. Governments will also need to invest by encouraging and facilitating the development of technology and infrastructure and providing incentives for consumers to buy EVs.

FORD'S RESPONSE

Ford is working with a range of battery suppliers and other partners to develop next-generation battery technologies that will help to bring costs down. In addition, we have been working with utilities and other partners to understand how to make vehicle recharging as efficient as possible.

For example, we recently announced that we are collaborating with Microsoft on new energy-management software that will help customers determine when and how to most efficiently and affordably recharge battery electric and plug-in hybrid vehicles, while giving utilities better tools for managing the expected changes in energy demand. Ford is the first automaker to announce the use of this new technology, called Hohm™, which will be used in the Focus Electric starting next year. Hohm is an Internet-based service designed to help customers avoid unnecessary expense by providing insight into their energy usage patterns and suggesting ways to increase conservation. With Ford electric vehicles, Hohm also will help drivers to determine the best time to charge their vehicle and help prevent the need for infrastructure upgrades to support the added energy demand. Ford and Microsoft plan to continue to work with utility partners and municipalities to help further develop systems to maximize the effectiveness of electric vehicles and their interaction with the electricity grid.

In addition to this work with partners, we are also planning our electric vehicle strategy based on our highest-volume, global platforms, which could also help reduce the costs of electric vehicles by creating economies of scale.

Battery Technology

Current-generation HEVs run on nickel metal hydride batteries, which offer significant improvements over traditional lead-acid batteries. For example, nickel metal hydride batteries deliver twice the power output for the weight (energy density) compared to lead-acid batteries. Nickel metal hydride batteries have worked well in non-plug-in hybrids, which are designed to allow for constant discharging and recharging and are not expected to store and provide large amounts of energy. These batteries are reaching the end of their advancement potential, however, and new battery technologies are needed to improve on the current generation of HEVs.

PHEVs and BEVs make significant additional demands on battery technology. Unlike HEVs, which maintain a relatively constant state of charge, PHEV batteries are to be depleted to a low level when they are the primary energy source for the vehicle. And BEVs are designed to run solely on battery power. The batteries used in PHEVs and BEVs must function well in a wide range of conditions; tolerate running until nearly depleted and then being fully charged; store and provide a lot of power; last a minimum of 10 years or 150,000 miles; and, ideally, be compact and lightweight.

Automakers are moving toward lithium-ion batteries for next-generation HEVs and for PHEVs and BEVs. These batteries have greater energy density and are lighter than nickel metal hydride batteries. However, the technology is still evolving, and costs must drop considerably before they can be widely used (see section on Battery Evolution below).

It is also important to have a plan for recycling batteries at the end of their useful lives to minimize the material going to landfill, and to ensure that critical elements, such as rare earth metals and lithium, are recovered and reused in new batteries.

Battery Evolution

Battery technology is evolving. The following table shows how new battery technology, such as the nickel metal hydride batteries used in today's HEVs and the lithium-ion battery technology of next-generation electrified vehicles compare to the traditional 12-volt lead-acid battery.

	Lead-Acid	Nickel Metal Hydride (Ni-MH)	Lithium-Ion (Li-ion)
First Commercial Use	1859	1989	1991
Current Automotive Use	Traditional 12-volt batteries	Battery technology developed for today's generation of hybrid vehicles	Under development for future hybrid electric and battery electric vehicles; some manufacturers launching in limited volumes in 2010
Strengths	<ul style="list-style-type: none"> Long proven in automotive use 	<ul style="list-style-type: none"> Twice the energy for the weight as compared to lead-acid Proven robustness 	<ul style="list-style-type: none"> About twice the energy content of Ni-MH and better suited to future plug-in electrified vehicle applications By taking up less space in the vehicle, provides far greater flexibility for automotive designers
Weaknesses	<ul style="list-style-type: none"> Heavy; its lower energy-to-weight ratio makes it unsuitable for electrified vehicle usage 	<ul style="list-style-type: none"> High cost (four times the cost of lead-acid); limited potential for further development 	<ul style="list-style-type: none"> Although proven in consumer electronics, this technology is still under development for automotive applications Will remain relatively expensive until volume production is reached

Specific Energy (Watt hours per kilogram)	30–40	65–70	100–150
Recyclability	Excellent	Good	Very Good


FORD'S RESPONSE

Ford has been working with battery supplier partners to develop next-generation battery technologies that can improve HEV performance and stand up to the new challenges presented by BEVs and PHEVs. For example, the performance of batteries varies with weather conditions. We are conducting tests of the effects of temperatures and other conditions so we understand and can communicate to customers the impacts on expected range between rechargings.

Ford is also working with researchers at the University of Michigan and the Massachusetts Institute of Technology to develop and test improved lithium-ion battery technology. This research is funded in part by a \$55 million tax credit incentive Ford received from the Michigan Economic Development Corporation.

All of Ford's electrified products, including HEVs, PHEVs and BEVs, will use lithium-ion battery cells by 2012.

Ford is also developing a comprehensive strategy to address batteries that can no longer be used in vehicles. Ford engages with all the parties that handle end-of-life batteries, including customers, local authorities, emergency services (e.g., tow trucks), dealerships, independent workshops and garages, and vehicle recyclers. Customers can recycle their batteries with local recyclers or bring them to any Ford or Lincoln dealer for no-cost recycling.

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Recharging

To realize their full all-electric range, plug-in vehicles must be charged regularly. They can be charged using a standard household electric current (e.g., 110 volts in the United States), but they will recharge faster when using a higher-voltage electric service. Since electricity supplies are ubiquitous in developed countries, much of the needed infrastructure already exists, but new charging facilities will be required in public places as well as apartments and homes that lack accessible places to plug in. Other future recharging options, being considered by various entities, might include battery swap stations and inductive charging where batteries are charged without a plug through "wireless recharge." This latter type of recharging could occur in special parking spots or even in "charging lanes" that could be included in roadways in the future.

Another focus of research is rapid-charging technologies. Ideally, an electric vehicle could be charged in the same amount of time it takes to fill a fuel tank, though the electric power needed to perform a rapid charge – and the bulky additional charging infrastructure required to deliver it – remain challenges. In addition, with existing technology, rapid charging typically shortens the life of batteries, but efforts are underway to develop cell technologies capable of rapid recharge without battery degradation in the future.

Developing and agreeing on standard charging connectors between vehicles and the grid and vehicle-to-grid communication protocol are another key challenge. These will be necessary to allow all plug-in vehicles to use a common charging point when they need to recharge.

These and other charging options are all under consideration. Having an understanding of these technologies and how they may develop will be important in making electrified vehicles practical and affordable.

FORD'S RESPONSE

In North America, Ford participated with the Society of Automotive Engineers to successfully align all original equipment manufacturers (OEMs) on a standard charge connector and communication protocol that will enable all plug-in vehicles to use common charge points. This will be a key enabler for adoption in North America; the same connector is under consideration in Europe and China. Further standardization initiatives that will be helpful include fast-charge standards (for DC charging) and vehicle-to-grid standards. Global commonality for these systems will also be needed. Ford is also working with other OEMs and suppliers to provide a common database of charge point locations for display within vehicles' navigation systems.

Supply Chain Issues

As widespread electrification of automobiles moves closer to reality, a new set of concerns is emerging over the environmental and social impacts of extracting and processing key materials needed to make electric vehicles. In particular, there are concerns about lithium (used to make the lithium-ion batteries that are widely used in consumer electronics and will be used in BEV and PHEV vehicles) and rare earth metals (which are used in electric motors for vehicles, wind turbines and other advanced technologies).

Significantly accelerating the production of electric vehicles is likely to require the use of much greater quantities of lithium and rare earth metals. Production of these resources is concentrated in a few countries, including Chile, Bolivia and China, which has led to questions about the adequacy of the supply of these resources and the potential for rising and volatile prices as demand puts pressure on existing supplies. In addition, there are concerns about geopolitical risks posed by the limited availability of these materials. Could we be trading dependence on one limited resource (petroleum) for another? Attention is also focusing on the possibility of risks such as bribery and corruption and the potential for environmental and human rights abuses. Finally, the processing of lithium, in particular, uses large quantities of water.

FORD'S RESPONSE

We take these concerns very seriously. Ford generally does not purchase raw materials such as lithium and rare earth metals directly – they are purchased by our suppliers (or their suppliers) and provided to us in parts for our vehicles. As described in the [Human Rights](#) section of this report, our contracts with suppliers require compliance with the legal requirements of Ford's Code of Basic Working Conditions and the adoption of a certified environmental management system (ISO 14001). We are working in our supply chain to build the capability of our suppliers to provide sound working conditions in their operations, and we assess compliance with our Code of Basic Working Conditions in target markets. We ask the suppliers we work with to take similar steps with their suppliers. We are also working cooperatively with other automakers to extend this approach through the entire automotive supply chain.

As part of our [water strategy](#), we are evaluating the water requirements and impacts of powering vehicles by conventional fuels, biofuels and electricity. This work includes a study of the water requirements of lithium extraction and processing.

We will continue to monitor and assess these issues for their potential impact on our electrification strategy and our sustainability commitments.

Electric Vehicle–Utility Interaction

Clearly, electric vehicles – which plug into the grid for some or all of their power – will have an impact on electric utilities. If electric vehicles are charged during times of peak electricity demand, they may overstress the current grid and require the construction of additional electricity supply. Furthermore, recharging vehicles during peak demand would significantly reduce the operating cost benefits expected from electric vehicles. In addition, "smart grid" technology that allows communication between recharging vehicles and the electrical grid will be required to maximize recharging efficiency and minimize stress to the grid. Automakers and utilities will have to work together to develop this "smart" vehicle-to-grid communication system. Overcoming these challenges will require significant collaboration between automakers, electric utilities and governmental regulatory agencies and legislators.

Because utilities and automakers have not had to work together in the past, effective collaboration requires developing new relationships and learning about each other's business and regulatory challenges. For example, utilities and automakers have very different business models: utilities operate regionally and have little to no direct competition within their markets, while automakers operate and compete globally. Further, automakers are primarily regulated at the national level, while utilities face more local and state regulations, which increases the difficulty of establishing a national strategy for vehicle-to-grid interaction. It will be important for automakers and utilities to understand and address these kinds of differences as they work together on vehicle electrification issues.


FORD'S RESPONSE

In 2007, we initiated the Ford Plug-in Project, a collaborative project with the U.S. Department of Energy, the Electric Power Research Institute, the New York State Energy Research and Development Authority, and 10 utilities (Southern California Edison, American Electric Power, ConEdison of New York, DTE Energy, National Grid, New York Power Authority, Progress Energy, Southern Company-Alabama Power, Pepco Holdings and Hydro Quebec). In this project we are road testing our Escape PHEV prototypes that are equipped with vehicle-to-electric "smart grid" communications and control systems that will enable plug-in electric vehicles to interface with the electric grid, and will allow the vehicle operator to determine when and for how long to recharge the vehicle. This will potentially enable the user to take advantage of lower, off-peak utility rates.

Ford is also working with DTE Energy on a solar energy and battery energy storage project, using vehicle batteries to store energy from a solar array. For more information on this project, please see [Ford's Green Energy Partnerships with Federal and State Governments](#).

This collaboration continues to yield important lessons for both automakers and utilities. Some of the key learnings we have gained so far include the following:

- Electric vehicles provide additional impetus to develop smart communication systems between the vehicle and the grid. This communication will allow the consumer to know if and when lower electricity rates are available (as some utilities will offer lower rates during the night when energy demand is low), and help prevent additional loads on the infrastructure. Providing utilities the ability to control when vehicles are charged, or assurances that vehicles will not be charged during peak demand time, could prevent costly infrastructure upgrades, some of which may be passed back to the customer by the utility (e.g., if a transformer needs to be upgraded).
- Smart vehicle charging will require that utilities and automakers develop a common standard for vehicle-to-grid and grid-to-home meter communications. Currently, utilities tend to operate regionally, but electric vehicles will increase the need for common national and even international standards.
- Widespread use of electric vehicles will likely require that vehicle power consumption be measured separately from home electricity use, requiring either additional meters or "smart" meters. Additionally, the pooling of electrified vehicles in a particular region may require upgrades to the transformers and/or substations that form the electrical grid in that area.
- There are interesting possibilities for vehicle-to-grid and vehicle-to-home power flow. However, there are significant challenges to making these possibilities a reality. For example, technical, safety, codes/standards compliance, legal, robustness and business case issues need further study prior to commercialization.
- Vehicle owners will likely want to be able to charge their vehicles at any geographic location and – in those cases where another payment method isn't used – have the cost applied to their home energy bill. In addition, vehicle identification and home meter association must be seamless for the customer. This kind of mobile or remote billing for vehicle charging services will require a paradigm shift in the utility industry's current billing processes and tools.
- Automakers and utilities both benefit from working together on outreach to local, state and federal regulators and legislators. Ford and our utility partners are already working with legislators and regulators on national standards for vehicle charging infrastructure and incentives and strategies to bring costs down.
- Utilities and automakers need to work together to educate consumers about the differences between electric vehicles and traditional vehicles so that consumers understand how to make the most of electric vehicles and charging infrastructure.

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1. Assuming an energy consumption of about 3 to 4 miles/kWh at 10 cents/kWh for the electric vehicle, and a fuel economy of 30–40 miles/gallon at \$3/gallon for the gasoline vehicle.



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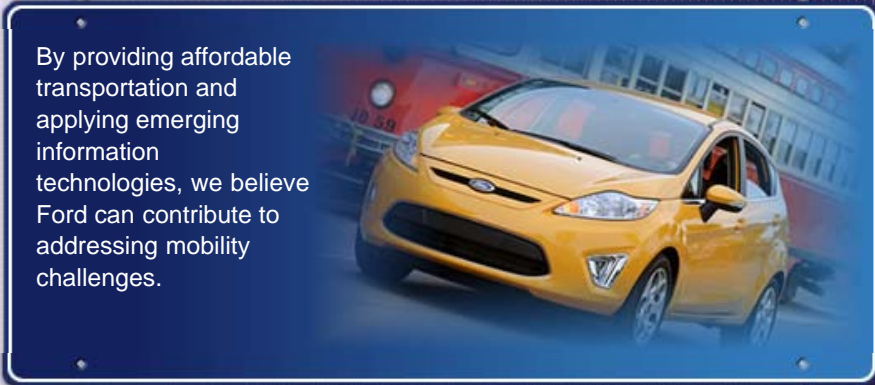
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Mobility

2009 HIGHLIGHTS:

- Helped to catalyze urban mobility collaborations in Richmond, Virginia; Seattle, Washington; Portland, Oregon; and Los Angeles, California, while continuing our work in Atlanta



By providing affordable transportation and applying emerging information technologies, we believe Ford can contribute to addressing mobility challenges.

Most automakers define *sustainable mobility* as reducing the environmental impacts of the vehicles they offer by cutting the vehicles' lifecycle greenhouse gases and other emissions. At Ford, we see this as an important piece of the picture – and we're working hard to achieve it.

But there are other important pieces as well. Consider this: today, there are 6.7 billion people in the world. By 2050, there will be 9 billion, 75 percent of whom will live in urban areas. Putting 9 billion people into private automobiles is neither practical nor desirable. The Earth lacks the resources to make and fuel those autos and to provide infrastructure to accommodate them. And with congestion already choking many urban areas, adding more vehicles – however clean – onto already-stressed roads will threaten to overwhelm them (see [Mega-Cities: the Icon of Personal Mobility Challenges](#)).

Yet mobility is a critical enabler of economic growth and human potential. As the Earth's population grows, so does its need for mobility. That mobility must be based on new, more sustainable models. This doesn't mean giving up the freedom afforded by private automobiles. It means including them as one of many options in an integrated system that harnesses the power of information and communication technologies to tie together diverse, appealing modes of travel. It also means building and redeveloping communities with sustainable mobility in mind.

At Ford, our goal is to make mobility affordable in every sense of the word – economically, environmentally and socially. We believe that creative collaboration and innovative technologies and services can yield new solutions, and that these solutions can harness the benefits of mobility while reducing its environmental and social impacts. We aim to be a trusted partner with the many institutions that must cooperate to implement new mobility models. Not only will we be ready with low-carbon vehicles, but also with expertise, insight and mobility solutions.

Electric Vehicles Play a Role

Electric vehicles could play an important role in more sustainable, integrated, urban mobility systems. But a wholesale shift to electric vehicles will also require systemic change. Charging infrastructure needs to be developed, electric vehicles must be integrated with electric utilities, and vehicles and grids must be knit together into an efficient system. The technologies that enable these shifts – universal connectivity, in-vehicle information systems, cloud computing – are becoming widely available. For example, our newest-generation SYNC® system makes automobiles rolling communication and information platforms, which will help them to integrate seamlessly with "smart" electric grids and mobility systems.

PERSPECTIVES ON SUSTAINABILITY



Steve Marshall

Senior Fellow, Cascadia Center for Regional Development

[Read more](#)

Progress in 2009

During 2009, Ford continued to catalyze and conduct dialogues with key regional stakeholders, exploring sustainable mobility projects in Atlanta, Georgia; Richmond, Virginia; Seattle, Washington; Portland, Oregon; and Los Angeles, California. These efforts brought together a range of parties – including municipal and state government officials, utilities, transportation planners and nongovernmental organizations – to envision solutions and pursue the funding needed to implement them. Ford's role in these projects built on its experience catalyzing mobility projects in India, South Africa and Brazil.

This section describes the actions Ford is taking to deepen our understanding of the future of mobility and to develop and test sustainable mobility solutions for all of our global customers.



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Ford's Approach to Urban Mobility: Catalyst for Learning, Collaboration, and Action

As mobility models change, so do the needs of our customers and potential customers. For several years, Ford has worked with a wide range of academic and public- and private-sector partners to explore sustainable mobility issues, advance thinking and catalyze on-the-ground projects to test new approaches to urban mobility (see [What Is New Mobility?](#)). Our first such projects were in Cape Town, South Africa; Chennai, India; and Atlanta, Georgia.

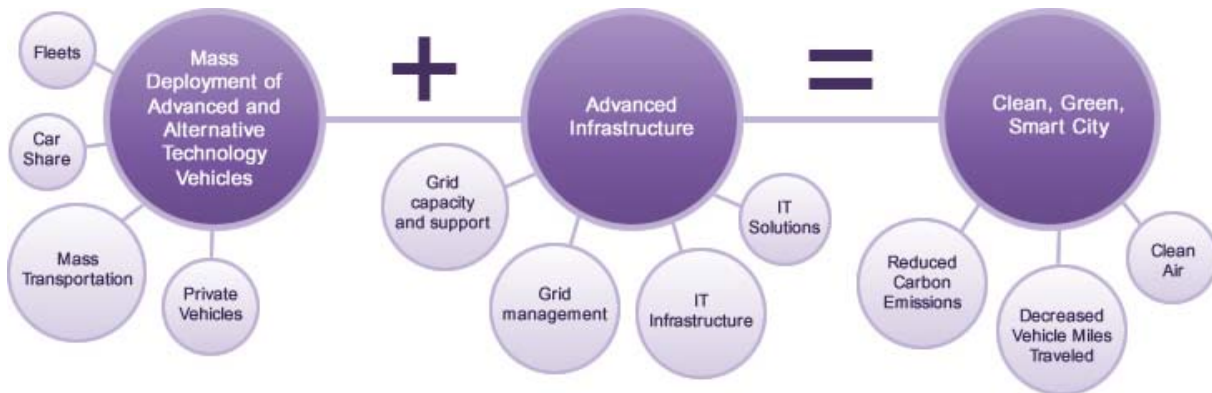
The insights we've gained from this work have helped us to understand the forces that are shaping our markets, our role in addressing mobility challenges and the opportunities these trends present for us (see [Mobility Challenges and Opportunities](#)). In particular, we have gained insight into the mobility needs of urban residents, the institutions that must work together to forge solutions and the range of technical solutions and their strengths and weaknesses. These lessons are reflected in our urban mobility methodology, which can be applied to a variety of settings and challenges. This equips us as a company to respond to rapidly changing needs for mobility by offering new products and services.

RELATED LINKS

- This Report:
- [What is New Mobility?](#)
 - [Mobility Challenges and Opportunities](#)
 - [Electrification: A Closer Look](#)
- External Web Sites:
- [Cascadia Center for Regional Development](#)
 - [Georgia Tech](#)

Collaboration to Support Electrification

We are using what we've learned to support the effort to build markets for electric vehicles in the United States. These vehicles will play an important role in reducing carbon dioxide (CO₂) emissions from the transportation sector. They can be deployed in various ways as part of urban mobility solutions. But, like the creation of integrated mobility systems, the manufacturing, distribution and sales of electric vehicles will require new business models. Multiple technologies and industries will need to converge to marry vehicles and infrastructure, utility services and information technology. Transportation and utilities will become interdependent. City leaders will need to take a system-wide approach to develop clean, green, "smart" and sustainable cities (see figure below).



With rising concern over carbon emissions from private vehicles and renewed emphasis on green transportation and infrastructure, urban leaders are looking for creative solutions to enhance transit use and reduce car use by linking bicycles, electric bikes and scooters, car sharing, car rental and ridesharing. With help from economic stimulus funds, they are poised to increase investment in electric and plug-in hybrid electric vehicles, including cars, trucks, conventional buses, trolley buses, express buses and all forms of rail, including streetcars, light rail and heavy rail.

We are poised to work with these leaders by providing technology as well as experience catalyzing mobility partnerships. On the technology side, Ford will launch its first 21st century electric vehicle, the electric Transit Connect targeted at commercial markets, in 2010. We are developing this battery electric vehicle (BEV) in partnership with Azure Dynamics Vehicles, a leading electric adapter of commercial vehicles. In 2011, we will introduce a Focus BEV, called the Focus Electric,

developed in collaboration with Magna International. Both of these BEVs will be ideal for customers who routinely travel relatively short distances (e.g., 80–100 miles) between charges. In North America, we are also planning to introduce a plug-in hybrid electric vehicle (PHEV) commercially in 2012, along with our next-generation hybrid electric vehicle (HEV) technology. We already have a test fleet of PHEVs on the road in partnership with more than a dozen utility companies and other collaborators. These vehicles will also be introduced in Europe by 2013.

Ford has also been a leader in deploying vehicle communication and connectivity technologies, beginning with the SYNC® system. These technologies provide a platform for future communication between electric vehicles and "smart" electric grids and mobility information systems. In early 2010, we announced that we are collaborating with Microsoft on new energy-management software that will help customers determine when and how to most efficiently and affordably recharge BEVs and PHEVs, while giving utilities better tools for managing the expected changes in energy demand. Ford is the first automaker to announce the use of this new technology, called Hohm™, which will be used in the Focus Electric starting next year.

Several Ford functions – including the Sustainability and Environmental Policy group, Fleet Sales and Sustainable Mobility Technologies – are working together with a range of partners to deploy fleets of electric vehicles over the next five years. Our aim is not only to provide vehicles but to serve as a trusted partner in developing integrated solutions.

During 2009, we helped to catalyze urban mobility collaborations in Richmond, Virginia; Seattle, Washington; Portland, Oregon; and Los Angeles, California, while continuing our work in Atlanta. These collaborations focused on developing proposals for integrated urban mobility demonstration projects that incorporate electric vehicles as one of multiple transportation options. The organizations involved have included city and state agencies, utilities, transportation providers and others. These efforts will help to build the critical mass of electric vehicle sales that will be needed to help overcome a range of challenges to widespread electric vehicle use, including infrastructure, affordability, battery technology and public policy (see [Electrification: A Closer Look](#) for more discussion of challenges and solutions).

In Seattle, Washington, for example, we were a sponsor of a major conference called "Beyond Oil: The Sustainable Communities Initiative," organized by the Cascadia Center for Regional Development, a Seattle organization focused on regional transportation and sustainable development issues. The forum brought together city leaders, academic institutions, information technology providers and others to focus on solutions for more sustainable mobility in the Seattle region.

We also continue to support research into and development of mobility technologies. In Atlanta, for example, we supported students at Georgia Tech who developed technology that allows users to unlock shared bikes on the Georgia Tech campus using a cell phone. This technology adds flexibility and convenience to the bike-share concept.

In 2010 and beyond, we will continue to collaborate with our key partners (see [Key Partners](#)) as well as organizations in several U.S. cities that are committed to pursuing new mobility solutions.



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Mobility Challenges and Opportunities

Mobility is a basic human need. Developed and emerging economies alike require transportation systems to get goods to market and people to the places where they work, shop, dine, gather and have fun.

Automobiles have provided personal mobility for more than 100 years. There are currently 900 million vehicles in the world, and that number is increasing rapidly as individuals in developing markets reach new levels of prosperity; it could reach two billion by the middle of this century.

This sounds like good news for an automotive company, and to some extent, it is. Our most rapid sales growth is taking place in emerging markets. But a business model built on private ownership of automobiles comes with inherent challenges, which are related directly to the following current and emerging mega-trends:

Urbanization

By 2015, it is projected that at least 35 mega-cities will have a population of more than 10 million. The migration of rural populations to urban areas often outpaces infrastructure development, leading to overcrowded, substandard living conditions and inconvenient, congested transportation systems.

Congestion

Each year, traffic congestion is estimated to cost the United States \$67.6 billion, and the average metropolitan driver endures 27 hours of traffic delays. In many places, especially developing countries, traffic delays are considerably worse, and are increasing at an alarming pace. As more vehicles crowd limited road networks, congestion increases. This, in turn, creates pollution, reduces fuel efficiency and wastes travelers' time.

Climate Change

The transportation of people and goods accounts for about a third of global human-caused greenhouse gas emissions. Stabilizing greenhouse gas emissions in the atmosphere will require a concerted effort on the part of the private and public sectors to achieve significant cuts in transport-related emissions, at a time when rapid growth in the transportation sector is anticipated.

Shifting Demographics

Different regions of the world are experiencing opposing population trends. Among the more developed countries, only the United States is growing in population; Europe, Russia and Japan are all shrinking. Regions of Africa and Asia are growing in population and will have large numbers of young people. But by the middle of this century, most of the world will be much older on average. With most people living in urban areas, more and different forms of mobility will be needed to support independent living for seniors, the disabled and young people.

Social Inequality

The growing gap between rich and poor creates enormous needs for innovative, affordable mobility solutions that meet human needs and help people build a better way of life. Unequal access to transportation often limits the opportunities available to those most in need. Better mobility is part of the solution to unemployment and income disparities.

Taken together, these trends point to increasingly diverse and fragmented markets for traditional automobile sales. They also point to significant opportunities for companies that are able to respond to mobility needs creatively.

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Key Partners

Mobility issues are complex and rapidly changing. Developing solutions to mobility challenges requires innovative, systems thinking. That's why we've developed sustained relationships with organizations including the following that give us access to the latest research, insights and integrative ability.

Sustainable Mobility and Accessibility Research and Transformation (SMART)

Ford has been working with the University of Michigan on the SMART project since April 2005. SMART takes a collaborative, systems approach to developing innovative, sustainable and connected mobility and accessibility solutions in urban regions around the globe. Building on the seminal work of Moving the Economy in Toronto, SMART has pioneered new thinking, new partnerships and pilot projects related to emerging New Mobility markets and industry development.

SMART has provided the empirical research and inspiration for Ford's mega-city mobility projects. The insights of the SMART leadership team have served as a foundation for our innovative approach to business opportunities related to New Mobility and for our work with other key sectors, including manufacturing, IT, logistics, tourism, real estate, design and more. In addition to developing New Mobility business opportunities and markets, SMART and Ford are seeking to improve quality of life, employment and other community benefits in cities all over the world over the long term. We are convinced that our partnership with SMART will produce a new systems approach for addressing the increasingly complex challenges to achieving sustainable mobility and accessibility globally, while at the same time transforming the transportation industry into a more sustainable and equitable New Mobility industry. (See [What Is New Mobility?](#))

Georgia Tech Joint Research Projects

Ford and Georgia Tech have a strong cooperative relationship, focused particularly on sustainability. Our present joint research projects are funded under a multi-year agreement to partner in design, manufacturing and logistics, and in mega-city mobility research. Our collaborative approach has been effective in developing talent among students, faculty and Ford professionals, as knowledge is transferred between the university and company settings. For instance, the students develop enthusiasm for the contributions of engineering in the realms of manufacturing and sustainability, and they gain valuable work experience during summer internships. At present, Georgia Tech is assisting Ford by:

- Developing the business case for urban mobility, especially pertaining to finance, information technology and vehicles (including fuels, design, carbon and powertrains)
- Building on the results of Ford's prototype projects, particularly with regard to software device connections

RELATED LINKS

- External Web Sites:
- SMART
 - Georgia Tech



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Mega-Cities: The Icon of Personal Mobility Challenges

Mega-cities are urban areas with more than 10 million residents. At least 25 mega-cities already exist worldwide. Twenty are located in the developing world, as are seven of the nine most populous. By 2015, there are projected to be at least 35 mega-cities, with virtually all the growth in developing countries. Mega-cities experience a wide range of social and environmental problems, many of them related to mobility.

All of the mega-trends we have identified, as well as other challenges to sustainable mobility, are at their worst in mega-cities, and engender paralyzing traffic congestion, air pollution, vehicle-related injuries and fatalities, and health problems. Furthermore, social inequality and the dislocation of families and communities are increasing as people move from rural areas to mega-cities seeking economic opportunities. To develop mega-city mobility strategies will require addressing the mobility needs of rural as well as urban residents, as many mega-city problems could be improved by developing new approaches to the transportation of people and goods between rural and urban areas, and by reducing the need for rural-urban migration.



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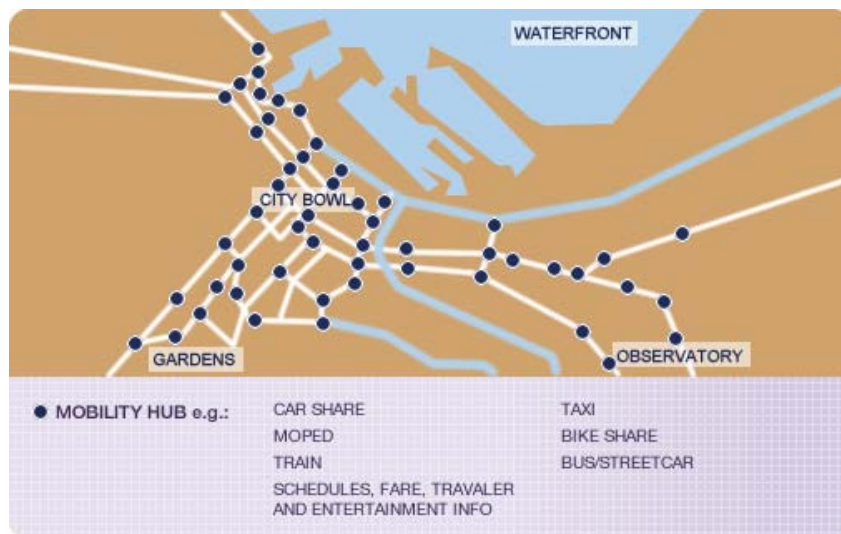
What Is New Mobility?

As we reach the limits of conventional models of mobility, "New Mobility" offers a practical route forward. New Mobility approaches transportation needs and options from a systems perspective. It relies on collaborative partnerships and information technology to bring existing services, products, technologies, infrastructure and design together into something that is greater than the sum of its parts – smarter, more sustainable, more convenient, more equitable and better connected.

Examples of New Mobility systems already exist, notably Hong Kong's "Octopus" system, which uses a "smart card" to provide travelers with access to multiple transit services as well as ferries, parking and retail outlets. Other examples exist in Bremen, Germany; Bogotá, Colombia; Paris, France; Curitiba, Brazil; Portland, Oregon; and more. Key features of New Mobility systems include the innovative use of technology to link diverse transportation systems such as rail, bus and subway with car sharing, bike sharing and other options, to provide flexible, seamless, door-to-door trips. Technologies can also enable distance working, learning, medicine and shopping, thereby reducing the need for some trips altogether. And still other information technologies support the sustainable and efficient movement of goods in urban regions, a growing area of concern and opportunity for innovation.

New Mobility also depends on something more old-fashioned: collaboration and partnership. Technology can "connect the dots," but only humans can get the varied institutions and interests involved in urban mobility to work toward a common end. Thus, New Mobility projects like those described in this section require extensive stakeholder engagement and establishment of trust between the many partners with a role to play.

NEW MOBILITY



Mobility Options

Urban commuters would be able to "connect the dots" using PDAs or cell phones, on which they could get scheduling, navigation, and congestion identification and avoidance information, as well as pay fares as needed.

Benefits

High-quality, safe, clean transportation that is widely accessible in crowded urban areas can reduce congestion, fuel consumption, pollution and carbon emissions.



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Human Rights

2009 HIGHLIGHTS:

- Trained more than 180,000 of our suppliers' workers in human rights through outreach programs
- Our human rights efforts were ranked first in *CRO* magazine's 100 Best Corporate Citizens list



We understand the positive impact our actions can have on our 176,000 employees and the million people who work for companies in our supply chain.

In 2000, Ford held a meeting with several prominent thought leaders from key stakeholder groups, as part of the development of our corporate citizenship strategy. The stakeholders identified several issues as the most important focus for Ford's strategy. Some issues, such as climate change, were not unexpected. More surprising was the issue of human rights. The stakeholders were asking Ford to take a leadership role in the industry by developing systems and programs to ensure sound working conditions in Ford facilities and our supply chain.

Despite the relative obscurity of the issue (at the time, working conditions in the automotive industry were not in the public eye), we recognized compelling business reasons to take up the cause. We believed then, and we still believe, that people are most likely to excel in an environment that aims for excellence. A safe workplace in which people are treated with respect promotes increased quality, productivity, employee retention and morale. It can also decrease quality problems and health care costs. This is true in our own facilities and in those of our suppliers. Indeed, we think a supplier company's efforts to address working conditions, environmental challenges and other sustainability issues are good indicators of its management's leadership capabilities.

Fast forward 10 years. Ford's Code of Basic Working Conditions (CBWC), adopted in 2003, applies throughout our global operations and \$65 billion supply chain. We require our suppliers to ensure that our products – no matter where they are made – are manufactured under conditions that demonstrate respect for the people who make them. This is just as important to us as quality, cost competitiveness and timeliness of delivery. In early 2008, Ford joined the United Nations Global Compact (UNGC), a framework for businesses that are committed to aligning their operations and strategies with 10 universally accepted principles in the areas of human rights, labor, the environment and anti-corruption. This action reinforces our commitment to outstanding performance and transparency in these areas. We also actively participate by invitation in both the Human Rights and Supply Chain Sustainability Advisory Groups convened by the Global Compact. And we are leading an initiative through the Automotive Industry Action Group (AIAG) to develop a common approach to working conditions in the automotive supply chain. We have set [goals](#) that reflect our three-pronged approach to the issue:

- Engagement with Individual Supplier Facilities: Training and capability building form the basis of Ford's supply chain working conditions program, supported by assessments of individual factories (totaling more than 600 to date). Through Ford-administered programs and those conducted in conjunction with other automakers and the AIAG, we have trained 1,773 managers from 1,478 supplier companies on systemic solutions to working conditions

PERSPECTIVES ON SUSTAINABILITY



Timothy Fort

Executive Director and Professor of Ethics, Institute for Corporate Responsibility, George Washington University

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RELATED LINKS

This Report:
[Code of Basic Working Conditions](#)

External Web Sites:

- [United Nations Global Compact](#)
- [The Labour Principles of the United Nations Global Compact: A Guide for Business](#)

DOWNLOADS

- [UN Global Compact Letter from Alan Mulally \(pdf, 126kb\)](#)



challenges. Training participants are required, in turn, to cascade the training to their own management and employees as well as to clearly communicate expectations to their suppliers, thereby expanding the impact significantly.

- Engagement with Key Suppliers' Corporate Management: Ford is working with its strategic production suppliers at the corporate level to enhance their policies, verification systems and ability to influence their own supply chains. Our 90 Aligned Business Framework suppliers commit to manage and assure proper working and environmental conditions in their facilities and supply chains, and we are measuring their progress in doing so.
- Collaboration within the Automotive Industry: Ford is driving collaboration between automakers and supply chain companies on global working conditions issues through the AIAG.

The following are among the lessons we've learned in our decade of work in this area.

- Almost without exception, the systems and processes in place at Ford-owned facilities and joint ventures – from health and safety management to collective bargaining agreements – are sufficient to ensure compliance with the CBWC. In 2009, we conducted assessments at older facilities with "legacy" practices put in place by the prior owners. We have worked hard to modify and align those practices to achieve compliance with our Code.
- Our concern for human rights does not end at the factory fence line. Issues ranging from environmental pollution to economic conditions in the local communities can affect the human rights of individuals. That's why our CBWC addresses community engagement and indigenous populations, bribery and corruption, and environment and sustainability.
- Assessing working conditions at supplier factories is necessary but not sufficient to ensure alignment with our CBWC. Through our efforts, we have learned the importance of helping suppliers build the capability to manage working conditions, rather than simply assessing their compliance with Ford and legal requirements (though assessments continue to provide important learnings).
- Due to the complex and overlapping nature of the automotive supply chain, action on the part of a single original equipment manufacturer (OEM) is less effective than OEMs working together toward a shared vision through joint programs. We see significant potential for collaborative action by automakers to establish a common, effective and efficient approach to ensuring sound working conditions in the automotive supply chain.
- Affecting the furthest reaches of our supply chain can be challenging. We have set the expectation that our direct (Tier 1) suppliers will not only provide sound working conditions in their own operations, but will expect the same of their suppliers, who in turn are to encourage their own suppliers to do the same. We work very closely with our strategic suppliers to cascade this approach through their supply chains. The further removed the supplier is from Ford, the harder it is to determine our influence on working conditions, and so our dialogue with our Tier 1 suppliers is critical.

We continue to adapt our approach as new opportunities and challenges emerge. Some of the issues we are currently evaluating and responding to include the following.

- As the widespread electrification of automobiles moves closer to reality, concerns are emerging over the environmental and social impacts of extracting and processing lithium (which is needed to make the lithium-ion batteries that will be used in battery electric and plug-in hybrid electric vehicles) and rare earth elements (which are used in electric motors for vehicles, wind turbines and other advanced technologies). We are exploring these issues as part of our approach to [vehicle electrification](#). We are also looking at the raw materials used in information technology components, as we increase the capabilities of our SYNC® system.
- We believe that government can play a role in encouraging companies to manage human rights responsibly in their operations and supply chains. We are working with the U.S. Departments of State and Labor to explore this potential. (See the [Public Policy](#) section for more on this topic.)
- The availability and quality of freshwater is an issue of increasing global importance. Through work on our [water strategy](#), we are exploring the human rights implications of increasing scarcity of and competition for water.

We are proud of our record on human rights and our leadership in the automotive industry. We will continue to deal with emerging issues responsibly, in line with our commitment to human rights, and to learn from our experience.

This section of our report covers the systems and initiatives we have established to communicate

our expectations throughout our own operations and to our suppliers, to assess alignment with the CBWC, to encourage our suppliers to implement similar approaches and to promote a coordinated, industry-based approach to working conditions in the automotive supply chain.

FORD ASSISTS WITH U.N. GLOBAL COMPACT STRATEGY

Ford was one of approximately 20 companies invited to join the UNGC's Supply Chain Sustainability Advisory Group – and the only North American automotive company invited to participate. The objective of the group is to produce guidance for Global Compact participants on how to develop more sustainable supply chain practices. The group's work stream will link with the Global Compact's issue working groups on human rights, labor, environment and anti-corruption. The advisory group will be asked to provide input to the overall strategy of the Global Compact on this issue and to the development of guidance material and other outputs. The resulting guidance documents and resources will be launched at the U.N. Global Compact Leaders Summit in June 2010 in New York.

Human rights refers to basic standards of treatment to which all people are entitled. It is a broad concept, with economic, social, cultural, political and civil dimensions. For Ford, this means ensuring that our products, no matter where they are made, are manufactured under conditions that demonstrate respect for the people who make them. It also means respecting the rights of people living in the communities around our facilities, and those of our suppliers, who may be affected by these operations.

Working conditions refers to aspects of human rights in the workplace, as governed by local laws and affected by international standards pertaining to workplace issues such as child labor, harassment and discrimination, health and safety, wages and benefits, freedom of association, working hours and forced labor.

THE 10 PRINCIPLES OF THE U.N. GLOBAL COMPACT

Human Rights

- Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
- Principle 2: make sure that they are not complicit in human rights abuses.

Labor Standards

- Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
- Principle 4: the elimination of all forms of forced and compulsory labor;
- Principle 5: the effective abolition of child labor; and
- Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

- Principle 7: Businesses should support a precautionary approach to environmental challenges;
- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

- Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.



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Ford's Commitment to Human Rights

Ford's commitment to human rights is embodied in our [Code of Basic Working Conditions \(CBWC\)](#), which forms the foundation of our work in our own operations and supply chain and our collaboration with others in the industry. The CBWC articulates our commitments on key human and labor rights issues. In effect since 2003, it was more formally adopted as a Policy Letter in 2007. The CBWC is based on fundamental elements of internationally recognized labor standards, including the Universal Declaration of Human Rights, International Labour Organization Covenants, the Organisation for Economic Co-operation and Development's Guidelines for Multinational Enterprises, the United Nations' Global Compact Principles, the Global Sullivan Principles, and standards of the Fair Labor Association and International Metalworkers' Federation. Ford encourages businesses throughout our supply chain to adopt and enforce similar policies, and seeks to identify and do business with organizations that conduct their businesses to standards that are consistent with the CBWC.

The CBWC covers workplace issues such as working hours, child labor and forced labor. It also reflects our increasingly integrated approach to managing human rights and community issues by articulating our commitments on several key issues that extend beyond the fencelines of our facilities, including community engagement and indigenous populations, bribery and corruption, and environment and sustainability.

We encourage employees who have a good-faith belief that there may have been a violation of this Code to report it through established channels, which vary by region, or to Ford's Office of the General Counsel.

These reports are then forwarded to the Manager of Human Rights, who takes action to clarify, validate and correct the situation, if necessary. No retaliatory actions are taken against employees who report concerns about violations of the CBWC.

RELATED LINKS

This Report:

- [Code of Basic Working Conditions](#)
- [Community](#)



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Code of Basic Working Conditions

This Code of Basic Working Conditions represents the commitment of Ford and its worldwide subsidiaries. The diverse group of men and women who work for Ford are our most important resource. In recognition of their contributions, we have developed policies and programs designed to ensure that our employees enjoy the protection afforded by the principles articulated today in this Code. While these principles are not new to Ford, they are vitally important to what we stand for as a company. Consequently, we have chosen to summarize them here in an expression of our global commitment.

While this Code of Conduct serves to detail, specifically, our standards for labor and environmental standards throughout our global operations, it also stands as a general endorsement of the following human rights frameworks and charters:

- The UN Universal Declaration of Human Rights
- The ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy
- OECD Guidelines for Multinational Enterprises
- The Global Sullivan Principles of Social Responsibility

The diverse universe in which Ford operates requires that a Code such as this be general in nature. In certain situations, local legal requirements, collective bargaining agreements and agreements freely entered into by employees may supersede portions of this Code. Nevertheless, we believe this Code affirms important, universal values that serve as the cornerstone of our relationship with employees.

Child Labor

We will not use child labor. In no event will we employ any person below the age of 15, unless this is part of a government-authorized job training or apprenticeship program that would clearly be beneficial to the persons participating.

Compensation

We will promote our employees' material well-being by providing compensation and benefits that are competitive and comply with applicable law.

Forced Labor

We will not use forced labor, regardless of its form. We will not tolerate physically abusive disciplinary practices.

Freedom of Association and Collective Bargaining

We recognize and respect our employees' right to associate freely and bargain collectively. We will work constructively with recognized representatives to promote the interests of our employees. In locations where employees are not represented by unions, we will seek to provide opportunities for employee concerns to be heard.

Harassment and Discrimination

We will not tolerate harassment or discrimination on the basis of sex, race, color, creed, religion, age, ethnic or national origin, marital/parental status, pregnancy, disability, sexual orientation or veteran status.

Health and Safety

We will provide and maintain for all employees a safe and healthy working environment that meets or exceeds applicable standards for occupational safety and health.

Work Hours

We will comply with applicable law regulating hours of work.

Community Engagement & Indigenous Populations

We shall consider indigenous peoples among our primary stakeholders in all projects we consider undertaking. We will openly and honestly engage all recognized members of our stakeholder community who have an interest in our activities.

Bribery and Corruption

We will under no circumstances tolerate the giving or receiving of undue reward to influence the behavior of another individual, organization, politician or government body, so as to acquire a commercial advantage; this extends to all of our regional operations, regardless of whether bribery is officially tolerated and condoned.

Environment and Sustainability

We will conduct business in an environmentally friendly and responsible manner. We will seek to reduce and minimize the environmental impact of all of our operations in the short term, as we seek to become an environmentally restorative and truly sustainable company in the long term.



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Working Conditions in Ford Plants

Ford's Code of Basic Working Conditions applies to our own facilities as well as those of our joint venture companies and suppliers. Since 2004, we have conducted 47 formal assessments of Ford facilities, six of which were joint-venture facilities.

During 2009, we conducted assessments at our Oakville plant in Ontario; our Valencia plant in Venezuela; our recently acquired plants – Troeller in Horizonte, Brazil, and Craiova in Craiova, Romania – and our joint-venture plants in Pleukdang, Thailand, and Chongqing, China. These sites were selected by Ford's Sustainability and Environmental Policy and Supply Chain Sustainability functions based on the sites' impact on our supply chain, emerging issues and the views of thought leaders, nongovernmental organization representatives and human rights activists.

The process for assessing Ford facilities includes a questionnaire to be completed by facility management and a detailed review of documents related to the full range of working conditions issues (e.g., collective bargaining agreements, grievance procedure logs, employee hotline records and health and safety audit reports).

The findings of the questionnaire and document review serve as the basis for interviews with facility management. Where procedures and/or documentation are lacking, or where we feel it would otherwise be valuable, the assessments also include facility visits.

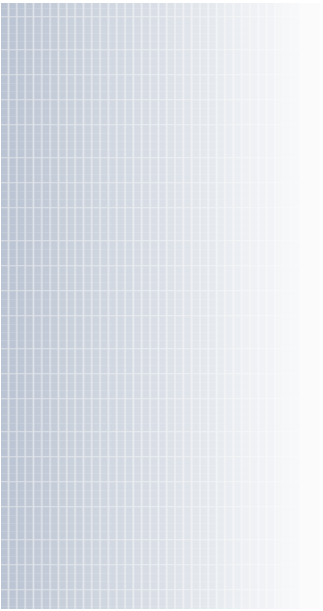
The findings of the assessments are initially shared with human rights organizations with which Ford works and then published on our Web site. We have sought the opinions of neutral third parties who have visited plants and/or reviewed the assessment process, and they have agreed that the process is robust and has integrity.

The findings of the 2009 assessments were generally consistent with those of previous assessments. That is, they confirmed that Ford's wholly and majority-owned facilities are operating in compliance with our CBWC. Reflecting the expanded scope of the CBWC, the assessments also discuss and document community engagement efforts, effects on indigenous populations and environmental initiatives. However, we observed the impact that operating in countries with less-stable governments can make on our own CBWC elements and work rules. We took great care to ensure that these obstacles did not prevent us from achieving our objectives, and we plan to continue to monitor the facilities to detect and address any potential concerns.


We have received considerable and consistent positive feedback from external stakeholders about the policies and systems in place at Ford facilities. While we and our stakeholders have confidence in our systems, we nonetheless believe it is important to continue conducting the assessments given that conditions can change and new issues emerge.

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
- Santa Rosa Human Rights Assessment (pdf, 61kb)
- Camacari Human Rights Assessment (pdf, 111kb)
- Ford Motor Company of Southern Africa Human Rights Assessment (pdf, 85kb)
- Vsevolozshk Human Rights Assessment (pdf, 85kb)
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- Changan Human Rights Assessment (October 10, 2006) (pdf, 56kb)
- Changan Human Rights Assessment (June 10, 2009) (pdf, 54kb)
- India Human Rights Assessment (pdf, 41kb)
- Otosan Human Rights Assessment (pdf, 63kb)
- Vietnam Human Rights Assessment (pdf, 73kb)
- Oakville Human Rights Assessment (pdf, 37kb)
- Valencia Human Rights Assessment





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 **Craiova Human Rights Assessment**
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 **Troeller Human Rights Assessment**
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 **São Bernardo Human Rights Assessment**
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 **Code of Basic Working Conditions**
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Ford and the Automotive Industry Supply Chain

Our complex global supply chain encompasses several thousand supplier facilities that employ a million people. (See [Supply Chain Profile](#).) We aim to ensure that everything we make – or others make for us – is produced consistent with local law and our [Code of Basic Working Conditions](#). This can be challenging, as we have less control in suppliers' facilities than in our own, particularly at the sub-tier level (i.e., our suppliers' suppliers).

The legal structures governing working conditions, and the level of enforcement, vary widely across the countries in which we operate. Ensuring sound working conditions in the supply chain is ultimately the suppliers' responsibility, and we would like governments to play the lead role in enforcing compliance with laws. However, as customers, we also have an active role to play in supplier development.

Since we began work with our suppliers to ensure alignment with our CBWC, our approach has emphasized building capability throughout the supply chain to manage working conditions effectively. Our primary focus has been on training and education about working conditions issues, in conjunction with assessments of individual suppliers in order to verify performance and progress. We are committed to collaborative action to more effectively influence all levels of the automotive supply chain.

Our long-term vision is for our industry as a whole to converge on a set of common expectations for the global automotive supply chain and then work together to ensure that these expectations are met throughout the supply chain. We are working toward that goal comprehensively, with a three-pronged approach aimed at individual supplier facilities, supplier company management and auto company management. (See the "[Expanding Impact on Working Conditions](#)" graphic.)

183,052

Number of our suppliers' workers who have been trained in human rights based on our supplier outreach programs.

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 - Code of Basic Working Conditions
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Supply Chain Profile

Production

(Anything that is part of the vehicle)

60+

Countries in which suppliers are located

36

Emerging markets in which suppliers are located

17

Emerging markets considered to have risks of substandard working conditions. These countries were identified as higher risk based on consultation with nongovernmental organizations, other companies with human rights experience, local Ford operations and various media and government reports.

90

Ford manufacturing sites

1,600+

Supplier companies (Tier 1)

4,600+

Supplier manufacturing sites

130,000

Parts currently being manufactured

250+

Production commodities to manage

Nonproduction

(Anything that is not in the vehicle, such as services, marketing, construction, computers, industrial materials, health care, machinery, trains)

9,000+

Supplier companies

600+

Nonproduction commodities

TOTAL GLOBAL BUY

\$65+ billion

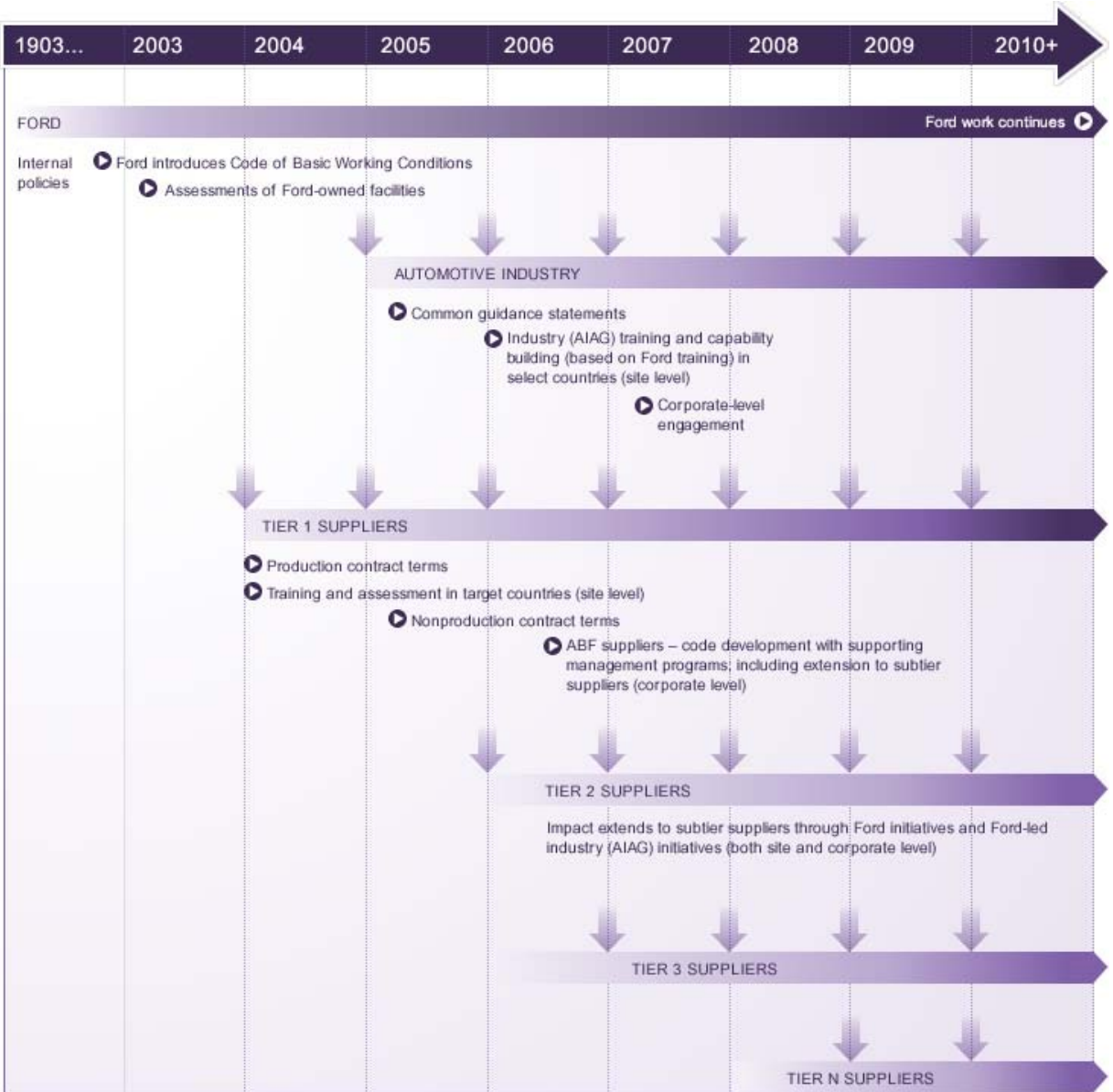


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Expanding Impact on Working Conditions





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Engagement with Individual Supplier Facilities

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 - Building Supplier Capacity
 - Assessing Suppliers

Setting Expectations for Our Suppliers

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Every supplier doing business with Ford is subject to Ford's Global Terms and Conditions. This core contract reflects our prohibition of the use of forced labor, child labor and physical disciplinary abuse. These requirements were added in January 2004 for production suppliers and in September 2005 for all others. We have provided a standard for these areas – the same as we use in our own facilities (Ford's Code of Basic Working Conditions) – that supersedes local law if our standard is more stringent. The Global Terms and Conditions also prohibit any practice in violation of local laws.

In addition, the Global Terms and Conditions serve to:

- Set the expectation that suppliers will work toward alignment with our CBWC in their own operations and their respective supply chains in the areas of harassment and discrimination, health and safety, wages and benefits, freedom of association, working hours, bribery and corruption, community engagement, and environment and sustainability
- Make clear Ford's right to perform third-party site assessments to evaluate supplier performance
- Communicate that Ford can terminate the relationship for noncompliance or for failure to address noncompliance in a timely manner



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Engagement with Individual Supplier Facilities

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Building Supplier Capacity

The primary focus of our work on human rights in our supply chain is building capability among our suppliers to responsibly manage working conditions. This includes meeting legal requirements and Ford's expectations, as well as promoting sound working conditions in our suppliers' own facilities and supply chains. We have developed and delivered tailored training programs for Ford suppliers in select countries in cooperation with the Automotive Industry Action Group, a North American member-based, nonprofit industry group specializing in supply chain issues.

Ford's training workshops emphasize the interpretation and application of legal standards and international best practices. By interacting with managers from the human resources, health and safety, labor affairs and legal departments of participating companies, the workshops provide for a two-way learning experience touching on the areas of interest for each company.

While Ford's supplier training sessions are customized to align with the unique laws, customs, cultures and needs of each location, in general they consist of:

- A day-long interactive workshop facilitated by qualified trainers and involving multiple automotive suppliers, in which participants develop and confirm an understanding of Ford expectations, local labor law, best practices and management systems, and
- A confirmed communication cascade for providing information obtained during the classroom training to all supplier personnel at each factory and direct sub-tier suppliers.

During 2009, we held training workshops in Argentina, China, Korea, the Philippines, South Africa and Taiwan. Some 1,773 managers from 1,478 different supplier companies have completed a full day of training since the inception of the program in 2004. These suppliers have now moved on to the process of self-assessing their facilities for compliance with local law and Ford expectations, and completing the final stage of the program, which is communication to both workers and their own suppliers on the topic of working conditions expectations.

We continue to focus on the 17 countries we had previously identified as having higher risks of substandard working conditions. Among those countries, locations are prioritized based on production and sourcing trends, sales trends and relative perceived risk based on the input of human rights groups, other companies' experience and other geopolitical analysis. In 2010, we plan to conduct supplier training programs in conjunction with AIAG in Brazil, India and Turkey and by Ford alone in Romania.

WORKING CONDITIONS PROGRAM COUNTRIES

- Americas and Caribbean: Argentina, Brazil, Colombia, Mexico, Venezuela and Central America (Dominican Republic, Honduras, Nicaragua)
- Asia and Africa: China, India, Korea, Malaysia, the Philippines, South Africa, Taiwan, Thailand, Vietnam
- Europe: Romania, Russia, Turkey



RELATED LINKS +

This Report:
Working Conditions Assessment Status for Supply Chain



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Engagement with Individual Supplier Facilities

IN THIS SECTION

- Setting Expectations for Our Suppliers
- Building Supplier Capacity
- Assessing Suppliers

Assessing Suppliers

Since 2003, we have conducted more than 600 assessments of existing and prospective suppliers in 20 countries. The assessments provide feedback to Ford and suppliers about how well they are meeting legal requirements and Ford's expectations. They also provide insight into the effectiveness of our training programs. Assessments consist of a detailed questionnaire, a document review, factory visits, and management and employee interviews, and are conducted with the assistance of external auditors.

In 2009, we conducted assessments across the target countries. The findings from the 2009 assessments were generally consistent with those we had previously conducted. Namely, they identified a wide range of general health and safety issues, several wages and benefits issues and a limited number of other types of noncompliance.

The findings from Ford's 2009 supplier assessments included:

- No evidence of forced labor or physical disciplinary abuse
- A range of general health and safety issues, including inadequate emergency systems
- In some cases, a lack of appropriate timekeeping systems, and thus a failure to pay correct overtime wages
- In some cases, a failure to pay the correct local minimum wage or overtime or to provide the correct social insurance
- A general need to clearly define policy on harassment and discrimination
- Limited cases of restricted workers doing hazardous work
- In some cases, limited or restricted access to appropriate documentation regarding subcontracted labor and privacy policies
- In some cases, nonpayment of company contributions to government-mandated social programs
- Working hours violations related to overtime (In some cases, this overtime is a chronic issue resulting from poor capacity planning, but more often, it occurs only during peak production periods.)

Freedom of association has been difficult to verify. While all assessed suppliers have either union representatives or a grievance process, there may be issues we have not been able to identify through our assessment process.

Another common finding is that suppliers often lack fully developed management systems – including continual improvement processes – to support compliance over time. This finding has validated our training approach, which continues to emphasize management systems at both the corporate and factory levels.

We continue to engage with our suppliers to develop and implement appropriate corrective action plans. Through this process, we have the opportunity to encourage change throughout the tiers of suppliers and affect positive change more broadly.

In 2010, we will continue to conduct supplier assessments across the target countries as necessary.

RELATED LINKS

- This Report: Working Conditions Assessment Status for Supply Chain



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- Materiality Analysis
- Climate Change
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Engagement with Key Suppliers' Corporate Management

Within our global supply base, we have long-term, strategic relationships with a select number of suppliers. Relationships with these suppliers are structured through our Aligned Business Framework (ABF), which is designed to create a sustainable business model to increase mutual profitability, improve quality and drive innovation. In 2010, we expanded the ABF, adding 13 new companies. There are now 90 companies identified as ABF suppliers. Minority- and women-owned suppliers make up nearly 15 percent of the ABF network.

The bilateral ABF agreements comprehensively and formally spell out 22 key business commitments to which Ford and the ABF suppliers must adhere. One element of the ABF agreement is the commitment by suppliers to manage and assure proper working conditions, including responsible environmental management, in their facilities and in their supply chain. (ABF suppliers must also adhere to our Global Terms and Conditions.) This commitment is important for several reasons. Beyond the simple fact that it is the right thing to do, there are specific business benefits to Ford and suppliers in reducing the risk of operational or reputational problems that could affect production. The commitment also provides an opportunity for joint action by Ford and its suppliers to ensure sound working conditions throughout the automotive supply chain.

Ford is facilitating this ABF commitment through a three-phase process, in which ABF suppliers are asked to:

1. Develop or verify that they have a code of conduct aligned with Ford's Code of Basic Working Conditions and internationally accepted principles,
2. Conduct internal awareness training and develop compliance processes supporting their code, and
3. Extend or cascade these expectations to their sub-tier suppliers.

We are making good progress in working through the phases with our ABF suppliers. About 24 suppliers have completed the first phase; 11 suppliers have completed the second phase and seven suppliers have completed all three. We have implemented a robust process of review at each phase, thus ensuring that suppliers have met our expectations.

Ford has committed to providing suppliers with a range of support and assistance based on our experience in this area. We have developed an in-depth resource guide to give suppliers information and background on human rights, generally, and on the development of their own codes, specifically. We are sharing the training materials we have developed, as well as information and developmental guidance on our compliance and training processes. Finally, we have committed to working with suppliers to help resolve issues and concerns.

Through our work with ABF suppliers to date, we have found key success factors that have enabled companies to make notable progress including: (1) the identification of executive decision makers to coordinate cross-functional efforts; (2) the support of executive management and/or the Board of Directors; and (3) facilitation by Ford of discussions and implementation support through individual or regional in-person meetings. In general, companies that have been able to make progress in aligning with these ABF expectations have been those that have not been in significant financial distress and those that may already have aligned values, but had not necessarily institutionalized those values through policies and programs. Many of these companies approach responsible working conditions and environmental management in a systemic manner with implementation and supporting management systems in mind.

During the fourth quarter of 2009, we held two sustainability sessions – one in Dearborn, Michigan, and one in Cologne, Germany – that were attended by senior management from Ford and our ABF suppliers. Topics covered in these meetings included the development of internal trainings as well as best practices from suppliers related to responsible working conditions and environmental management in their owned operations as well as with their suppliers. We also held a workshop

RELATED LINKS

- This Report:
- Suppliers
- Supply Chain

discussion on the topic of carbon measurement in the automotive value chain. This introductory dialogue helped to inform Ford's effort to test approaches to [measuring greenhouse gas emissions in the supply chain](#).

Through the ABF, Ford is making strides in improving its working relationships with suppliers on a global basis. We are particularly excited about our sustainability work with our ABF suppliers, which leverages our efforts to manage human rights and environmental responsibility issues in our supply chain in a more collaborative, in-depth, integrated and aligned manner. In our view, it will help embed ownership for social and environmental issues throughout our value chain, and lead to the development of more robust sustainable management systems across the automotive supply chain.



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Collaboration within the Automotive Industry

Ultimately, we would like all automakers to take a coordinated approach to protecting human rights and environmental conditions in the supply chain. We promoted cross-industry collaboration beginning in North America and have extended these efforts to include global manufacturers. Our view is that all participants in the supply chain – from the original equipment manufacturers (OEMs) such as Ford, to the suppliers themselves, to the government agencies that set and enforce the regulations governing operations – must be involved to make these efforts sustainable in the long run. Such collective action will not only minimize costs and increase efficiency for OEMs and suppliers alike, but will lead to better results than if individual companies take steps in isolation.

RELATED LINKS +

- External Web Sites:
- Automotive Industry Action Group
 - AIAG Global Working Conditions Initiative
 - Business for Social Responsibility

Automotive Industry Action Group Initiative

Since 2004, Ford has worked with the AIAG to implement its capability-building program with global suppliers, with the intent of leveraging that work with other automakers (see diagram below). Ford has taken an "open book" approach to its supply chain work and has contributed an "executive on loan" – the global manager of our Supply Chain Sustainability group – to the AIAG to support the industry's work and share what we have learned from working on these issues within our own operations. Materials developed within Ford to promote responsible working conditions have been offered to the group as a platform for use and development.



In 2005, Ford, General Motors, Chrysler, Honda North America and Toyota North America began collaborative work through AIAG to explore a cooperative industry approach to promoting decent working conditions in the supply chain. We continue to seek the participation of all global OEMs. We have engaged suppliers across a variety of different commodities. Their participation has been important to inform the activities pursued by the automakers at the AIAG, as has engagement with government (both U.S. and local governments in the countries in which training programs are provided) and nongovernmental agencies.

Initiative participants have created a set of guidance statements to establish a shared industry voice on key working conditions issues. The statements cover the core elements of individual companies' codes and policies, joint codes created by other industries and key international standards. The guidance statements cover child labor, forced labor, freedom of association, harassment and discrimination, health and safety, wages and benefits, and working hours. These statements serve as a baseline agreed upon by all the participating OEMs and are used as a platform for training. It should be noted that Ford's specific expectations in the Ford CBWC for child labor exceed the expectations in the industry guidance statements and also include elements not yet addressed by the industry guidance statements, such as community engagement and indigenous populations, bribery and corruption, and environment.

Training Workshops

Beginning in 2007, the sponsoring OEM manufacturers from the AIAG launched joint factory-level training workshops in China and Mexico. All training materials were based on Ford-developed training. Like Ford's own training programs, the programs carried out by the AIAG reach supplier

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representatives directly, and those individuals are expected to cascade the training to their own organizations and suppliers. With the support of the AIAG and the China Association of Automobile Manufacturers, the mandatory training in China reached 461 Tier 1 suppliers to Ford, GM and Chrysler, including more than 300 suppliers to Ford's joint ventures in China.

AIAG participants engaged stakeholders and further developed training materials before the launch of a training program in Mexico. The work in Mexico was partially funded and supported by a \$185,000 grant from the U.S. State Department to Business for Social Responsibility, a nonprofit group that works with companies to advance responsible business practices. This public-private partnership enabled relationship building with local industry associations, the Mexico national government and domestic suppliers in Mexico. As of year-end 2008, a total of 494 Tier 1 suppliers participated in the Mexico training, including more than 250 suppliers to Ford.

Due to the adverse conditions in the global automotive industry, training sessions planned for 2009 were rescheduled for 2010. The development of training materials and alignment of sponsoring companies continued throughout 2009 to ensure a successful 2010 deployment.

Corporate Engagement Pilot

In December 2008, the AIAG and the five participating OEMs held two pilot working conditions training sessions targeted at senior management from the procurement organizations of their top supplier companies. During 2009, these classroom training sessions were converted into an online training program on working conditions that was targeted at purchasing or supply chain management. The development of this electronic resource was in response to feedback from supplier participants in the classroom sessions run in 2008. The web-based training was launched in early 2010 by the five participating OEMs to their respective suppliers.

Next Steps – Industry Cooperation

The AIAG cooperative project continues to work on several fronts:

- Actively reaching out to others in the automotive supply chain, including global automakers and heavy truck manufacturers, industry associations, major automotive suppliers and cross-sectoral initiatives. Broader participation will be needed to achieve the vision of an industry-wide approach to promoting decent working conditions in the supply chain.
- Continuing to expand the training program.
- Increasing supplier ownership of working conditions issues through an expansion of engagement opportunities (i.e., the launch of e-learning programs in 2010 and continued direct engagement in AIAG work groups).
- Development of additional resources and networks that will ensure the successful communication of working conditions expectations throughout the automotive supply chain.



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As the work at the AIAG develops and matures, Ford will maintain a leadership position in our work with the supply chain. We will continue to conduct our own training and assessment programs in countries not covered by AIAG programs. We will also seek further opportunities to strategically leverage our assessment data and training processes to enhance our overall approach to working conditions and environmental responsibility in the automotive supply chain.

In addition, we constantly monitor approaches developed by other organizations and industries in order to incorporate what they have learned into our approach. We will continue to pursue partnerships with direct suppliers that create ownership of working conditions within those supplier organizations. Clear, consistent communication and further business integration of processes that support responsible working conditions throughout the supply chain will be a key component of our continued work.

We are also collaborating with suppliers and other stakeholders to explore additional sustainability issues in our supply chain, including [carbon emissions](#) and a range of sustainability issues related to the raw materials needed to deploy new [electrification technologies](#).

RELATED LINKS

This Report:

[Climate Change](#)

[Electrification: A Closer Look](#)



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The [data relating to human rights](#) is included in the Society section of this report.



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Vehicle Safety

2009 HIGHLIGHTS:

- Introduced the first automotive inflatable seat belts
- Supported legislation banning handheld texting while driving

Based on a variety of independent measures, Ford remains an industry leader in motor vehicle safety.



Vehicle safety is very important to us at Ford. In fact, it's one of four principles that inform and guide our every design and engineering effort.¹ We consider building safe vehicles to be part of the "price of admission" to the automotive industry, and we continually work to raise the bar on safety.

In 2009, our efforts were once again rewarded. Based on the independent measures listed below, Ford remains an industry leader in motor vehicle safety.

- Ford holds the most Top Safety Picks (awarded by the Insurance Institute for Highway Safety, or IIHS) of any vehicle manufacturer. Nineteen Ford vehicles earned this honor in 2009, including the Ford Taurus, Taurus X, Fusion, Focus, Edge, Flex, Escape and F-150; the Lincoln MKS, MKZ, MKT and MKX; the Mercury Sable, Milan and Mariner; and the Volvo S80, C30, C70 and XC90. To earn a Top Safety Pick, a vehicle must receive a rating of "good" in offset frontal impact, side impact and rear impact evaluations, and offer electronic stability control. For 2010, vehicles will also be expected to earn a "good" rating in roof strength tests.
- For the 2010 model year, 23 Ford vehicles received five-star ratings for both frontal impact and side impact from the National Highway Traffic Safety Administration (NHTSA) in its U.S. New Car Assessment Program (NCAP) ratings, compared with 24 for the 2009 model year.
- The 2010 Ford Taurus is one of the safest-rated large sedans sold in America, with five-star NCAP crash ratings for frontal and side impact and "good" IIHS ratings in offset frontal impact, side impact, roof strength and rear impact evaluations.
- The 2010 Ford F-150 is America's safest full-size pickup. It's the only full-size pickup to earn five-star crash test ratings in all categories from NHTSA.
- The 2010 model year Mustang Convertible earned five-star ratings in all categories of NHTSA NCAP.
- For the 2010 model year, the IIHS awarded 30 Ford vehicles with "good" ratings for frontal offset performance and 19 Ford vehicles with "good" ratings for side impact performance.
- In Ford's most recent EuroNCAP assessments, the Ford Kuga and Ford Fiesta achieved Ford's first three-star ratings for pedestrian protection. These cars also joined the Focus, Mondeo, S-MAX and Galaxy in having best-in-class, five-star adult protection and four-star child protection ratings.
- The Ford Mondeo was the second Ford car (after the Focus) to be awarded a five-star rating in

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Jim Vondale

Director, Ford Automotive Safety Office

[Read more](#)

RELATED LINKS

Vehicle Web Sites:

- Ford Mustang
- Ford Taurus
- Ford Fusion
- Ford Focus
- Ford Edge
- Ford Flex
- Ford Escape
- Ford F-150
- Lincoln MKS
- Lincoln MKZ
- Lincoln MKT
- Lincoln MKX
- Mercury Milan
- Mercury Mariner
- Volvo S80
- Volvo C30
- Volvo C70
- Volvo XC90

Ford.co.uk:

the Chinese NCAP.

- The Ford Falcon was the first Australian-built car to be awarded five stars in the Australasian New Car Assessment Program (ANCAP).

In addition, Volvo's City Safety system received awards in 2009 from the following automotive publications: *Autohoje* (Portugal); *FuturAuto* (Belgium); and *Auto Motor und Sport*, Paul Pietsch Award (Germany).

This section outlines our vehicle safety performance over the past year. It includes a discussion of current vehicle safety [opportunities and challenges](#) globally, and [how we manage vehicle safety](#) within the Company. It also focuses on technologies we've developed, programs we support and research we are undertaking to [promote safer driving](#), how we [manufacture ever-safer vehicles](#) and how we [promote a safer driving environment](#). The section then looks at the various [collaborative efforts](#) we are undertaking with other organizations related to vehicle safety. Finally, a case study looks in-depth at the issue of [driver distraction](#).

For a discussion of Ford's positions on U.S. public policy issues relating to vehicle safety, please see the [Governance](#) section.

-
1. The other principles are quality, fuel efficiency and smart technologies.

[Ford Kuga](#)
[Ford Fiesta](#)
[Ford Focus](#)
[Ford Mondeo](#)
[Ford S-MAX](#)
[Ford Galaxy](#)

Ford.com.au:

[Ford Falcon](#)

External Web Sites:

[National Highway Traffic Safety Administration](#)

[Insurance Institute for Highway Safety](#)

[European New Car Assessment Programme](#)

[Australasian New Car Assessment Program](#)



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Challenges and Opportunities

As we at Ford implement our global "ONE Ford" strategy, we are mindful that countries with different levels of economic and infrastructure development face different traffic safety challenges.

In the United States and other developed countries, traffic safety has significantly improved in recent years. Although the U.S. population has continued to increase, the number of traffic fatalities in the United States in 2009 reached its lowest level in 55 years, according to the National Highway Traffic Safety Administration (NHTSA). In fact, the fatality rate per 100 million vehicle miles traveled has declined steadily since the late 1960s, and is now at the lowest level ever recorded.

Other developed countries have also seen improvements. The nonprofit Resources for the Future looked at traffic fatality data in 32 high-income countries between 1970 and 1999, and found that traffic fatalities declined in these countries by an average of 35 percent.

These improvements can be attributed to a combination of factors, including higher safety belt usage, advancements in vehicle safety technology, greater enforcement, better traffic infrastructure and increased cultural disapproval of driving under the influence.

Of course, traffic safety remains a significant challenge in these countries, with much room for improvement. In the United States in 2009, approximately 34,000 people died in motor vehicle crashes. Traffic crashes are the leading cause of death among U.S. teens. And, as discussed in depth in our [case study](#), distracted driving is a serious and growing problem.

In developing countries, traffic safety is an acute public health problem. The World Bank reports that fatality rates in developing countries are 25 to 30 per 10,000 vehicles, compared to 1 to 2 per 10,000 vehicles in mature markets. Of the 1.2 million people who die each year worldwide in traffic accidents, more than 1 million live in countries with low- and middle-income economies. The World Health Organization (WHO) estimates that deaths due to road traffic accidents will increase to 2.4 million in 2030, primarily owing to increased motor vehicle ownership and use associated with economic growth in low- and middle-income countries.

Many of the traffic deaths in developing nations involve pedestrians and/or motorcycles. As mobility increases in developing markets, people initially use two-wheeled motor vehicles, and the incidence of traffic accidents rises. As people migrate to automobiles, traffic accidents and injury levels generally decrease. During this transition, holistic solutions are required, including infrastructure improvements, the modification of road user behavior and the enforcement of traffic laws. One critical task is to educate drivers about the most important primary safety feature – safety belts.

In both developed and emerging markets, continued improvements in vehicle safety are also very important, and we at Ford continue to take seriously our responsibility to build safe vehicles.

Everywhere in the world, it is increasingly important for road safety stakeholders to work together using an integrated approach to ensure the maximum benefits are delivered from any given safety initiative. To support this approach, we at Ford seek ways to partner with governments, nongovernmental organizations and other stakeholders to identify the best opportunities to promote safety based on real-world data. We have become more involved in encouraging new and innovative ways to modify road user behavior (for example, through new technologies, driver education efforts and working with government agencies such as the UK Driving Standards Agency) and encouraging infrastructure and enforcement improvements in the communities in which we operate.

RELATED LINKS

- This Report:
 - Case Study: Driver Distraction
- External Web Sites:
 - National Highway Traffic Safety Administration
 - Resources for the Future
 - The World Bank
 - World Health Organization
 - UK Driving Standards Agency



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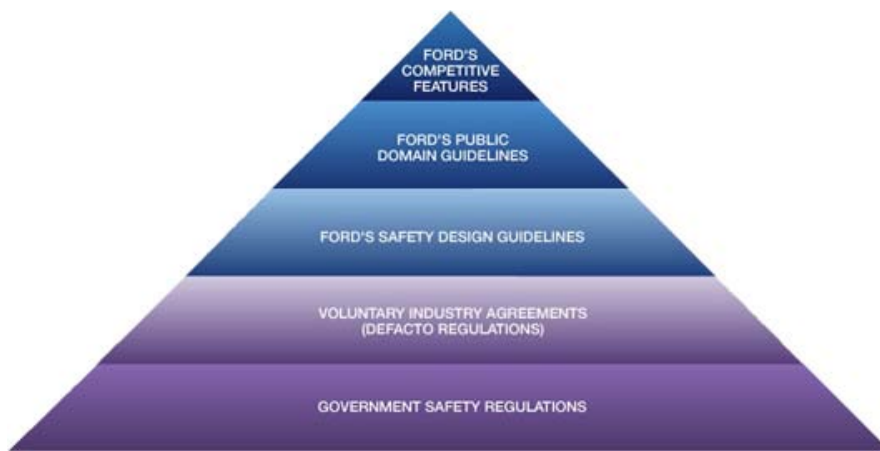
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How We Manage Vehicle Safety

Here at Ford, our objective is to design and manufacture vehicles that achieve high levels of vehicle safety for a wide range of people over the broad spectrum of real-world conditions. Real-world safety data, driver behavior, research, regulatory requirements and voluntary agreements provide much of the input into our safety processes, including our Safety Design Guidelines (SDGs) and Public Domain Guidelines (PDGs), see graphic below. The SDGs are Ford's stringent internal engineering design targets that exceed regulatory requirements and define many additional requirements that are not regulated. The PDGs are Ford guidelines that focus specifically on helping to ensure that our vehicles earn top marks in relevant public domain assessments.

Both SDGs and PDGs are managed on a global basis and address the local needs of individual regions and markets. Awareness of road safety is rapidly increasing in many emerging markets. In 2009, Ford added Australasian-specific SDGs and PDGs to address this issue – raising the bar for vehicle performance in this market beyond regulatory requirements.



Government-run New Car Assessment Programs (NCAPs) are an increasingly important tool to improve consumer awareness in emerging markets such as China, but their relevance in developed markets is still also very strong. This is likely to remain the case, as both the National Highway Traffic Safety Administration (NHTSA) NCAP and EuroNCAP ratings systems are being significantly altered. As such, fewer vehicles (of all makes) will receive top ratings. Ford is working hard to meet this challenge. We have taken active roles working with NHTSA and EuroNCAP to help ensure that the respective rating schemes will be appropriate and will deliver additional real-world benefit.

Changes to the NCAP system were slated to apply to 2010 model year vehicles, but NHTSA delayed implementation and will now first apply the tougher requirements to 2011 model year vehicles. Ford is continuing to work with NHTSA to address several remaining concerns about the new NCAP test requirements before they are implemented. EuroNCAP's more-stringent requirements went into effect in 2009. However, EuroNCAP does not test all vehicles annually, so no Ford vehicles have yet been assessed under the new system.

Internally, Ford utilizes engineering analyses, extensive computer modeling and crash and sled testing to evaluate the performance of vehicles and individual components. These rigorous evaluations help to confirm that our vehicles meet or exceed regulatory requirements and our even more stringent internal guidelines. Our state-of-the-art crash-test facilities include the Safety Innovation Laboratory in Dearborn, Michigan, and the extensive crash-test facilities in Merkenich, Germany, and Dunton, England.

There has been increased attention recently regarding vehicle manufacturers' processes to investigate customer issues as they relate to potential vehicle safety defects, as well as the role of

RELATED LINKS

External Web Sites:

[National Highway Traffic Safety Administration](#)

[European New Car Assessment Programme](#)

[Global Technical Regulations](#)

NHTSA. Ford has a proactive internal system that quickly identifies, evaluates and resolves issues as they relate to potential vehicle safety defects. In addition, when a competitor has a recall, we conduct a review to determine whether we share any of the same vendors, designs or parts. Ford has a very open and transparent process, and we work closely with the NHTSA when they contact Ford regarding customer concerns.

There has also been increased attention recently regarding vehicle electrical systems and the potential for electromagnetic interference (EMI) to affect vehicle performance. We design, engineer and rigorously test our vehicles for the wide range of environments in which they operate, including the potential effects of EMI. Our electronic safety system controls are designed to continuously monitor performance of key vehicle functions, detect issues if they arise and engage back-up functions in the unlikely event they occur.

Global Technical Regulations

The automotive industry is highly regulated, and two systems of vehicle regulation predominate globally: the United Nations Economic Commission for Europe Regulations and the U.S. Federal Motor Vehicle Safety Standards. To meet the relevant regulations of each market in which it sells, manufacturers must modify their vehicle designs and features. This is a particular challenge for Ford, given our increased focus on producing vehicles with the same platforms globally. It can increase vehicle complexity and cost, sometimes without documented, incremental real-world safety benefit.




With the aim of harmonizing world vehicle regulations, 31 countries are working together to develop Global Technical Regulations (GTRs). Ford Motor Company actively participates in the GTR development process.

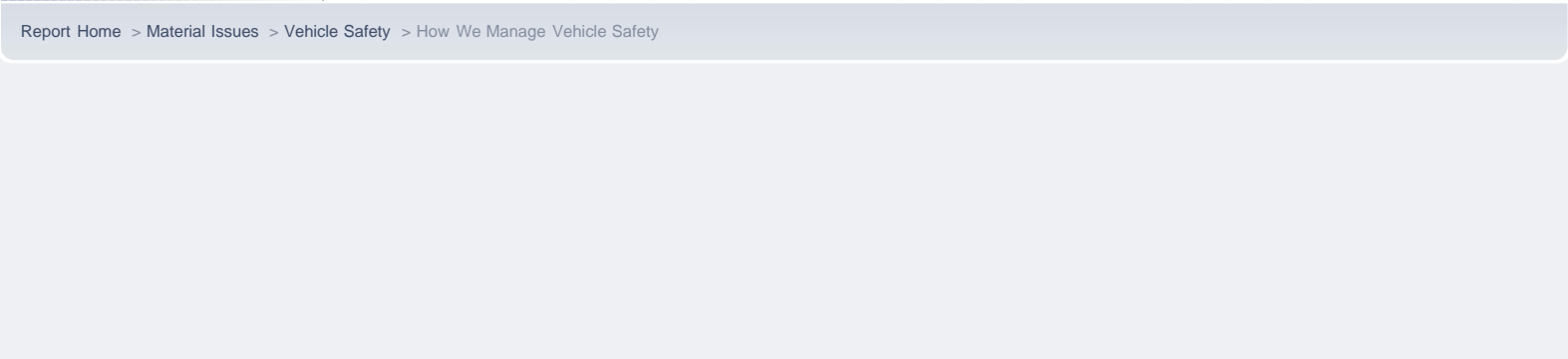
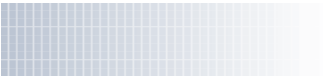
Thus far, 10 GTRs have been developed. Progress has been slow due to the difficulty of reconciling varied national requirements and the historical differences of existing regulations. Despite these challenges, Ford continues to believe that harmonization has the potential to significantly reduce global complexity while maintaining high levels of vehicle safety, security and environmental performance, and we plan to support harmonization efforts.

Haddon Safety Matrix

Vehicle safety is the product of complex interactions among the driver, the vehicle and the driving environment. We use the Haddon Safety Matrix (developed by William Haddon, a former NHTSA administrator and IIHS president) to take a holistic view of the factors that affect vehicle safety.

The Haddon Matrix looks at injuries in terms of causal and contributing factors, including human behavior, vehicle safety and the driving environment. Each factor is then considered in the pre-crash, crash and post-crash phases. In the pre-crash phase, the focus is to help avoid the crash. In the crash and post-crash phases, the primary objective is to help reduce the risk of injury to occupants during and after a collision. Another goal is to minimize the amount of time that elapses between the crash and when help arrives.

	HUMAN BEHAVIOR	VEHICLE SAFETY	ENVIRONMENT
			
Pre-Crash (accident avoidance)	<ul style="list-style-type: none"> Research Education Advocacy 	<ul style="list-style-type: none"> Crash avoidance technologies Security 	<ul style="list-style-type: none"> Road design for accident avoidance Traffic control
Crash (occupant protection)	<ul style="list-style-type: none"> Technology and proper use 	<ul style="list-style-type: none"> Crashworthiness 	<ul style="list-style-type: none"> Road design for injury mitigation Research
Post-Crash (injury mitigation)	<ul style="list-style-type: none"> Telematics 	<ul style="list-style-type: none"> Post-crash notification 	<ul style="list-style-type: none"> Emergency medical services
Examples of Ford Actions	<ul style="list-style-type: none"> SYNC® technology MyFord™ driver connect technology MyKey™ Ford Driving Skills for 	<ul style="list-style-type: none"> Accident avoidance features SYNC® with 911 Assist Inflatable safety belts Roll Stability Control® 	<ul style="list-style-type: none"> Global Road Safety Initiative Accident research





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Encouraging Safer Driving

The U.S. Department of Transportation reports that human factors cause or contribute to more than 90 percent of serious crashes.

In the pre-crash stage, drivers can try to avoid crashes by practicing safe driving. In the crash and post-crash phases, drivers can help reduce the risk of injury by always properly using safety equipment such as safety belts. Ford Motor Company provides information, educational programs and advanced technologies to assist in promoting safe driving practices.

In the past year, distracted driving has received increased national attention as a contributing factor in motor vehicle crashes. We at Ford have been working for years to provide teen driver education and appropriate technologies to help prevent crashes due to distracted driving. Our sustainability report last year included a case study on [distracted driving](#); the case has been updated for this year's report.

Numerous studies show that hands-free multimedia devices offer safety benefits compared to hand-held devices. The benefits are seen in driving performance as well as object and event detection. Ford's popular and award-winning SYNC® technology, powered by Microsoft®, provides a way for drivers to use cell phones and MP3 players more safely, because they can do so through voice commands alone while keeping their eyes on the road and their hands on the wheel. Ford SYNC was launched in late 2007 and is now available on nearly every vehicle from Ford, Lincoln and Mercury.

In 2010, Ford will introduce new MyFord™ driver connect technology – an all-new user interface that will deliver a smarter, safer and simpler way to connect drivers with in-car technologies and their digital lives. MyFord, along with MyLincoln™ and MyMercury™, was developed after a thorough review of current interior design – and its limitations – considering the abundance of new and emerging technologies. After studying vehicle communications trends and the ways drivers were using technology inside their vehicles, it was evident that the current way of interacting with car and truck technology was rapidly becoming obsolete.

The MyFord user interface replaces many of the traditional vehicle buttons, knobs and gauges, and is designed to allow maximum focus on driving, while providing unparalleled access to information, entertainment and connectivity features. The system includes two easily reached and intuitive five-way controllers on the steering wheel, a next-generation, state-of-the-art voice recognition system with nearly 10,000 available commands, and clear, large, color LCD displays. These features ensure that drivers maximize the time their eyes are on the road and their hands are on the steering wheel. And although the user interface is all new, it should not feel unfamiliar, as it is based on the fundamentals of Ford's award-winning navigation system, as well as the SYNC user interface.

MyFord launches on the 2011 Ford Edge and goes global with availability on the 2012 Focus. MyLincoln will be standard equipment on new Lincolns beginning with the 2011 MKX.

Beginning last year on select 2010 models, SYNC became available with Traffic, Directions and Information, a subscription service that allows drivers to access traffic reports, turn-by-turn directions and business news and information, all via voice command. SYNC will be launched on Ford's European product range beginning in 2011. (See the case study in this section for more on how SYNC helps to [reduce driver distraction](#).)



MyFord™ map-based navigation offers an Eco-Route option, which instantly calculates the most fuel-efficient route for the driver.

RELATED LINKS

- This Report:
- Case Study: Driver Distraction
- Vehicle Web Sites:
- Ford Taurus
 - Ford Focus
 - Ford Edge
 - Ford Flex
 - Ford Escape
 - Ford Expedition
 - Ford F-150
 - Mercury Mariner
 - Lincoln MKS
 - Lincoln MKT
 - Lincoln MKX
 - Lincoln Navigator
- Ford Web Sites:
- SYNC®
 - MyFord™
 - MyKey™
 - Ford Driving Skills for Life
- External Web Sites:
- U.S. Department of Transportation
 - Operation Teen Safe Driving

Ford's MyKey™ system is an innovative new technology designed to help parents encourage their teenagers to drive more safely. MyKey allows owners to program a key that can limit the vehicle's top speed to 80 mph and the audio volume to 44 percent of total volume. MyKey encourages safety-belt usage by enabling Ford's Beltminder™ to chime every minute indefinitely until the safety belt is buckled, rather than ceasing after five minutes, and also by muting the audio system until the belt is buckled. In addition, MyKey provides an earlier low-fuel warning (at 75 miles to empty rather than 50); sounds speed-alert chimes at 45, 55 or 65 mph; and will not allow manual override of other safety systems. For the 2010 model year, MyKey is available on the Ford F-150, Taurus, Flex, Focus, Escape and Expedition; the Mercury Mariner; and the Lincoln Navigator, MKS and MKT.



MyKey™ programmable keys enable restricted driving speeds and audio volume.

Ford Driving Skills for Life (FDSFL), Ford's driver education program, demonstrates our continued commitment to educating teens about safer driving. In 2008, Ford launched FDSFL in the Asia Pacific and Africa (APA) region, and in 2009 continued with the successful rollout of the program to additional APA markets. FDSFL is now in Indonesia, the Philippines, Thailand, Vietnam, China, Taiwan and India. During 2009 in these markets, Ford provided training for roughly 11,000 licensed drivers and several thousand Ford India employees.

The U.S. FDSFL program (www.drivingskillsforlife.com) was carried out in nine different states in 2009. The program provides outstanding learning tools, including an award-winning curriculum with hands-on training and web-based learning, a teacher and parent educational kit, a teaching DVD designed for interactive learning, and printed materials to help young drivers improve their ability behind the wheel. Both the FDSFL Web site and "Ride and Drives" for teen drivers include modules on the importance of avoiding distracted driving. In addition, the program includes information about eco-driving, car care tips and information for mature drivers.

COMMENTS AT A FORD DRIVING SKILLS FOR LIFE "RIDE AND DRIVE" EVENT

"They hit it out of the park with the kids today in the top-notch way this was put together. Kids come in scared and walk away feeling much more confident in their driving skills." – Dr. Jennifer Reeves, Area Superintendent, Orange County (Florida) Public Schools

"We would love to see more programs like this, sponsored by a manufacturer of automobiles... Kids and adults can learn a lot from this program." – Jim Ports, former deputy administrator, NHTSA

"A lot of people can pass the permit test without being a good driver. This really teaches you how to be a good driver." – teenaged participant

Beginning in 2007, Ford partnered with the Illinois Department of Transportation, secretary of state, and state police to launch a statewide effort – modeled on Ford Driving Skills for Life – designed to reduce teen crashes and fatalities. Called Operation Teen Safe Driving, this campaign was the first of its kind and got high school students directly involved by challenging them to develop and implement a teen safe driving community awareness campaign using FDSFL resources. This seven-month statewide effort involved 778 schools in 102 Illinois counties, and had the support of the governor, the secretary of state and the Chicago board of education.

The results have been remarkable: The state has seen a 49 percent reduction in teen fatalities over the last three years.



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Building Ever-Safer Vehicles

IN THIS SECTION

Accident Avoidance Technologies

Read about Ford's accident avoidance technologies, including Forward Collision Warning with Auto Brake and other features that use forward-looking radar and vision sensors.

[Read more](#)



Occupant Protection Technologies

Learn about our occupant protection technologies, including our Safety Canopy® and the world's first automotive inflatable seat belts.

[Read more](#)



Post-Crash/Injury Mitigation Technologies

Discover Ford's latest post-crash technologies, including SYNC® with 911 Assist and our SOS-Post Crash Alert System.

[Read more](#)



Research

Read about our research efforts, including two projects in Europe that are testing the performance of active safety systems.

[Read more](#)





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Accident Avoidance Technologies

A variety of technologies, in addition to a vehicle's handling and braking capabilities, can help drivers avoid accidents. These technologies are generally not necessary for attentive drivers in most road conditions, but may provide added benefits for drivers who become distracted or experience challenging road conditions.

For example, Ford's Rearview Camera with Guidelines can enhance rear visibility, as well as assist with actions that require reverse maneuverability such as parallel parking and hitching trailers. The system uses an exterior camera embedded in the rear of the vehicle that sends images to a video display in the rearview mirror or the navigation system screen. These images can help improve visibility directly behind the vehicle when the vehicle is in reverse. The camera image is overlaid with lines that mark the width of the vehicle, which makes it easier to gauge distance and navigate in reverse. The system increases visibility in low light by using a low-light-capable camera and high-intensity reverse taillights. Rearview Camera with Guidelines is offered on most of Ford's vehicles – including the new 2010 Ford Taurus.



In the 2010 Ford Taurus, the rearview camera projects through the centerstack-mounted screen.

Ford is continuing its development of accident avoidance features that use forward-looking radar and vision sensors. These features help to warn drivers of potentially dangerous situations, such as unintended lane departures, pedestrians in the roadway or following a vehicle too closely. These technologies are being developed by a joint team in Dearborn, Michigan; Merkenich, Germany; and Gothenburg, Sweden. Some are now available on selected Ford and Volvo vehicles.

Adaptive Cruise Control (ACC), for example, helps drivers maintain a safe distance from the vehicle in front of them. It is one of the innovations now available on the 2010 Ford Taurus, Lincoln MKS and MKT, as well as the Volvo XC60, S80, XC70 and V70 and the Ford Mondeo, S-MAX and Galaxy. While primarily a comfort and convenience feature, Adaptive Cruise Control also contributes to more controlled driving when traffic flow is uneven. The ACC module is mounted at the front of the vehicle and uses radar to measure the gap and closing speed to the vehicle ahead. The system automatically adjusts the speed of the car to help maintain a pre-set distance from the vehicle in front. Ford Motor Company was the first manufacturer to launch radar-based ACC several years ago.

On Volvo vehicles, Forward Collision Warning with Auto Brake is part of a "Driver Support" package and uses radar, camera and "heads-up" display¹ technology to help avoid or reduce the effects of rear-end collisions. The area in front of the vehicle is monitored by a radar and camera sensor. If the equipped vehicle detects another vehicle ahead of it, and the driver does not react, a visual and audible warning signal is activated. The system is designed to provide additional time for the driver to react and avoid or reduce the hazard. If the risk of collision increases despite the warning, Auto Brake is activated. This system supports driver-initiated braking by pre-charging the brakes and preparing for panic brake application, and then brakes automatically if a collision remains imminent. A similar system with Brake Support is available on

RELATED LINKS

Vehicle Web Sites:

- Ford Taurus
- Ford Edge
- Ford Flex
- Ford Escape
- Ford Escape Hybrid
- Ford Explorer
- Ford Sport Trac
- Ford Expedition
- Ford F-150
- Ford Super Duty
- Ford E-Series
- Lincoln MKS
- Lincoln MKT
- Lincoln MKX
- Lincoln Navigator
- Mercury Mariner
- Mercury Mountaineer
- Volvo S60
- Volvo S80
- Volvo V70
- Volvo XC60
- Volvo XC70

Ford.co.uk:

- Ford Mondeo
- Ford S-MAX
- Ford Galaxy

the 2010 Ford Taurus and Lincoln MKS, and will be available on the 2011 Ford Edge and Lincoln MKX. A Forward Collision Warning system is also available in Europe on the Ford Mondeo, S-MAX and Galaxy.

The next generation of these preventative safety technologies was unveiled in 2009 at the Detroit Auto Show on the Volvo S60 Concept vehicle. The S60 Concept featured Collision Warning with Full Auto Brake and pedestrian detection. This advanced radar- and camera-based technology is designed to react when a pedestrian is detected in front of a car, and will activate the car's full braking power if the driver does not respond to the danger. The radar has a widened field of vision, which allows it to detect the moving pattern of a pedestrian. The automatic full braking power – a first in the industry – is an emergency measure that is designed to activate when a collision with a pedestrian or vehicle is imminent. The S60 Concept also featured an upgraded Driver Support package, which includes Blind Spot Information System, Driver Alert Control, Lane Departure Warning, Distance Alert, Adaptive Cruise Control (at all speeds) and Forward Collision Warning with Full Auto Brake. These next-generation technologies are now available on the all-new 2010 Volvo S60.

Driver Alert Control and Lane Departure Warning are now also available on the Volvo XC60, S80, V70 and XC70. These systems are designed to reduce the risk of a driver drifting out of the lane. (Driver inattentiveness is a traffic safety concern worldwide.) The Driver Alert Control and Lane Departure Warning features use a forward-looking camera to continuously monitor the road and keep track of where the car is in relation to the lane markings. The system is designed to sense if the driver loses concentration or the vehicle's wheels move outside the lane markings without an obvious reason, such as use of a turn signal. In that case the system provides a warning chime to alert the driver and a visual alert in the shape of a coffee cup. This patented system has been tested both on roads and in simulators and is unique among vehicle manufacturers.

Volvo has also introduced a unique and award-winning system called City Safety, which will help drivers avoid the sort of low-speed collisions that are common in slow-moving urban traffic. If a driver is about to collide with the vehicle in front and does not react in time, the City Safety system is designed to activate the brakes to slow the vehicle.

City Safety is active at up to 30 km/h and works via an optical laser system integrated behind the top of the front windscreen. It can monitor vehicles up to 10 meters from the front of the car. If the vehicle in front suddenly brakes and City Safety senses that a collision is imminent, it pre-charges the brakes to help the driver avoid an accident by braking or letting the driver steer away from a potential collision. The City Safety feature allows driver-initiated interactions (steering or braking) to override the City Safety system. Volvo introduced City Safety as standard equipment on the Volvo XC60 in late 2008, and for 2010 it is also standard on the all-new S60.

Another important Ford safety innovation is the next generation of adaptive headlamps. Our Adaptive Front Lighting System (AFLS) allows drivers to see better at night around curves in the road. The system allows drivers to take corners and curves more safely, and to consume less energy while doing so. The AFLS is available on all Lincolns (except the Navigator) and a number of vehicles across the Ford fleet, in both North America and Europe.

Finally, Ford's industry-leading innovation known as AdvanceTrac® with Roll Stability Control® (RSC) continues to give drivers more driving confidence. RSC actively measures and helps control both yaw and roll movements. It uses two gyroscopic sensors to detect when a driver corners too fast or swerves sharply to avoid an obstacle. It then applies pressure to select brake(s) to help the driver maintain control and thus reduce the risk of a rollover event.

Roll Stability Control was first introduced on the 2003 Volvo XC90 and is now standard equipment on the Ford Flex, Explorer, SportTrac, Expedition, Edge, Escape and F-150, as well as E-Series Wagons equipped with the 5.4L engine and the 2011 SuperDuty with single rear-wheel configurations. It is also standard equipment on the Mercury Mountaineer and Mariner; the Lincoln Navigator, MKX and MKT; and the Volvo XC60. Ford has developed a next-generation regenerative braking system for the 2009 and 2010 Escape Hybrid and Mariner Hybrid that is compatible with RSC. For the 2011 model year, 84 percent of all Ford vehicles will offer either RSC or our standard electronic stability control system.

Percent of North American Nameplates with Standard Offering of Electronic Stability Control or Roll Stability Control

	<i>Percent</i>
2011 Model Year	84%
2010 Model Year	77%
2009 Model Year	62%
2008 Model Year	40%

1. "Heads-up display" is the projection of an image onto the windshield, so that the information may be viewed without looking down to an instrument cluster.



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Occupant Protection Technologies

Many factors influence a vehicle's crashworthiness, including the design of the vehicle's structure to absorb impact energy and the use of passive safety equipment such as air bags. To help protect drivers and passengers in the event of a crash, a variety of Ford technologies have been designed to enhance the performance of safety belts and air bags and provide additional occupant protection in side crashes and rollovers.

Safety belts remain the most important vehicle safety technology available. In 2010, Ford is bringing to market the world's first automotive inflatable seat belts, combining the attributes of traditional seat belt and airbag technologies to help reduce head, neck and chest injuries for rear-seat passengers. Ford will introduce inflatable rear seat belts on the next-generation Ford Explorer, to be introduced in 2010 in North America. Over time, Ford plans to offer the technology in vehicles globally.



Ford introduces the auto industry's first-ever production inflatable seat belts, which are designed to provide additional protection for rear-seat occupants.

The inflatable belts are designed to deploy over a vehicle occupant's torso and shoulder in 40 milliseconds in the event of a crash. Each belt's tubular airbag inflates with cold compressed gas. The inflatable belt's increased diameter can more effectively restrain the occupant in the appropriate seating position in the event of a frontal or side crash, and the belt distributes crash force energy across five times more of the occupant's torso than a traditional belt, helping to further reduce the risk of injury.

In everyday use, the inflatable belts operate like conventional seat belts and are safe and compatible with infant and child safety car and booster seats. In Ford's research, more than 90 percent of those who tested the inflatable seat belts found them to be similar to or more comfortable than a conventional belt because they feel padded and softer. That comfort factor could help improve the 61 percent rear-belt usage rate in the U.S., which compares to 82 percent usage by front-seat passengers, according to NHTSA. Ford will monitor real-world effectiveness and customer acceptance of this new technology as it begins the phase-in into the Ford fleet.

Ford was the first in the industry to offer rollover-activated side-curtain air bags, known as the Safety Canopy®, beginning with the Ford Explorer and Mercury Mountaineer in 2002. Today, the Safety Canopy with rollover sensors – which helps reduce the risk of injury to vehicle occupants during side-impact collisions and rollover accidents – is available on most Ford vehicles, including the Ford Taurus, Flex, Edge, Escape, Explorer, SportTrac, Expedition and F-Series; the Mercury Mariner and Mountaineer; and the Lincoln MKS, MKX, MKT and Navigator. By the 2010 model year, all Ford, Lincoln and Mercury retail SUVs and crossovers, as well as vans and trucks under 8,500 lbs., are planned to have the Safety Canopy as standard equipment.

The 2010 Ford Taurus, Ford Flex, Lincoln MKS and Lincoln MKT have been engineered with crush zones designed to direct excess energy around the passenger compartment into a high-strength frame. This advanced engineering design – known as SPACE™ Architecture – utilizes crash form management techniques to help channel impact forces around and away from the passenger cabin.

In Europe, the Ford Mondeo, S-MAX and Galaxy are equipped with an Inflatable Knee Bolster, designed to help reduce the driver's forward motion in the event of a severe frontal crash and reduce the risk of injury to lower limbs. This technology is also available on the 2010 Fusion Hybrid and Milan Hybrid and on the 2011 Ford Fiesta in the United States.

RELATED LINKS

Vehicle Web Sites:

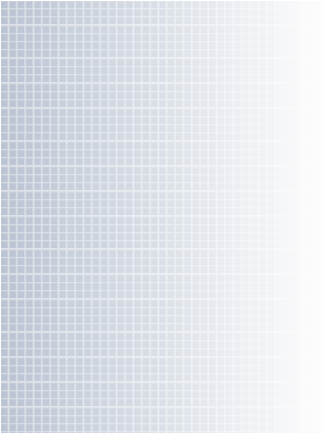
- Ford Fiesta
- Ford Fusion Hybrid
- Ford Taurus
- Ford Edge
- Ford Flex
- Ford Escape
- Ford Explorer
- Ford Sport Trac
- Ford Expedition
- Ford F-150
- Lincoln MKS
- Lincoln MKT
- Lincoln MKX
- Lincoln Navigator
- Mercury Milan
- Mercury Mariner
- Mercury Mountaineer

Ford.co.uk:

- Ford Mondeo
- Ford S-MAX
- Ford Galaxy

External Web Sites:

- National Highway Traffic Safety Administration



Finally, as smaller and more fuel-efficient vehicles become more popular, the safety of smaller cars is sometimes raised as a concern. Ford's study of accident trends found that fatality rates for small cars of the 1990s were lower than for large cars of the 1970s, due to improvements in vehicle safety, changing driver behavior such as increased seat-belt usage and generally safer road infrastructure.

Ford's focus is to continue making small cars even safer while building larger vehicles that are more crash compatible with smaller vehicles. We've already lowered the front bumper structures on most of our crossovers, SUVs and pickups to help them better match up with small vehicle crash structures. Ford now uses more high-strength steel as part of our continuing effort to enhance the safety and fuel efficiency of our vehicles. In fact, we have recently introduced ultra-high-strength steel as well. Increased usage of high-strength steels helps us design vehicle structures with enhanced crash energy management, while balancing overall vehicle weight – even as we add more standard safety equipment.

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Post-Crash/Injury Mitigation Technologies

One method of assisting emergency responders to reach the scene of a vehicle crash quickly is through in-vehicle emergency call systems, also called post-crash notification. These systems enable a driver to summon assistance in an urgent situation either automatically (if, for example, an airbag deploys) or at the touch of a button.

In the United States, Ford SYNC® is an award-winning, in-car connectivity system that was introduced on certain 2007 model year vehicles. Beginning with the 2009 model year, SYNC-equipped vehicles come with an all-new occupant communications capability called 911 Assist. In the event of a severe crash, the ability to directly contact the local 911 emergency operator could be critical, for both the vehicle occupants and first responders. While any cell phone alone could be used in an emergency situation, SYNC can assist in placing a call to a local 911 emergency operator – when a phone is properly paired, turned on and connected to SYNC and where the system and cell phone remain powered and undamaged – should a crash with an airbag deployment or fuel shutoff switch activation occur. The key advantage of SYNC 911 Assist is speed, as calls are placed directly to local 911 operators and do not have to be routed through a call center (as in competitors' versions), which can delay the time it takes to get help on the way. SYNC 911 gives the occupants a choice as to whether or not to make the emergency call, and places the call if the occupant does not respond after a short time.

This voice-activated feature is available to customers with 2008 and beyond model year SYNC-equipped vehicles through a dealer-installed software update. We are investigating a system similar to SYNC's 911 Assist for introduction in Ford's European product range beginning in 2011.

In late 2004, Ford, via its membership in the European Automobile Manufacturers' Association, signed a memorandum of understanding (MOU) regarding the development of a pan-European, in-vehicle emergency call system dubbed "eCall." The purpose of the MOU is to promote the development and implementation of eCall systems throughout Europe, in order to improve the number of vehicles reached by emergency responders within a short period of time.

The On Call system – a GSM- and GPS-based emergency and assistance system¹ – is currently available on Volvo vehicles. It is sold and operational in a number of European countries, including Russia. With the On Call system and any future deployment of a 911 Assist-type feature in Europe, Ford has made and will continue to make significant progress toward increasing the availability of eCall technology on vehicles in Europe.

The SOS-Post Crash Alert System, which is standard equipment on most Ford, Lincoln and Mercury vehicles, is another important advance in post-crash safety technology. The SOS-Post Crash Alert System automatically activates the horn and emergency flashers in the event of an airbag deployment or safety belt pre-tensioner activation. The second-generation system – which is being launched on the 2011 Ford F-150 SuperDuty, Ford Edge and Lincoln MKX – also automatically unlocks vehicle doors in the event of an airbag deployment or safety belt pre-tensioner activation. The system is designed to alert passers-by and emergency services to the vehicle's location.

1. GSM = Global System for Mobile communications; GPS = Global Positioning System

RELATED LINKS

- Ford Web Sites:
 - SYNC®
- Vehicle Web Sites:
 - Ford Edge
 - Ford Super Duty
 - Lincoln MKX
- External Web Sites:
 - European Automobile Manufacturers' Association



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Research

Ford is undertaking a number of research efforts to assess and verify the effectiveness of new active safety technologies, such as those using forward-looking radar and vision sensors.

In January 2010, a consortium of 29 partners – led by the Ford European Research Center in Aachen, Germany – joined forces in the Accident Avoidance by Active Intervention of Intelligent Vehicles (interactIVe) European research project. The consortium seeks to support the development and implementation of active safety systems, and consists of seven automotive manufacturers, six suppliers, 14 research institutes and three other stakeholders. The European Commission will cover more than half of the €30 million budget.

During the planned 42-month duration of interactIVe, the partners will test the performance of implemented safety systems through active intervention, including autonomous braking and steering in critical situations, with the aim of avoiding collisions or at least mitigating impact severity in accidents.

In 2008, Ford launched a major European research project (called EuroFOT) to deliver a large-scale field operational test of the real-world impact of active safety systems. Under the EU's Seventh Framework Program (FP7) for research and technological development, this project joins together 28 partners – including vehicle manufacturers, suppliers, universities and research centers – and will run until August 2011. More than 1,500 cars and trucks will be equipped with eight new active safety technologies, along with advanced data-collection capabilities. This will allow a thorough evaluation of the new technologies for safety, efficiency and driver comfort, in real-world scenarios and with ordinary drivers. The project has a total budget of €22 million and is led by the Ford research center in Aachen, Germany. It includes 100 Ford and 100 Volvo vehicles.

One particularly creative research technique Ford has been using involves driving cars with Forward Collision Warning with Brake Support into large "balloons" nearly the size and shape of real cars. The purpose of these tests is to assess the accuracy of the radar and the timing of the warning signals and braking pre-charge. The balloons play the role of a "target" vehicle, allowing Ford engineers to assess the radar and braking features without endangering test drivers or damaging real cars. The balloons offer enough "give" to allow impact without injury. Ford uses about a dozen balloon cars in different sizes, each made from tarp-like material and weighing more than 40 pounds.



Ford is testing an array of active safety technologies by driving prototypes into large, car-shaped balloons.

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Promoting Safer Roadways

The driving environment includes physical infrastructure (roads, signs, traffic lights, etc.) and the condition and maintenance of that infrastructure. Increasingly, information technologies play a role in the driving environment – for example, by controlling the timing of traffic lights. All of these factors have a significant influence on traffic safety.

Safety challenges related to the driving environment vary between countries and between developed and developing economies. Around the world, we work with government agencies and private-sector partners to promote road safety.

In 2009, Volvo and the Swedish Road Administration began a strategic partnership to understand how their respective visions (Volvo's Vision 2020 and Sweden's Vision Zero) could work together. Through information exchange and data sharing, the two entities will seek to develop a common view of safer infrastructure and vehicles in the future.

In late 2004, working in partnership with General Motors, Honda, Michelin, Renault, Shell and Toyota, Ford helped to found the Global Road Safety Initiative (GRSI). The purpose of the GRSI has been to transfer best practices, with the objective of reducing accidents and building capacity in developing countries to manage road safety. Projects have included educational outreach to increase safety-belt and helmet usage rates, and training aimed at improving roadway design.

Ford and other participating companies pledged a total of \$10 million to the GRSI over five years to fund important road safety projects in China, Brazil and countries in the Association of Southeast Asian Nations. The projects were implemented through the Global Road Safety Partnership, an existing organization founded by the World Bank and national governmental aid organizations. Ford served on the Partnership's Executive Committee and has been actively involved in project execution. The projects relied on delivery through local organizations, so those organizations could build capacity and continue their work long after the projects were completed.

Also in China, Ford is cooperating with the China Automotive Technology & Research Center (CATARC) and the Chinese Ministry of Public Security to launch a new project that aims to provide accurate and scientific data for research into road safety in China.

RELATED LINKS

External Web Sites:

[Volvo's Vision 2020](#)

[Global Road Safety Initiative](#)

[Global Road Safety Partnership](#)

[China Automotive and Technology Research Center](#)



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Collaborative Efforts

Ford Motor Company is involved with a number of partners to enhance the safety of the driving experience and develop future technologies.

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- CAMP
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RELATED LINKS

- External Web Sites:
- National Highway Traffic Safety Administration
 - John Force Racing
 - National Hot Rod Association
 - Society of Automotive Engineers
 - U.S. Council for Automotive Research
 - Global Human Body Models Consortium

CAMP

In 1995, Ford and General Motors launched the Crash Avoidance Metrics Partnership (CAMP) to conduct pre-competitive active safety research with other OEMs, suppliers and the U.S. government. Within CAMP, the Vehicle Safety Communications Two (VSC-2) Consortium, which included Ford, GM, Toyota, Daimler and Honda, worked with the U.S. Department of Transportation on projects to develop safety applications that utilize vehicle communications. Their efforts focused on developing a communication system whereby vehicles can "talk" to each other and to the roadway. This would be analogous to a wireless internet system or a cellular telephone for cars. CAMP VSC-2 successfully completed projects that demonstrated the basic feasibility of this technology and evaluated several applications.

CAMP has now formed a VSC-3 Consortium with Ford, GM, Honda, Hyundai-Kia, Mercedes, Nissan, Toyota and VW-Audi to continue work on vehicle safety communications such as cooperative intersection collision avoidance systems and vehicle-to-vehicle communications for safety applications. This consortium is being funded by NHTSA to complete all of the pre-competitive work necessary for a deployment decision for vehicle safety communications in 2013.


CAMP is also conducting two additional projects with NHTSA. The Crash Imminent Braking Project (involving Ford, GM, Mercedes, Continental and Delphi) is developing minimum performance requirements and objective test procedures for systems that automatically apply the brakes to avoid crashes or mitigate the severity of a crash. The Advanced Restraint Systems Project (involving Ford, GM and Mercedes) is developing restraint systems that utilize pre-crash and occupant sensing information.

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First Responder Training


Ford has been involved in several cooperative efforts with first responder groups in order to improve performance in the critical area of emergency response. The increasing use of stronger steels (e.g., boron steel, tubular hydroform steel, and high-strength steel) in motor vehicles, as well as issues surrounding hybrid vehicles (i.e., the challenge of disengaging the high-voltage battery), have raised some concerns by first responders regarding gaining access to vehicle occupants who have been involved in an accident. Engineers from Ford's Customer Service Division, Design Analysis and Crash Safety Departments have held several informative events with emergency first responder groups, ranging from equipment manufacturers like DeWalt and Hilti to local law enforcement and firefighters. First responder groups from several cities were represented in these sessions, where the industry's latest techniques for occupant extraction were reviewed and

explained for various crash scenarios. The events were well received by the first responder community, and should help their important efforts in the future.

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Ford Racing and the NHRA

Ford (through Ford Racing) has been working cooperatively with John Force Racing and the National Hot Rod Association to make significant safety improvements in the cars they use during testing and racing. Substantial safety improvements have already been implemented, including additional head padding (that is also thicker and more shock absorbent), stiffer chassis, and the Ford Blue Box data acquisition system (developed by Ford Racing and Delphi) to help with analysis of vehicle safety systems. This work will continue, with additional improvements expected in the years to come.

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University Partnerships

Ford is increasingly collaborating with university partners on crucial advanced safety technology projects. Ford has major research alliances with the Massachusetts Institute of Technology (MIT), the University of Michigan and Northwestern University and has utilized Ford's global University Research Program (URP) to collaborate with leading researchers at more than 100 universities worldwide. Safety is a central thrust in our collaborative university programs. The following are some examples:

- Projects within the Ford–MIT alliance are yielding progress in areas of vehicle autonomy and active safety, including computer vision, lane keeping, vehicle controls, obstacle detection and avoidance, and accurately assessing the driver's interaction with the vehicle. One project aims to assess the role of active safety technologies, features and functions in reducing driving-related stresses and enhancing driver wellness.
- At Auburn University, Ford has an ongoing project to conduct "sensor fusion" – that is, to coordinate between Global Positioning System sensors and the motion sensors in a vehicle's stability control systems, to predict when a driver is about to lose control. The ultimate goal is to use satellites to feed data to a vehicle's electronic stability control system, allowing it to adjust and prevent a loss-of-control accident.
- At the University of Michigan, safety work includes a portfolio of projects on 360° sensing and developing more robust and capable active vehicle control and enhanced collision avoidance systems, utilizing both onboard sensors and offboard information sources.
- At Virginia Tech, Ford has an ongoing URP project assessing the properties of maternal tissues from pregnant women. This project will enable the improvement of computer models to help gain a better understanding of the injury risk to pregnant women and their unborn babies.
- A project at the State University of New York's Downstate Medical Center should yield an improved understanding of human tolerance to pelvis injury.
- Collaborative work is ongoing with Purdue University investigating enhanced vehicle dynamics and stability control.
- As part of its accident research projects in Germany, the UK and Australia, Ford works closely with internationally acknowledged safety experts from the Universities of Hannover, Loughborough, Dresden, Birmingham and Monash.

Collaborative university work catalyzes innovation at Ford by providing access to the leading researchers at the cutting edge of vehicle dynamics and stability control, accident avoidance and driver assist safety technology, to name just a few. Ford will continue to integrate these collaborative innovations, driving continuous improvement in real-world safety and sustainability for all Ford Motor Company products.

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Alcolock Blue Ribbon Panel

Reducing the incidence of impaired driving would go a long way toward improving road traffic safety. In the EU, 25–30 percent of all car accidents involve alcohol. In the United States, approximately 40 percent of all traffic fatalities are alcohol-related (as reported by NHTSA).

The Automotive Coalition for Traffic Safety formed a Blue Ribbon Panel (BRP) in 2007 for the development of advanced alcohol detection technology, often called "alcolocks." The panel consists of vehicle manufacturers, including Ford, alcohol detection technology suppliers, Mothers Against

Drunk Driving, the Insurance Institute for Highway Safety, government representatives and other experts.

The BRP and its research are being funded jointly by NHTSA and the Alliance of Automobile Manufacturers. The purpose of the research is to "...engage major automakers in cooperative research that advances the state of alcohol detection technology... to promote the standardization of the technology, its widespread deployment, and acceptance by the general public."

Ford continued to participate in the work of the Blue Ribbon Panel through the Alliance during 2009.

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New Crash-Test Dummies

Crash-test dummies are essential research tools that aid in the development of passive safety technologies, and Ford Motor Company continues to develop, often in partnership with other parties, more advanced test dummies.


From 2005 through 2008, Ford partnered with the Children's Hospital of Philadelphia (CHOP), the University of Virginia, Virginia Tech and the Takata Corporation in a multi-year project to develop a new abdominal insert and sensor for a crash-test dummy representing a six-year-old child.

CHOP studies have shown that, in vehicle crashes, significant abdominal injury in four- to eight-year-old children is second in frequency of occurrence only to head and facial injuries. Abdominal injuries often occur when children too young (i.e., the four- to eight-year-old range) utilize adult restraint systems without a booster seat. The abdominal insert and sensor will allow restraint engineers industry-wide to test the potential for abdominal injuries in children and ultimately improve the development of in-vehicle restraint systems for young children.

In February 2008, the Society of Automotive Engineers established a task force to perform "round robin" testing of the new dummy component, and the group held its first meeting in June. More than 20 organizations from around the globe have signed up to participate. Tests will be performed by dummy manufacturers, other OEMs and NHTSA's Vehicle Research and Test Center. Testing was scheduled to begin in March 2010.

In another effort, Ford, GM and Chrysler have been working together under the auspices of the Occupant Safety Research Partnership (OSRP), a group within the U.S. Council for Automotive Research, to research, develop, test and evaluate advanced crash-test dummies and other pre-competitive safety systems. A number of years ago, the OSRP initiated development of WorldSID, a male side-impact dummy that is recognized as the most advanced crash-test dummy ever created. From 2006 through 2008, the OSRP worked with NHTSA to help them evaluate WorldSID for potential use in the federal government's new side-impact crash-test standard. NHTSA concluded that the "biofidelity" of WorldSID is better than that of the dummy in the current side-impact regulation. WorldSID is the first side-impact dummy with the potential to be commonly used in side-impact regulations around the world. To that end, in November 2009, the U.S. government proposed the creation of an informal working group, under the UN's Global Road Safety Partnership, to fully develop WorldSID dummies for use in government regulations globally.

Ford is also involved in the Global Human Body Models Consortium (GHBMC), which holds promise for the future of safety research. Established in 2006 by nine automotive manufacturers (including Ford) and two automotive suppliers, the GHBMC is working to develop next-generation, computer-generated virtual reality models of the human body. These advanced models will help researchers to better predict the effect of trauma resulting from automobile crashes on the human body and enable a variety of virtual crash tests, with the ultimate goal of improving automotive safety globally. The research and development is currently being led by multidisciplinary teams at universities in five countries – the United States, Canada, France, India and Korea – with the first set of human digital models expected to be completed in 2011. Ford brings much expertise to this effort, having developed its own human body model representing an average-sized male occupant and publishing this work in peer-reviewed journals over the last 15 years. Ford continues to refine its human body model for use in internal research.

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Data

The [data relating to vehicle safety](#) is included in the Society section of this report.

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Case Study: Driver Distraction

Over the past two decades, cellular phones have gone from clunky novelties to ubiquitous must-haves. Wireless subscriptions in the United States have grown from about 28 million in 1995 to about 270 million by 2009 – a whopping 960 percent increase. The public has become accustomed to using cell phones everywhere – at home, on the street, in restaurants, at the office, while shopping and – of most interest to Ford's safety researchers – while driving.

The ubiquity of cell phones – coupled with the proliferation of portable music players in vehicles – has heightened concerns about driver distraction. We at Ford agree that this is an important safety issue and we have taken steps to address it. We also believe that continued research is needed to better understand the complex interactions involved in this issue and we are participating in that research.



Ford Focus with SYNC®, Ford's fully integrated, voice-activated in-car communications and entertainment system

In 2009 and again in 2010, the National Safety Council (NSC) called for a total ban on the use of cell phones, both handheld and hands-free, while driving. The NSC stated that cell phone use while driving is "...a very high-risk behavior with significant impact on crashes..." And indeed, some studies have concluded that there's no difference in driver behavior whether using handheld or hands-free phones. In many of those laboratory studies, participants in simulated driving situations were observed while being asked to engage in in-depth conversations on challenging or emotional subjects, such as the latest political scandal or a near-death experience. Such intense and lengthy discussions can indeed be distracting.

Naturalistic driving studies – in which study participants' driving performance, "eye glance behavior," driving environment and in-vehicle activities are observed and recorded over weeks or months in real-world situations – have revealed different results. For example, naturalistic studies completed by the University of Michigan Transportation Research Institute reveal that, when immersed in real traffic conditions, drivers using cell phones by and large exhibit prudent driving behavior.

In addition, the landmark 100-Car Naturalistic Driving Study conducted by the Virginia Tech Transportation Institute (VTTI) found that almost 80 percent of all crashes and 65 percent of all near-crashes involved the driver looking away from the forward roadway just prior to the onset of the incident. In 2008, the study's authors summarized their findings in this way: "...it is a rare case that a crash occurs while the driver's eyes are on the forward roadway, regardless of any other 'cognitive demand' that they might be engaged in."

In 2009, the VTTI published a new naturalistic driving study based on commercial vehicle operator experience. This study suggested that there is a 23-fold increase in risk when commercial operators send text messages while driving and that some behaviors like checking gauges and talking on the cell phone can have protective benefits. After this study was published, legislative

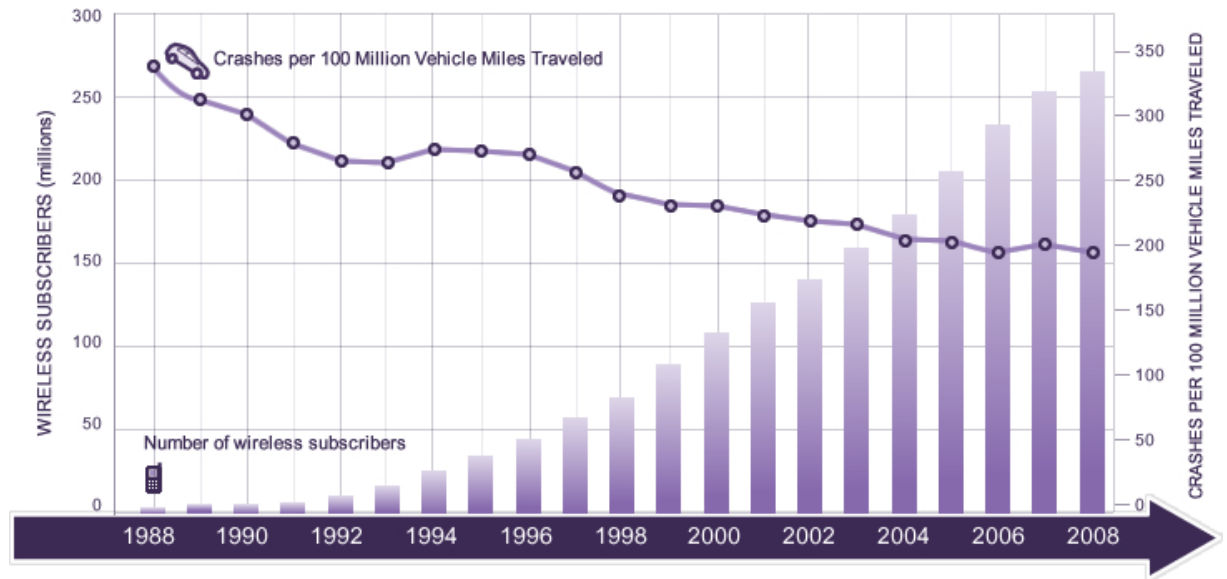
RELATED LINKS

- Ford Web Sites:
 - SYNC®
 - Ford Driving Skills for Life
- External Web Sites:
 - National Safety Council
 - University of Michigan Transportation Research Institute
 - Virginia Tech Transportation Institute
 - U.S. Department of Transportation
 - Alliance of Automobile Manufacturers
 - Insurance Institute for Highway Safety

and executive action to ban texting while driving increased dramatically, and the Secretary of Transportation convened a two-day Distracted Driving Summit to open a dialogue between the various stakeholders. Ford took part by sending representatives to attend the Summit as well as leading the development of the Alliance of Automobile Manufacturers' presentation for the Advanced Technologies Panel.

Beyond the VTTI and University of Michigan studies, there exists a considerable body of published research that indicates the superiority of hands-free voice interfaces as compared to handheld or visual-manual interfaces for the same tasks of command or data entry. These studies show advantages in driver performance, eye glance behavior toward the roadway, and object and event detection when the driver can keep eyes on the road and hands on the wheel. It is also interesting to note that, despite the significant increase in cell phone use in recent years, crash rates have fallen over the same time period (specifically, in both the categories of "fatal crashes" and "police-reported crashes"). (See graph below.) Also, the Insurance Institute for Highway Safety (IIHS) has published studies indicating that handheld phone bans in New York, Washington, DC and Finland led to an initial decline in the banned behavior followed by a return to pre-ban levels of handheld phone use within roughly one year.

Police Reported Crash Rates and Wireless Subscription Growth 1988-2008



More recently, the IIHS evaluated insurance data to see if there were demonstrable benefits to handheld bans. The IIHS had previously claimed that driving while using a cell phone causes a four-fold increase in risk, thus it was expected that insurance data would show a drop in claims after the enactment of handheld bans. However, the data showed no observable drop in claims as expected, and the IIHS is now re-evaluating its position on distracted driving and cell phone use risks.

For several years now, Ford has been focused on the issue of driver distraction and has taken steps to enhance driving safety for those who use cell phones and other telematics devices while driving. Through its work with the Alliance of Automobile Manufacturers, for example, Ford helped lead the development of an industry-wide Driver Distraction Voluntary Agreement, and Ford designs its telematics systems to meet that agreement. In addition, Ford was the first automotive manufacturer to support the Schumer Bill, the first bill in Congress to propose a ban on handheld texting while driving. Ford also clarified its employee policies to explicitly ban the practice. And, Ford Driving Skills for Life, Ford's driver education program, includes modules on the importance of avoiding distracted driving.



In addition, Ford designed and introduced SYNC®, our voice-activated in-car connectivity system, which has been shown to enhance the ability of drivers to keep their eyes on the road and hands on the wheel while using cell phones and music players. Recently completed simulator research at Ford has shown that SYNC substantially reduces drivers' eyes-off-road time and improves lane-keeping, speed maintenance, and object and event detection response times, when compared to handheld devices for the same tasks. (See the above video for an example. It shows how long it takes a driver to find a song on an MP3 player manually vs. using SYNC's voice-activated system.) This study evaluated driver performance, not driver behavior in the real world. However, these performance effects are consistent with the 100-Car VTTI Study, and strongly suggest that SYNC will reduce driver distraction and thus improve driving safety in situations where a hand-held device would otherwise be used. In addition, these findings were recently confirmed by independent, on-road testing performed by the VTTI and published at the most recent SAE Congress.

Ford recognizes the fact that drivers will use cell phones and music players while driving, and that evolving technologies like text messaging are growing increasingly popular. Text messaging is a particular concern, as it requires significant time looking away from the roadway to operate. Ford's SYNC system addresses this concern as well: when a text message arrives, it does not display that message but instead reads it aloud through text-to-speech technology, and then provides a list of canned replies for the driver to select rather than key-in or compose manually. SYNC also locks out certain features (such as adding or editing a phone book contact) while driving.

The next generation of SYNC will allow for more conversational commands, and will allow customers to use voice commands to control smart-phone applications such as OpenBeak (an app for posting messages to Twitter), Pandora (for music streaming) and Stitcher (for podcast streaming). Pandora and Stitcher report that more than 40 percent of their users use this feature in their vehicle.

We believe that further education is needed to help drivers understand the importance of focusing on the driving task and keeping their hands on the wheel and eyes on the road. Ford plans to continue to work with the government and other safety-related groups to discuss measures that can effectively reduce driver distraction and improve driving safety. We also plan to participate in continued research that can further our understanding of safe driving and help spread the message of safe driving.



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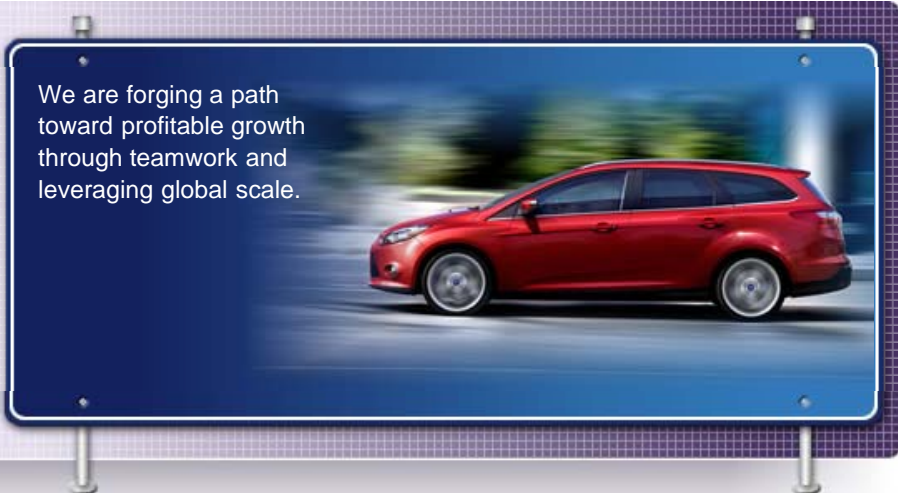
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Sustaining Ford

2009 HIGHLIGHTS:

- Doubled our hybrid vehicle production, and on the way to delivering our first pure battery electric and plug-in hybrids



After enduring several of the most difficult years in our Company's history, Ford turned a corner in 2009. In the face of a global economic and financial crisis, as well as unprecedented events in the U.S. automotive industry, Ford achieved \$2.7 billion of net income, its first full year of positive net income since 2005, and a \$17.5 billion improvement over 2008.

Despite the continued economic slump of 2009, which included the bankruptcies of two of our domestic competitors and a nearly 40 percent cumulative drop in new vehicle sales in the United States since 2005, we gained market share in most of our business units across the globe, including our first full-year market share gain in the United States since 1995.

Based on our improving performance, the gradually strengthening economy and our present assumptions, we now expect to deliver solid profits in 2010 with positive Automotive operating-related cash flow.

Our progress in 2009 offers the strongest proof yet that our business strategy is successful and that we are forging a path toward profitable growth through teamwork and leveraging global scale. Three years ago, we created the "ONE Ford" plan to guide our business toward better times. We cascaded the plan across our global organization. And we are executing the plan.

Ford is steadfastly focused on creating a strong business that builds great products that contribute to a better world. As part of our plan, we continue to press forward to globalize vehicle platforms that can be adapted to meet specific regional needs. Flexible manufacturing capabilities allow us to bring products to market with greater speed and efficiency than ever before.

Our commitment to innovation is supported by four principles that inform and guide every design and engineering effort: to be best in class in quality, safety, fuel efficiency and the "smart technologies" that make the driving and riding experience easier and more enjoyable. We are working to continually raise the bar on quality and safety. Fuel efficiency and smart technologies are strategically important because green technology and smart innovations are helping us serve our customers and differentiate Ford.

Our sustainability strategy has helped us to understand the global challenges driving the need for innovation in these areas and positions us to succeed in delivering them. We believe that we have been able to weather these last difficult years because our business strategy and our sustainability strategy are aligned and intertwined.

But we're far from complacent and we're continuing to address adverse conditions. Notwithstanding many positive signs of an economic recovery, the global business environment remains

PERSPECTIVES ON SUSTAINABILITY



Abby Joseph Cohen

Senior Investment Strategist and President of the Global Markets Institute at Goldman Sachs

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 - [Delivering More Fuel-Efficient Vehicles](#)
 - [Working as One Team](#)

extraordinarily challenging, with increasingly intense competition from other automakers. We know the road ahead won't be easy.

We are focused on our future and our ultimate objective: profitable growth for all. Our ONE Ford transformation plan was developed in 2007 to create a leaner, more-efficient global enterprise. It is anchored by four key priorities:

- Aggressive restructuring to operate profitably at current demand and changing model mix
- Accelerated development of new products our customers want and value
- Financing the plan and improving our balance sheet
- Working together effectively as one team to leverage our global assets

While we are well on our way, it's clear that our ONE Ford transformation is not yet complete. By continuing to work together and staying focused, we believe we can deliver a future that includes benefits for our stakeholders, including our employees, our investors, our business partners, our suppliers and our dealers. When Ford succeeds, so do the broader communities in which we operate.

Our path toward long-term viability began well before the recent economic downturn. We have been fundamentally restructuring our operations in ways that impact every part of our business – from product innovation and fuel efficiency to labor relations and our interactions with suppliers and dealers. These last years have demonstrated how critical it is for Ford to stay focused on issues of sustainability, even in difficult economic times.

We recognized that our business model needed to change, and we have been changing it. One key element of our plan has been our increased focus on a more balanced portfolio that includes more small and midsize vehicles, to respond to consumer demands.

We've also been very clear about our product strategy to deliver improved fuel economy and reduced greenhouse gas emissions through affordable advanced technologies. We continue to make improvements in gasoline-powered vehicles through the use of EcoBoost™ engines, six-speed transmissions, electric power-assisted steering and other technologies. We doubled our hybrid vehicle production, and we're on the way to delivering the first of our pure battery electric and plug-in hybrid vehicles. It is a practical, comprehensive approach designed to provide affordable fuel economy to millions of drivers around the world.

Over the next few years, Ford is investing nearly \$14 billion in advanced technology vehicles in the United States alone.

Our blueprint for sustainability, which highlights how we will meet our product carbon-dioxide-reduction goal, has positioned us to lead in the industry. And on the supply side, we are continuing to strengthen our U.S.-located supply base, instituting practices designed to increase collaboration, provide for data transparency and expand the volume of business with select suppliers – all with an eye toward building a more sustainable business model. We're also focused on improving transportation options for people in urban areas to promote sustainable mobility and build electric vehicles for these markets.

In 2010, we will deliver substantially more new or freshened products by volume than in 2009 globally, bringing to market an unprecedented volume of new products – with class-leading fuel efficiency, safety, smart design and value.

Offering vehicles with smaller environmental footprints, tackling the mobility challenges of rapidly growing urban centers, and tailoring our products and services to increasingly diverse global markets are not peripheral to Ford's future success – they are central to it.



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Segment Shifts

As consumer preferences in North America have shifted from larger vehicles to smaller, more fuel-efficient models, we are responding. We have made a commitment and are taking steps to make our assembly plants "flexible" – that is, more nimble to enable us to adapt our vehicle production more swiftly to changing market preferences and needs. Thanks in part to significant investments in our manufacturing facilities, we're retooling three of our North American assembly plants that previously had built large trucks and SUVs to instead build smaller, more fuel-efficient vehicles on Ford's global platforms. For example, we're investing \$550 million to transform our Michigan Assembly Plant – formerly the production site for the Ford Expedition and Lincoln Navigator SUVs – to one that will build Ford's next-generation global Focus for the North American market. This transformation is emblematic of the larger transformation under way at Ford. In the modern marketplace, we see flexibility and adaptability as critical to our success.

We have been working hard these last few years to reverse the decades-long trend of losing money on the production of small cars in the United States. We have boosted production of smaller-sized vehicles in North America and globally, and we are improving costs to competitive levels. The strength of the new Ford Fiesta in markets from Europe to Africa to Asia is proof of the progress we are making in this area. (The Fiesta debuts in the United States in the summer of 2010.) We are also improving sales thanks to the increased production of vehicles with class-leading fuel economy, safety performance, quality and technology.

As part of our ONE Ford plan, we have shifted our entire business structure. We historically operated as four somewhat independent automotive companies around the globe – North America, South America, Europe and Asia Pacific – each with its own product development systems, manufacturing processes, suppliers and other duplicative structures. While this made sense in the past, such a structure led to unnecessary and inefficient processes and a failure to realize the substantial benefits of scale available to a global enterprise like ours.

As we expanded our brand portfolio around the world, our global enterprise became more difficult to manage, and we neglected to ensure that the Ford brand retained its strength in all markets and in all segments. The situation was especially acute in the United States where, in the 1990s, both Ford and our foreign and domestic competitors became increasingly dependent on sales of trucks and large SUVs.

While we did begin to refocus our North American portfolio in the early 2000s with a new line of midsize cars, we did not adequately predict the sizeable shifts in consumer preferences that were to come later in the decade. When fuel prices shot up rapidly in early 2008, consumers migrated toward small cars at a much faster pace than we and others in the industry anticipated.


In 2010, sales trends show that consumers are continuing to move toward smaller vehicles, which bodes well for our Company as we prepare for the U.S. launch of the Fiesta this summer.

Today, gas remains relatively inexpensive in the United States, but we think consumers will remember how higher gas prices impacted their wallets, and we believe the shift in buying patterns is more than a temporary fluke.

When we watch how our customers' aspirations and lifestyles change, monitor long-term trends and connect the dots, we succeed in bringing our customers the vehicles they really want and value. For example, while we anticipated a shift in U.S. consumer attitudes regarding the desire for cars with affordable fuel economy, we also appreciated that not everyone is ready for a hybrid. That's why we pursued two compatible plans. The result was our high-horsepower, high-mileage EcoBoost technology – developed on a parallel path to our popular hybrids.

Our innovative technologies have been well received within the industry, in the media and, most importantly, with our customers. Our challenge is to maintain – or even further improve – the pace of innovation that we set in 2009 to deliver even better vehicles each and every year, with even better technology. We're not delivering technology just for technology's sake. Every piece of

We have made a commitment and are taking steps to make our assembly plants "flexible" – that is, more nimble to enable us to adapt our vehicle production more swiftly to changing market preferences and needs.



technology that goes into a Ford product is there for one reason: it adds real value.

As customers look for more fuel-efficient choices, we intend to be there with more of the products they really want.

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Sales Trends

While overall industry sales and production levels remained low in the United States in 2009 compared to pre-recession levels, Ford saw growth in market share in most of our major markets. Government incentives, such as the popular "cash for clunkers" program in the United States and even larger scrappage programs in Europe (particularly Germany) helped boost what was otherwise a dismal year overall. In the United States, the Ford Focus was the top-selling Ford car under the cash for clunkers program. Reflecting the shifts in consumer preferences, three Ford Explorer models from the 1990s were among the vehicles most traded-in under the program.

Strong products drove Ford's full-year market share gains in North America, South America and Europe, while we maintained our share in the rapidly growing Asia Pacific Africa region.

In the United States, Ford, Lincoln and Mercury fourth-quarter 2009 sales were up 13 percent versus a year ago – leading to the first full-year market share gain since 1995. Fusion sales rose 22 percent, setting a new annual record, and the F-Series was the No. 1 selling truck for the 33rd straight year.

In Europe, fourth-quarter sales increased 19 percent. Led by the Fiesta, Focus and Ka, Ford strengthened its position as Europe's No. 2 brand. Ford Europe's market share of 9.1 percent increased a half point for the year, setting an 11-year high. In South America, meanwhile, Ford Brazil achieved its best-ever full-year sales in 2009 by selling 325,000 units – a 15 percent sales increase over levels from the previous year. And, in our Asia Pacific Africa region, fourth-quarter sales rose 53 percent, with full-year sales up 15 percent in the region. Ford sales in China led the full-year increase, up 45 percent from 2008.

We're extremely pleased that we were able to report a full-year 2009 pre-tax operating profit. And we're on track toward profitability for full-year 2010.

More and more, consumers are recognizing that Ford is different, and the real difference is our great products, stronger business and the better world we are creating – particularly our leadership in quality, fuel efficiency, safety, smart technologies and value.

(For more information, please see the [Economy](#) section of this report.)



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Workforce

We've had to make some difficult decisions over the last few years in order to match production capacity with demand for new vehicles. That meant significant reductions in employment levels in our North American business unit. The personnel reductions were painful for every person affected. But the results of these efforts are helping Ford to strengthen our competitive position and long-term financial viability. Since 2005, we have closed 12 manufacturing facilities in North America.

In 2009, we offered 42,000 hourly employees two opportunities to accept buyout and early retirement offers, which included payments of up to \$70,000 for newer workers and up to \$60,000 for those already eligible for retirement. Approximately 1,300 hourly employees accepted a buyout offer in 2009. We have attempted to handle workforce separations and plant closings with respect for the people and communities affected.

In March 2009, Ford-UAW membership ratified modifications to the existing collective bargaining agreement that significantly improved our competitiveness, saving us up to \$500 million annually and bringing us near to competitive parity with the U.S. operations of foreign-owned automakers. The operational changes affected wage and benefit provisions, productivity, job security programs and capacity actions, allowing us to increase manufacturing efficiency and flexibility. In addition, modifications to an independent trust called the Voluntary Employee Beneficiary Association, or VEBA, allowed for smoothing of payment obligations and provided us the option, at our discretion, to satisfy up to approximately 50 percent of our future payment obligations to the VEBA trust in Ford Common Stock.

On November 1, 2009, the CAW announced that a majority of its members employed by Ford Canada had voted to ratify modifications to the terms of the existing collective bargaining agreement between Ford Canada and the CAW. One day later, the UAW announced that a majority of its members employed by Ford had voted against ratification of a tentative agreement that would have further modified the terms of the existing collective bargaining agreement between Ford and the UAW. The latest modifications were designed to closely match the modified collective bargaining agreements between the UAW and our domestic competitors, General Motors and Chrysler. (For more on this topic, see the [Economy](#) section of this report.)

Our improved financial performance has resulted in some tangible improvements for our workforce in 2010. We were able to pay profit sharing to 43,000 eligible United Auto Workers in 2009. We have reinstated a 401(k) matching program and we are awarding 2010 merit increases for eligible U.S. salaried employees.

In February 2009, our two top executives, Bill Ford and Alan Mulally, voluntarily agreed to accept a 30 percent reduction in salary for 2009 and 2010 and neither received a cash bonus in either of the last two years. Mr. Ford has requested that his compensation be set aside, to be paid only at a point when the Company's global automotive operations achieved full-year profitability.



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2009 Sales and Highlights

Business Unit	2009 Wholesales (in thousands)	Percent Change from 2008	Highlights
Ford North America ¹	1,958	-16%	<ul style="list-style-type: none"> • Ford, Lincoln and Mercury brands collectively increased U.S. overall and retail market share 14 of the last 15 months as of December 2009, and posted the first full-year market share gain since 1995. • The new 2010 Fusion Hybrid was named <i>Motor Trend</i> magazine's Car of the Year and awarded the title of North American Car of the Year at the North American International Auto Show in January 2010. • Our combined car and truck market share (including all of our brands sold in these markets) in 2009 was 15.2% for Canada – up 2.6 percentage points from the previous year – which represents our highest full-year share since 2001 and made Ford the No. 1- selling brand in Canada. • The Ford Fusion, the most fuel-efficient midsize sedan sold in America, posted a full-year sales record in 2009 with 180,671 units sold. • The new Ford Transit Connect was introduced in North America in the second quarter of 2009 and was awarded the 2010 North American Truck of the Year at the North American International Auto Show. • The 2011 Ford Fiesta was revealed in North America in the fourth quarter of 2009 and will go on sale in the second quarter of 2010. • The F-Series pickup truck has been the best-selling truck in the United States for 33 straight years. • Ford has the most U.S. government five-star-rated vehicles and the most "Top Safety Picks" from the Insurance Institute of Highway Safety of any automaker.
Ford Europe	1,568	14%	<ul style="list-style-type: none"> • We improved our 2009 full-year market share to 9.1% in the 19 European markets we track – a 0.5 percentage point increase versus 2008 and our best market share since 1998. • The Ford Fiesta was the second best-selling model in Europe in 2009, reaching its best full-year sales since 1996. More than 15 months after its sales debut in autumn 2008, more than 675,000 customers have purchased the Fiesta globally. • In 2010, we will continue to build on our product momentum, with at least 11 vehicle reveals or launches, including the new Ford C-MAX and Grand C-MAX, the freshened Ford Galaxy, S-MAX, Mondeo and a new Focus ECONetic.
Ford South America	443	2%	<ul style="list-style-type: none"> • In Brazil, 2009 industry sales were strong in comparison to other markets in South America due to government stimulus actions taken in response to the global economic slowdown. • In 2010, we are bringing a flex-fuel version of the European-based Ford Focus to Brazil; nine additional product introductions are planned for the region in 2010. • In 2009, the European-based Ford Focus came to Brazil, Argentina and Venezuela. • Ford is investing \$2.57 billion in our Brazil operations between 2011 and 2015 to accelerate the delivery of more fuel-efficient, high-quality vehicles, and another \$250 million in our Argentina operations from 2009 to 2012.
Ford Asia Pacific Africa ²	523	14%	<ul style="list-style-type: none"> • In 2010, we will introduce the all-new Ford Fiesta five-door and four-door sedan, built in Rayong, Thailand. • The four-door Fiesta will join the five-door counterpart in Australia, New Zealand, South Africa and Taiwan. • The new Ford Figo commenced sales in the second quarter in India and later

in the year in South Africa.

- Ford is investing \$500 million to expand our manufacturing facility in Chennai, India, to begin production of a new small car and to build a fully integrated and flexible engine manufacturing plant.

1. Includes sales of Mazda6 by our subsidiary, AAI.
2. Included in wholesale unit volumes of Ford Asia Pacific Africa are Ford-badged vehicles sold in China by unconsolidated affiliates totaling about 264,000 and 184,000 units in 2009 and 2008, respectively.



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Former Ford Scientist (1989–2009)
 Current Member of the Science Advisory Board (SAB)
 U.S. Environmental Protection Agency

"I believe it's very important for major corporations to consider science when making decisions about their products and their operations."

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Abby Joseph Cohen

Senior Investment Strategist and
 President of the Global Markets Institute at Goldman Sachs

"Sustainability can't be an add-on; it must be well integrated into a corporation's regular business activities."

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Executive Director and Professor of Business Ethics
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"I think people see Ford – and rightly so – as a company that is focusing on substantial larger social issues, like human rights and environmental sustainability, that are critical for our planet."

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Senior Fellow
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"The question is not *should* we move toward plug-in vehicles. The real question is how can we get there quickly."

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 Ford Motor Company

"These days, sustainability governance and more traditional corporate governance overlap, maybe even to the point of merging. We have a very complicated business that impacts a host of different areas, and you can't divorce any one from the others."

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Director
Ford Automotive Safety Office

"To identify the safety priorities that can save the most lives, we must rely on real-world crash and injury data and apply sound science to motor vehicle safety problems."

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David Chock

Former Ford Scientist (1989–2009)
Current Member of the Science Advisory Board (SAB)
U.S. Environmental Protection Agency



Before my retirement last year, I spent 20 years as a scientist at Ford, doing research and working to understand issues like the impact of emissions on air quality. In the late 1990s, our team began looking into the science of climate change and its implications for auto emissions. We were also looking at sustainability issues, developing Ford CO₂ emission reduction targets from the perspective of energy resource availability and potential economic and environmental impacts.

When I joined Ford, the Company's sustainability strategy tended to be short term, as was typical of many large companies at that time. Five to 10 years down the road was generally considered a far-reaching outlook. But when we started addressing the issue of climate change, the Company's mindset began to change, and Ford took a much longer-term view of sustainability, with a much more global perspective.

I think Ford had some key enablers that allowed us to push ahead in our climate change work. The first enabler was Bill Ford, a very forward-looking environmentalist. He deserves a lot of credit for nurturing the sustainability mindset at the Company and for opening up direct channels of communication with corporate decision-makers. The second enabler was a company culture that encouraged discussions among employees – of any rank. Ford has a very open and collaborative atmosphere, which made it an exciting place to work.

By keeping abreast of the scientific literature and evaluating the scientific merit of different arguments, we came to the conclusion that the science of climate change is credible. This allows Ford to use science as a guide for future planning. One scary thing about climate change is that short-term climate noise may lull us into complacency even as the longer-term trend has become increasingly evident. There are also many practical issues on global CO₂ emission reduction that have not been adequately addressed and coordinated. But eventually, we, and especially our children and future generations, will have to face the consequences of our action or inaction.

In the process of developing the Company's CO₂ model and strategy, we found it very helpful to work with other interested partners, leveraging each other's expertise as necessary. For example, BP's knowledge and realistic projections of biofuel availability in different regions of the world provided critical input in our construction of meaningful fossil-CO₂ emission reduction requirements from vehicles.

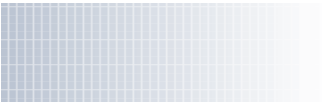
Our approach assumed a climate stabilization target and took into consideration the economic growth of developing countries, proceeding logically from global CO₂ emission-reduction requirements down to regional responsibilities. We constructed many scenarios. Obviously, while we don't know which scenarios might be closer to reality in the future, at least we know what to anticipate in order to fulfill our corporate citizenship responsibility.

I believe it's very important for major corporations to consider science when making decisions about their products and their operations. Natural science guides us about how our actions will impact the environment. Equally important are the social sciences, especially economics and behavioral science, which can help direct us to define workable solutions that are beneficial to society at large, to the environment and to corporations themselves.

Companies must sell their products; if they can't get customers to purchase them, they'll go out of

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business. We need to build environmentally friendly products that people will buy. I'm proud that my work at Ford could help impact the Company's product development and sustainability strategy.

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Abby Joseph Cohen

Senior Investment Strategist and
President of the Global Markets Institute at Goldman Sachs



It's important for companies to monitor, measure and manage their sustainability performance for their own purposes, but also because shareholders are increasingly asking them to do so. Social responsibility may not yet be the dominant investment model, but an increasing number of fund managers and institutional investors are paying attention to these issues.

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For many years, the socially responsible investing (SRI) movement was stymied by studies that showed lower rates of portfolio returns for those that used sustainability or another SRI metric as their primary investing criterion. Until relatively recently, it was difficult to show a positive correlation between good corporate stewardship and strong financial market performance. Perhaps this was linked in part to the focus of early adopters of SRI to simply avoid certain companies and industries. Another contributing factor was the relatively small amount of portfolio assets that was targeted toward companies with strong records in SRI performance.

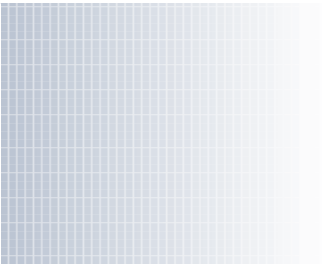
More recently, SRI has been broadened to include environmental, sustainability and governance (ESG) issues. Importantly, ESG investors are seeking to identify the companies that are strong performers in these categories rather than merely avoiding those in challenged industries. Data from the Investor Network on Climate Risk (INCR) – a network of investors that say they care about the environment – show a fascinating trend. As recently as 2003, the INCR represented investors with about \$600 billion in assets under management. Today, the INCR has grown to an estimated \$8 trillion network. Even when compared to the size of global capital markets, this is substantial and has reached critical mass.

One problem for investors interested in sustainability issues is that much of the publicly available information is not as useful as it could be. Moreover, there is often little consistency or comparability in the data offered by different companies. A sustainability issue that may be extremely relevant for one industry may not matter at all for another. Although the US Securities and Exchange Commission recently mandated corporate disclosures related to climate change, full details on the specific nature and form of disclosures must still be decided.

Investors are accustomed to evaluating companies using quantified financial data. We know how earnings, balance sheet and other items are defined because of clear guidelines such as Generally Accepted Accounting Standards (GAAP). But that level of specificity does not yet exist for the measurements related to sustainability. Many portfolio managers simply aren't sure what benchmarks and metrics to use.

From my viewpoint, however, one especially important benchmark is governance. Not surprisingly, there's a very high correlation between companies that score well on governance issues, and those that score well on sustainability, climate stewardship and community engagement.

Early on in the sustainability movement, investors – particularly large public pension funds – were driving the reporting process for companies. Their emphasis was largely on liability management, with the primary goal of avoiding bad long-term outcomes associated with corporate activities, such as the costs of environmental damage and remediation. There are two changes of consequence. First, investors are increasingly rewarding not only the avoidance of bad outcomes but also the pursuit of new business opportunities that enhance sustainability. These include developing new sources of revenues based on products and processes that have a friendlier environmental footprint. Second, more mainstream investors recognize that they can improve their financial returns by focusing on companies that prioritize sustainability. The results may prove to be mutually



reinforcing, with companies responding to shareholders and shareholders responding to the successes of companies.

Bill Ford introduced sustainability reports for the vehicle manufacturer more than a decade ago, so Ford has a culture of paying attention to these issues. The credibility of Ford's effort is enhanced because the company's environmental policies are part of the overall business strategy. Sustainability can't be an add-on; it must be well integrated into a corporation's regular business activities.

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Timothy Fort

Executive Director and Professor of Business Ethics
Institute for Corporate Responsibility, George Washington University



Ford's human rights policy builds on a notion of establishing trusted partners among suppliers, employees and regulators. That's a good strategy, because trust is essential for businesses that want to succeed in today's environment. (It's also much more efficient than trying to police those within your supply chain.)

I believe there are three types of trust for businesses that are aiming to be socially responsible: hard trust, real trust and good trust. "Hard trust" is essentially obeying the law; people will trust that a company is in compliance with human rights codes because there are third parties that will punish them – through fines or prosecutions – if they do not. Unfortunately, that's about as far as many companies ever go.

"Real trust" companies actively engage with the stakeholders that are affected by their business operations. They're not forced to do this; they do it because they believe in doing good and they want to ensure they and their employees are living to the highest standards of ethical behavior. "Good trust" goes one step further. Companies that practice good trust have an almost spiritual or aspirational aspect to their work. They want to move far beyond basic codes of conduct to look at how they can help solve problems and create a better world.

I think you need to have all three elements of trust in order to have a rich company culture on issues of human rights. Only a very small percentage of companies are actually incorporating elements of good trust into their business, but the numbers are growing.

Over the last 20 years or so, more and more companies have moved beyond mere compliance with the law, recognizing that employees are more motivated and suppliers more loyal if you treat them well. And plenty of academic studies show a correlation between corporate social behavior and corporate financial behavior.

Ford is one of those companies that is trying to achieve much more than just "staying out of trouble." I think people see Ford – and rightly so – as a company that is focusing on substantial larger social issues, like human rights and environmental sustainability, that are critical for our planet. One good example of this is Ford's efforts on HIV prevention and education among its employees in South Africa. Ford's receptiveness to programs that have an impact on their employees' well being is an indication of its corporate culture.

More consumers are aware today of where their products are coming from, and if they were ethically sourced. But whether they are willing to pay more for ethical products is decidedly mixed.

Companies will always find new ethical demands and challenges. Looking ahead, for example, companies may find themselves working to create more peaceful societies. There might even be a role for businesses to help mediate religious conflict among people who live in the areas in which they operate. Companies may be better suited to do this than governments because of their experience taking a pragmatic approach to religious differences in the workplace.

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Steve Marshall

Senior Fellow
Cascadia Center for Regional Development



Our think tank is primarily concerned with transportation and energy issues. We have worked with Ford over the years to figure out ways to link electrified vehicles with transportation and communications networks.

In order to move beyond oil and make communities more sustainable, we need to align the interests of vehicle manufacturers, software firms, regulators and utility companies. That in itself is challenging, since these groups have never before had to work together.

For example, if electrified vehicles are going to succeed, we need utility companies to be on board without reservation, since they will provide the infrastructure for the re-charging stations that will become the gas stations of the future. Now they're concerned about uncertainties. Will they need to add generation capacity to make energy for electric vehicles and, if so, can they pass on the costs to consumers? Utilities are creatures of regulation and the rules and incentives have to be right.

Many stakeholders recognize the potential benefits of plug-in technologies, but there's a lot of work to do before they can become mainstream. There are issues with infrastructure, power grid limitations – even concerns about declining revenues from the gas tax, if consumers switch to electric vehicles.

At our Beyond Oil conferences, we strive to point out that moving away from foreign oil and toward electricity will actually create an economic stimulus effect for the United States. Last year, for example, my home state of Washington spent more money to import fuel from overseas than it spent on K-12 education. For those worried about loss of gas tax benefits, there are other alternatives, such as a gas tax stabilization plan that ensures a set level of revenue or ultimately moving to a vehicle mile travel fee and congestion pricing, where vehicles are charged more per mile based on the time of day they travel.

Henry Ford famously said that if he had asked his customers what they wanted, they would have answered: "a faster horse." People didn't know what was out there, so they didn't know what to request. The same holds true for electrification and the mobility hubs of the future.

What Henry Ford did was introduce a systems approach to making affordable cars. The more affordable the cars became, the more roads and support services were created. I would urge people to think of a systems approach when it comes to new forms of vehicle technology. The question is not *should* we move toward plug-in vehicles. The real question is how can we get there quickly. Information technology will play a critical role in linking the elements of the system together and making it seamless for consumers.

We need to re-think our transportation systems. Imagine being able to drive an electric vehicle from your home to a transportation hub where you can plug in your car for charging while you then take light rail or a rapid bus into a core metropolitan area.

Years from now, people will look back and wonder what it was like to drive a gasoline-powered car, much in the same way that people now look back and wonder what it was like to rely on horses for transportation.

Ford has been taking a leadership position not just on electric vehicle development, but on a whole host of sustainability issues, such as mobility hubs and overall transportation systems approaches. There are very few companies that are thinking broadly like that and trying to link the different

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components that will make them work – and work to their optimum capability.

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Peter Sherry, Jr.

Corporate Secretary and Associate General Counsel
Ford Motor Company



When I first started here at Ford Motor Company in the early 1980s, I don't think "sustainability" was part of our corporate lexicon. That started to change over time and really accelerated when Bill Ford became CEO in 2001. We began to recognize that it was in our Company's bottom line business interests to focus on issues of sustainability.

Sustainability has been a steadily accelerating progression at Ford. Take for example, our Board of Directors, which in 2009 renamed its Environment and Public Policy Committee as the Sustainability Committee. This change helped narrow the focus of the Committee. It sent a clear and consistent message both inside and outside the Company that Ford's leadership is focused on the important sustainability issues that are pivotal to our business, such as climate change, energy independence, vehicle safety, mobility and human rights. Changing the name ensured a continuity of purpose and a continuity of approach.

In particular, the committee has been spending increasing amounts of time looking at technology issues to make sure that Ford will be able to meet and exceed government-mandated fuel economy standards, both in the U.S. and in Europe, and that we will continue to be a leader in this area around the world.

These days, sustainability governance and more traditional corporate governance overlap, maybe even to the point of merging. We have a very complicated business that impacts a host of different areas, and you can't divorce any one from the others. In other words, you can't manage each issue separately. Fuel economy, alternative fuel vehicles, electrification – these are absolutely critical to the success of this Company. They are also critical from a broader social, environmental and economic standpoint. So, it's essential that your strategy and your plans in these areas be part of your overall business plan.

Sustainability permeates Ford's management. Each week, senior executives participate in the Business Plan Review chaired by our CEO, Alan Mulally. There, and in the Special Attention Review that follows, sustainability issues are discussed, just as any other critical issue within our business would be discussed. Sustainability governance is just a part of the whole. Indeed, if Ford itself is not sustainable as a company, nothing else we do will matter.

Of course, it is impossible to predict the future. Instead, the Board, the Committee and Company management must try to anticipate long-term trends to make sure we are able to position ourselves favorably. For example, it's no secret that we're anticipating a larger segment of the world population will want to drive smaller, more fuel-efficient cars that also have the features that discerning consumers want and value. That wasn't historically the case, particularly here in the U.S., yet we're now making the investments to develop more fuel-efficient vehicles to meet developing consumer demand.

It's important that Ford work collaboratively with all of our stakeholders around the world, whether they are shareholders, employees, dealers, government agencies or nongovernmental organizations. Historically, the mentality at companies like ours was that others outside our industry shouldn't presume to tell us what to do. Today, we know that's not an effective approach. The best way to solve difficult global issues, such as vehicle safety and fuel economy, is to work together with others – even with those whose interests may not always be completely aligned with ours.

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Jim Vondale

Director
Ford Automotive Safety Office



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In recent decades, the global vehicle safety community has together made significant strides in reducing motor vehicle crashes, fatalities and injuries. We can accelerate this progress in the future by staying focused on the most-effective real-world safety priorities and by harmonizing global safety regulations and requirements.

Safety progress over the past decades can be attributed to a variety of factors, including a better understanding of crash and injury mechanisms, an array of new safety features and technologies, a greater commitment to enforcing laws that address risky driving behaviors, and increased customer awareness of vehicle safety in purchase decisions.

The rate of future improvement, however, will largely depend on how effectively policy makers, nongovernmental safety groups and vehicle manufacturers utilize safety engineering resources. The more focused, aligned and effective we all are, the greater our achievements will be.

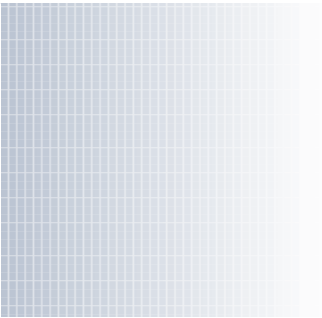
To identify the safety priorities that can save the most lives, we must rely on real-world crash and injury data and apply sound science to motor vehicle safety problems. We are most productive when we devote resources to technologies, regulations and requirements that have the greatest potential real-world benefit. For example, there is consensus that crash-avoidance technologies and vehicle-to-vehicle/infrastructure communications have great potential to reduce crash risks for a broad range of driving situations. All stakeholders in the global safety community should be prioritizing efforts in those areas.

Another important way to enhance the effective and efficient use of vehicle manufacturers' safety engineering resources is to harmonize global vehicle regulations. While some progress has been made, vehicle manufacturers continue to face increasingly complex and conflicting requirements and metrics, including two different regulatory schemes that are used globally – one based on U.S. regulations, the other based on European regulations. Local requirements can also be added to these base regulatory schemes, further increasing vehicle design complexity.

At the same time, consumers must grapple with interpreting the proliferating and sometimes conflicting studies and rankings on auto safety (such as government-run New Car Assessment Programs, or NCAPs, and others conducted by private groups), which are based on various laboratory tests with different crash-test dummies, test requirements and metrics. These studies and rankings are a useful tool for consumers, and they are having their intended effect of driving vehicle manufacturer behavior. However, they don't always correlate well with real-world crash data, in large part because driver behavior plays such an important role in real-world safety and can overwhelm any differences found in laboratory tests. In addition, these public domain assessments at times appear to compete with one another for greater complexity and stringency. And currently, there is no organized effort to harmonize them.

While some regional differences in regulations and public domain testing are to be expected, the global safety community should intensify efforts to determine whether all of the differences are justified. Resources spent to modify vehicle designs in order to meet variable regulations and public domain requirements – especially those without proven and significant real-world safety benefits – are resources that are lost to pursuing real-world safety improvements that can save many lives.

We also must not forget that vehicle technology alone cannot solve all vehicle safety challenges.



Many of the advanced technologies currently being studied or considered for implementation require decisions about such things as policy, governance and security. In addition, driver behavior and driver responsibility will continue to be critical to future safety progress and will require additional driver education and enforcement. Also, governments need to step up efforts to provide a safer vehicle infrastructure.

These efforts will take some time, and changes will need to be phased in to maximize the effective use of safety engineering resources. But, if all the stakeholders in the global safety community work together to address these important challenges, we will see even greater safety benefits in the future.



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- Named one of the World's Most Ethical Companies by the Ethisphere Institute
- In this section, have included discussion of public policy issues for the first time

Our sound governance and management systems help us translate our aspirations into action while operating to high ethical standards.



Sound governance and management systems enable a company to operate in a transparent and accountable way. They provide effective oversight and help a company translate its aspirations into action while operating to high ethical standards.

The concept of governance is expanding beyond its traditional focus on fiduciary responsibility to shareholders to a broader focus on a company's impact on the world and its responsibilities to diverse stakeholders. At Ford, this is reflected in our development and integration of sustainability structures, processes and management systems into the core business.

Assessing Materiality

A number of topics related to governance and accountability were identified as issues of importance to Ford and our stakeholders in the materiality analysis. Shareholder concerns (i.e., resolutions) and ethical business practices were two issues identified. Concerns expressed exclusively through shareholder resolutions were judged to be of low potential impact on the Company and medium concern to stakeholders. Ethical business practices were judged to be of high potential impact for Ford and medium concern to stakeholders.

Issues related to Ford's sustainability strategy, vision and management were also identified in the analysis and judged to be of high potential impact on the Company and medium concern to stakeholders.

Several public policy issues were identified in the analysis, including greenhouse gas (GHG) and fuel economy regulation, health care reform, global environmental regulation and political payments and contributions. Political contributions were judged to be of medium potential impact on the Company and medium concern to stakeholders. Changing environmental and safety regulations in general were judged to be of high potential impact on Ford and low concern to stakeholders. Regulations related to GHG emissions and fuel economy, however, were judged to be of high potential impact on the Company and high concern to stakeholders.

Based on this assessment, we have included discussion of all of these issues in this Web report, in this or other relevant sections.

PERSPECTIVES ON SUSTAINABILITY

Peter Sherry, Jr.

Corporate Secretary and Associate General Counsel, Ford Motor Company

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RELATED LINKS

This Report: [Materiality Analysis](#)

External Web Sites: [Ethisphere Institute](#)



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Sustainability Report 2009/10

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In 2009 we introduced a new mandatory online training course for global employees and other personnel that covers key issues contained in our Code of Conduct Handbook. In the 12 months since the new training was introduced, more than 92,000 individuals, or approximately 84 percent of those invited, have completed it.

Also in 2009 we began to update our Policy Letters and Directives to include guidelines for employee conduct and communications in online social media forums, such as Facebook, Twitter and blogs. Our intent is to encourage communication and transparency through these forums, while at the same time ensuring appropriate and ethical conduct and preventing the release of propriety or competitive information. This updating process remains underway, and should be completed in 2010. We will then train our employees on these new guidelines.

In 2009 and early 2010, Ford received a number of recognitions for our corporate responsibility work, our reporting and our governance practices. In 2010, for example, Ford was named one of the World's Most Ethical Companies by the Ethisphere Institute. Ford was one of only 100 companies on the list, and the only automaker. See the [Awards and Recognitions](#) page for additional awards received.

Finally, we are including a [Public Policy](#) section in this report for the first time, in response to stakeholder feedback. This section consolidates discussion of Ford's positions on key U.S. public policy issues, including climate change, trade, education and health care reform, among others. We are also for the first time listing the major associations and coalitions to which we belong, as well as the membership dues paid to each.

This section of the report discusses Ford's [overall and sustainability governance](#) and its [management of key sustainability issues](#).

RELATED LINKS

This Report:
[2009 Awards and Recognition](#)
[Public Policy](#)

Fordmotorcompany.com:
[Code of Conduct Handbook](#)

External Web Sites:
[Ethisphere Institute](#)



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Governance and Management Structures

Board-Level Governance

<p>BOARD OF DIRECTORS</p> <p>William Clay Ford, Jr. Executive Chairman</p> <p>Stephen G. Butler* Kimberley A. Casiano* Anthony F. Earley, Jr.* Edsel B. Ford II Richard A. Gephardt* Irvine O. Hockaday, Jr.* Richard A. Manoogian* Ellen R. Marram* Nome A. Neal* Gerald L. Shaheen* John L. Thornton*</p> <p>* Independent director</p> <p>Find out more about the Board of Directors</p>	<p>BOARD COMMITTEES</p> <p>Audit Compensation Nominating and Governance</p> <p>Sustainability</p> <p>Finance</p>	<p>POLICY DOCUMENTS</p> <ul style="list-style-type: none"> Corporate Governance Principles (pdf, 53kb) Code of Ethics for Board of Directors (pdf, 34kb) Committee Charters
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Sustainability Management

<p>GROUP VPs</p> <p>Group VP, Sustainability, Environment and Safety Engineering</p> <p>Group VP, Global Manufacturing</p> <p>Group VP, Global Product Development Group VP, Global Purchasing Group VP, Global Marketing</p> <p>Find out more about Sustainability Management</p>	<p>POLICY DOCUMENTS</p> <ul style="list-style-type: none"> Code of Conduct Handbook (pdf, 0.99Mb) Code of Ethics for Senior Financial Personnel (pdf, 17kb) Policy Letters and Directives <p>More policy documents</p>
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SUSTAINABLE MOBILITY GOVERNANCE

Key Business Processes

<p>Business Plan Review Global Product Development System Special Attention Review</p>	<p>Ford Production System ISO 14001 Certification Order-to-Delivery</p>
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2009 Awards and Recognition

In 2009 and early 2010, Ford received a number of awards and recognitions for our corporate responsibility and sustainability efforts and governance practices.

In 2010, for example, Ford was deemed one of the World's Most Ethical Companies by the Ethisphere Institute. Ford was one of only 100 companies on this list, and the only automaker. Ford was chosen for this distinction from a field of thousands of companies in more than 100 countries and 36 industries. To be included, a company has to receive high ranks in seven key areas: corporate citizenship and responsibility; corporate governance; innovation that contributes to the public well-being; industry leadership; executive leadership and tone from the top; legal, regulatory and reputation track record; and internal systems and ethics/compliance program.

In early 2010, Ford was awarded second place in the ACCA/Ceres "Best Sustainability Report" rankings, for our 2008/9 report. These rankings acknowledge and publicize best practices in the reporting and disclosure of sustainability performance.

Also in 2010, *Corporate Responsibility Officer* magazine, in conjunction with the research and consulting firm IW Financial, ranked Ford 88th in their top 100 "Corporate Citizens for 2010." We were the only automotive company in the top 100. Within this overall ranking, Ford was ranked first in the area of human rights and 18th for environment. This ranking system reviewed large-cap companies headquartered in the United States.

In 2009, Ford was included in the Dow Jones Sustainability Index North America and the FTSE4Good Index, based on favorable evaluations of our sustainability programs and performance.

Also in 2009, Ford was the only automaker to be listed among *Newsweek* magazine's "Green Rankings." This list rated America's 500 largest companies on environmental impact, environmental policies and performance, and reputation among CEOs, social responsibility professionals, academics and other environmental experts. Ford was ranked 108th in the complete list of 500 companies and ninth in the sector category of consumer products and cars.

Ford was ranked third out of 300 of the largest U.S. companies on the Maplecroft Climate Innovation Index. Only GE and Intel ranked ahead of us. This index evaluates and rates company performance in climate-related innovation and carbon management.

In 2008, Ford was ranked 23rd out of the Fortune Global 100 companies by the Accountability Rating, a tool developed to measure the extent to which companies have built responsible practices into the way they do business. This rating was developed by a leading corporate social responsibility consultancy called csnetwork and the international think tank AccountAbility, and first applied in 2004. Ratings for 2009 have not been released as of this writing.

RELATED LINKS

External Web Sites:

- Ethisphere Institute
- Ceres
- Corporate Responsibility Magazine
- Dow Jones Sustainability Index
- FTSE4Good Index
- Newsweek's Green Rankings
- Maplecroft Climate Innovation Index
- The Accountability Rating



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Sustainability Governance

Upholding high standards of corporate governance is key to maintaining the trust of investors and other stakeholders. In this section, we discuss governance by our Board of Directors, how we encourage and enforce ethical business practices, set and communicate standards to employees and other personnel, how we are integrating sustainability into our organizational structures and business processes, and our approach to sustainability reporting – a key element of our commitment to transparency.

- [Corporate Governance – Board of Directors](#)
- [Policy Letters and Directives](#)
- [Ethical Business Practices](#)
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Corporate Governance – Board of Directors

Ford's corporate governance principles, code of ethics and charters for each Board committee – all publicly available in the corporate governance section of Ford's Web site – set the framework for Ford's Board of Directors.

Ford's Board addresses significant business issues as a full group and through five committees: Audit, Compensation, Finance, Nominating and Governance, and Sustainability. In July 2008, the former Environment and Public Policy Committee was renamed the Sustainability Committee, reflecting the evolution of its responsibilities and the Company's challenges and opportunities. The principal functions of the Sustainability Committee are as follows.

- Assist management in the formulation and implementation of policies, principles and practices to foster the sustainable growth of the Company on a worldwide basis. "Sustainable growth" means the ability to meet the needs of present motor vehicle customers while taking into account the needs of future generations. "Sustainable growth" shall also encompass a business model that creates value consistent with the long-term preservation and enhancement of financial, environmental and social capital.
- Assist management in the formulation and implementation of policies, principles and practices to permit the Company to respond to evolving public sentiment and government regulation in the area of motor vehicle and stationary source emissions, especially in the area of greenhouse gas emissions and fuel economy and carbon dioxide regulation.
- Assist management in setting strategy, establishing goals and integrating sustainability into daily business activities across the Company.
- Review on a continuing basis new and innovative technologies that will permit the Company to achieve sustainable growth and Company actions to protect those technologies.
- Review on a continuing basis partnerships and relationships, both current and proposed, with customers and others that support the Company's sustainable growth.
- Review on a continuing basis the Company's communication and marketing strategies relating to sustainable growth.

During 2009, seven Directors served on the Sustainability Committee, which is chaired by Dr. Homer Neal, an independent director. Ford's Board of Directors met 15 times and the Sustainability Committee met three times.


Because Ford is a large and complex company, the Board's Nominating and Governance Committee considers several qualifications when considering candidates for the Board. Among the most important qualities directors should possess are the highest personal and professional ethical standards, integrity and values. They should be committed to representing the long-term interests of all of the shareholders. Directors must also have practical wisdom and mature judgment. Directors must be objective and inquisitive. Ford recognizes the value of diversity and we endeavor to have a diverse Board, with experience in business, government, education and technology, and in areas that are relevant to the Company's global activities.

Under New York Stock Exchange (NYSE) Listed Company rules, a majority of our directors must be independent directors. The NYSE rules also provide that no director can qualify as independent unless the Board affirmatively determines that the director has no material relationship with the listed company. Ford's standards in determining whether or not a director has a material relationship with the Company are contained in the Company's Corporate Governance Principles. Based on Ford's standards, 10 of the Company's current 13 Directors are independent. Two of Ford's Directors are women, one Director is African-American and one Director is Hispanic.

Each Board member participates in an annual assessment of the effectiveness of the Board and the Committees on which he or she serves. We have established a procedure for shareholders to submit accounting and other concerns to independent directors and to send other communications to the Board.

RELATED LINKS

- This Report:
- [Governance and Management Structures](#)
- Fordmotorcompany.com:
- [Corporate Governance](#)
 - [Board of Directors](#)
 - [Corporate Governance Policies](#)



For more information on Ford's corporate governance practices, including the principles and policies that govern the conduct of the Board and the members of the Board, please [see our Web site](#).

[Report Home](#) > [Governance](#) > [Sustainability Governance](#) > [Corporate Governance – Board of Directors](#)



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Policy Letters and Directives

Policy Letters establish a framework of broad, basic principles within which the Company conducts its business globally. Corporate Directives provide more in-depth information on narrower topics than Policy Letters, and therefore may only apply to a particular segment of the business, or specific activities. In addition to Policy Letters and Directives, numerous descriptions of business practices, handbooks and statements of business standards govern the conduct of employees globally.

The following are Ford standards with particular relevance to sustainability.

Social Media Interactions

The recent proliferation of social media Web sites – such as Facebook and LinkedIn, as well as blogs and other Web-based discussion forums – has led us at Ford to examine our policies relating to employees' external communications. We encourage employee participation in Web-based discussions, and are currently in the process of updating our Policy Letters and Directives to address these types of communications. We are also developing online training sessions that will train employees in the new guidelines.

The updated Policies and Directives will outline expected behavior in online forums in their various contexts. In some cases, Ford employees may be asked to take part in an online discussion or blog as part of their jobs. In other cases, Ford employees may participate on their own time in Web-based discussions that address issues that relate to the Company. In general, the new policies will encourage transparency and the same kind of ethical behavior and openness we expect in other external communications, while ensuring that employees do not reveal proprietary or competitive information.

Human Rights

Our Code of Basic Working Conditions (CBWC) covers child labor, forced labor, working conditions and other human rights issues. Ford originally adopted the CBWC in 2003, and in 2006, we updated it to include additional commitments on "community engagement and indigenous populations," "bribery and corruption," and "environment and sustainability." In 2007, the updated CBWC was issued as a formal Policy Letter.

Diversity

We are committed to equal opportunity in all aspects of our business and to fostering diversity in our workforce. This is not only right and appropriate; it is also sound business practice. Our Policy Letter and related Directives address equal opportunity and require that there be no disparate treatment because of race, religion, color, age, sex, national origin, disability, gender identity, sexual orientation or veteran status, and/or other factors that may be covered by local law. We recognize that diversity in our workforce is a valuable asset, and we strive to provide an inclusive work environment in which different ideas, perspectives and beliefs are respected.

Bribery and Corruption

Our Policy Letters and Directives govern integrity within Ford and state that it is our policy to comply fully with the laws of each country in which we do business. Further, no employee may agree to, make or solicit, for their benefit or that of the Company, any improper payments or other improper benefits, directly or indirectly, to or from any government or government agency official, legislator or other government employee or person purporting to represent government agencies. Employees and contract personnel must immediately report through the Company reporting system any requests or solicitations for an improper payment, except in countries where mandatory reporting is restricted.

RELATED LINKS

- This Report:
- Code of Basic Working Conditions
 - Diversity and Inclusion in the Workplace
 - Public Policy
 - Customer Satisfaction and Quality
 - Workplace Health and Safety
 - Building Customer Awareness
- Fordmotorcompany.com:
- Code of Conduct Handbook
- External Web Sites:
- Federal Trade Commission

Political Contributions

Ford's Policy Letter on governmental relationships covers issues relating to public policy and political contributions. These issues are discussed in depth in our [Public Policy](#) section.

Customer Satisfaction and Safety

Ford has several policy statements aimed at increasing the quality of our products and promoting the safety of our customers. Our Policy Letter on quality sets the foundation for a process that emphasizes the importance of quality in everything we do and notes that the customer defines quality. It establishes a Quality Operating System and the use of metrics and data to make decisions. Our Policy Letter on vehicle safety sets forth Ford's commitment to design and build vehicles that meet or exceed applicable laws and regulations, and to advance the state of the art in safety wherever practicable. We strive for continuous improvement in vehicle safety, which applies to accident avoidance attributes as well as occupant protection systems. This policy requires that we will be demonstrably active and responsible in all areas of automotive safety, including vehicle design and manufacture, operator behavior and the highway environment.

Environment and Employee Health and Safety

Our policies on health, safety and the environment make clear that sustainable economic development is important to the future welfare of Ford and society in general. Protection of employee health and safety and the environment are important considerations in the business decisions we make. These factors are integral parts of the planning process. Our products, services, processes and facilities are planned and operated to incorporate objectives and targets and are periodically reviewed to minimize to the extent practical the creation of waste, pollution and any adverse impact on employee health, safety or the environment. Protection of health, safety and the environment is a Company-wide responsibility of employees at all levels.

Privacy

The trust and confidence of our customers are important to Ford Motor Company and essential to building long-term relationships and delivering excellent products and personalized services. The Company recognizes that customers, employees and others have concerns about privacy and expect us to protect and handle personal information responsibly.

Ford is committed to implementing responsible privacy and data-handling practices. The Company's Policy Letters and related Directives are designed to ensure the continuing trust and confidence of individuals who entrust us with personal information.

Advertising

In the United States, Ford Marketing Standards A-201 and A-203 govern Ford advertising creation and review. These standards contain the legal requirements for Ford advertising. The FTC Act and Amendments, which essentially state that all advertising must be truthful, not misleading and based on prior substantiation, also govern advertising creation and review. The FTC has a series of "Guides" on advertising topics such as fuel economy, environmental matters, price, warranties and other subjects. All 50 states have adopted a state form of the FTC Act that governs advertising in each of the states. Regulation M (Truth-in-Leasing) and Regulation Z (Truth-in-Lending) govern the creation and review of advertising with credit messages. The major U.S. television networks – ABC, CBS and NBC – also have standards that govern advertising creation.



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Ethical Business Practices

Our Corporate Compliance Office has a comprehensive program in place to guide compliance with Ford Policies and Directives as well as key legal requirements. The Corporate Compliance Office is part of Ford's Office of the General Counsel. Our compliance program is overseen by a senior management compliance committee and the Audit Committee of the Board of Directors. The compliance program includes a variety of activities. The program raises awareness of the Company's commitment to ethical practices, defines corporate practices through Policies and Directives, ensures an infrastructure that allows for the reporting of Policy violations or business-related legal violations through a number of avenues worldwide, oversees the investigation of such reports, conducts risk assessments, and provides training and education on key legal and ethical risk areas.

Our Policy Letters and Directives formally establish expectations for our employees and others working on behalf of the Company, and our Code of Conduct Handbook is the fundamental tool for communicating these expectations.

The Code of Conduct Handbook, our chief ethical guidance document, is a compilation of the most important and relevant Policies, Directives and standards for Ford employees. It is available in 14 languages. The online version, available to Company personnel, includes active links to the original source documents, thus providing a single source for the relevant information. The Code of Conduct Handbook underwent a major revision in 2007 to make it easier to understand and use as a reference manual.

The Handbook outlines requirements for our employees and those working on behalf of the Company and provides background resources for a wide range of business-related situations, including:

- The workplace environment
- Gifts, favors and conflicts of interest
- Use of Company assets and data safeguarding
- Integrity of financial records
- Product quality, safety and environmental matters
- Intellectual property
- Working with governments (political activities)
- Competition and antitrust laws
- International business practices

All salaried employees and most contract personnel around the world are required to certify that they have reviewed the new Handbook.

To reinforce information contained in the Code of Conduct Handbook, we introduced a new mandatory online training course in 2009 for our global employees and other targeted personnel. The course focuses on ethics, conflicts of interest, gifts and favors – topics on which we have long provided employee training – as well as touching on additional issues that have global applicability. In the 12 months since the new online training was introduced in May 2009, more than 92,000 individuals, approximately 84 percent of those invited, completed the new training course.

In furtherance of our commitment to business ethics and compliance, every year we roll out new mandatory online compliance training on important risk areas. Not only do these courses increase awareness, they also help our employees worldwide understand and access resources that enable responsible behavior and enhance regulatory compliance. Recent courses covered the topics of mutual respect, health and safety, and internal controls.

During 2008, we reviewed all of our 89 Policies and Directives, determining which were up to date, which required revision and which were obsolete and could be deleted. We also combined related

RELATED LINKS +

Fordmotorcompany.com:
Code of Conduct Handbook



policies. The result was a streamlined set of approximately 70 up-to-date Policies and Directives.

Another component of our compliance program is an infrastructure that encourages and allows for the reporting of any potential violations of our Policies and Directives, and any violations of laws related to the business. Our nonmanufacturing workforce and contract personnel are regularly reminded of their responsibility to report any known or suspected violation of the law or Company Policy, as are our manufacturing workforce in plants. There are many ways for individuals to report known or suspected violations, including direct communications to a member of one of the control groups – such as the General Auditors' Office or the Office of the General Counsel – as well as telephone tip lines and email.

We assess compliance with our ethical standards through regular legal audits that cover a range of topics relating to legal requirements and internal Policies. These are in addition to audits regularly conducted by other parts of the Company on issues such as workplace health and safety.



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Reporting and Transparency

External reporting is a fundamental element of accountability. Sustainability reporting not only demonstrates transparency but, in our view, is the basis of organizational learning, demonstrates our values, and both reflects and drives outstanding economic, environmental and social performance. The following are central elements of our reporting strategy.

Materiality

Over the last several years, Ford has sought to increase the materiality and responsiveness to stakeholders of its sustainability reporting. A key part of our reporting strategy has been the development of a materiality analysis process, which has been a critical tool in helping shape the content of this report. The analysis is updated every other year, most recently for our 2008/9 report. We used the analysis to focus our reporting on those issues determined to be most material to the Company over a three- to five-year time horizon. Our coverage of these issues is found in the [Material Issues](#) section of this Web report. Other sections of this report provide information on a broad range of sustainability issues of importance to Ford and our stakeholders, including detailed performance data, case studies, stakeholder interviews and other supporting information.

Assurance

Please see the [Assurance](#) section for discussion of our approach to third-party review of this report and data assurance.

External Guidelines

This report is aligned with the Global Reporting Initiative (GRI) G3 Guidelines at the [self-checked A application level](#). Ford has supported and participated in the development of the GRI Guidelines since their inception.

This report also serves to disclose how we are implementing the United Nations Global Compact (UNGC). An index cross-referencing the Compact and relevant sections of this report can be found on the [UNGC Index page](#).

Targeted Reporting

Linked with our efforts to increase the materiality of our reporting, Ford has also taken steps to produce more targeted audience-, location- and subject-specific sustainability communications.

Also, several Ford facilities, brands and country operations produce their own reports detailing the sustainability issues they face within their particular regions or operations. For example, Volvo publishes an annual sustainability report. Several of our country operations, such as Ford China, and local facilities also produce public reports. We have also provided input to the Ceres Facility Reporting Project.

Benchmarking and External Feedback

Ford seeks formal and informal feedback on our Sustainability Report from a number of organizations with expertise in reporting, in addition to the Ceres Stakeholder Review Committee. For example, we asked SustainAbility to review our 2008/9 report according to their and the United Nations Environment Program's benchmarking methodology. A summary of the benchmarking findings, which were consistent with other feedback we received, can be found in [Downloads](#).

Ford's 2008/9 Sustainability Report was the second-place finisher in the 2009 Ceres/Association of Chartered Certified Accountants North American Awards for Sustainability Reporting. The report was recognized for its identification of the material sustainability issues affecting the Company and its disclosure of the greenhouse gas emissions of our fleet, among other features. (See www.ceres.org.) Our 2007/8 report was the co-winner of this award in 2008. Our 2004/5 report

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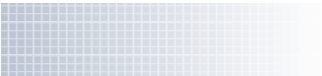
- [Material Issues](#)
- [Assurance](#)
- [GRI Index](#)
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- [Downloads](#)

On Volvocars.com:

- [Sustainability Report](#)

External Web Sites:

- [Global Reporting Initiative](#)
- [United Nations Global Compact](#)
- [Ceres](#)
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Sustainability Governance and Integration

Our long-term goal is to fully integrate sustainability issues into our core business structures and processes, rather than manage them separately. As we build capacity in this area and move toward that goal, however, we recognize that it is also important to establish some sustainability-specific structures and processes.

Structures for Managing Sustainability

The following are the primary structures we use to manage and embed accountability for sustainability within Ford.

- Board and Executive-Level Responsibility:** Ford's governance of sustainability issues builds on a strong foundation of Board of Director and senior management accountability for the Company's environmental, social and economic performance. At the Board level, the Sustainability Committee has primary responsibility for reviewing strategic sustainability issues, though some of those issues are also addressed in other committees and by the Board as a whole. Within management, the Group Vice President of Sustainability, Environment and Safety Engineering has primary responsibility for sustainability issues and oversees the Sustainable Business Strategies, Environmental Policy, and Safety groups, as well as having dotted-line oversight over the Sustainable Mobility Technology group (which is formally part of the Product Development function).
- Dedicated Sustainability Function:** Ford's Sustainable Business Strategies office coordinates corporate-wide sustainability strategy and activities, including leading the Company's corporate-level sustainability reporting and stakeholder engagement and integrating sustainability throughout the Company.
- Integration into Core Functions:** Numerous functions within the Company have responsibility for some or multiple aspects of sustainability. For example, the Workplace Health and Safety Office, Environmental Quality Office and Human Resources Department each manage specific issues that fall under the umbrella of sustainability. As Ford works to embed sustainability more deeply across all functions, groups such as Product Development, Purchasing, Manufacturing and Land are taking on an increasing role in the Company's sustainability efforts. For example, Product Development is taking the lead on the Company's sustainable mobility efforts; Global Purchasing is managing sustainability issues in the supply chain, including assessment and training programs associated with our Code of Basic Working Conditions; and Ford Land and Manufacturing personnel are implementing energy efficiency and water reduction efforts in our buildings and plant facilities. In addition, our Marketing function is involved via the "Go Green" Dealership Sustainability Program; our Information Technology group is implementing a PC power management program to help us decrease energy consumption; and our Communications and Public Affairs offices have helped us transition to the use of office paper with post-consumer recycled content.
- Issue-Specific Structures:** Ford has also developed structures to address specific global sustainability issues facing the Company. For example, we have established a Sustainable Mobility Governance Forum – a senior-level team led by the Group Vice President of Sustainability, Environment and Safety Engineering – responsible for defining our climate change strategy and delivering our sustainability strategy in the marketplace. The Group's strategic direction is provided by a senior executive forum, including Vice President and executive stakeholders, which guides the development of the vision, policy and business goals.

Key Processes for Integrating Sustainability

We believe that integrating sustainability considerations into our existing systems and processes – rather than creating new systems and processes – is the most effective way to embed sustainability into our business. The following are some examples of how we are doing this.

- Business Plan Development, Business Plan Review and Compensation:** As part of the annual business planning process, Ford's business units develop scorecards to

RELATED LINKS

- This Report:
- Letter from Sue Cischke
 - Governance and Management Structures
 - Code of Basic Working Conditions
 - Operational Energy Use and Greenhouse Gas Emissions
 - Dealers
 - Ford Drives Green with Sustainable Printing
 - Ford and the Automotive Industry Supply Chain
- Fordmotorcompany.com:
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- External Web Sites:
- ISO 14001

track their performance. Metrics from these scorecards are part of the performance assessment of managers at various levels of the Company and affect their compensation. Executive compensation is affected by the Company's performance in a range of areas, including sustainability. Sustainability issues are a formal part of Ford's weekly Business Plan Review (BPR) meetings, one of the key management processes used within the Company. At these regular, frequent meetings, convened by Ford's CEO, members of the Company's top leadership team review sales, financial, manufacturing and other information to help them manage global operations and identify issues that are critical to the future of the Company. Each unit also provides an update on performance relative to their individual scorecards. To help us manage corporate-wide sustainability issues, Ford has developed a sustainability scorecard, which is reviewed alongside other units' scorecards at the BPR meetings. Also, functions including Manufacturing, Product Development and Purchasing have integrated sustainability-specific indicators into their overall scorecards.

- Special Attention Review and Automotive Strategy Meetings: Ford's CEO also convenes regular Special Attention Review and Automotive Strategy meetings to look in depth at issues identified as potential concerns on any unit's scorecard. Sustainability issues have been covered at these meetings, including, in 2009, climate policy and cap-and-trade systems, electrification (including electric vehicle infrastructure), biofuels, global alternative fuels and special projects in developing markets.
- Corporate Policy Letters and Directives: Ford maintains a comprehensive set of Policy Letters, Directives and other corporate standards that govern all Company activities. Several of these relate to aspects of sustainability. For example, in 2003 Ford adopted a Code of Basic Working Conditions, the implementation of which is supported by a robust assessment and training process. The Code of Basic Working Conditions was updated in 2006, and in 2007 it was approved and formally adopted as a corporate Policy Letter.
- Management Systems: Ford uses a variety of systems and processes to manage the different aspects of our business, several of which govern or incorporate sustainability issues. For example, all Ford manufacturing facilities and our Product Development function are certified to ISO 14001, the leading global system standard for managing environmental issues. We have also asked our preferred "Q1" suppliers of production parts to certify their facilities to ISO 14001. In another example, Ford's Purchasing function has integrated assessments of working conditions into its broader process for evaluating suppliers on issues such as quality, cost and delivery (see [Ford and the Automotive Industry Supply Chain](#)).



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Sustainability Management

Our major business functions include Product Development, Manufacturing and Supply Chain Management. Our systems for managing these functions, described in this section, have evolved to address key sustainability issues.

Stakeholder engagement is also vital to our ability to serve our customers and the local and global communities in which we operate. Our stakeholder engagement activities are detailed in the [Society](#) section of this report.



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Product Development

The development of our new products starts with the identification of advanced technologies and breakthrough ideas by our Research Labs and our Advanced Product Strategy, Advanced Marketing and Advanced Design groups. These and other groups work within an annual planning process to assess the latest developments in technologies and consumer trends to identify the best new technologies and anticipate the needs and desires of the marketplace. Our product cycle plan defines timing for new or updated vehicles, and the associated technology applications. Product development engineers, designers and product marketing teams work together to finalize a vehicle concept. Once the business case is approved, our vehicle programs are brought to market using our Global Product Development System, or GPDS.

The GPDS, launched in 2005, merges the best product-creation methods from all of Ford Motor Company's global operations, including Mazda's efficient manufacturing disciplines, Volvo's work with computer-aided design and manufacturing, and a return to the in-house engineering of a number of major vehicle components. The GPDS provides a common set of milestones and metrics for the development of all vehicle programs across our regional business groups, which increases efficiency and quality. As a part of this system, we require all vehicles to meet specific competitive and performance targets at every milestone along the product's development path. These targets consider a wide range of environmental performance criteria, such as fuel economy, recycled materials and substances of concern. For example, our product CO₂ emission reduction goal has been translated into fuel economy targets for each new vehicle.

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[Delivering New Products](#)



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Manufacturing

The Ford Production System (FPS) is a continuously improving, lean, flexible and disciplined common global production system that encompasses a set of principles and processes to drive a lean manufacturing environment. Key elements of the system include effective work groups, zero waste/zero defects, aligning global capacity with global market demand, optimizing production throughput and using total cost to drive performance.

Each principle has a set of guidelines, or "measurables," that help us to meet or exceed objectives. The measurables are deployed and tracked for every manufacturing location using the SQDCME Scorecard, which keeps focus on the vital components of a sustainable business: Safety, Quality, Delivery, Cost, Morale and Environment. For example, each manufacturing location has specific environmental targets. The process for setting those targets is discussed in the [Manufacturing section](#).

Many processes have been put into place to support the FPS and the Scorecard, including SQDCME metrics, internal process confirmations and FPS Best Practices. The Scorecard is reviewed regularly by management, and progress against SQDCME targets is a factor in the performance reviews of all managers in the manufacturing chain of command, from site-level managers to Ford's CEO. Each Manufacturing employee has an annual performance review that is based on objectives that are derived from the Scorecard. Manufacturing's Scorecard objectives are cascaded through each organization down to the plant-floor-level employee at the beginning of each year, to create alignment on objectives and measures of performance throughout the Manufacturing organization.

Manufacturing is integrated with Product Development in the Global Product Development System (GPDS). Beginning early in a program, the GPDS includes deliverables for Manufacturing that drive a consistent and reliable process through the implementation of such requirements as efficient die construction practices, standard and current bill of process, manufacturing design specifications, modularity and complexity. The standard bill of process allows us to confirm that our operations include all of our global best practices, as well as effective failure mode avoidance and successful process quality control. Manufacturing Engineering utilizes computer-aided, or "virtual," design for manufacturing, which is aligned with the GPDS milestones, to improve the efficiency and quality of vehicle assembly.

Manufacturing works within the Global Quality Operating System (QOS) to develop, measure and continuously improve robust processes. This work starts early in the product development cycle to ensure that our manufacturing facilities are able to achieve the metrics outlined on the Scorecard. By following the disciplined processes and deliverables of the GPDS, the FPS and the QOS, we are able to continue defect prevention and reduce "things gone wrong" and warranty spending using global design rules and the manufacturing standard bill of process.

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- This Report:
- [Manufacturing](#)
 - [Delivering New Products](#)
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Supply Chain

To achieve our sustainability goals – from cutting the greenhouse gas emissions of our products and operations to protecting human rights – Ford needs the active support and leadership of its suppliers. Within Ford's Purchasing Department, a Supply Chain Sustainability Group develops and implements strategy for engaging with suppliers on sustainability issues. The group also helps build capability within the Purchasing function to address sustainability issues through routine business processes.

During 2009, for example, the Supply Chain Sustainability Group held in-person training workshops that directly reached more than 250 Ford Purchasing personnel and quality engineers globally. These sessions focused on Ford's working conditions requirements and also informed sustainability processes, to help ensure that they are designed for integration into the business. In addition, Ford will launch in 2010 an e-learning training and awareness module on Ford's working conditions program that will be available to all global Purchasing employees.

The organizational structure of Ford's Supply Chain Sustainability Group is directed at further integrating capability within the Purchasing function to address sustainability issues. The group consists of four full-time employees located at headquarters in Dearborn and four regional leads based within the regional business units in Brazil, Germany, India and China. With the exception of the China-based position, all the regional leads are on rotation and come from traditional business positions such as buyers, quality engineers and program managers. Within a reasonable period of time in which they build competency and experience, these individuals rotate back into a traditional purchasing role, taking their new expertise with them to further apply within the context of the business.

Since 2005, Ford has been taking steps to rationalize and streamline our supply base through a strategic supplier strategy called the Aligned Business Framework (ABF). The strategy is designed to create a sustainable business model to increase mutual profitability, improve quality and drive innovation. What it means in practice is that we are working more closely and collaboratively with a smaller number of global strategic suppliers. Ford has approved a total of 82 ABF suppliers, 14 of which are owned by minorities or women.

We are working closely with our ABF suppliers to align our respective approaches to providing sound working conditions, as described in the Human Rights section. We are also working with ABF suppliers to address environmental issues such as carbon management and the use of sustainable materials.

Currently, ISO 14001 certification is expected of all "Q1," or preferred, production suppliers as well as nonproduction supplier facilities if the supplier has a manufacturing site or a nonmanufacturing site with significant environmental impacts that ships products to Ford.

In 2006, we attained our goal of having 100 percent of our Q1 production suppliers gain ISO 14001 environmental management system certification for facilities supplying Ford. We also encourage our suppliers to extend the benefits of improved environmental performance by implementing similar requirements for environmental management systems in their own supply base.

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Public Policy

Every day, government officials around the world make decisions that impact Ford. As a global automotive company, it is important that we have a voice in policies that affect our business, and that Ford be recognized as a credible, leading source of information as those policies are formulated. Across a range of issues – including manufacturing, climate change, health care reform, human rights, trade, education and vehicle safety, among others – we strive to shape policies that are economically, environmentally and socially sustainable for Ford and for the world. Informed policy makes for better policy, whether at the international, national, regional, state or local level.

In this section, we have expanded our reporting this year in response to stakeholder feedback. We're including more detail on Ford's approach to public policy participation and our positions on key U.S. policy issues. In the future we will consider expanding even further to address our positions on policy issues of importance in other regions of the world. (The Ford policies discussed in this section are outlined in our Code of Conduct Handbook, which applies to Ford globally.)

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Fordmotorcompany.com:
[Code of Conduct Handbook](#)



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Participation in the Policy-Making Process

Ford seeks to be an active participant in the political process in a manner that is transparent and related to our business interests. On issues of highest priority for us, we stay in regular contact with legislators and regulatory officials in our major markets, to share with them our interests and perspectives and offer expert input into the policy-making process. Our Government Affairs office oversees these lobbying activities.

Membership in Coalitions and Associations

Ford belongs to several partnerships and coalitions (such as the U.S. Climate Action Partnership) as well as industry and trade associations (such as the Alliance of Automobile Manufacturers) that lobby in the legislative and regulatory realms on behalf of their members. Working with others in these types of organizations enables Ford to better leverage our resources on issues of importance to us and to develop and promote policies that have potentially far-reaching benefits for industry and society.

Of course, we do not always agree with each and every position taken by these organizations. In cases where we don't agree, we have to determine if, on balance, we agree with enough of the organization's positions that we should continue to engage with them. And, we always reserve the right to speak with our own voice and make our own positions clear, even when they may not align with the positions of associations to which we belong.

Ford Policy on Political Contributions

Ford Motor Company does not make contributions to political candidates or political organizations nor otherwise employ Company resources for the purpose of helping elect candidates to public office, even when permitted by law. Nor do we take positions for partisan political purposes – that is, specifically for the purpose of advancing the interest of a political party or candidate for public office. These policies remain unchanged, notwithstanding the U.S. Supreme Court's January 2010 decision that loosened restrictions on corporate independent expenditures.

With proper executive approval, Ford may contribute to support or oppose a U.S. state or local ballot proposal, if such contributions are permitted by law and if the issue is of significant interest or importance to the Company. Information with respect to contributions made in connection with ballot questions and referenda is publicly available through the appropriate local or state reporting authorities.


We do encourage employees to participate in political and governmental affairs and recognize that Company efforts and programs to encourage employee participation must respect fully the right of employees to use personal time as they choose and decide the extent and direction of their political activities. The Ford Motor Company Civic Action Fund (the "Ford PAC"), which is supported by voluntary donations from Ford employees, gives campaign contributions to national, state and local political candidates from both major political parties in the United States. The Company pays the solicitation and administrative expenses of the Fund, which are minimal, as permitted by law. All contributions made to the Ford PAC and all distributions from the Ford PAC are in compliance with Federal Election Commission (FEC) and applicable state regulations. A list of the Ford PAC's contributions made during 2009 can be found at the [FEC Web site](#).

Political contributions by the Ford PAC are made in accordance with our business objectives that support our competitiveness in the global automotive industry. Ford PAC contributions are not made on the basis of social issues, party affiliations or political ideologies. All Ford PAC contributions in excess of \$1,000 must be approved by the Ford PAC Political Contributions Committee, a cross-functional group of Ford employees representing a broad range of organizational levels.

Ford Motor Company complies fully with all laws and rules governing our employees' interactions with officials at all levels of government (federal, state and local). Furthermore, all of our contact

RELATED LINKS

- Fordmotorcompany.com:
 - Code of Conduct Handbook
- External Web Sites:
 - U.S. Climate Action Partnership
 - Alliance of Automobile Manufacturers
 - Federal Election Commission



and dealings with government officials must not only comply with all applicable laws, but also with our global corporate Policies and Code of Conduct. Note that under federal law, foreign nationals are prohibited from making contributions in connection with any U.S. election and are thus not eligible to join the Ford PAC.

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Public Policy Positions

This section summarizes Ford's positions on key public policy issues currently under discussion in the United States.

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- Manufacturing Policy
- Climate Change/Energy Security
- Health Care Reform
- Vehicle Safety
- Human Rights
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 - Vehicle Safety
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 - Investing in Communities
 - Electrification Challenges and Opportunities and Ford's Response
- External Web Sites:
- National Highway Traffic Safety Administration
 - United Nations Global Compact
 - Society of Automotive Engineers

Manufacturing Policy

Manufacturing is essential to local, regional and national economies. Manufacturing provides jobs and tax revenue, creates new products and technologies and promotes overall prosperity. When factories are closed, jobs are lost and the tax revenues that support hospitals, social services, local schools and public universities are reduced.

About 70 percent of all the research and development investment in the United States comes from manufacturing. We believe that a strong manufacturing base – with its attendant focus on engineering, science and technology innovations – is important not only for national prosperity but for energy independence, energy security, national defense and sustainability.

A strong manufacturing policy is needed in the United States. The government should implement policies that:

- create a framework that allows companies to compete fairly and freely;
- encourage research and development and investment in the future;
- allow access to competitive capital and create a stable, predictable and globally competitive regulatory environment and tax regime; and
- leverage the power of free enterprise and American ingenuity to create growth and prosperity.

The Department of Energy's (DOE) Advanced Technology Vehicle Manufacturing Incentive Program is an example of good policy that provides access to competitive capital while leveraging American ingenuity to invest in the production of more fuel-efficient vehicles. This program was authorized in 2007 and funded in 2008, and the DOE has awarded loans to a number of automakers, including Ford.

Strong free trade policies – enabling market access and prohibiting currency manipulation – also must be part of this equation. Also important are education policies that help to foster a skilled U.S. workforce. These types of policies are discussed later in this section.

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Climate Change/Energy Security


Engaging on policies aimed at cutting carbon dioxide (CO₂) emissions and improving energy security is important for Ford, because vehicle fuel economy and tailpipe CO emissions are one

and the same. That is, the less petroleum that is used, the less CO₂ is emitted into the atmosphere.

Federal regulations governing vehicle fuel economy and emissions have been in place since the 1970s. In 2002, California adopted legislation to regulate greenhouse gas emissions from motor vehicles. Such state laws are tantamount to state-specific fuel economy standards; these would pose a major problem for auto manufacturers, both from a product planning and a distribution standpoint. Moreover, the state-by-state standards raised the specter of product restrictions in some states, which would harm both dealers and consumers. In 2009, the federal government, the states and the auto industry reached an agreement to establish a single national program for regulating vehicle fuel economy and tailpipe CO₂ emissions through the 2016 model year. Ford supported the "One National Program" agreement but remains concerned about the possibility that a patchwork of state-by-state standards could re-emerge once the current agreement expires. Measures must be enacted to ensure the continued existence of a single national program for vehicle fuel economy and CO₂ emissions in the 2017 model year and beyond.

The United States needs a national, market-based approach to reducing the nation's greenhouse gas and CO₂ emissions. Thus, Ford supports the creation of an efficient, economy-wide cap-and-trade framework with transportation fuels under the cap and mechanisms to avoid unintended adverse effects on the economy. A comprehensive economy-wide cap-and-trade program would provide flexibility to regulated entities while allowing market mechanisms to determine where CO₂ reductions can be achieved at the lowest cost. Without a cohesive national energy and climate policy that places a price on carbon emissions, we could be caught in a cycle of starting and stopping technology development. That is simply not good policy or good business, particularly when technology development requires billions of dollars of investment.

See the [Climate Change](#) section for more on public policy issues relating to this topic.

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Health Care Reform

In the United States, national health care reform was the topic of intensive Congressional and public debate over the past year, culminating in the passage of national health care legislation in March 2010. We are encouraged that the new law includes provisions that are aligned with the three key areas (listed below) that we believe must be addressed in order to maximize the value of health care service (a combination of quality, appropriateness and costs).

- **Wellness and Prevention** – As a country, we must focus on wellness and prevention, and make sure that employers can offer creative incentives that work to engage people in healthy behaviors.
- **Health Information Technology** – We need a national technology infrastructure that allows the consolidation of a patient's medical records, so that the most appropriate care is given wherever treatment is provided. To accomplish this, we need electronic medical records at every doctor's office and hospital, and they all need to be connected. We also need tools to improve the accuracy and safety of prescription drug dispensing, such as electronic prescribing.
- **Understanding What Works** – By studying the cost and quality of health care and its effect on health status, we can deliver more effective care. New innovations in technology and drugs are key drivers of cost increases. Therefore, before new innovations are widely implemented, they must be compared to the standard practice to really know whether and how much additional value they bring.

For more on this topic, see the [Economy](#) section.

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Vehicle Safety

At Ford, safety is one of the key principles that inform and guide our every design and engineering effort. We are committed to continuous improvement in vehicle safety; we are also actively involved in driver education and efforts to promote safer roadways. Ford will continue working with governments and the public to help further reduce auto accident and fatality rates, which reached historic lows in 2009.

Part of this commitment to safety is Ford's open and transparent approach to quickly addressing customer questions and vehicle safety issues. Ford supports the Transportation Recall Enhancement, Accountability and Documentation (TREAD) Act, which opened even more

transparency and information sharing between the government and the auto industry.

Ford helped lead the introduction of event data recorders (EDRs) in vehicles and believes that certain information recorded by vehicle systems can enhance automotive safety. All 2002 model year and later Ford retail light vehicles sold in North America have been equipped with EDRs that store some crash data. Our newer systems record the 15 data elements required by the National Highway Traffic Safety Administration's regulation that goes into effect in 2012. Ford continues to support a move to require EDRs on all new vehicles as part of our open and transparent approach to safety.

Ford believes driver distraction is a serious issue, which is why we were the first automaker to support legislation for a national ban on handheld texting while driving. Reflecting this public position, Ford recently clarified its employee policy to explicitly ban handheld texting. This is aligned with research showing that manually operating electronic devices that can divert drivers' eyes from the road (not merely talking on cell phones) substantially increases crash risk.

Ford strongly supports maximum graduated driver licensing (GDL) in North America as a means of achieving reductions in crashes, injuries and fatalities by new teenage drivers. GDL is a system designed to delay full licensing while allowing beginners to obtain initial experience under lower-risk conditions. There are three basic stages to GDL: a minimum supervised learner's period; an intermediate license (once the driving test is passed) that limits unsupervised driving in high-risk situations; and a full-privilege driver license upon completion of the first two stages. The Company encourages all states to adopt maximum GDL programs and urges all driver license programs to incorporate maximum GDL requirements, including information on safety belt use and impaired driving. Ford complements GDLs with its Driving Skills for Life teen safe driving program and MyKey® technology that helps parents encourage their teens to drive more safely. MyKey features programmable speed and audio volume limits and a "no belts, no tunes" feature to encourage the use of seat belts, which are still the number-one lifesaving device.

Finally, Ford supports the enforcement of existing laws relating to driving under the influence (DUI) of alcohol and drugs, as well as the use of alcohol ignition interlocks (sometimes called "alcolocks") for DUI offenders.

See the [Vehicle Safety](#) section for more on our vehicle safety technologies and activities.

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Human Rights

Ford is committed to respecting human rights everywhere we operate, because it's the right thing to do and it strengthens our business in the long run. We are a leader in addressing human rights and working conditions in the auto industry.

In early 2008, Ford joined the United Nations Global Compact, a framework for businesses that are committed to aligning their operations and strategies with 10 universally accepted principles in the areas of human rights, labor, the environment and anti-corruption.

And for several years, Ford has worked with leaders of the U.S. Department of State's human rights programs and the U.S. Department of Labor to explore how to encourage multinational companies to act as a positive force in protecting human rights in global trade, both through work in their own supply chains and through advocacy. We have also consulted with these agencies on how the U.S. government can encourage the protection of human rights through its purchasing practices.

See the [Human Rights](#) section for more on our activities in this area.

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International Trade

As a global automaker, Ford has a strong interest in issues relating to international trade. With manufacturing facilities in 20 countries, sales in 88 countries and a global supply chain that moves parts worldwide, we are a strong supporter of trade liberalization. In fact, free trade is foundational to our business model.

Ford has supported every free trade agreement (FTA) ratified by the U.S. government since the United States first began free trade negotiations in the mid-1960s. We support pending agreements with Panama and Colombia, as well as the newly launched Trans-Pacific Partnership negotiations, which incorporate the United States into a regional agreement with a core group of markets – the majority of which the United States has already completed FTAs with.


We oppose the U.S.-Korea FTA in its current form because it does not open the Korean market to imported automobiles. In 2008, Korean automotive exports to the United States totaled 616,000 vehicles, while U.S. vehicle exports to Korea totaled only 10,000 vehicles. More than 80 percent (or \$10.7 billion) of the current U.S. trade deficit with Korea is in automotive products.

Beyond the current FTA debate, we believe a new approach to trade is required that puts U.S. manufacturing at the forefront. Given the importance of manufacturing to the U.S. economy, Ford supports a manufacturing-driven trade strategy that:

- drives innovation and delivers economic opportunity to its citizenry by maintaining a vibrant manufacturing sector as its cornerstone, and
- enables U.S. manufacturing to compete on a level playing field against the best competition from around the globe.

Finally, we believe the elimination of trade-distorting policies such as currency intervention and manipulation must be considered a key component of any fair-trade initiative. Currency manipulation provides foreign automakers with an export subsidy of several thousand dollars per vehicle, while at the same time acting as the ultimate nontariff barrier, protecting their market from imports. Ford believes the market should set currency exchange rates – not governments.

Massive intervention by the Japanese government in 2003 and 2004 to weaken the value of the yen vis-à-vis the dollar helped to fuel one of the largest bilateral trade deficits in U.S. history. We now see hints that the Japanese may resume intervention. The Korean government, having benefitted from exports driven by a weakened Korean currency over the past year, is now also engaging in currency manipulation to support export industries. Korea must end this unfair and disruptive trade practice.

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Education

Ford understands that global competitiveness depends on the ability of our K–12 educational systems and post-secondary institutions to prepare a 21st century workforce. With baby boomers beginning to retire in large numbers, and many high-skilled jobs going unfilled, improving the quality and performance of our schools has become an urgent issue facing communities large and small across the country. Within these communities, too many students are disconnected and unsuccessful in schools that struggle to be as engaging and relevant as they need to be. Add to that the considerable anxiety being generated by an economy in transition – from industrial- to knowledge-based – and education emerges as a critical factor in securing financial health and prosperity for individuals, communities and the nation.

Ford recognizes the importance of these issues and supports public policies and initiatives that are designed to mobilize educators, employers and community leaders to bring communities together to transform the entire educational system. These programs provide students with real-world learning opportunities that help them:

- develop essential higher-order skills, such as: critical thinking, problem solving, communication, innovation and creativity;
- make connections between the academic subjects taught in the classroom and their application in the real world;
- make meaningful connections to higher education; and
- build more sustainable communities by involving local business and community organizations to create service-based academic projects that make learning more applicable to real-world situations and positively impact the community.

By helping communities address this most critical challenge, Ford continues its long tradition of leading and supporting educational initiatives that empower students, strengthen communities, and benefit the American economy. See the [Investing in Communities](#) section for more information on the programs we support.

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Electrification


We stand at an exciting moment in automotive history – the beginnings of the transition from gasoline-powered internal combustion engines to the introduction and proliferation of hybrids, plug-in hybrids and pure battery electric vehicles. As we make this transition, manufacturers must work together, and with the federal government as appropriate, to set standards for certain technical

aspects of these new vehicles, to enable the market for them to proceed forward smoothly.

Consider, for example: When we go to a gas station, we take for granted that the pump nozzle is a size that will work with our vehicle. Early on, a standard size and configuration had to be developed and agreed to across all automobile and gasoline pump manufacturers, so that drivers could have a hassle-free experience when they went to fill up. As demand for and availability of plug-in electric vehicles continues to rise, it's similarly important that consistent standards be put in place regarding the technical aspects of these vehicles.

In North America, the Society of Automotive Engineers, with Ford's participation, successfully aligned all original equipment manufacturers (OEMs) on a standard charge connector and communication protocol that will enable all plug-in vehicles to use common charge points. This will be a key enabler for adoption in North America; the same connector is under consideration in Europe and China. Further standardization initiatives that will be helpful include fast-charge standards (for DC charging) and vehicle-to-grid standards. Global commonality for these systems will also be needed. Ford is also working with other OEMs and suppliers to provide a common database of charge point locations for display within vehicles' navigation systems. In addition, Ford and the industry are working collaboratively with the Obama administration and the U.S. Congress to address the challenges associated with the widespread deployment and commercialization of electric-drive vehicles.

See [Electrification Challenges and Opportunities and Ford's Response](#) for more information about our collaborative approach to encouraging the development of electric vehicles.

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Economy

2009 HIGHLIGHTS:

- Posted a pre-tax profit for full-year 2009 (excluding special items)
- Gained market share in the United States for the first time since 1995
- Achieved the highest customer satisfaction and the fewest "things gone wrong" among all full-line manufacturers

Even in the current difficult business environment, our business restructuring plan is beginning to show positive results.



Ford Motor Company has a broad range of economic impacts. Our success as a company directly affects millions of employees, dealers, investors and suppliers. We also have indirect economic impacts on the hundreds of communities in which we operate worldwide.

To sustain our Company, meet our responsibilities and contribute to tackling global sustainability issues, we are continuing to implement our restructuring plan, aligning all of our global operations to focus on four key priorities:

- Aggressively restructure to operate profitably at the current demand and changing model mix
- Accelerate the development of new products our customers want and value
- Finance our plan and improve our balance sheet
- Work together effectively as one team

This section first briefly discusses the current business environment, our recent progress and our materiality analysis. The bulk of the section then addresses our financial recovery plan, including our progress in implementing the above four priorities. (Note that the risks and competitive factors discussed in our Annual Report on [Form 10-K](#) and [Form 8-K](#) may affect the implementation of these plans). The section also includes information on investor feedback and ratings and Ford Motor Credit Company, as well as two case studies: one on the automotive industry's impact on the U.S. economy and one on Ford's new global "C-car" platform.


Assessing Materiality

The [materiality analysis](#) used to shape this report confirmed that the Company and stakeholders alike have a high level of concern about Ford's financial condition.

Within this broad topic, the issue of managing downsizing is of concern to a range of stakeholders, particularly in terms of its impact on employees and communities. There is also interest in the impact of Ford's legacy costs and current health care costs on the Company's profitability, and related interest in Ford's participation in public policy concerning health care reform. How Ford has managed downsizing and the Company's new approach to post-retirement health care costs are discussed in detail in this section.

Several new issues rose to the highest level of interest among Ford stakeholders since last year's report. Ford's realignment of its products and capacity to meet changing consumer demand emerged as a key issue this year, as did labor costs and the parity of hourly labor costs compared

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to other automakers. In light of the ongoing financial recession, access to capital and the viability of suppliers and dealers also emerged as key issues. Vehicle quality and Ford's manufacturing, marketing and product competitiveness were also of significant concern to internal and external stakeholders. This section reports on all of these key material issues.

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Progress and Goals

Current Business Environment

In 2009, the global economy fell into one of the worst recessions on record. Global GDP fell by more than 1 percent last year, with the U.S. GDP contracting by 2.4 percent. The severe financial crisis left consumers and businesses in dire condition, with double-digit unemployment in the United States, falling incomes, tight credit due to banking-sector problems and faltering housing wealth due to the collapse of home values.

As of early 2010, there are indications that the massive fiscal and monetary policy stimulus package, along with significant support for ailing financial institutions worldwide, are sowing the seeds of recovery. Economies in Asia are growing strongly, particularly in China and India. In the North and South American markets – including the United States – the recovery has been gradual. These markets are held back by the severe losses incurred by consumers and businesses and a labor market not yet healthy enough to spur job creation and reductions in unemployment.

The auto sector in many markets was assisted by special scrappage programs and other new vehicle incentives intended to stabilize sales and automotive production. Given how important the auto sector is to the core vitality of national economies, this support was important not only for the industry, but also for its customers, suppliers, local communities and all of our stakeholders. The financial crisis contributed to a cumulative 39 percent decline in U.S. new vehicle sales since the peak in sales in mid-2005. Since the first half of 2009, U.S. new vehicle sales have improved from a low point of 9.8 million units (seasonally adjusted at annual rate) in the second quarter of 2009 to 11.0 million units by the fourth quarter of 2009 and 11.2 million in the first quarter of 2010. A further, albeit gradual, recovery in sales is projected during 2010, with full-year sales predicted to reach 11.5-12.5 million units in 2010. Other markets are recovering at different speeds due to differences in vehicle incentive program size and timing and the strength of economic recoveries.

Overall, the business environment has improved, but it is by no means advancing at its potential rate of expansion. Central bank and government policy stimuli remain warranted until more national and regional economies can regain their footing. The auto industry is healing but it remains severely impaired, with sales and production still running at levels last seen during the severe economic downturn of 1981-1982. Sales and production levels are particularly low in the United States compared to pre-recession levels.

Even in these difficult economic conditions, however, we are making significant progress on our restructuring plan.

Progress Since Last Report

Some of our major financial and product achievements in 2009 and the first quarter of 2010 include the following.

- In 2010 Ford reported a first quarter net income of \$2.1 billion, or 50 cents per share, and pre-tax operating profit of \$2 billion, or 46 cents per share.
- We posted a pre-tax profit for full-year 2009 (excluding special items), reflecting our improving performance throughout the year with strong pre-tax profits in the third and fourth quarters. Based on Ford's improving business performance, the gradually strengthening economy and our updated assumptions, we now expect to be profitable with positive Automotive operating-related cash flow in 2010, and we expect continued improvement in 2011.
- In 2009, Ford gained market share in the United States for the first time since 1995. We also gained market share in many global markets, including Europe, Brazil, Argentina, Venezuela, Taiwan and South Africa.

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- Market share increased even further in the first quarter of 2010. We increased our overall U.S. market share that quarter by 2.6 percentage points to 16.5 percent and our retail market share was 14.1 percent. This was the largest quarterly U.S. market share gain since 1977. In Europe we achieved a 9.4 percent market share, and Ford was the bestselling brand in 19 of the European markets we track in March 2010.
- Ford completed the transfer of its UAW retiree health care liabilities to the UAW Retiree Medical Benefits Trust ("UAW VEBA Trust") on December 31, 2009.
- In 2009 Ford committed that every all-new or redesigned vehicle we introduce will be best in class or among the best in class for fuel economy in its segment. Since then, we have followed through on this commitment with vehicles introduced in both the United States and Europe, and we will continue to do so in future product launches.
- In early 2009, Ford began selling the new 2010 Ford Fusion and Mercury Milan. The hybrid versions of these vehicles lead their segments in fuel economy. These vehicles have won dozens of awards, including Motor Trend Car of the Year for 2010 and Car of the Year at the 2010 North American International Auto Show. They have also led sales increases for Ford, posting record sales in 2009.
- The new Ford Fiesta, which went on sale in Europe in 2008, was the bestselling vehicle in all of Europe for the first quarter of 2010. Ford began production of the Fiesta in our Asia Pacific and Africa region in 2009 and will bring the vehicle to the United States in the second quarter of 2010.
- Ford was the bestselling brand of crossover vehicles in the United States in 2009.
- Every consumer metric about the Ford brand – including favorable opinion, consideration, shopping and intention to buy – ended the year at record levels. Favorable opinion was up more than 20 percent from the beginning of the year and intention to buy Ford increased more than 30 percent.
- Ford, Lincoln and Mercury vehicles achieved the highest customer satisfaction and the fewest number of "things gone wrong" among all full-line manufacturers, according to the 2010 first quarter Global Quality Research System survey for the United States. In 2010, the initial quality of Ford, Lincoln and Mercury brand vehicles in the United States improved by 8 percent compared to last year.¹

1. GQRS studies are conducted quarterly for Ford by the RDA Group, a market research and consulting firm.



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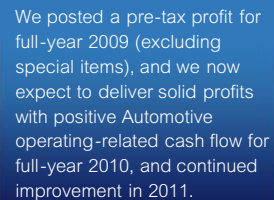
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Financial Recovery Plan

Since 2006, we have been in the process of a major business restructuring plan. Through this "ONE Ford" plan we are working as One Team unified in pursuing the four key elements of our One Plan to deliver One Goal: an exciting, viable Ford. As reflected in our recent product and financial results, our plan is working.

In this section we detail the key elements of our One Plan:

- [Restructuring Our Business](#)
- [Delivering New Products that Customers Want and Value](#)
- [Financing Our Plan and Improving Our Balance Sheet](#)
- [Working as One Team](#)



We posted a pre-tax profit for full-year 2009 (excluding special items), and we now expect to deliver solid profits with positive Automotive operating-related cash flow for full-year 2010, and continued improvement in 2011.

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Restructuring Our Business

To compete more effectively in today's global marketplace, and particularly in North America, we have been executing a plan to restructure aggressively our Automotive business to address the realities of lower demand, volatile fuel prices and the shifting model mix from trucks and large SUVs to more fuel-efficient vehicles. This restructuring includes right-sizing our production capacity, our workforce and our dealer network. We are working with our partners in the UAW, our dealer network and the communities in which we operate to handle this downsizing responsibly and minimize the negative impacts of these changes.

- [Restructuring Successes](#)
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During 2009, we reduced Automotive structural costs by \$5.1 billion, exceeding our full-year goal by more than \$1 billion.

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Restructuring Successes

We continue to work hard to restructure our business to achieve and maintain profitability by delivering products customers want and value and reducing our cost structure. Though this transition has been painful, it is beginning to pay off. In 2009 and early 2010 we achieved some important results from our restructuring plan. For example:

- We posted a pre-tax profit for full-year 2009 (excluding special items), reflecting our improving performance throughout the year with strong pre-tax profits in the third and fourth quarters.
- Based on our improving business performance, the gradually strengthening economy and our updated planning assumptions, we now expect to deliver solid profits with positive Automotive operating-related cash flow for full-year 2010, and continued improvement in 2011.
- We achieved market share increases in multiple global markets, including the United States, where we had not gained market share since 1995. Full-year retail market share in the United States was up approximately one percentage point over last year, at 15 percent. Market share in our European market was up approximately half a percentage point in 2009.
- During 2009, we reduced Automotive structural costs by \$5.1 billion, exceeding our full-year goal by more than \$1 billion (measured primarily at prior-year exchange, and excluding special items and discontinued operations).
- We continue to deliver new products more quickly. For example, in North America, 45 percent of our vehicle lineup by volume was new or significantly refreshed for 2009. By 2014, we plan to replace or refresh between 140 percent and 160 percent of our lineup by volume in those regions, so that within five years, we will have fully refreshed our product portfolio globally.
- Important customer metrics – including favorable opinion, consideration, shopping and intention to buy – ended the year at record levels. Favorable opinion is up more than 20 percent from the beginning of the year, and intention to buy Ford increased more than 30 percent.
- We have been able to reinstate some salaried employee benefits that were suspended in an effort to help lower costs during our restructuring. This included a reinstatement of the Company's 401(k) matching program effective January 1, 2010. We also reinstated the Salaried Tuition Assistance Plan with revised program guidelines effective March 1, 2010. Also in 2010, merit increase payments were made to employees in the United States, and we were able to pay profit sharing to eligible Ford-UAW employees.
- We continued to streamline our dealer network to increase the viability of our dealers and improve our cost structure. As of March 31, 2010, we reduced the number of dealers by 20 percent since year-end 2005.
- We continued to streamline our supplier network through the Aligned Business Framework program, which strengthens our relationships with core suppliers, increases supplier viability and helps improve our cost structure and quality. We also continue to reduce the total number of production suppliers we use. This has declined from 3,300 suppliers in 2004 to 1,600 at the end of 2009. We have identified about 850 of these as long-term suppliers eligible for new major sourcing, which moves us toward our goal of 750 suppliers.



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Capacity Alignment

We have reduced and realigned our vehicle assembly capacity to bring it more in line with demand and shifting customer preferences. For example, we are transforming some of our traditional truck plants to produce smaller, more fuel-efficient vehicles. Specifically, we are converting three assembly plants from the production of large SUVs and trucks to the production of small cars, to support what we believe is a permanent shift in consumer preferences to smaller, more fuel-efficient vehicles.

In June 2009, Ford received loans from the U.S. Department of Energy (DOE) to accelerate the production of more fuel-efficient vehicles. These loans were part of the 2007 Energy Independence and Security Act – specifically, Section 136, the Advanced Technology Vehicle Manufacturing Incentive Program. This law authorized the Secretary of Energy to make direct loans to eligible applicants for projects that reequip, expand or establish manufacturing facilities in the United States to produce advanced technology vehicles or qualifying components and also for engineering integration costs associated with such projects. Ford is using a \$5.9 billion loan to help it retool 11 factories in the Midwest. We will use \$400 million from these DOE loans to retool the Chicago Assembly Plant to produce the next-generation Ford Explorer, which we expect will get at least 25 percent better gas mileage than current Explorer models. We will also use a portion of this money to retool the Michigan Assembly Plant from a large SUV factory into a modern, flexible small car plant that will produce the global Ford Focus compact sedan for the North American market.

We are also closing plants to reduce capacity. Since 2005 we have closed 12 manufacturing facilities. We also announced that four additional plant closures will take effect by 2011. We have announced that we will close the Cleveland Casting Plant in 2010, our Twin Cities Assembly Plant in 2011 and our St. Thomas (Ontario) Assembly Plant in 2011. We have been working to sell or close the majority of our Automotive Components Holdings (ACH) plants that remain in our portfolio. We closed our ACH component manufacturing plant in Utica, Michigan, in 2009. To date, we have sold five ACH plants and closed another five. We plan to close a sixth plant in Indianapolis in 2011. We are exploring our options for the remaining ACH plants (Milan, Sheldon Road, Saline and Sandusky), and intend to transition these businesses to the supply base as soon as practicable.

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Handling Downsizing Responsibly

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We are keenly aware of the interconnections between our Company and our employees, our business partners and the communities in which we operate. Our investment in manufacturing facilities and our employment of hundreds of thousands of people has helped to build and sustain vibrant, stable communities. We value this contribution, so it is painful to restructure our North American operations. Because of our commitment to our employees and communities, it is critical that we handle the downsizing in a responsible way.

Since 2005, we have reduced employment levels in our Ford North America business unit by about 65,700. As of December 31, 2009, our Ford North America business unit had approximately 70,000 salaried and hourly employees, including employees at Automotive Components Holdings facilities, compared with approximately 135,700 salaried and hourly employees on December 31, 2005. (These employee numbers do not include dealer personnel. Also, 2009 employee numbers have been adjusted to reflect the new accounting standard on the deconsolidation of many of our variable interest entities.) The majority of our U.S. hourly workforce reductions were the result of early retirement offers and voluntary separation packages, including Ford hourly employees at our ACH facilities.

Separation Packages Offered to Ford Hourly Employees

In 2009 and 2010, we offered buyouts to our U.S. hourly UAW-represented employees as part of our continuing efforts to align capacity with demand and improve our competitiveness. The Company has continued to work with the UAW to design and offer attrition packages that help our employees and their families' transition to new opportunities. In 2009, we offered an additional round of special programs to our 42,000 hourly employees. The first round, which expired in June 2009, was accepted by approximately 1,000 workers. Ford determined that to improve competitiveness and further align capacity with demand it needed to offer a second round of hourly buyouts. In December 2009, therefore, Ford offered "1st Quarter 2010 Special Programs." This offer expired on January 22, 2010, and was accepted by approximately 300 people.

The buyouts were completely voluntary. These special programs gave employee two options (amounts are pre-tax):

- **Option 1:** Under an early termination program, all active employees with at least one year of seniority would receive a lump sum payment of \$50,000, as well as the choice between a \$25,000 voucher towards a new vehicle or \$20,000 cash and six months' basic health care coverage.
- **Option 2:** Under a special retirement incentive program, all skilled trades employees who are eligible to retire would receive a \$40,000 lump sum payment, while non-skilled employees would receive a \$20,000 lump sum payment. This offer also included either a \$25,000 vehicle voucher or a \$20,000 additional lump sum payment.

In addition, in 2009 the UAW and Ford Motor Company began offering special programs and incentives to surplus employees prior to being placed onto "indefinite layoff" status. At present, these special programs and incentives include the following:

- **Special Termination of Employment Program:** Employees with at least one year of service receive a pre-tax payment of \$100,000 and six months of basic health care. Retirement-eligible employees must wait 23 months before retiring.

- Special Retirement Incentive: This program is for employees who have 30 or more years of credited service under the Ford-UAW Retirement Plan, or are at least age 55 and have 10 or more years of credited service under the Plan, or are at least age 65 and have one or more years of credited service under the Plan. Participants receive a retirement incentive having a pre-tax value of \$50,000 for production (non-skilled) employees or \$70,000 for skilled trades employees.

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Facility Closures

When the decision is made to close a facility, we take an active role in returning the property to a productive use that will be environmentally responsible, return shareholder value and benefit the community. Ford wants to leave a positive legacy in the communities in which we have operated, and we are therefore committed to handling our environmental responsibilities and working with municipal leaders to ensure smooth and successful transitions to new uses.


Our first step with any closed facility is to assess and address any possible environmental issues on the property. The goal of our environmental assessment is to understand the environmental condition of the site and the actions needed to ensure that future use of the site will not pose any risk to human health or the environment. If any environmental issues are discovered, the property is cleaned up to the standard appropriate for its future use, whether industrial, commercial or residential.

We also undertake extensive communications with community leaders, citizens and real estate partners to understand the potential future uses for the property and the community's goals for the property. In some cases, Ford redevelops the property itself, but more often it seeks a well-qualified developer to buy and convert it. Some properties remain in industrial use. In other cases, the surrounding communities have changed since the plant opened, and new uses, such as retail, commercial or residential, are possible and desirable.

Ford also has a corporate responsibility to maximize returns to our shareholders in the disposition of our properties. However, we always work with the community to see the property redeveloped into a productive and beneficial use.

In 2009, Ford reached an agreement in principle to sell the closed Wixom Assembly facility in Wixom, Michigan, to Clairvoyant Energy and Xtreme Power for use as a renewable energy manufacturing park. Xtreme Power will use the site to manufacture large-scale power systems that store renewable energy such as solar and wind power and redeliver that power when needed. Clairvoyant Energy will redevelop a portion of the site to build state-of-the-art, high-efficiency solar panels. These companies plan an initial investment of more than \$725 million to redevelop the 320-acre plant site and its 4.7 million square feet of building space to manufacture solar power and energy storage systems, respectively. Manufacturing activities are expected to begin in 2011. Ford has worked hard to come to a redevelopment plan that will benefit the local community. This plan is expected to create more than 4,000 direct jobs, including at local suppliers, as well as support thousands of indirect jobs.

In January 2009, Ford sold its former Maumee Stamping plant in Ohio to a local manufacturer. And, the ACH plant in Ypsilanti, Michigan has been purchased by Angstrom USA, a global manufacturer of tubular parts supplied primarily to the auto industry. This purchase paves the way for the facility to resume a productive use in the community.

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Working with the UAW

In November 2007, Ford workers represented by the UAW ratified a new collective bargaining agreement with Ford that includes significant innovative features to enhance productivity and reduce costs. The new agreement helps Ford to deliver on its key priorities, as it significantly improves Ford's competitiveness and allows the Company to continue to pursue its restructuring efforts.

In March 2009, Ford-UAW members ratified modifications to the existing collective bargaining agreement that significantly improved our competitiveness, saving us up to \$500 million annually and bringing us near to competitive parity with the U.S. operations of foreign-owned automakers. The operational changes affected wage and benefit provisions, productivity, job security programs and capacity actions, allowing us to increase manufacturing efficiency and flexibility. In addition, modifications to the UAW VEBA Trust allowed for smoothing of payment obligations and provided us the option to satisfy up to approximately 50 percent of our future payment obligations to the UAW VEBA Trust in Ford Common Stock, resulting in savings of up to \$6.5 billion. Further, Ford completed the transfer of its UAW retiree health care liabilities to the UAW VEBA Trust on December 31, 2009. See [Ford's 10-K](#) for more information.

On November 2, 2009, the UAW announced that a majority of its members employed by Ford had voted against the ratification of a tentative agreement that would have further modified the terms of the existing collective bargaining agreement between Ford and the UAW. These latest modifications were designed to closely match the modified collective bargaining agreements between the UAW and our domestic competitors, General Motors and Chrysler. Ford continues to operate under the 2007 UAW-Ford collective bargaining and modifications to that agreement. In addition, Ford has been participating in negotiations with the International Brotherhood of Electrical Workers (IBEW), which represents electricians at the Company's Cleveland manufacturing site.

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Steps to Reduce Health Care Costs

The delivery of high-quality, cost-effective health care is important to the success of Ford. The One Ford Health Strategy complements the corporate ONE Ford vision by targeting a culture of wellness that aligns incentives to help our employees become more informed and engaged in their health. We are providing resources and tools to help people make sound choices and to understand the benefits of being healthy.

Ford aims to build a culture of personal accountability in which knowledgeable, motivated people consistently work safely and make the right health choices to help deliver the ONE Ford plan. The One Ford Health Strategy is based on the following key concepts:

- Benefit designs that encourage healthy behaviors and appropriate use of care
- Tools and social support systems to enable wellness and help people become better health care consumers
- Partnerships for sustained and systemic improvement
- Measurement of results against benchmark companies and programs to ensure competitiveness

The One Ford Health Strategy and its central theme of building a wellness culture are globally focused. Though national systems of care vary from country to country, high-quality, cost-effective health care and a healthy, productive workforce are common goals. In the United States, for example, the Patient Protection and Affordable Care Act (PPACA) recently signed into law by President Obama expands access to care and makes real progress to reform. Though the law also includes various measures intended to manage cost increases, we need to continue to develop ways to control rising costs while providing high-quality services – areas where Ford continues to actively participate in designing solutions.

In the meantime, we are encouraged that the PPACA includes provisions that address three key areas that we had previously identified as essential elements for maximizing the value of health care service through a combination of quality, appropriateness and costs:

- **Wellness and Prevention** – As a country, we must focus on prevention and wellness, and make sure that employers can offer creative incentives that work to engage people in healthy behaviors. We need to shift the focus from paying for sick care to preventing illness. This requires allowing employers greater flexibility for incentives that reward people who meet important health goals or demonstrate meaningful effort, not just agree to participate in a program. At Ford, we are doing our part to spread education and tools that effectively encourage people to take an active part in their health care. Salaried health care plans, for example, now integrate financial incentives linked to engagement in improving health behaviors and in making informed choices as a health care consumer. The PPACA increases employers' flexibility in designing wellness and prevention programs.
- **Health Information Technology** – We need a national technology infrastructure that allows the consolidation of a patient's medical records, so that the most appropriate care is given wherever treatment is provided. To accomplish this, we need electronic medical records at every doctor's office and hospital, and they all need to be connected. We also need tools to improve the accuracy and safety of prescription drug dispensing, such as electronic prescribing (ePrescribing). Ford is a key participant in the Southeast Michigan ePrescribing Initiative, one of the largest employer-driven ePrescribing initiatives. This initiative has helped move Michigan into the top five of ePrescribing states. The PPACA includes a provision that addresses the need for national standard and protocols for health information technology implementation.
- **Understanding What Works** – By studying the cost and quality of health care and its effect on health status, we can deliver more effective care. New innovations in technology and drugs are key drivers of cost increases. Therefore, before new innovations are widely

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implemented, they must be compared to the standard practice to really know whether and how much additional value they bring. The comparative effectiveness study provisions in the PPACA are a good start, but findings must be translated for consumers and combined with cost considerations to help inform their decisions.

We have taken steps to reduce our own health care costs. Effective January 1, 2010, for example, we are no longer obligated to provide retiree health care benefits to hourly UAW employees, retirees and their dependents. Effective January 1, 2007, and January 1, 2008 respectively, Company contributions for U.S. salaried retirees who are not eligible for Medicare are capped at 2006 levels, and Company contributions for U.S. salaried retirees who are eligible for Medicare are capped at \$1,800 per member per year. Since 2005, health care contributions paid by Ford's U.S. active salaried employees have increased each year.

Our focus on prevention and consumer engagement, along with actions relating to the One Ford Health Strategy, are intended to help us control health care cost increases, support the health of our active and retired employees, and reduce our competitive disadvantage related to health care costs.



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Working with Dealers

Our dealers are a critical part of our success and important economic contributors to the communities in which they work. They represent the face of Ford in communities across the United States and provide employment, tax support, community leadership and customer service.

As we have with all of our stakeholders, Ford is taking a proactive, collaborative approach to working with our dealers to appropriately size our dealer network to match our sales, market share and dealer sales objectives. Ford's dealer network revitalization plan focuses our efforts on the largest 130 metropolitan market areas, which represents more than half of Ford's retail sales. Customer convenience factors such as driving distance, location and the appearance of the facility are taken into consideration as part of our analysis. This continues to be an ongoing process. Ford is not mandating dealer consolidations nor competitive cost actions. Instead, Ford and its dealers are working together to continue finding solutions that make Ford and its dealers competitive and best positioned to support customers.

In the United States at year-end 2005, we had 4,396 Ford, Lincoln and Mercury dealers, with 2,242 of those dealers in our largest 130 markets. As of year-end 2009, we had approximately 3,550 Ford, Lincoln and Mercury dealers, a reduction of almost 900 dealers, or approximately 20 percent. We will continue to work collaboratively with our dealers to reduce our dealer network to match our sales, market share and dealer sales objectives.

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[Dealers](#)

[Supply Chain Sustainability](#)



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Working with Suppliers

We have been working hard to strengthen our global supply base. We have instituted a number of business practices with our key suppliers designed to increase collaboration, provide for data transparency and expand the volume of business with select suppliers, while building a more sustainable business model.

We continue to work to strengthen our supply base in the United States, which represents 80 percent of our North American purchases. As part of this process, we have been reducing the total number of production suppliers eligible for major global sourcing. This has declined from 3,300 suppliers in 2004 to 1,600 at the end of 2009. We have identified about 850 of these as long-term suppliers eligible for new major sourcing, which moves us toward our goal of 750 suppliers. We believe that our efforts at consolidation will result in more business for our major suppliers, which is increasingly important with the decline in industry sales volume.

As we move aggressively to global vehicle platforms, our sourcing from common suppliers for the total global volume of a vehicle's components is dramatically increasing. As a result, a smaller number of suppliers will receive a greater volume of the purchases we make to support our global vehicle platforms. Ford has been working with its supply base to encourage global growth. For some suppliers, this means expanding to become global or entering into licensing agreements or joint ventures to extend their reach. It also means that a smaller number of suppliers will receive a greater volume of the purchases made by Ford. This again results in stronger suppliers achieving (and Ford realizing) greater economies of scale, as components are sourced across global platforms for the life of those platforms.

We are also "pre-sourcing" many parts to our [ABF suppliers](#) to help them plan and invest for long-term production volumes. For example, instead of asking for multiple bids from suppliers on components (a practice known as market-testing), Ford is pre-sourcing a greater percent of the commodities for the new Ford Focus with its preferred suppliers, consistent with ABF principles. Pre-sourcing saves time and money for Ford and its suppliers and drives longer-term relationships between Ford and the suppliers who typically provide 65 to 70 percent of vehicle components. Pre-sourcing helps provide suppliers with an ongoing flow of business, which gives them assurance to invest in new facilities around the world to support Ford globally.

In our U.S. operations, we have paid specific attention to strengthening our minority- and women-owned suppliers with purchases of approximately \$3.2 billion in goods and services in 2009. Our consolidation efforts have resulted, and will continue to result, in more business for our major suppliers, which will increase their financial strength.

RELATED LINKS

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- [Increasing Global Integration Suppliers](#)
- [Supply Chain Sustainability](#)
- [Economic Impacts of the Automotive Industry](#)



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Delivering New Products

Our financial recovery depends on our delivering high-quality, innovative and desirable products everywhere we operate, including in both mature and rapidly growing markets. To do this, we must continually improve quality and customer satisfaction, and anticipate and respond to changes in customer demand. We also must align our product development, manufacturing and marketing organizations worldwide to deliver the right products to the right markets as efficiently as possible. (Please see our [Global Products](#) chart for an overview of our product offerings around the world.)

We are committed to introducing new products that consumers want and value, and we are receiving very positive reactions from consumers, the media and independent evaluators in response to the products we introduced in 2009. We plan to build on this strength in 2010. Our global product strategy is to serve all major markets with a complete family of products that have best-in-class design, quality, "green," safety and smart features.

To meet these global goals, in 2010 we will deliver substantially more new or freshened products by volume than in 2009, bringing to market an unprecedented volume of new products with class-leading fuel economy, quality, safety and technology. We plan to replace or refresh 70 percent to 90 percent of our lineups in North America, Europe and Asia Pacific by volume by 2012. By 2014, we plan to replace or refresh between 140 percent and 160 percent of our lineup by volume in those regions, so that within five years, we will have fully refreshed our product portfolio globally.

This section reports on our efforts to deliver the products customers want. Specifically, we discuss our efforts to track changing customer needs, deliver more fuel-efficient vehicles, offer "smart" technologies and ensure customer satisfaction and quality. The section also summarizes our sales highlights for 2009 and discusses our efforts to build customer awareness of our products.

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Understanding Changing Customer Needs

ON THIS PAGE

- ➊ Demand for Fuel Efficiency
- ➋ Ethical Consumption
- ➌ Careful Consumption
- ➍ Information Addiction

RELATED LINKS

This Report:

- Delivering More Fuel-Efficient Vehicles
- Ford's Sustainable Technologies and Alternative Fuels Plan
- "Drive Smart" Technologies
- Customer Satisfaction and Quality Customers

External Web Sites:

- Ethisphere Institute

Consumers' wants and needs are constantly evolving, and we must keep pace with them if we expect to remain competitive, particularly in a difficult economy. Ford monitors global market trends, shifting consumer interests, and social and political developments to identify issues that will likely affect our consumers, our industry and our Company. We rely on a network of internal and external experts – from around the world – to ensure that we get a diverse, comprehensive perspective on consumer trends and how they will affect consumers' future choices about vehicles and mobility. We apply these trend analyses throughout our marketing, product development, research and design organizations to guide future product and technology developments.

Our marketing experts use an intensive research and analysis process to understand who our potential customers are, what they value and what they want in a vehicle. We define a "brand DNA" and hypothetical "target customer" for each of our main brands. Ultimately, each individual product is also assigned its own specific DNA and target customer. The brand DNA and target customer profiles go beyond simple demographic information such as age, gender and income; we build complete profiles of our hypothetical target customers, including what they like to do, what music they listen to and where they shop. This approach helps us pinpoint our aims for each vehicle we produce. Using a fully developed, "invented character" as the focus of our vehicle development brings our market research data to life and keeps everyone on the product development team focused on designing a vehicle that meets customers' needs and desires.

We develop our target customer profiles based on psychological traits and archetypes that transcend national characteristics or customer desires. This is a critical part of our drive to develop truly global vehicles that appeal to customers in multiple markets. Toward this end, we are focusing more on the emotional and psychological elements of how customers choose their vehicles as well as the traditional economic criteria of price and features. In addition to developing vehicles that deliver best-in-class features and price for value, we are focused on developing vehicles that fulfil the dreams and aspirations of the target customer group. We believe this approach not only helps us to understand our customers better, it helps us develop vehicles that capture the imaginations, dreams and loyalty of our customers across the globe. Of course, we are keenly aware that economic pressures will push the boundaries of brand loyalties, forcing us to work even harder to define our potential customers and build vehicles they can afford.

As we contemplate the economic pressures and other external factors that will influence our business, we know that we cannot predict the future. However, we can prepare for a broad range of possibilities through "futuring" exercises that help us ensure we have robust strategies in place, whatever the future might bring. Therefore, in addition to product- and brand-specific market research, we have an office dedicated to tracking shifts in social, technological, economic, environmental and political arenas. This Global Consumer Trends and Futuring team is part of our ongoing effort to identify trends that will impact the future of consumers' values, attitudes and beliefs. The team collaborates with internal subject-matter experts and external thought leaders to ensure that we have a truly global and diverse view of the world. Ultimately, our goal is to see changes on the horizon and respond to them in a way that gives Ford a sustainable competitive advantage in terms of our product portfolio and business strategies. The rest of this section discusses some of the trends that currently guide our discussion regarding consumers and their future needs, wants and desires. These trends include:


- Increasing demand for more fuel-efficient vehicles

- Growing consumer interest in "ethical consumption," or a desire to buy products from companies that reflect one's own environmental and social values
- An increasing focus on "careful consumption," in which consumers have to balance their values, passions and preferences with practical purchases as the global economic recession continues
- Expanding interest in vehicles that help consumers meet their increasing desire for information and connectivity and make the most of their time

Demand for Fuel Efficiency

Rising fuel prices, energy security issues and global climate change have spurred consumer interest in cleaner, more efficient vehicles. In the 2009 New Vehicle Customer Survey, fuel economy was chosen as the feature most influencing drivers' next vehicle purchase decision; it even ranked higher than pricing incentives and advanced safety technologies. Seventy-four percent of respondents ranked fuel economy as extremely or very influential in their next vehicle purchase decision. This was down from 81 percent in 2008. This drop is likely due to lower fuel prices at the time of the survey; average per gallon fuel prices were approximately \$0.99 lower when the survey was conducted in 2009 compared to 2008. As evidence of the overall trend toward more fuel-efficient vehicles, the crossover segment has seen significant growth compared to traditional truck-based SUVs. This shift in demand is visible in the changes in sales by vehicle segment since 2005.

Responding to this increasing demand is at the heart of our financial recovery plan and our product development plans. We recently announced that all of our new vehicles will be best in class or among the leaders in their segment for fuel economy. And we are continuing to design and introduce advanced technologies that improve fuel efficiency, reduce emissions and lessen dependence on foreign oil. Elsewhere in this report we describe our response to the [increasing demand for fuel economy](#) and our plans to [improve fuel economy](#) with advanced technologies.


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Ethical Consumption

Customers are increasingly interested in buying products from brands and companies that reflect their environmental and social values – a trend we call "ethical consumption." Ethical consumers are integrating ethical, religious, political, environmental and other beliefs in the purchasing decisions they make. They want to feel good about their consumption choices. In fact, ethical consumption is often driven by how it makes the consumers feel about themselves and the world around them. Therefore, these consumers tend to buy products from companies with values that they believe reflect their own. As a result, companies have to be increasingly aware of the values they express in their actions, products and communications.

In addition, as many social and environmental issues – like climate change – have worked their way into mainstream consumer consciousness, corporations are being held to a rising standard, shaped by the recognition that seemingly small actions can have personal and environmental health and wellness impacts. Increased access to information and corporate transparency are also driving purchases based on ethical issues.

While people are generally not willing to compromise on performance or affordability, they want products that come from ethical companies and have positive environmental and social impacts. Being a good corporate citizen, and making positive impacts on our stakeholders, communities and the planet as a whole, have been integral parts of Ford's century-long heritage. Ford was recently named one of the world's most ethical companies by the Ethisphere Institute. The fact that this kind of list exists – and perhaps more importantly that publicly traded companies on the list continue to outperform both the FTSE 100 and the S&P 500 – illustrate the relevance of corporate ethics and values to consumer choices. This sustainability report is one of the channels we use to share our story about our commitment to sustainability with our consumers and stakeholders.

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Careful Consumption

At the same time that consumers are increasingly interested in ethical consumption, they are also facing very challenging economic conditions. Therefore we are also seeing a trend toward "careful consumption." Careful consumers have to balance their values, passions and preferences with practicality when making purchase decisions. The careful consumer's purchase decisions tend to

be more planned and considered, and less spontaneous or impulse driven. People who used to pay extra for a wide range of sustainable products may now have to make tradeoffs between buying to meet their social and environmental values and buying what they can afford. People are still considering sustainability in their purchase decisions, but these choices are also being limited by increasingly difficult economic realities.

In these difficult economic times, consumers are increasingly interested in value in terms of style, safety and quality. Also, buyers are holding on to their older vehicles for longer periods of time, increasing the importance of long-term durability.

We are responding to the global financial crisis and the resulting changes toward more careful consumption in many ways. For example, we are developing more fuel-efficient vehicles that will reduce overall operating costs by lowering lifetime fuel costs. We are introducing high-end technological innovations like the SYNC® entertainment and communication system as standard equipment in many of our vehicles. And as always, we are increasing quality and long-term durability.

In addition, in March 2009 we announced the Ford Advantage Plan. This Plan provides customers with car payment support for up to 12 months on any new Ford, Lincoln or Mercury vehicle if they lose their job, as well as zero-percent, limited-term annual percentage rate financing on select vehicles. This is another way we are responding to customers' demands for value and security and helping to reduce the uncertainty involved in making major purchases during economic hard times.


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Information Addiction

We are also seeing a trend we call "information addiction" – an increasing demand for constant connectivity and access to information. As the amount of information and rate of information change increases, being "in the know" is a new status symbol. Having more information and faster access to new information gives people more control, influence and success. As a result, people are more reliant on having constant access to new information.

As information addiction becomes more prevalent, people are demanding access to information and connection to their social networks while in their cars. People are coming to see their car as more than just transportation; they want their vehicles to help them stay informed and connected. This can be driven by an emotional desire for connection and a practical desire for productivity. People who drive to work spend, on average, more than an hour every day in their cars – and they want to be able to use that time productively. Consumers today want to be able to connect with the outside world from within their vehicles, and they want access to the information they need to get things done during their drives.

Ford is responding to these demands by developing and implementing a wide range of cutting-edge, "[drive smart](#)" technologies that increase in-vehicle connectivity, productivity and efficiency, in an effort to make our customers' lives easier. SYNC® is the centerpiece of this effort. It allows our customers to access their phone, MP3 player, navigation and travel information, as well as the internet, from inside their cars. SYNC provides all this using hands-free, voice-activated access to help make in-vehicle connectivity and information sources convenient.

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Delivering More Fuel-Efficient Vehicles

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- Delivering More Fuel-Efficient Vehicles
 - Balancing Our Portfolio Profitably

Consumer demand for more fuel-efficient and cleaner vehicles continues to grow. Ford is taking a multipronged approach to meeting this demand. We have committed to improving the overall fuel economy of our entire fleet. In 2009, Ford committed that every all-new or redesigned vehicle we introduce will be best in class or among the best in class for fuel economy in its segment. Since then, we have followed through on this commitment with vehicles introduced in both the United States and Europe, and we will continue to do so in future product launches. According to the U.S. Environmental Protection Agency (EPA), no automaker has posted a larger fleet-wide gain in fuel economy in the past five years than Ford has. Based on EPA measurements, Ford's combined car and truck fuel economy has improved nearly 20 percent since 2004 – almost double the gain of the next-closest competitor. In addition, Ford's tailpipe CO₂ emissions are declining. In the United States, Ford's 2009 fleet-wide average CO₂ emissions are down approximately 9 percent from 2008.

As of May 2010, many of our vehicles meet the commitment to be best in class or among the leaders in their segment for fuel economy. For example:¹

- The all-new Ford Fiesta, which will be introduced in North America in 2010, will deliver best-in-class fuel economy for its segment with an EPA-rated 40 mpg on the highway, topping both the Honda Fit and the Toyota Yaris. The Fiesta will use the combination of a Ti-VCT 1.6-liter engine, PowerShift dual-clutch transmission and other fuel-economy technologies to accomplish this best-in-class performance.
- The 2011 Ford Mustang with a new Ti-VCT 3.7-liter V6 engine and six-speed automatic transmission will deliver up to 31 mpg on the highway. This vehicle delivers superior performance – including 305 horsepower – and better fuel economy than any other V6-powered sports coupe in the world.
- The 2011 Mustang GT, featuring a new 5.0-liter V8, delivers up to 26 mpg on the highway – better than any competitor – as well as 412 total horsepower and 390 lb.-ft. of torque.
- The next-generation Ford Edge is expected to have unsurpassed fuel economy in its segment of 27 mpg for the 3.5 TiVCT and best-in-class fuel economy with the 2.0-liter EcoBoost engine.
- The next-generation Lincoln MKX FWD V6 is expected to have unsurpassed fuel economy of 25 mpg in the midsize luxury crossover segment and to deliver class-leading power and torque.
- The 2011 Ford Super Duty® diesel truck with a 6.7-liter Power Stroke® V8 turbocharged diesel powerhouse leads its class in fuel economy, towing and hauling. This engine will also have significantly lower tailpipe emissions than previous models.
- The all-new Ford Explorer SUV, which goes in to production later this year, will feature fuel economy that is at least 25 percent better than the current Explorer.
- The 2010 Ford Flex features unsurpassed fuel economy among 6-7 passenger crossover, with an EPA-rated 24 mpg highway.
- The 2010 Lincoln MKT features unsurpassed fuel economy in the full-size luxury crossover segment from both the 3.7-liter V6 FWD, which has an EPA rating of 24 mpg highway, and the 3.5-liter V6 AWD EcoBoost™, which delivers 355 horsepower and 350 lb.-ft. torque and gets an EPA rating of 22 mpg highway.
- The 2010 Ford Taurus SHO with a V6 EcoBoost engine has unsurpassed fuel economy in its segment.
- The 2010 Ford Escape and Mercury Mariner Hybrids lead their segment,² with an EPA-rated 34 mpg city.

RELATED LINKS

This Report:

- Ford's Sustainable Technologies and Alternative Fuels Plan
- U.S. Product Sales by Segment
- Fuel Economy and Greenhouse Gas Emissions
- Fuel Economy of U.S. Ford Vehicles by EPA Segment
- Climate Change
- Capacity Alignment
- Understanding Changing Customer Needs

Vehicle Web Sites:

- Ford Edge
- Ford Explorer
- Ford F-150
- Ford Fiesta
- Ford Flex
- Ford Fusion
- Ford Mustang
- Ford Ranger
- Ford Super Duty
- Ford Taurus
- Mercury Milan
- Lincoln MKX
- Lincoln MKT
- Lincoln MKS

Ford.co.uk:

- Ford Fiesta
- Ford Focus
- Ford Mondeo

- The 2010 Ford Ranger with an I-4 engine leads its segment with an EPA-rated 27 mpg highway.
- The 2010 Lincoln MKX is unsurpassed in its segment with an EPA-rated 25 mpg highway.
- The 2010 Ford Fusion and Mercury Milan Hybrid and gas (S-Series I-4 automatic) versions have best-in-class fuel economy for midsize sedans,³ surpassing the Toyota Camry and Honda Accord. The Fusion and Milan Hybrids are EPA rated at 41 mpg city/36 mpg highway, and the gasoline S-Series I-4 automatics are EPA rated at 23 mpg city/34 mpg highway.
- The 2010 Ford F-150 with a 4.6-liter V8 gets unsurpassed fuel economy in its class, with an EPA-rated 21 mpg highway.⁴
- The 2009 Ford Fiesta EConetic with 1.6-liter Duratorq TDCi Diesel engine is one of the most fuel-efficient five-seat family cars in Europe, and it emits only 98 g/km of CO₂.
- The second generation of the Ford Focus EConetic with a 1.6-liter, 109 PS TDCi engine emits only 104 g/km CO₂ and has fuel consumption of 4.0 l/100 km.
- The second-generation Focus EConetic equipped with optional start/stop technology emits only 99 g/km CO₂ and has fuel consumption of 3.8 l/100 km.

To accomplish our fuel-economy goal, we are focused in the near term on implementing the most cost-effective fuel-efficiency technologies across a large volume of our vehicles, as well as on introducing new products that offer improved fuel efficiency without compromising style or performance. We are concentrating on affordable and near-term sustainable technology solutions that can be used not for hundreds or thousands of cars – but for millions of cars, because that is how Ford can truly make a difference.

For example, we are introducing a wide variety of new engine and transmission technologies, as well as electrical system improvements, weight reductions and aerodynamic improvements that will deliver significant fuel-economy improvements for millions of drivers in the near term. Between 2008 and 2013, we will introduce 60 new or significantly upgraded engines, transmissions and transaxles globally to help us improve fuel economy and reduce CO₂ emissions across our global fleet.

In 2009, we began implementing the [EcoBoost](#) engine, a key technology in our fuel-efficiency strategy that uses gasoline turbocharged direct-injection technology. EcoBoost delivers 10 to 20 percent better fuel economy, 15 percent fewer CO₂ emissions and superior driving performance compared to larger-displacement engines. Because EcoBoost is affordable and can be applied to existing gasoline engines, we can implement it across our vehicle fleet, bringing fuel-efficiency benefits to a wider range of our customers.

The EcoBoost V6 was introduced on the 2010 Lincoln MKS, Lincoln MKT, Ford Taurus SHO and Ford Flex. Thanks largely to the EcoBoost technology, the Lincoln MKT and Taurus SHO are unsurpassed for fuel economy in their respective segments. In 2010, we began introducing additional EcoBoost engines in the United States and Europe, including smaller I-4 EcoBoost engines. In North America we will introduce the V6 3.5-liter EcoBoost on the Ford F-150. We will also introduce a 2.0-liter, four-cylinder EcoBoost engine on the next-generation Ford Edge and the all-new Ford Explorer. The all-new Explorer will be a "game changer" in large SUV fuel economy, with 25 percent better fuel economy than the previous model. In Europe, we are introducing I-4 EcoBoost engines on the Ford C-MAX (with a 1.6-liter, four-cylinder engine) and the Ford Galaxy, Mondeo and S-MAX (with a 2.0-liter, four-cylinder engine). In addition, the next-generation Ford Focus, which will launch in Europe in 2010, will get 1.6-liter, four-cylinder EcoBoost engine.

We are also expanding EcoBoost applications to additional countries. For example, in 2010 we will introduce EcoBoost in China on the Ford Mondeo, and in 2011 we will introduce a 2.0-liter I-4 EcoBoost engine in Australia on the Ford Falcon. By 2013, Ford plans to offer EcoBoost engines on 80 percent of its global nameplates, with an annual volume of vehicles with EcoBoost at 1.5 million globally.

These EcoBoost engines, which use smaller-sized engines to produce both fuel economy and power performance, illustrate Ford's plans to use smaller, boosted engines to deliver excellent fuel economy and performance throughout our vehicle lineup.

So far, EcoBoost has been a great success in our U.S. implementation, where it is attracting both younger buyers and customers from other automakers (called "conquest" sales). The Ford Taurus SHO and Lincoln MKS with EcoBoost are attracting buyers that are 10-plus years younger than base Taurus and MKS buyers. The Taurus SHO with EcoBoost has the second-highest conquest rate in its segment, and the Ford Flex with EcoBoost has a 75 percent conquest rate. Furthermore, EcoBoost vehicles are proving to be more profitable, because EcoBoost buyers are adding more features and buying with fewer incentives. EcoBoost is also receiving high marks for customer satisfaction. In rating their EcoBoost engines, 100 percent of Lincoln MKT buyers surveyed said they were satisfied with their engine's performance, including power and pickup, and 99 percent said they were satisfied with their engine's overall operation, according to the Global Quality Research System (GQRS) study conducted by the RDA Group.

In Europe, we have introduced the ECONetic line of vehicles, which are higher fuel-efficiency and lower-CO₂ versions of our most popular products. So far, we have launched ECONetic versions of the Ford Focus, Mondeo, Fiesta and Transit. We recently introduced the second-generation Ford Focus ECONetic, which includes optional start/stop and smart regenerative charging technology, and emits just 99 g/km CO₂. These vehicles are being recognized for their significant improvements in fuel economy and CO₂ emissions. In December 2009, for example, the Ford Fiesta ECONetic won Top Gear's "Green Car of the Year Award." To read more about our ECONetic vehicles, please see the discussion of [fuel economy and greenhouse gas emissions](#) in the Environment section.

In our Asia Pacific and Africa region, we are focusing our near-term fuel-efficiency efforts on implementing EcoBoost engines and PowerShift transmissions, which we plan to introduce across our vehicle lineup in this region in the next few years. As mentioned previously, in China in 2010 we will introduce the Ford Mondeo with an EcoBoost engine and Powershift transmission. We expect it to be best in its segment for fuel economy when it launches. And in Australia in 2010 we will launch an EcoBoost version of the Ford Falcon. We will also be launching the Ford Fiesta with a 1.6-liter Ti-VCT powertrain and six-speed Powershift transmission throughout our ASEAN markets.⁵ This vehicle will be the first in the B-car segment to offer consumers this level of sophistication in powertrain technology and will be among the leaders in its segment in fuel economy. In India, we recently introduced the Ford Figo, which has highly fuel-efficient 1.4-liter TDCi diesel and 1.2-liter gas engine options. This introduction is significant to our success in India, as fuel economy is the most important purchase criteria in that country.

In South America, we are improving fuel economy by introducing some of the efficient engine and transmission technologies currently used in North America and by using technologies relevant to the widespread use of biofuels in Brazil. For example, we have implemented improved engine compression ratios – i.e., the ratio at which the air and fuel mixture is compressed in the engine combustion chamber – on flexible-fuel vehicles in Brazil. This optimizes fuel efficiency in vehicles using biofuels, which are higher octane than petroleum-based gasoline. We have also improved the gearing ratios on our "B car" offerings, including the South American Ford Fiesta, EcoSport and Ka, which further improves fuel economy. And, we have made significant improvements to the aerodynamics of the South American Ka for the 2010 model year, further increasing fuel economy. We are working on additional fuel-economy improvements for future model years of vehicle programs that are currently under development. For example, we plan to introduce a new engine on the 2010 South American Focus and the all-new 2012 EcoSport. This engine will improve fuel economy compared to current engines due to reduced internal friction and improved electronic throttle controls. We are also planning to introduce even more fuel-efficient twin independent variable cam timing engines and direct injection engines, battery management systems, smart alternator systems and dual-clutch automatic transmissions, as well as improved aerodynamics, on additional vehicles from the 2012 model year and beyond.

Overall, we are continuing to develop and introduce advanced technologies – such as battery electric vehicles – that improve fuel efficiency, reduce emissions and reduce dependence on foreign oil. In the mid to long term, we will implement these advanced technologies as they become cost effective. You can read about our other near-, mid- and long-term plans to improve fuel economy in our [Sustainable Technologies and Alternative Fuels Plan](#).

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1. The vehicles listed below are best in class for fuel economy based on EPA segments, unless otherwise noted. Alternative segments are used where EPA segments do not provide a detailed breakdown of vehicle types. For example, the EPA only uses one category for SUVs that includes crossovers, compact SUVs and large SUVs.
 2. Based on the EPA's segment definition.
 3. Midsize sedan segment based on the R.L. Polk segment definition.
 4. The class in this case is full-size non-hybrid pickups under 8,500 lbs. gross vehicle weight rating.
 5. ASEAN markets include Vietnam, the Philippines, Malaysia, Thailand and Indonesia.



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Delivering More Fuel-Efficient Vehicles

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Balancing Our Portfolio Profitably

To meet the demand for more fuel-efficient vehicles and increase our financial health, we are balancing the portfolio of vehicles we sell to better represent consumer demand for a variety of vehicle sizes and capabilities. We are leveraging our global product strengths to deliver six new world-class small and medium-sized vehicles to the United States over the next four years. And, we are targeting sales leadership in "people movers" and crossovers by adding new vehicles (such as the Ford Flex) and redefining existing vehicles (such as the Ford Explorer). Through these actions, we have aligned our product mix more closely with the broader industry. From 2005 to 2009, we reduced trucks from 44 percent to 35 percent of our product mix. In addition, we increased sport utility and crossover vehicles from 24 percent to 28 percent of our product mix; within this category we increased the percentage of crossover vehicles and decreased the percentage of SUVs. Also from 2005 to 2009, we increased the percentage of cars in our product mix from 32 percent to 37 percent. To continue our progress toward a more balanced portfolio, we are increasing our investment allocation in cars and crossovers from 59 percent to 82 percent of our total investment.

Although we believe that the shift to smaller, more fuel-efficient vehicles is permanent, trucks, vans and SUVs will continue to be an important part of our North American offerings, in order to meet our customers' needs. We intend to maintain our leadership position in these segments by focusing our investment on fuel-efficient vehicles, such as the new Ford Transit Connect, as well as all-new powertrains with advanced technology.


As consumer demand for smaller vehicles continues to increase, we need to provide the vehicles people want, and provide them profitably, in order to remain a sustainable business. As part of our financial stabilization plan, we are reversing our decades-long trend of losing money on the production of small cars in the United States. To accomplish this, and to secure our ability to continue to produce all types of vehicles in the United States, we are taking the following actions:

- Leveraging high volume of our global Focus-sized ("C-sized") platform vehicles, such that we will produce more than 2 million units per year by 2012
- Increasing the volume of Ford Focus cars to more than 1 million units per year by 2012
- Improving revenues on smaller vehicles by offering exciting exterior and interior designs, with class-leading fuel economy, safety performance, craftsmanship and technology. The improvements across all Ford vehicles are improving customers' perceptions of the Ford brand
- Improving costs on smaller vehicles to competitive levels through reduced complexity and global purchasing scale
- Improving fixed costs through more efficient utilization of manufacturing and supply base capacity and the sharing of engineering and tooling costs globally

The new Ford Fiesta and all-new Ford Focus platforms are good examples of how we are increasing small-car profitability without compromising on quality, safety, style or features. The Fiesta, which went on sale in Europe in 2008 and will be available globally in 2010, is the first major product to come out of our new global product development process. Leveraging and integrating our global operations is one key element in making small cars more profitably. The Focus platform will form the basis for 10 new compact models by 2012. We plan to introduce at least six of the new models in the United States, where we are converting truck assembly plants in

RELATED LINKS

- This Report:
- New Global C-Car Platform Illustrates ONE Ford Plan in Action
 - Electrification: A Closer Look
 - Ford's Sustainable Technologies and Alternative Fuels Plan
 - Manufacturing
- Vehicle Web Sites:
- Ford Flex
 - Ford Explorer
 - Ford Fiesta
 - Ford Focus
 - Ford Transit Connect
- Ford.co.uk:
- Ford C-MAX



Wayne, Michigan, and Louisville, Kentucky, to build small cars. The global Focus will go on sale in the United States in 2011 along with a battery electric version, called the Focus Electric. In addition, the Grand C-MAX – a seven-passenger, multi-activity vehicle that is based on the Focus platform – will come to the United States in 2011. The Grand C-MAX will use a four-cylinder, 1.6-liter EcoBoost engine.

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"Drive Smart" Technologies

Ford is introducing a wide range of "smart" technologies that increase access to information, entertainment and communication options while driving. These new technologies will give drivers a new level of vehicle efficiency, productivity and connectivity, making their lives easier. Furthermore, we are responding to customers' increasing demand for excellent value by offering these premium technologies on a wide range of our vehicles, not just our luxury vehicles. The all-new 2010 Ford Taurus provides a good example. This vehicle won Edmunds.com's first-ever "Technology Breakthrough Award," for "set[ting] the standard for technology that's practical, intuitive, and offers exceptional value to consumers while making driving safer and more convenient." The 2010 Taurus provides more user-friendly technology than other cars twice its price, including 10 class-exclusive technologies not available from any other manufacturer.

Ford's "drive smart" innovations also reflect our commitment to work with industry leaders in communications, information and entertainment technologies to deliver the best-possible technologies for our vehicles. For example, we joined with IDEO and Smart Design to research a new smart dashboard display system for our hybrid vehicles. We worked with Microsoft, DEWALT, Master Lock, Mario Magnelli, Garmin and Sprint to deliver our new Ford Work Solutions™ system. And, we worked with SIRIUS to add even more features to our voice-activated navigation system.

The following are examples of our new "smart" technologies:

- MyFord™ Driver Connect Technology delivers a new approach to in-vehicle controls, displays and interfaces and provides access to ever-expanding in-vehicle functionality while minimizing driver distraction and improving interior aesthetics. MyFord replaces many of the traditional vehicle buttons, knobs and gauges with voice commands, LCD screens and five-way buttons that drivers can customize, so they can choose which information is front and center. This technology will be available across our full range of vehicles, from affordable small cars to high-end luxury vehicles. It will debut on the 2011 Ford Edge and Lincoln MKX crossovers in North America, followed by the 2012 Ford Focus in our global markets. By 2015, approximately 80 percent of Ford's North American models are expected to have MyFord driver connect technology, with similar percentages predicted for the world market. MyFord was recognized at the 2010 Consumer Electronics Show with *Popular Mechanics*' "Editor's Choice" award and CNET's "Best of the Consumer Electronics Show" award. In mid-2010, we will be adding an "EcoRoute" function to MyFord that will use historic and real-time traffic information to recommend routes that could increase fuel economy by as much as 15 percent. The EcoRoute system will be introduced initially as an option on the Ford Edge in the middle of this year.
- The next-generation voice-activated SYNC® expands Ford's award-winning hands-free communications and connectivity system. SYNC already includes industry-leading voice-recognition software and integrates a GPS receiver with customers' Bluetooth-capable mobile phones to deliver personalized traffic reports, precise turn-by-turn driving directions and up-to-date information, including business listings, news, sports and weather – without requiring a built-in navigation system. In 2010, Ford is adding the ability to voice control smart phone applications, or "apps," through SYNCAppLink. This application programming interface allows the use of popular apps such as Pandora internet radio, Stitcher "smart" radio and the Twitter client OpenBeak. This interface will not only provide vehicle occupants with greater connectivity, but importantly it helps to mitigate driver distraction by using the safer means of voice commands to control functions and programs. We are also adding wi-fi capability to SYNC. That is, USB plug-in modems can be plugged into SYNC to make the whole vehicle a wireless "hotspot" at no extra charge as part of SYNC service. This system includes safety features to prohibit users and devices not authorized by the driver. In addition, the wi-fi capability is only available when the vehicle is in park. Ford research has shown that SYNC increases the resale value of vehicles and also improves potential customers' opinions of Ford vehicles and their likelihood of buying a Ford. We installed the two millionth SYNC unit in March 2010.

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- This Report:
 - [Understanding Changing Customer Needs](#)
- Vehicle Web Sites:
 - [Ford Taurus](#)

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- **Voice-Activated Navigation with SIRIUS Travel Link™** allows drivers to access up-to-the-minute, voice-activated information on traffic conditions, weather, area gas prices, sports scores and movie listings. The system responds to voice commands for destination programming and route selection. In addition, it provides enhanced route guidance features such as street name announcements, as well as detailed freeway exit, turn and ramp position lane guidance. In 2009, this navigation system ranked highest in a third-party study of navigation system satisfaction. Starting with the 2011 model years, we will be adding a new high-occupancy vehicle (HOV) lane routing preference to the system. Once the HOV option is engaged and a destination is entered, the system will map routes using more than 2,500 miles of HOV carpool routes throughout some of North America's most-congested metropolitan areas.
- **SmartGauge™ with EcoGuide** is a dashboard display in our hybrid vehicles that gives drivers information to help them maximize fuel efficiency. The system provides information on current fuel economy, fuel economy history, odometer reading, engine coolant temperature, fuel level, battery charge status, electric vehicle mode, tachometer, engine output power, battery output power, power to wheels, engine pull-up threshold and accessory power consumption. Drivers can use the system to track their long-term fuel economy progress and illustrate it either with a traditional chart or using an innovative display of "growing leaves and vines." The more efficient a customer is, the more lush the leaves and vines, creating a visual reward for the driver's efforts. In addition, the real-time system feedback allows drivers to assess and modify their driving habits to achieve maximum fuel economy.
- **EcoMode**, in our European vehicles, will provide drivers with information on the fuel efficiency of their driving. This system monitors the key parameters for optimal fuel consumption that drivers can affect by changing their driving behavior, including gear shifting, anticipation (i.e., driving as consistently and smoothly as possible) and motorway driving (i.e., driving with the most efficient speed on motorways and country roads). In addition, the system considers the percentage of cold-engine short trips. Through this monitoring process, Ford EcoMode generates a driver profile with a scoring system for these driving parameters and offers information on how to improve fuel economy over time. This process can be translated into driver advice that can help make the best use of the vehicle's technology. The system was introduced on the second-generation Ford Focus ECOnetic and will be introduced in additional future vehicles.
- **Ford Work Solutions™** is a suite of four in-vehicle technologies that offers drivers connectivity, flexibility and security to better run key aspects of their business from their Ford truck or van. The suite includes high-speed Internet access, radio-frequency identification tracking for real-time tool inventory, a cable locking system to secure items in the truck bed and a fleet management system in the in-dash computer. The technologies were developed through hands-on research with contractors and skilled tradespeople around the United States to ensure the technologies met their needs. At the 2010 Consumer Electronics Show, the Ford Work Solutions in-dash computer won "Best of Innovations" in the category of In-Vehicle Accessories.
- **Ford Active Park Assist** uses ultrasonic-based sensors to help drivers parallel park with the touch of a button. This system won *Popular Science's* 2009 "Best of What's New" award. This is the third straight year that Ford has been recognized with a Best of What's New award. We previously won for our EcoBoost™ engine technology (2008), Easy Fuel® Capless Fuel-Filler System (2008) and SYNC system (2007).



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Customer Satisfaction and Quality

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 - Quality Awards and Ratings

Quality and customer satisfaction together are the central mission of all of our employees. Delivering high-quality vehicles is of paramount importance to customers' willingness to consider our vehicles; it also affects their satisfaction and loyalty. Quality is also important to our costs – high-quality vehicles have lower warranty repair costs. We include quality as one of the four design principles¹ that guide the entire design and manufacturing process for our vehicles. It is also central to our sales and service operations.

Measuring Quality and Customer Satisfaction

We track our progress in achieving this mission through a combination of internal and external measurements that assess how we are doing and where we can improve. The Global Quality Research System, which tracks "things gone wrong," is our primary quality survey.² The GQRS survey is implemented for us by the RDA Group, a market research and consulting firm based in Bloomfield Hills, Michigan. We also subscribe to J.D. Power and Associates' Initial Quality Survey and APEAL study. We track warranty claims and costs internally. In 2009 and 2010, we saw an improvement in both the internal and external measurements of quality. By several measures, our quality is now competitive with the highest-rated brands. Global and regional quality improvements are detailed below.

Global Quality System

Quality really is Job #1 at Ford. We use an extensive Global Quality Operating System at every stage of vehicle development and manufacture, to make sure that our vehicles have world-class quality and performance. Our Global Quality Operating System was fully rolled out in 2008 after several years' implementation. Though we have always used quality systems, they were not always standardized across locations. By requiring standard processes and implementation everywhere we operate, we intend to continue and expand our world-class quality results.

We begin designing for quality from the very earliest stages of every vehicle program. Approximately three-and-a-half years before a new model rolls off the assembly line, we virtually "pre-assemble" the vehicle, to identify and address potential quality issues at the beginning of the design process. This allows engineers to make corrections – and ultimately improve build efficiency, worker safety and quality – long before the vehicle design is finalized and built on the real assembly line. By using this virtual quality system we have cut time-to-market by eight to 14 months, depending on the vehicle program, reduced costly late engineering changes and are building fewer – but better – physical prototypes.

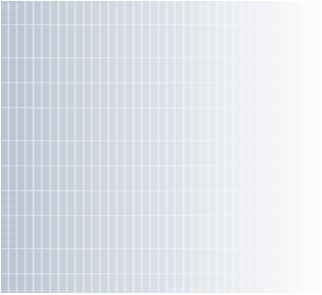
Once vehicles pass these virtual quality tests, we undertake extensive testing of actual vehicle prototypes for both manufacturing and performance quality.

Even after our vehicles have left the factory, we continue our efforts to improve quality. We evaluate every manufacturing-related warranty claim and migrate effective solutions into the assembly plant. We also gather feedback from our customers using survey tools, to ensure that we understand customers' problems with our vehicles, including actual product failures and customers' opinions of vehicle designs and features.

We use a Six Sigma process to resolve quality problems. In 2007, we completed our effort to integrate Six Sigma quality methodology into the Company's core processes. We now have Quality Functional Leaders who assist every organization within the Company in the

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 - Product, Quality and Service Data
 - Improving New Product Development Process



implementation of Six Sigma problem-solving methods to improve quality and eliminate waste. Around the world, we have 60,000 Six Sigma "green belts," more than 7,000 "black belts" and 400 "master black belts" – Ford employees trained in how to apply Six Sigma principles and methodologies.

1. The other principles are safety, smart technology, and fuel efficiency and green design.
2. The GQRS study is conducted on a quarterly basis with scores assessed from survey responses collected from vehicle owners.



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Global and Regional Quality Improvements

The following are key measures of our vehicle quality:

Global Warranty Spending

- Global warranty spending per unit declined 3 percent in 2009, compared to 2008 (excluding Volvo).
- Global warranty costs dropped by \$0.8 billion, or 40 percent, over the 24 months from year-end 2007 to year-end 2009. Plans are in place to achieve another 9 percent improvement in warranty spending by 2014.

GQRS Initial Quality (Three Months in Service) Report

2010

- Ford had the fewest number of vehicle defects or "things gone wrong" among all full-line manufacturers in the first three months of ownership. (Honda's TGW are statistically similar to Ford's.) Owners of 2010 Ford, Lincoln and Mercury vehicles reported 1,107 TGWs per 1,000 vehicles – an 8 percent improvement compared to last year.
- Customer satisfaction rose to 84 percent, a four percentage-point gain over 2009 and statistically better than Toyota and Honda.
- In the United States, the following models led their respective segments in the GQRS quality survey:
 - Taurus – Satisfaction leader, D/E car
 - Fusion Hybrid – Satisfaction leader, C/D car
 - Milan Hybrid – TGW leader, C/D car
 - Focus – Satisfaction leader, C car
 - Mountaineer – TGW leader, Medium Traditional Utility
 - Expedition – TGW and Satisfaction leader, Large Utility
 - Navigator – TGW and Satisfaction Leader, Large Premium Utility
 - Ranger – TGW and Satisfaction Leader, Compact Pickup

2009

- "Things gone wrong" levels at three months in service decreased for the fifth straight year.
- Customer satisfaction rose to 80 percent, a three percentage point gain over 2008. For the first-quarter 2010 model year this figure has risen to 84 percent, putting us statistically ahead of all competitors.
- Customer satisfaction with interior quietness now far surpasses our competitors. Ford vehicles have fewer wind noise, squeak and rattle issues than any other volume automaker.

GQRS Durability (Three Years in Service) Report

Ford did a thorough review of all research during these difficult economic times and determined

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Product, Quality and Service Data

Vehicle Web Sites:

Ford Taurus

Ford Fusion Hybrid

Ford Focus

Ford Expedition

Ford Ranger

Mercury Milan Hybrid

Mercury Mountaineer

Lincoln Navigator

that our warranty data, Consumer Reports' data and data from the GQRS three months in service survey provided the information needed to identify customer concerns throughout the ownership cycle. Studies such as the GQRS Durability study were therefore discontinued.

Residual Value Improvements

- Resale values increased by 23 percent year-over-year on Ford vehicles with one to five years on the road – outpacing the industry average by 4 percentage points.
- Ford's residual values or predicted resale prices increased more than any other full-line automaker in the 2010 model year.
- Ford has the best residual values of any U.S. automaker, while several 2010 model year vehicles have better residual values than foreign competitors.

In the United States (in addition to progress noted above):

- In 2009, we discontinued tracking high time in service as part of the GQRS study, for financial reasons.
- The number of Ford, Lincoln and Mercury safety recalls decreased from 10 in 2008 to 8 in 2009, while the number of affected units increased from 1.6 million to 4.5 million. All but 12,000 of the 4.5 million vehicles recalled in 2009 are older models (1992-2003) that were equipped with faulty Texas Instruments speed control deactivation switches. Although the data shows the majority of the vehicles equipped with these switches do not pose a significant safety risk, we recalled them to reassure customers and eliminate any future concerns.
- Warranty spending decreased by 9 percent in 2009, compared to 2008.
- Customer satisfaction with Ford Division sales and service in 2009 showed mixed results, with sales satisfaction declining two percentage points from 2008 and one percentage point from 2004. The recent decrease is mainly attributed to the "Cash for Clunkers" program, which stressed dealer resources. Service satisfaction improved by approximately 10 percentage points from 2004,¹ and sales satisfaction increased by approximately 5 percent from 2004.

In Europe:

- In the first quarter of 2010, TGW improved by 5 percent rate from 2009.
- In 2009, full year TGW increased by 24 percent compared to 2008.
- In 2009, overall customer satisfaction decreased by 4 percentage points to 59 percent compared to 2008.
- In 2009, sales satisfaction with dealer or retailer decreased by 4 percentage points from 2008 and by 2 percentage points from 2004. Service satisfaction with dealer or retailer decreased by 3 percentage points from 2008 to 2009, but has increased by 2 percentage points from 2004 to 2009.
- Warranty spending decreased by 15 percent in 2009, compared to 2008.

In Asia Pacific:

- The region logged 1,657 TGW in the first quarter of 2010, compared to 1,675 in 2009.
- Full-year 2009 TGW increased by 11 percent compared to 2008.
- Full-year 2009 customer satisfaction decreased by 4 percentage points to 48 percent compared to 2008.
- The sales and service satisfaction survey was not undertaken in Asia Pacific in 2009 due to its pending revision.²
- Warranty spending increased by 8 percent in 2009.

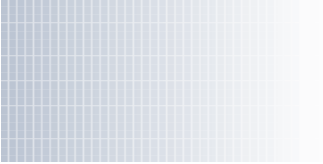
In South America:

- TGW improved 5 percent in the first quarter of 2010, compared to 2009.
- Full-year 2009 TGW improved by 3 percent compared to 2008.
- Full-year 2009 customer satisfaction remained at 68 percent, the same as in 2008.
- Warranty spending increased by 3 percent during 2009.

Owner Loyalty

Owner loyalty is a measure of customers disposing of one Ford product and buying a new Ford product. In the United States, owner loyalty increased from 41.6 percent in 2008 to 42.1 percent in 2009. In Europe, Ford owner loyalty decreased from 53 percent in 2008 to 49 percent in 2009.

1. Prior to 2008, only warranty repair visits were measured. Starting in 2009, customer-paid repair and



maintenance visits are also included. These additions have had a small negative impact on the 2009 score. The improvement from 2004 is significant.

2. In 2009, sales and service satisfaction tracking was suspended due to difficult financial conditions. We are considering reinstating it for 2010 as economic conditions improve.

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Quality Awards and Ratings

The high quality of Ford vehicles has been recognized via a range of third-party awards and ratings. For example:

2009 Initial Quality Study

- Ford Motor Company, Kentucky Truck plant: "Bronze Plant Quality Award, North/South America"
- Ford Edge: "Highest Ranked Midsize Multi-Activity Vehicle in Initial Quality in a Tie"
- Ford Mustang: "Highest Ranked Midsize Sporty Car in Initial Quality"
- Ford F-150: "Highest Ranked Large Pickup in Initial Quality in a Tie"
- Mercury Sable: "Highest Ranked Large Car in Initial Quality"

Source: J.D. Power and Associates 2009 Initial Quality Study.SM For award information visit JDPower.com.

2009 Automotive Performance, Execution and Layout Study (APEAL)

- Ford Flex: "Most Appealing Midsize Multi-Activity Vehicle"
- Ford F-150: "Most Appealing Large Pickup in a Tie"

Source: J.D. Power and Associates 2009 Automotive Performance, Execution and Layout Study (APEAL).SM For award information visit JDPower.com.

Interior Quietness Awards

According to the RDA Group's GQRS survey:

- In 2009, Ford surpassed Honda and Toyota in key measures of interior quietness.
- The F-150 was ranked No. 1 in quietness customer satisfaction.
- The Lincoln MKZ surpassed the current Lexus ES350 in key interior quietness attributes, such as road noise at 30 mph and wind noise at 80 mph.
- The Ford Escape tied with the Honda CRV for first place in the small utility segment for interior quietness customer satisfaction.

Kelley Blue Book Awards

- The 2010 Ford Fusion Hybrid, Taurus and Flex are among the "Top 10 Family Cars for 2010," according to the editors of Kelley Blue Book's Web site.
- The Ford F-150 won the 2009 Brand Image Award for the "Most Rugged Truck Brand," based on a survey of 12,000 shoppers on Kelley Blue Book's Web site.
- The 2009 Ford Escape Hybrid was listed among the 10 "Best New Family Vehicles," based on criteria including fuel economy, resale value, capability and kid-friendliness.

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Product, Quality and Service Data

Vehicle Web Sites:

- Ford Taurus
- Ford Fusion
- Ford Focus
- Ford Expedition
- Ford Ranger
- Ford Edge
- Ford Mustang
- Ford F-150
- Ford Flex
- Ford Escape
- Mercury Milan
- Mercury Mariner
- Lincoln Navigator
- Lincoln MKZ
- Lincoln MKS
- Lincoln MKX
- Lincoln MKT
- Lincoln Town Car

Ford.co.uk:

- Ford Focus
- Ford Mondeo
- Ford S-MAX
- Ford Galaxy

Volvo.com:

- Volvo S80
- Volvo C30
- Volvo C70
- Volvo XC90

External Web Sites:

Insurance Institute for Highway Safety

- The 2009 Ford Escape Hybrid and 2009 Fusion Hybrid were named among the top 10 "Green Vehicles," based on their fuel economy, comfort, convenience, safety and value for the money.

Strategic Vision Awards

- The Ford Focus Sedan topped its segment in Strategic Vision's 2009 Total Quality Index.
- Five Ford vehicles topped their segments in Strategic Vision's 2009 Total Value Index: the Ford Focus Coupe for the small multi-function vehicle segment, the Ford Mustang convertible for the convertible segment, the Ford Flex for the midsize crossover segment, the Ford Expedition for the large sport utility segment and the F-250/350 for the heavy-duty pickup segment.

Automotive Lease Guide

- Ford improved more than any other automaker in the Automotive Lease Guide's "Perceived Quality Survey," released in the fall of 2009.

American Customer Satisfaction Index

- Ford Motor Company brands fared very well in the 2009 American Customer Satisfaction Index, gaining 5 percent in customer satisfaction over 2008. Since 2005, Ford's satisfaction has increased by 10.6 percent, the biggest improvement in that period of any automaker.
- Ford brand customer satisfaction increased to 83 percent in 2009 from 80 percent in 2008. Lincoln and Mercury customers' satisfaction rose to 88 percent in 2009 from 83 percent in 2008.

AutoPacific

- Four Ford, Lincoln and Mercury vehicles won their segments in AutoPacific's "Vehicle Satisfaction Awards:" the Lincoln Town Car in the large luxury segment, the Ford Fusion in the midsize segment, the Ford Explorer Sport Trac in the compact pickup segment and the Ford Explorer in the premium midsize SUV segment.
- Ford won AutoPacific's "Ideal Mainstream Brand Award," and the following vehicles won their segments for AutoPacific's 2009 "Ideal Vehicle Awards:" the Ford Taurus, F-150, Explorer Sport Trac and Explorer and the Lincoln Navigator.
- In the large car segment, the Lincoln Town Car tied with the Cadillac DTS for AutoPacific's 2009 "Motorist's Choice Award."

Safety Ratings

- Ford holds the most Top Safety Picks (awarded by the Insurance Institute for Highway Safety, or IIHS) of any vehicle manufacturer. Nineteen Ford vehicles earned this honor in 2009, including the Ford Taurus, Taurus X, Fusion, Focus, Edge, Flex, Escape and F-150; the Lincoln MKS, MKZ, MKT and MKX; the Mercury Sable, Milan and Mariner; and the Volvo S80, C30, C70 and XC90. To earn a Top Safety Pick, a vehicle must receive a rating of "good" in offset frontal impact, side impact and rear impact evaluations, and offer electronic stability control. For 2010, vehicles will also be expected to earn a "good" rating in roof strength tests.
- For the 2010 model year, 23 Ford vehicles received five-star ratings for both frontal impact and side impact from the National Highway Traffic Safety Administration (NHTSA) in its U.S. New Car Assessment Program (NCAP) ratings, compared with 24 for the 2009 model year.
- The 2010 Ford Taurus is one of the safest-rated large sedans sold in America, with five-star NCAP crash ratings for frontal and side impact and "good" IIHS ratings in offset frontal impact, side impact, roof strength and rear impact evaluations.
- The 2010 Ford F-150 is America's safest full-size pickup. It's the only full-size pickup to earn five-star crash test ratings in all categories from NHTSA.
- The 2010 model year Mustang Convertible earned five-star ratings in all categories of NHTSA NCAP.
- For the 2010 model year, the IIHS awarded 30 Ford vehicles with "good" ratings for frontal offset performance and 19 Ford vehicles with "good" ratings for side impact performance.
- In Ford's most recent EuroNCAP assessments, the Ford Kuga and Ford Fiesta achieved Ford's first three-star ratings for pedestrian protection. These cars also joined the Focus, Mondeo, S-MAX and Galaxy in having best-in-class, five-star adult protection and four-star child protection ratings.
- The Ford Mondeo was the second Ford car (after the Focus) to be awarded a five-star rating in the Chinese New Car Assessment Program.
- The Ford Falcon was the first Australian-built car to be awarded five stars in the Australasian New Car Assessment Program (ANCAP).



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Sales Highlights

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In 2009, auto sales around the world declined significantly as a result of the growing global recession and credit crisis. Even though our overall sales, like the rest of the industry's, were down in 2009, we made some important strides in sales, product introductions and product investments in both mature and emerging markets.

United States

In the United States, we are introducing highly desirable vehicles in the fastest-growing segments, including crossovers and more fuel-efficient vehicles. In 2008, we committed that every new or significantly redesigned vehicle we introduce will be best in class or among the leaders in its segment for fuel economy. We are meeting this goal by introducing more fuel-efficient gas engines, smaller vehicles and hybrid vehicles.

We are also introducing new products faster: 45 percent of our lineup by volume was new or significantly freshened for 2009, and we are delivering on our promise of 100 percent new or freshened product by 2010. By the end of the first quarter of 2010, our Ford, Lincoln and Mercury showrooms will have a more updated lineup than at any time in the last 15 years.

Though auto sales across the industry declined in 2009 due to the recession and financial crisis, Ford, Lincoln and Mercury brands gained retail market share in the United States. Ford's market share for 2009 was 15.3 percent, a more than 1 percent increase over 2008. Our improvement in overall market share is primarily the result of favorable acceptance of our redesigned products, a product focus on industry growth segments, and customers' increasing awareness and acceptance of our commitment to leadership in quality, fuel efficiency, safety, smart technologies and value. Sales were also boosted by the U.S. government's "Cash for Clunkers" program, which incentivized consumers to trade in older, less fuel-efficient vehicles for new fuel-efficient models.

Our market share gain was led by strong sales of the Ford Fusion midsize sedan and the new 2009 Ford F-150 pickup. The Fusion, which was named *Motor Trend's* Car of the Year and won the 2010 Car of the Year at the North American International Auto Show, had record sales in 2009. The Ford F-150 was the top-selling vehicle in the United States for the 28th year in a row and the top-selling pickup truck for the 33rd year in a row. Ford was also the top-selling brand of crossover vehicles in 2009, led by the Ford Escape.

We hope to build on these sales successes in the coming years by continuing to introduce exciting new products. The new Ford Transit Connect was introduced in the second quarter of 2009 and was awarded the 2010 North American Truck of the Year at the North American International Auto Show. The 2011 Ford Fiesta was revealed in North America in the fourth quarter of 2009 as a new offering and will go on sale in the second quarter of 2010. The 2011 Ford Mustang debuted with a new family of V6 and V8 engines that deliver best-in-class performance and fuel economy and arrived in dealerships in the spring of 2010.

Further product introductions are planned, as we seek to substantially increase the amount of new vehicle introductions by volume versus 2009, which was already an aggressive product introduction period. For 2010, these introductions include the all-new Ford Fiesta, Focus, Explorer, Super Duty, Edge and Transit Connect Electric, the Lincoln MKX and an all-new small car for Mercury. We will also be introducing a hybrid version of the Lincoln MKX and an EcoBoost option

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- This Report:
- Ford's Sustainable Technologies and Alternative Fuels Plan
 - Delivering More Fuel-Efficient Vehicles
 - Operational Energy Use and Greenhouse Gas Emissions Global Products Manufacturing
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 - Ford Fiesta
 - Ford Escape
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 - Ford Explorer
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 - Ford Edge
 - Lincoln MKX
- Ford.co.uk:
- Ford Fiesta
 - Ford C-MAX
 - Ford Galaxy
 - Ford S-MAX
 - Ford Mondeo
 - Ford Focus

on the F-150.

U.S. Product Sales by Segment

	Industry	Ford
Cars		
Small	23.7%	14.0%
Medium	16.1%	12.8%
Large	5.4%	6.8%
Premium	7.3%	3.1%
Total U.S. Car Sales	52.5%	36.7%
Trucks		
Compact Pickup	2.6%	3.4%
Bus/Van	5.5%	5.8%
Full-Size Pickup	10.8%	25.6%
Sport Utility	27.1%	28.2%
Medium/Heavy	1.5%	0.3%
Total U.S. Trucks	47.5%	63.3%
Total U.S. Vehicle Sales	100.0%	100.0%

Note: These numbers include Ford, Lincoln and Mercury vehicle sales in the United States.

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Ford of Europe

Even in 2009's difficult economic conditions, Ford realized market share gains in 19 of its European markets as well.¹ In 2009, the Ford brand's combined car and truck market share in these 19 European markets was 9.1 percent (up 0.5 percentage point from 2008). Furthermore, Ford realized sales gains in 17 of its 19 primary European markets in 2009.

The Ford Fiesta was the second bestselling model in Europe in 2009, reaching its best full-year sales since 1996. More than 15 months after its sales debut in autumn 2008, more than 675,000 customers have purchased the new Fiesta globally.

Britain and Germany are our highest-volume markets within Europe. Any change in the British or German market has a significant effect on the results of our Ford Europe segment. The global economic crisis caused 2009 industry sales in Britain to decline by 10.5 percent from 2008 levels (which were already down considerably from 2007 levels, as the economic crisis hit Britain earlier than many other European countries). As a result of government stimulus in Germany, 2009 industry sales volume there actually increased by 18.2 percent compared with 2008. The Ford brand's combined car and truck share in these markets in 2009 was 16.8 percent in Britain (up 0.4 percentage points from the previous year), and 7.6 percent in Germany (up 0.6 percentage points from the previous year).

Sales in Europe were also increased by government vehicle "scrappage" programs that gave consumers incentives for trading in older, less fuel-efficient vehicles and buying new, more fuel-efficient models. These incentive programs occurred in some of our larger markets including Germany, the United Kingdom, France, Spain, Austria, Italy, Ireland, the Netherlands and Portugal.

In 2009, Ford's share of the Turkish market increased by 0.4 percentage points to 15.1 percent, the eighth year in a row that the Ford brand led the market in sales in Turkey. Industry sales volume in Russia decreased dramatically during 2009, shrinking by nearly 1.6 million units or about half of its total volume as a result of the economic crisis. As a result, sales of Ford brand vehicles decreased by nearly 56 percent from 2008 to about 82,000 units in 2009.

In 2010, we will continue to build on our product momentum, with at least 11 vehicle reveals or launches planned for 2010 – including the all-new Ford C-MAX and Grand C-MAX; the freshened Ford Galaxy, S-MAX and Mondeo; and a new Focus EConetic. An expanded range of fuel-efficient powertrains, including the new Ford EcoBoost 2.0-liter and 1.6-liter engines and further improved TDCi diesel powertrains, will also be available across the range, together with new technologies and innovations. In the first quarter of 2010, we also announced a \$2.3 billion investment in UK manufacturing facilities over the next five years to support the production of low-

Asia Pacific and Africa

The fastest-growing markets for automobiles are in rapidly developing countries like China and India. We are expanding our production capacity in China, India, Thailand and the rest of Asia, as well as launching new products in these and other markets to meet consumer needs and remain competitive. Australia, China, India, South Africa and Taiwan are our principal markets in the Asia Pacific and Africa region. Our wholesales in this region were up 14 percent in 2009, primarily due to strong sales in China.

Asia Pacific and Africa Market Share²

Major Markets	2009 Combined Car and Truck Market Share	Percentage Points Better/(Worse) Than 2008
Australia	10.30%	No change
China	2.49%	(0.07%)
India	1.30%	(0.10%)
South Africa	7.60%	0.70%
Taiwan	6.10%	0.60%

In 2009, our sales in China totaled approximately 345,500 units. This sales figure includes Ford-badged vehicles produced and distributed by our two Chinese joint ventures: Changan Ford Mazda Automobile Corporation, Ltd. (CFMA) and Jiangling Motors Corporation, Ltd. (JMC). The CFMA joint venture began production in 2003 and now builds Ford, Volvo and Mazda models. The JMC joint venture assembles Ford and JMC vehicles for distribution in China.

We are continuing to increase our presence in China, with more investment in manufacturing capacity, the introduction of new products and the expansion of distribution channels. Ford currently has three vehicle manufacturing plants in China; one CFMA plant in Chongqing, one CFMA plant in Nanjing and one JMC plant in Nanchang. In 2009 we announced plans for a new CFMA plant, which will also be located in Chongqing. This state-of-the-art manufacturing facility, which is scheduled for completion in 2012, represents an investment of almost \$500 million. The flexible, 1-million-square-meter facility will begin production of Ford's next-generation Ford Focus in 2012 and will be capable of producing a diversified range of products in the future. The plant will have an initial production capacity of 150,000 vehicles per year. It will include Ford's environmentally friendly and energy-efficient [three wet paint technology](#). When this plant comes online in the first quarter of 2012, Ford will have a production capacity in China of 600,000 passenger vehicles per year.

We are also increasing our introduction of new products in China. In 2009, we began producing the new Ford Fiesta for the Chinese market at CFMA's Nanjing plant. The Nanjing facility is the first to build the four-door version of the Fiesta. Ford will introduce four new vehicles in the Chinese market over the next three years. We will also introduce the fuel-efficient [EcoBoost engine](#) and [PowerShift transmission](#) technologies in China in 2010, further expanding Ford's commitment to delivering more sustainable transportation in all the markets we serve.

In India, we continue to expand production capacity and new vehicle introductions. We are in the process of significantly increasing our presence in India with more investment in manufacturing capacity. We have invested \$500 million to expand our current manufacturing facility in Chennai, India. This investment was used to build a fully integrated and flexible engine manufacturing plant that began production of the all-new Ford Figo – described below – in 2010. The new facility will be capable of producing 250,000 engines per year. The plant will also be equipped with Ford's environmentally friendly and energy-efficient [three wet paint technology](#). Overall, the plant's annual vehicle production capacity will be doubled to 200,000 units after the expansion, which is also expected to create 1,000 new jobs.

Ford introduced the Ford Figo, an all-new four-door hatchback small car in 2010. This vehicle was designed with the help of Ford's Indian design and engineering team to meet the needs of Indian and other Asian markets. It represents Ford continued commitment to delivering exciting, high-quality and fuel-efficient products in growing markets like India and the rest of Asia.

In Thailand we have invested \$500 million in a new, highly flexible, small passenger car plant at AutoAlliance Thailand – a joint venture between Ford and Mazda. This facility began producing small cars in 2009; in 2010, it will begin producing the new Fiesta for other major Asian markets.

South America

Ford is the fourth-largest automaker in South America, and our principal markets include Brazil, Argentina and Venezuela. Ford's 2009 market share for the region was 10.2 percent, up one-half percentage point from 2008.

South America Market Share

Major Markets	2009 Combined Car and Truck Market Share	Percentage Points Better/(Worse) Than 2008
Brazil	10.3%	0.3%
Argentina	13.3%	0.9%
Venezuela	20.9%	5.2%
Total South America	10.2%	(0.5%)*

* The South American market share is based, in part, on estimated vehicle registrations for our six major markets.

We continue to launch new products to meet the needs of our South American customers. In 2010, we are bringing a flexible-fuel version of the European-based Ford Focus to Brazil. Nine additional product introductions are planned for the region in 2010. We are making our largest-ever investment in Brazil operations in a five-year period, by investing R\$4.5 billion from 2011 to 2015 to accelerate the delivery of more fuel-efficient, high-quality vehicles, which customers in Brazil desire. We are also investing approximately \$250 million in our Argentinean operations between 2010 and 2012 to fund new product development and quality improvements.

This sales growth in the rapidly growing markets of South America and Asia represents a significant achievement for the Company. At the same time, we know that our long-term success in these developing and revitalizing economies will depend on our offering new types of mobility solutions that are increasingly sustainable and tailored to the unique needs of these markets. Our sustainable mobility strategy is aimed at ensuring we do just that.

1. The Euro 19 markets are: Austria, Belgium, Britain, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Norway, Poland, Portugal, Spain, Sweden and Switzerland. Ford reports sales for Estonia, Latvia and Lithuania through our Finnish National Sales Company, so sales data for the Baltic states is also included within Euro 19. This does not include Turkey or Russia. This market share data also does not include Volvo.
2. Includes sales of Ford-brand vehicles and market share for certain unconsolidated affiliates, particularly in China.



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Building Customer Awareness

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- Customers
- Understanding Changing Customer Needs
- Delivering More Fuel-Efficient Vehicles
- Customer Satisfaction and Quality
- "Drive Smart" Technologies
- Climate Change

Ford Web Sites:

- The Ford Story
- Fiesta Movement

Vehicle Web Sites:

- Ford Mustang

One important goal of our marketing and communications activities is to increase consumers' knowledge of our products and our corporate performance. We are particularly focused on improving consumers' awareness of the Company's excellent quality, safety, environmental and social performance. We use a range of communication methods to share information about Ford with potential customers and to get feedback from drivers. This sustainability report is one key element of our strategy. We also engage in two-way communications with consumers and other stakeholders through a variety of stakeholder engagement forums.

These communication efforts – coupled with delivering products with world-class quality, fuel economy, technology and other features – are paying off. We saw increases in favorable opinions and purchase consideration of our products across the United States, Brazil, United Kingdom and China.

We track consumers' familiarity with, opinions and consideration of, and shopping and purchase intentions for our vehicles as part of our brand value and awareness tracking. Tracking these elements helps us to understand how consumers view our vehicles and where we need to focus our product development and communications efforts to improve consumers' perceptions of and interest in our vehicles.


Social Media

In 2008, we launched an aggressive social media communications effort that uses web-based social networking channels – such as Facebook, YouTube and blogs – and fosters word-of-mouth marketing. These channels provide an increasingly important means for communicating with consumers, especially the so-called "millennial generation" – those born from the late 1970s through the late 1990s. Opportunities for discussions and information monitoring on the Internet are countless. So, in addition to the institutionalized efforts in our Communications and Marketing divisions, we are empowering some of our employees to communicate about Ford on the web by making our Online Communications Guidelines more widely available and giving employees the information they need to communicate successfully in these arenas. We think that allowing employees to have open and real communications within their digital communities sends a clear message that Ford is committed to forging relationships online and being accessible to its audiences.

We are also actively using Twitter to engage with consumers on all matters. And, we are making it easier for visitors to our Ford Web sites to find third-party content about Ford online, particularly with the ever-evolving "[Ford Story](#)" site. We hope that integrating third-party information into our sites will provide a valuable service to consumers and will show our confidence in the vehicles we're producing.

Through these and other methods, we are seeking to stimulate user discussions about our products. In 2009, for example, we started a program called the "Fiesta Movement" to support the launch of the Ford Fiesta in the United States in 2010. Through this program, Ford selected over 100 online "influencers" to drive a Fiesta for six months and then relate their experiences through social media sites such as Facebook, Twitter, Flickr and YouTube. By delivering Fiestas to specially selected consumers, we gave them a unique experience that they could share with their communities, and we gave our engineering and design teams an opportunity to learn more about

consumer wants and needs in the rapidly growing small car segment. We received a wealth of real-time feedback early on in the new vehicle program, and we were praised by industry and marketing experts for our unique approach to raising awareness about the Fiesta – via unfiltered information from real drivers.

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Other Non-Traditional Marketing

We use a range of other non-traditional marketing and communications efforts to increase awareness of our products and engage consumers and stakeholders. Through our "Drive One" campaign, for example, we offer a range of opportunities for people to experience our vehicles first-hand. The goal of Drive One is to encourage people who might not otherwise be considering a Ford product to see for themselves what we offer. Drive One is based on our belief that, when people drive our vehicles, they will have more positive opinions of our products and will be more likely to buy them. The campaign highlights Ford's four key areas of focus: safety, quality, green technologies and smart technologies.

One of our Drive One efforts is the "Drive One 4 UR School" campaign. Through this program, people can test-drive a Ford Flex, Focus or other new Ford vehicle and help raise money for their local school. For each test-drive taken at the one-day events, Ford donates \$20 (up to a total of \$6,000 per event) to fund activities or special projects at the designated school. We launched this program with high schools in 2007, and as of March 2010 more than 1,200 Drive One 4 UR School events had taken place in the United States, raising more than \$2,500,000 to support local schools. These events enabled more than 160,000 participants to test-drive Ford products. The events have proven especially helpful for getting non-Ford owners into Ford vehicles, as approximately 70 percent of participants do not currently own a Ford product. Feedback from participants shows that both purchase consideration and opinion of the Ford brand improved after individuals had a chance to get behind the wheel and experience the vehicles first-hand.

We are also working to improve the effectiveness of our auto show appearances. Approximately 24 million people attend auto shows in the United States alone, so these are important opportunities to share information with potential customers. At all of the major auto shows we used a wide range of interactive exhibits that have helped us better engage visitors. The exhibits, which highlighted our Drive One strategy, focus on fuel economy, quality, safety and smart technologies. For example, the displays included a hands-on experience with the Fusion Hybrid's SmartGauge™ with EcoGuide technology, as well as interactive touch tables illustrating the environmental benefits of both soy-based seat cushions and EcoBoost™, our new fuel-efficient engine technology.

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Traditional Advertising

Finally, we use traditional advertising to inform consumers about our products and our corporate performance. We use three primary advertising strategies: corporate-level communications about Ford Motor Company, advertising about our brands and specific products, and dealer-level product advertising. The goal of these advertising strategies is to sell vehicles. But just as important, we are aiming to increase general awareness about the excellence of our products and our corporate performance among people who are not yet in the market for a vehicle. To develop new products, we respond to market demands through our market research and product development efforts. Through our advertising, we hope to increase interest in and preference for our vehicles and our Company based on the excellence of our products and the positive actions of our Company.

As part of our ONE Ford transformation, we are working to improve the effectiveness of our advertising communications by involving dealers more closely in the development of our advertising strategies. Dealers communicate with our customers every day, and they have special knowledge about consumers' needs and wants. We included our dealers from the start in our Drive One campaign. In fact, prior to developing Drive One, we sought input from our entire Ford dealer body, and that feedback informed the campaign's development. Together we arrived at a campaign that works at the corporate, brand, product and dealer levels.

We are also improving alignment between our public relations efforts and our marketing efforts, to improve the effectiveness of all our communications. In 2010, a key focus of our communications will be improving customer awareness of our quality and fuel-economy achievements. For example, we launched a new ad series for the Ford Fiesta in which Fiesta Movement agents – or people who have been given a Fiesta to drive in advance of the product's launch in the United States so they can share their experiences through social media – describe how the Fiesta

delivers best-in-class fuel economy and "smart" technology, including the voice-activated SYNC® multimedia communications system. We are also highlighting that we make the first consumer car that delivers over 300 hp and yet gets 31 mpg – the new Ford Mustang. And, we are emphasizing the introduction of the EcoBoost™ engine lineup, including the new I-4 and V6 engines, which can deliver 10 to 20 percent better fuel economy and up to 15 percent fewer CO₂ emissions than larger-displacement engines.

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Increasing Consumer Awareness of Environmental Issues

Ford is also working to increase consumer awareness of key vehicle-related environmental issues, including how drivers can help to improve the environmental performance of their own vehicles.


For example, Ford's new, advanced in-vehicle system – MyFord Touch™ – offers an array of real-time information on fuel-economy performance that can coach drivers to get more miles to the gallon and save on fuel costs. In addition, the MyFord Touch map-based navigation system offers an Eco-Route option that quickly calculates the most fuel-efficient route a driver can take to get from point A to point B.

MyFord Touch also enables drivers to monitor and track their vehicle's real-time fuel economy performance and mile-per-gallon averages for the past five, 10 and 30 minutes in the form of a bar chart next to the fuel gauge on the display. Drivers can customize the amount of information provided to meet their needs and hone their eco-driving skills over time.

MyFord Touch is built on the fuel-efficiency "coaching" concept Ford pioneered on its SmartGauge™ with EcoGuide instrument cluster tool for the 2010 Ford Fusion Hybrid and Mercury Milan Hybrid. This tool will also be available on the all-new 2011 Lincoln MKZ Hybrid. The system provides real-time fuel economy data and promotes fuel-efficient driving by showing a graphic of growing leaves and flowers.

We are launching a similar system in Europe called EcoMode. Similar to EcoGuide, EcoMode helps educate the driver to achieve improved real-world fuel economy. It was first introduced on the new Ford Focus ECONetic. The system will be implemented as an option in more European Ford models in the future.

We have also developed eco-driving tips that help drivers improve their fuel economy by almost 25 percent. We provide these tips on our Web site and through a Driving Skills for Life online training program. We started providing eco-driving training in 2000 in Europe and have since expanded it to the United States and Asia. For more information on our [eco-driving training programs](#) please see the Climate Change section.

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Financing Our Plan and Improving Our Balance Sheet

To deliver on our new product plans, our sustainability efforts and our plans to remain profitable, we have to continue to improve our balance sheet. Since the beginning of 2009, we have made substantial progress in our plans to provide additional liquidity and improve our balance sheet. These accomplishments include the following:

- On April 6, 2010, paid down \$3 billion of the drawn amount of the 2013 revolving credit facility. This payment has reduced Automotive gross cash and debt by \$3 billion, which will be reflected on Ford's second-quarter 2010 balance sheet. The action did not affect Automotive liquidity, as the repaid amounts remain available for borrowing.
- Negotiated with the UAW to amend the VEBA agreement to provide the option of paying up to approximately 50 percent of our VEBA obligations in Ford Common Stock, and to smooth payments over the 13-year payment term.
- Reduced Automotive debt by \$10.1 billion principal amount, utilizing \$2.6 billion in Automotive and Ford Credit cash and 468 million shares of Ford Common Stock, through a number of separate but related transactions, including a cash tender offer to repurchase outstanding debt securities, a cash tender offer to repurchase certain secured term loan debt, and an induced conversion offer with respect to our convertible debt securities maturing 2036.
- Raised \$1.6 billion of equity in an underwritten public offering of Ford Common Stock. Raised \$565 million with the completion of an equity distribution program begun in 2008, pursuant to which shares of Ford Common Stock were issued over time in market transactions.
- Entered into a U.S. Department of Energy (DOE) loan agreement to provide us up to \$5.9 billion in loans, at interest rates generally equivalent to a 10-year U.S. Treasury rate, under the DOE's Advanced Technology Vehicles Manufacturing Incentive Program.
- Issued \$2.875 billion of 4.25 percent Senior Convertible Notes due 2016.
- Amended and extended the revolving credit facility under our secured Credit Agreement – reducing the amount of the revolving credit facility from \$10.7 billion to \$8.1 billion, extending the maturity date of \$7.2 billion of that amount from December 2011 to November 2013, and establishing a new term loan in the amount of \$724 million maturing in December 2013.
- Registered an additional \$1 billion equity distribution program in November 2009 and commenced sales thereunder in December 2009 with issuances totaling about \$470 million through March 2010.
- Completed the UAW VEBA transaction on December 31, 2009, by transferring assets, consisting of cash and marketable securities, notes and warrants valued at \$14.8 billion, to the UAW VEBA Trust, thereby discharging our \$13.6 billion of UAW retiree health care obligations.
- Secured a £360 million-pound loan guarantee commitment in Britain from the European Investment Bank in 2010 to support Ford's investment of £1.5 billion pounds in its four UK facilities over the next five years.
- Returned capital from Ford Credit consistent with its plan for a smaller balance sheet and focus on core Ford brands.

RELATED LINKS

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Working as One Team

As part of our "One Team" approach, Ford has implemented a disciplined business plan process to regularly review our business environment, risks and opportunities, as well as our strategy and our plan. Through this process we also identify areas of our plan that need special attention and pursue opportunities to improve our plan. Everyone is included and contributes, openness is encouraged, and our leaders are responsible and accountable. We use facts and data to make our decisions, and high-performance teamwork is a performance criteria. We follow this process every week, every month and every quarter, driving continuous improvement. We believe this process gives us a clear picture of our business in real time and the ability to respond quickly and decisively to new issues and changing conditions – as we have done in the face of rapid changes in the market and business environment in 2009.

At our weekly business plan meeting, management teams review every element of the business, both by business unit and by skill team. We also look at every metric of our business, from research and development to marketing to evolving emissions standards. Each item is coded red, yellow or green, and the team collaborates to turn reds (indicating problems) into greens as quickly as possible. This is an important shift within Ford's corporate culture, in which potential problems were previously not always identified early enough. Now, defects are addressed before cars reach showrooms, and production levels are trimmed at the first sign of trouble.

In addition, we are enlisting our stakeholders to help us create an exciting and viable Ford business going forward. We are reaching out and listening to customers, dealers, employees, the UAW, suppliers, investors, communities, retirees, and federal, state and local governments. Each of these constituencies is a critical part of, and critical to, the success of our business going forward. Realizing our goal of profitable growth for all is as important to these stakeholders as it is to our shareholders.

This section addresses two key facets relating to our One Team approach: [increasing global integration](#) and our [product development process](#).

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- [Increasing Global Integration](#)
- [Improving New Product Development Process](#)
- [Who Are Our Stakeholders?](#)

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Increasing Global Integration

Our core business strategy focuses on developing truly global vehicles that share common platforms, design elements, technologies and materials across our global markets. This approach is key to delivering high-quality, innovative and desirable products quickly and cost effectively. To make this strategy a reality, we are globally integrating our product development, manufacturing, purchasing and marketing efforts.

In 2009, we made changes to our Global Marketing organization to create a more consistent and compelling connection with customers worldwide, while better leveraging the Company's global assets and capabilities. As part of these changes, we named Elena Ford as director of Global Marketing, Sales and Service Operations, reporting directly to Jim Farley, Ford's group vice president of Marketing and Communications. We are building on this restructuring by taking many of our core marketing processes global. For example, in 2009 we expanded our Brand Equity and Awareness Tracking system to 14 of our global markets, and in 2010 we are further expanding it to cover 25 global markets. This system, which tracks consumer familiarity and favorable opinion of our brands, as well as consideration, shopping and purchase intention, allows us to assess key elements of how consumers perceive our brand across our global markets. We are also implementing digitally based virtual market research technology throughout our global markets. This technology will allow us to test vehicle concepts in markets across the globe without shipping physical prototypes from one market to another. These global market research processes will help us develop truly global vehicles that appeal to consumers across national and regional borders.

These efforts to increase the global integration of our operations follow key restructuring efforts undertaken in 2007 and 2008. At that time, we reorganized senior leaders in the product development and purchasing organizations to assign global responsibility for key vehicle segments and major purchasing functions. We also globally integrated our regional research and product development organizations.

We are also increasing the global integration of our Quality Operating System. In 2008, for example, we completed the global implementation of a standardized quality system that replaced former regional systems. By requiring standardized processes and implementation everywhere we operate, we can continue and expand our world-class quality.

Going forward, we will be delivering more vehicles worldwide from fewer core platforms. We have already reduced the number of global nameplates from 97 in 2006 to 59 in 2008, with further reductions planned. In 2007, we had 27 different vehicle platforms, with 29 percent of our total production volume produced from core platforms. In 2012, we plan to have 15 different platforms, with 72 percent of our total production volume produced from core platforms. With our ONE Ford plan, we are working to make all small- and medium-sized Ford vehicles competing in global segments common in North America, South America, Europe and Asia Pacific and Africa by 2013. This will include Fiesta- and Focus-sized small cars, Fusion- and Mondeo-sized midsize cars and utilities, compact pick-ups and commercial vans. In 2012, for example, we expect to produce more than 2 million vehicles from our global "C-car" (Focus-sized) platform and more than 1 million vehicles from our global "B-car" (Fiesta-sized) platform. The efficiencies resulting from our ONE Ford plan and our global product strategies are demonstrated by a 60 percent reduction in engineering costs and a 40 percent reduction in capital costs from 2005 to 2008, per typical new vehicle, with ongoing improvements planned.

We are also beginning the global implementation of [EcoBoost™](#), our new fuel-efficient engine technology. This technology launched in the United States in 2009 on the Lincoln MKS, Lincoln MKT, Ford Taurus SHO and Ford Flex. In early 2010 we began implementing EcoBoost in Europe, where we will introduce a 1.6-liter I-4 EcoBoost engine on the Ford C-MAX and Grand C-MAX and a 2.0-liter I-4 EcoBoost engine on the Ford Galaxy, Mondeo, S-MAX, Edge and Explorer. By 2013, Ford will have annual volumes of 1.5 million EcoBoost V6 and I-4 engines globally.

We will begin implementing our highly successful SYNC® in-vehicle communication and entertainment system globally in 2010, beginning with Europe and then migrating to Asia Pacific

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- [Customer Satisfaction and Quality](#)
- [Ford's Sustainable Technologies and Alternative Fuels Plan](#)
- ["Drive Smart" Technologies](#)
- [New Global C-Car Platform Illustrates ONE Ford Plan in Action](#)

Vehicle Web Sites:

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- [Ford Focus](#)
- [Ford Fusion](#)
- [Ford Flex](#)
- [Ford Edge](#)
- [Ford Explorer](#)
- [Ford Taurus](#)
- [Lincoln MKT](#)
- [Lincoln MKS](#)

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- [Ford Fiesta](#)
- [Ford C-MAX](#)
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- [Ford S-MAX](#)
- [Ford Mondeo](#)
- [Ford Focus](#)

and Australia. To date, Ford has built more than 2 million SYNC-equipped vehicles. We are also continuing to add features to the SYNC system. (See the ["Drive Smart" Technologies](#) section for details.)

In addition, we are continuing to standardize materials and parts across vehicle lines. This standardization will not only reduce costs, it will increase quality by reducing the number of different parts we test and manufacture. Three years ago we started commodity business plan teams to find the most effective materials and parts standardization opportunities. This approach was further intensified under the collaboration model of ONE Ford. Each commodity plan features detailed assessments of technology developments, cost drivers, sourcing strategies and global supplier assessments.

We now have plans for the top 112 commodities (in terms of value) that go into our vehicles. These 112 commodities, from chassis control arms to brake discs, represent 80 percent of the total production cost of the vehicle, excluding powertrain components.

This approach has proven its success with our new C-segment platform. Parts commonality on the new C-car increased significantly from prior vehicle programs, reaching 80 percent. Moreover, instead of asking for multiple bids from suppliers on components, a practice known as "market-testing," Ford pre-sourced a larger percentage of the commodities for the new Ford Focus with its preferred suppliers.

By leveraging our global operations, we will be able to deploy our global product development capital and engineering resources to fewer vehicle platforms, drivetrains and powertrains. This commonality of platforms, drivetrains and powertrains, in turn, will reduce complexity in our vehicles and processes. All of these efforts will reduce costs and increase quality.



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Improving New Product Development Process

We are also realigning our capabilities to deliver better products faster than ever before. We are continuing our investment in flexible manufacturing, which reduces costs for each new product and lets us shift production at an individual plant from model to model to address changes in customer demand quickly. In our flexible manufacturing plants, we are using reprogrammable tooling in the body shop, standardized equipment in the paint shop, and a common build sequence in final assembly, so that we can build multiple models on one or more platforms in a single plant.

In our body shops, where the sheet metal comes together to form the vehicle's body, more than 80 percent of the tooling is not specific to one model. It can be reprogrammed to weld cars, trucks or crossovers of similar size.

In our flexible paint shops, we are using standardized equipment capable of painting a vehicle of any size. This not only allows us to transition easily from producing one vehicle to another, it also improves paint quality and minimizes environmental impacts. In part due to the use of standardized equipment, in 2009 Ford had the best paint durability after three years in service of any automaker and was tied for first place in paint customer satisfaction after three months in service, according to the Global Quality Research System survey conducted for Ford by the RDA Group.

To facilitate flexibility in our final assembly plants, we are designing vehicles so that they are built in the same sequence. This allows us to build different models in the same plant and allows us to respond more quickly to changing consumer needs. It also allows for efficient utilization of people and equipment.

We are also leveraging our plant flexibility to facilitate our transformation to a more balanced portfolio of vehicles. For example, our investment in flexible manufacturing enabled us to move our SUV production from the Michigan Truck Plant into the Kentucky Truck Plant in the first quarter of 2009. We were able to consolidate the vehicle lines formerly produced in Michigan into the Kentucky plant in less than three months. The Kentucky plant now produces the full array of Ford's F-Series Super Duty® truck products, as well as the Expedition, Expedition EL, Navigator and Navigator L. Our investment in flexible manufacturing also is allowing us to more quickly and cost-effectively convert the former Michigan Truck Plant to a car plant (Michigan Assembly Plant) that will begin producing the global Ford Focus for the North American market late this year.

In addition, nearly all of our U.S. assembly plants will have flexible body shops by 2012, to enable quick responses to changing consumer demands. And, nearly half of our transmission and engine plants will be flexible, capable of manufacturing various combinations of transmission and engine families.

Flexible manufacturing increases our ability to respond quickly to changing customer demand and reduces costs in our powertrain facilities. In our traditional powertrain facilities, changeover from one product to another typically requires a 12–18-month extended shutdown and usually results in significant equipment obsolescence. A flexible system changeover, by contrast, often takes place during regularly scheduled plant shutdowns during the summer and over winter holidays, requiring only a two- to six-week shutdown to implement an entirely new architecture.

A key enabler to quickly launching new products in our flexible manufacturing plants is virtual manufacturing. Virtual manufacturing technology allows Ford to quickly add various models into an existing facility – or to reconfigure an existing facility to produce a new model. Every new product is "built" in a virtual manufacturing plant, which contains every tool, station, robot and conveyor, all created via three-dimensional CAD data. This allows the manufacturing engineer and the product development engineer to simultaneously prove out product and process compatibility at least one year before the first physical part is built and two years before the first vehicle is built.

Ford has a range of industry-leading virtual manufacturing and product tools. Many of these are

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housed in the Immersive Virtual Review lab in the Product Development Center and the Manufacturing Development Center in Dearborn, Michigan. In these labs, designers and engineers evaluate early vehicle designs against a backdrop of virtual conditions and experience a vehicle from both production workers' and drivers' vantage points before it is built. This helps us create Ford, Lincoln and Mercury products that provide the "perfect fit" for almost all customer body types. The Product Development Center also houses the Cave Automated Virtual Environment, a Programmable Vehicle Model and a virtual reality station. These technologies utilize advanced motion-tracking equipment and computer software to generate virtual vehicle interiors and exteriors at actual scale, reducing the need to build physical prototypes. This process significantly reduces product development costs and time while improving vehicle quality.

Ford is also the first automaker in North America to use a new virtual technology that allows engineers to actually "see" unwanted sounds and eliminate them during vehicle development, to further reduce in-vehicle noise. Quiet vehicle cabins are an important element of the customer driving experience and customers' perceptions of overall quality. The technology, called "Noise Vision," uses a small sphere equipped with more than 30 highly sensitive microphones and 12 special cameras. Powerful software reads data from Noise Vision and creates a computerized image showing interior noise "hot spots," including wind noise, a squeak or rattle, or unwanted feedback from the engine or the road. Ford began using this technology to develop new vehicles for the 2010 model year. Noise Vision has significantly reduced vehicle development time and costs while improving quality. It has allowed Ford's North American NVH (noise, vibration and harshness) engineers to reduce wind tunnel testing time by 200 hours each year – saving more than \$300,000 in testing costs. The success of this new technology is also reflected in improved quality ratings. According to one third-party quality survey, Ford has the fewest wind noise, squeak and rattle issues of any full-line vehicle manufacturer. In addition, the RDA Group's Global Quality Research System found that Ford brands have higher interior quietness customer satisfaction scores than their Asian counterparts.

Virtual manufacturing translates into multiple benefits for the Company. For example, incompatibilities are solved on the computer, saving re-work costs and time. Engineers can also see virtual assembly operators "at work" in their stations, ensuring that real operators will be able to safely install each and every part. In addition, Ford has deployed motion-capture technology, which allows an ergonomic specialist to evaluate production operations for attributes that could make it difficult for a line worker in the assembly plant to perform with the required level of quality and safety. These issues with the vehicle's design can then be corrected in the virtual environment before the vehicle goes to production. These technologies result in vehicles that are easier to build and higher quality and processes that result in fewer injuries to our workers. Ford has seen a 75 percent reduction in work-related injuries since the introduction of these proactive processes.

Virtual manufacturing also significantly reduces the time and costs required to develop new vehicles, and it improves quality. Thanks to our use of virtual manufacturing, product development time is approximately 14 months shorter than it was in 2004. Virtual manufacturing is also a cornerstone in our product globalization strategy, in that it allows us to design one product and one process for multiple applications. As part of our integrated, closed-loop feedback and learning process, manufacturing engineers track issues we discover when actually building vehicles and add preventative solutions into the virtual design standards for all future vehicles. We began tracking the number of manufacturing issues in 2005 as a baseline for improvement. As a result of using virtual manufacturing, we have reduced potential manufacturing engineering changes by more than 85 percent.

We are also using virtual technology to improve our market research and design processes. We recently implemented a new product modeling process that uses high-quality digital animation of the vehicle to create virtual models of vehicle concepts and vehicles under development. The process allows designers and market researchers to use digital animation models instead of two-dimensional photos or expensive and time-consuming clay models. This allows more design creativity and flexibility, because design changes can be made on the fly. It also improves the market research process. Seeing the test vehicle on a 25-foot screen allows the customer to better evaluate the options and offer opinions. It also allows for better comparisons with competitors' products, because both products can be presented in comparable digitized form. Virtual vehicle models significantly reduce market research costs and time because they reduce the need for creating and shipping multiple three-dimensional models. This process, which debuted on the 2010 Ford Taurus, will significantly improve the speed and cost of developing new vehicles. The program helped deliver the new Taurus 12 months sooner and cut research costs by nearly 50 percent.



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Investor Ratings and Feedback

Shareholder Communications and Transparency

We maintain open communication with the investment community. We regularly host conference calls and participate in key automotive conferences during the year. In addition, our Investor Relations Web site is a good source of information for investors. It contains various Company reports, a schedule of events and investment information. For more information about Ford's Investor Relations activities please see: [Investor Relations](#).

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Ford Motor Credit Company

Established in 1959, Ford Motor Credit Company is a major part of Ford Motor Company's business. This wholly owned subsidiary offers automotive financial services to dealerships and customers around the world. Ford Credit's sole focus is to support the sale of Ford Motor Company vehicles. Its profits and dividends help support business needs and vehicle development at Ford.

In North America, Ford Credit does business in every state in the United States and all provinces in Canada. Outside the United States, FCE Bank is Ford Credit's largest operation. The biggest share of FCE's business is in the UK and Germany, with smaller operations in most other European countries. Ford Credit also operates in select markets in Asia Pacific, Africa and Latin America.

Ford Credit offers a wide variety of automotive financing, insurance and related products. Most financing falls into three categories:


- **Retail** – purchasing customer sale and lease contracts from dealers and offering financing to commercial customers to lease or purchase vehicle fleets
- **Wholesale financing** – making loans to dealers to purchase vehicle inventory
- **Other financing** – making loans to dealers for working capital and improvements to dealership facilities, and to purchase or finance dealership real estate

Ford Credit works on issues of interest to its stakeholders, including the following.

- **Credit Availability:** Ford Credit provides financing for qualified dealers and consumers, utilizing financing and servicing practices that ensure credit is available and affordable for a broad spectrum of customers. Despite the recession and credit crisis, Ford Credit has continued its consistent lending practices and supported the sale of Ford vehicles.
- **Credit Approvals:** Ford Credit has used consistent and prudent credit standards and practices for many years to support Ford Motor Company dealers and customers. Because the company uses proprietary credit originations and collections systems, it can finance and collect from a broader range of customers than if it used credit scores alone.
- **Consumer Education:** Ford Credit is a longstanding supporter of and participant in financial education through organizations such as AWARE (Americans Well-Informed on Automobile Retailing Economics) and Junior Achievement, as well as in community and educational forums across the United States. Ford Credit's Web site, www.fordcredit.com, includes information in English and Spanish to help consumers make informed decisions about vehicle financing.
- **Customer Privacy:** Safeguarding customer information is important to Ford Credit, which uses systems, policies and procedures to maintain the accuracy of customer information and to protect it from loss, misuse or alteration. Customer information is accessible to appropriate personnel who have a business need for the information. Ford Credit provides training and communications programs to educate personnel about privacy requirements. Beyond protecting customer privacy, Ford Credit continuously utilizes and works to develop robust processes to produce a superior service experience that ensures customers are always treated fairly and respectfully.
- **Identity Theft:** Ford Credit is a founding member of the Identity Theft Assistance Center, a nonprofit industry association in which member institutions collaborate to protect their customers from fraud and help them recover if they are victims of ID theft.
- **Technology and Process Improvements:** Ford Credit continuously improves processes and utilizes technologies that drive efficiency and sustainability. These include improved and online customer services that facilitate paperless invoices; electronic payments

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 - Financing Share Data
- Ford Web Sites:
 - Ford Credit
- External Web Sites:
 - AWARE
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and online credit applications; expanded utilization of electronic contract signing; electronic document storage; and improved software tools and telephony technologies to enhance responsiveness and increase satisfaction for dealers and customers.

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A. Cumulative Shareholder Return



Updated data to reflect 2004 base.

For more information, please see Ford's [Annual Report](#).

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B. Selected Financial Performance Indicators

Indicator	2004	2005	2006	2007	2008	2009
Sales and revenue (\$ billion) †	172.3	176.8	160.1	172.5	146.3	118.3
Income/(loss) from continuing operations (\$ billion) †	3.2	1.6	(12.6)	(2.8)	(14.7)	2.7
Net income/(loss) (\$ billion) †	3.0	1.4	(12.6)	(2.7)	(14.7)	2.7
Stock price range (per share) (\$)	12.61–17.34	7.57–14.75	6.06–9.48	6.65–9.7	1.01–8.79	1.50–10.37
Diluted per share amount of income/(loss) from continuing operations (\$) †	1.59	0.86	(6.73)	(1.4)	(6.46)	0.86
Diluted per share amount of net	1.52	0.77	(6.72)	(1.38)	(6.46)	0.86

income/(loss) (\$) †						
Cash dividends per share (\$) †	0.40	0.40	0.25	0	0	0
Automotive gross cash (\$ billion) ¹	23.6	25.1	33.9	34.6	13.4	25.5
Shareholder return (percent) ‡	(6)	(45)	1	(10.4)	(66)	337

1. Automotive gross cash includes cash and cash equivalents, net marketable and loaned securities and assets contained in a short-term Voluntary Employee Beneficiary Association (VEBA) trust.

For more information, please see Ford's [Ford's 10-K and 8-K](#) and [Annual Report](#).



† Audited for disclosure in the Ford Annual Report on Form 10-K



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C. Profile of Ford Investors

Investor	Percent					
	2004	2005	2006	2007	2008	2009
Institutional Investors:	41	46	54	69	57	47
Top 15	22	27	34	38	33	28
Others	19	19	20	31	24	19
Employees and Management	21	19	19	13	12	9
Individuals ¹	38	35	27	18	31	44

1. The ownership by individuals includes shares owned by the Ford family and by Ford employees and management outside of the Company savings plans.

For more information, please see Ford's [Annual Report](#).



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D. Worldwide Taxes Paid

Investor	\$ million					
	2004	2005	2006	2007	2008	2009
U.S. (Federal, State and Local)	1,268	1,317	1,121	1,299	780	674
Non U.S.	3,008	3,185	3,429	4,420	4,016	2,314
Total	4,276	4,502	4,550	5,844	4,796	2,988

Data for 2004 through 2006 exclude Federal refunds. Prior-year tax has been restated in order to include certain types of duty that were not included in the reports for prior years.

For more information, please see Ford's [Ford's 10-K and 8-K](#).

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Product, Quality and Service

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A. GQRS Things Gone Wrong (TGW) (three months in service)

Total things gone wrong per 1,000 vehicles



Total things gone wrong per 1,000 vehicles

2004	2005	2006	2007	2008	2009
1,956	1,846	1,586	1,405	1,206	1,107

The Global Quality Research System (GQRS) is a Ford-sponsored competitive research survey. The GQRS is a good indicator of other quality results.

Ford had the fewest number of vehicle defects or "things gone wrong" among all full-line manufacturers in the first three months of ownership, capping five straight years of improvement. We have achieved these quality improvements by using our rigorous Global Quality Operating System, including cutting-edge virtual manufacturing. For more information about our quality system and results please see [Customer Satisfaction and Quality](#).

Third party rating

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B. GQRS Customer Satisfaction (three months in service)

Percent satisfied



Percent satisfied

	2004	2005	2006	2007	2008	2009
	74	73	74	76	77	84

The Global Quality Research System (GQRS) is a Ford-sponsored competitive research survey. GQRS is a good indicator of other quality results.

Customer satisfaction rose to 80 percent in 2009, a three percentage point gain over 2008. This gain is largely the result of introducing high-quality, exciting new products. For the first quarter of 2010 this figure has risen to 84 percent, putting us statistically ahead of all other full-line manufacturers. For more information about our quality system and results, please see [Customer Satisfaction and Quality](#).



Third party rating

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C. Sales Satisfaction with Dealer/Retailer

Net promoter score



KEY ■ Ford Brand U.S.
■ Ford Brand Europe (UK, Germany, Italy, France, Spain)

Net promoter score

	2004	2005	2006	2007	2008	2009
Ford Brand U.S.	83.0	80.0	81.0	82.0	84.0	82.0
Ford Brand Europe (UK, Germany, Italy, France, Spain)	79.1	80.1	80.7	79.7	81.0	74.0

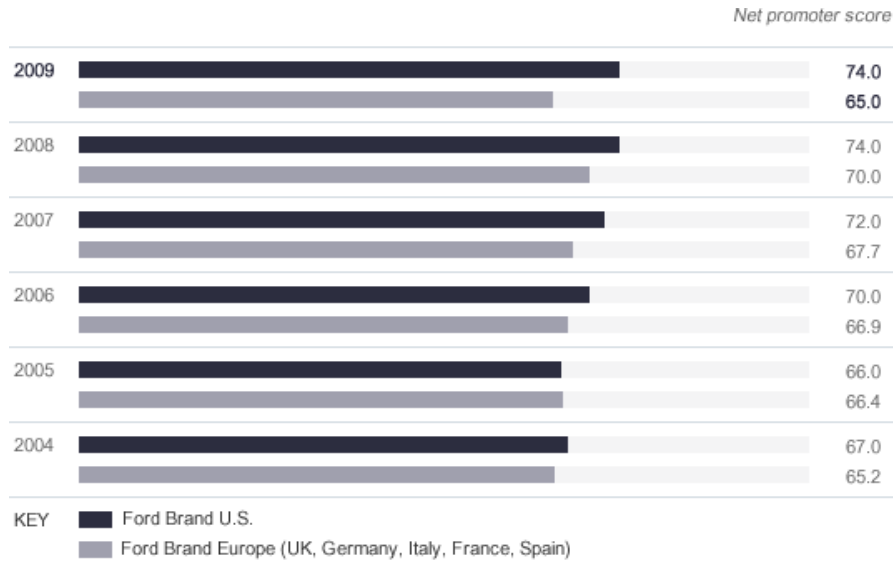
U.S. sales satisfaction decreased slightly in 2009 vs. 2008. This decrease was largely attributed to the "Cash for Clunkers" program, which stressed dealer resources. In Europe, dealers took steps during late 2008 and early 2009 to reduce costs in response to the economic crisis. This typically involved cutting administrative manpower and resources. By mid-2009 it became clear that this was negatively impacting customer sales and service satisfaction net promoter scores, due to a shift from "completely satisfied" to "very satisfied." Dealers were investing less time and effort to follow up with customers, address any concerns, and ensure that they were completely satisfied. A comprehensive improvement program was

immediately implemented throughout Europe. Monthly scores recovered strongly and finished the year on track to return to Business Plan target levels in 2010.

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D. Service Satisfaction with Dealer/Retailer



Net promoter score

	2004	2005	2006	2007	2008	2009
Ford Brand U.S.	67.0	66.0	70.0	72.0	74.0	74.0
Ford Brand Europe (UK, Germany, Italy, France, Spain)	65.2	66.4	66.9	67.7	70.0	65.0

Prior to 2008, only warranty repair visits were measured. Starting in 2009, customer-paid repair and maintenance visits are also included. These additions have had a small negative impact on the 2009 score. The improvement from 2004 is significant.

Service satisfaction remained steady in the United States from 2008 to 2009. It decreased by five points in Europe. In Europe, dealers took steps during late 2008 and early 2009 to reduce costs in response to the economic crisis. This typically involved cutting administrative manpower and resources. By mid-2009 it became clear that this was negatively impacting customer sales and service satisfaction net promoter scores, due to a shift from "completely satisfied" to "very satisfied". Dealers were investing less time and effort to follow up with customers, address any concerns, and ensure that they were completely satisfied. A comprehensive improvement program was immediately implemented following the cancellation of the Customer Viewpoint Program (our internal measure of customer satisfaction with the dealer sales and service experience) at the end of 2008. Scores recovered strongly following reintroduction of the program in September, but did not get back to prior year levels.

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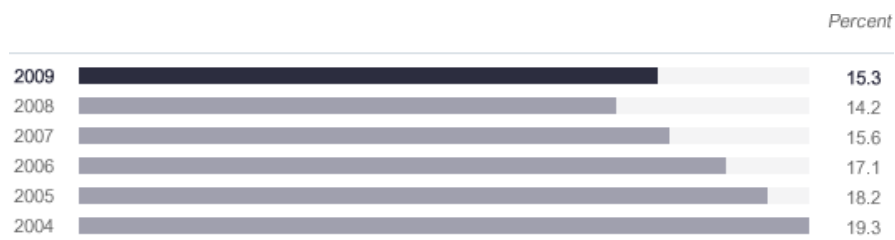
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A. Ford Motor Company Market Share – United States



Percent					
2004	2005	2006	2007	2008	2009
19.3	18.2	17.1	15.6	14.2	15.3

Ford gained over a percentage point in market share in the US in 2009, its first market share gain since 1995. Market share increased even further in the first quarter of 2010; we increased overall U.S. market share by 2.67 percentage points to 16.56 percent (with 14.1 percent share of the retail market). This is the largest quarterly U.S. market share gain since 1977.

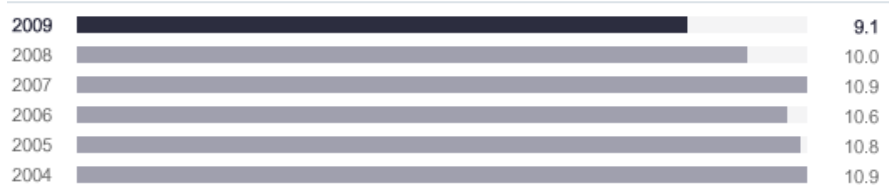
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B. Ford Motor Company Market Share – Europe

Percent




Percent

	2004	2005	2006	2007	2008	2009
	10.9	10.8	10.6	10.9	10.0	9.1

Annual market share data through 2008 include Volvo. The 2009 data does not include Volvo, due to our pending sale of Volvo. The increase in European market share from 2008 to 2009 is based on 2008 and 2009 data excluding Volvo.

Ford brand combined car and truck market share in these 19 European markets was 9.1 percent excluding Volvo (up 0.5 percentage point from 2008, excluding Volvo).

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C. Ford Credit Financing Share – United States

Percent



Percent

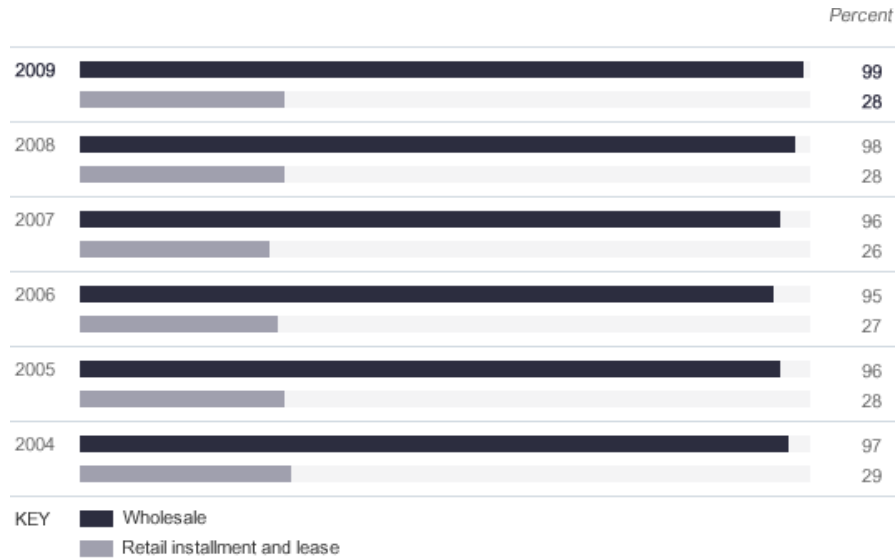
	2004	2005	2006	2007	2008	2009
Wholesale	84	81	80	78	77	79
Retail installment and lease	45	37	44	38	39	29

These data include Ford, Lincoln and Mercury brands only.

For more information on Ford Credit please visit www.fordcredit.com. For more information on Ford Credit financial information, visit the [Ford Credit investor center](#).

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D. Ford Credit Financing Share – Europe




Percent

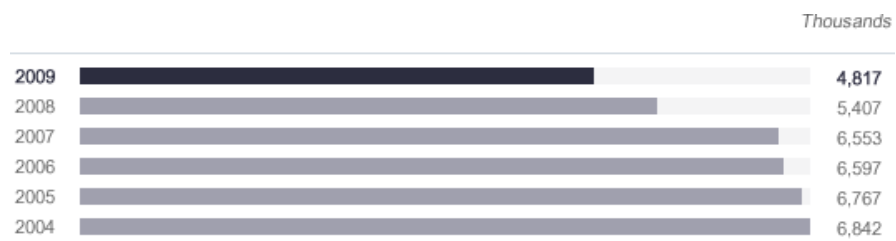
	2004	2005	2006	2007	2008	2009
Wholesale	97	96	95	96	98	99
Retail installment and lease	29	28	27	26	28	28

These data include Ford brand only.

For more information on Ford Credit please visit www.fordcredit.com. For more information on Ford Credit financial information, visit the [Ford Credit investor center](#).

 Reported to regulatory authorities

E. Summary of Vehicle Unit Sales



Thousands


	2004	2005	2006	2007	2008	2009
	6,842	6,767	6,597	6,553	5,407	4,817

F. Ford Fleet Sales



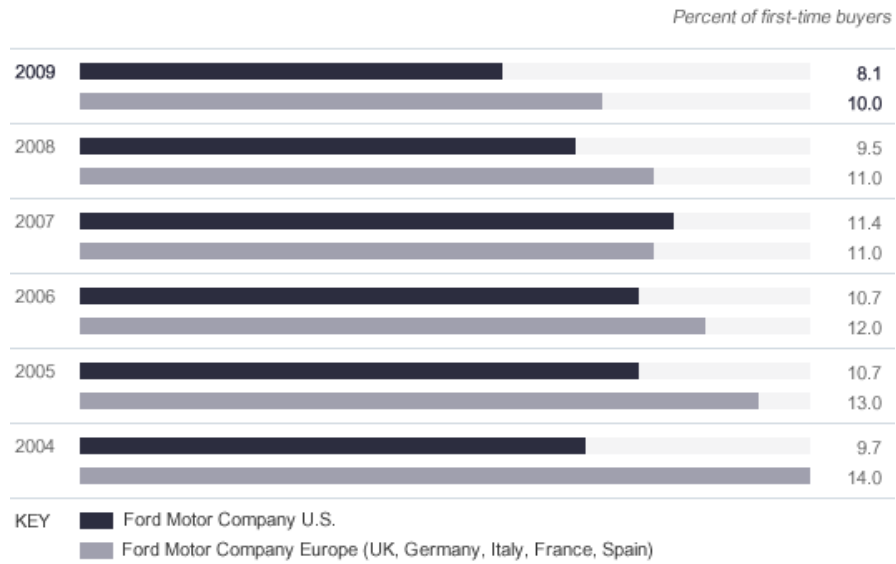
Units sold

	2004	2005	2006	2007	2008	2009
	810,000	854,000	902,000	744,000	607,000	488,000

 Reported to regulatory authorities

In This Report:
Sales Highlights

G. First-time Ford Buyers (Owners who Acquired a New Vehicle for the First Time)



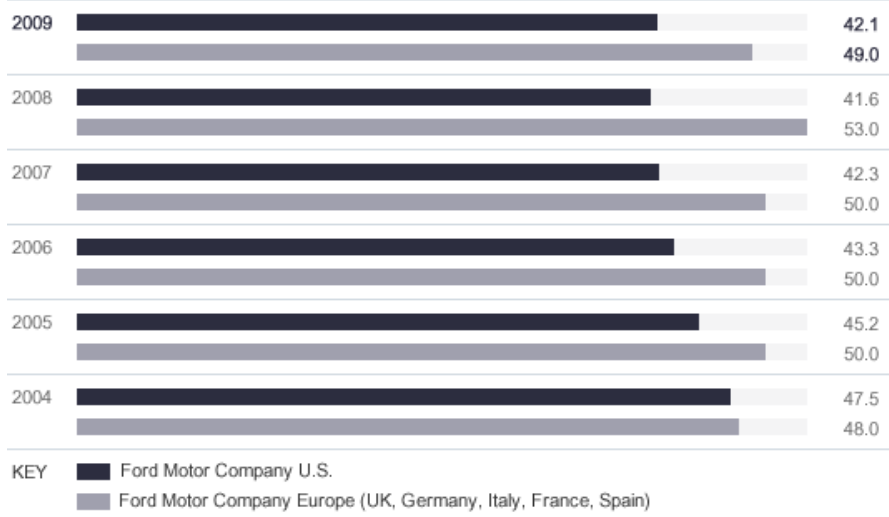
Percent of first-time buyers

	2004	2005	2006	2007	2008	2009
Ford Motor Company U.S.	9.7	10.7	10.7	11.4	9.5	8.1
Ford Brand Europe (UK, Germany, Italy, France, Spain)	14.0	13.0	12.0	11.0	11.0	10.0

In This Report:
Customer Satisfaction and Quality

H. Owner Loyalty (Customers Disposing of a Ford Motor Company Product and Acquiring Another)

Percent loyal to corporation



Percent loyal to corporation

	2004	2005	2006	2007	2008	2009
Ford Motor Company U.S.	47.5	45.2	43.3	42.3	41.6	42.1
Ford Brand Europe (UK, Germany, Italy, France, Spain)	48.0	50.0	50.0	50.0	53.0	49.0

In This Report:
Customer Satisfaction and Quality

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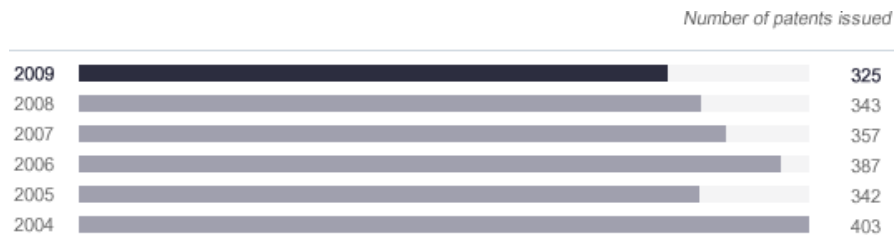
Innovation

DATA ON THIS PAGE

- A. U.S. Utility Patents Issued to Ford and Subsidiaries

View all data on this page as [charts](#) | [tables](#)

A. U.S. Utility Patents Issued to Ford and Subsidiaries



Number of patents issued

2004	2005	2006	2007	2008	2009
403	342	387	357	343	325

Utility patents are patents that cover the useful features of an invention and these are measures of technological innovation. We have generated a large number of patents related to the operation of our business and expect this portfolio to continue to grow as we actively pursue additional technological innovation. The average age for patents in our active patent portfolio is five years.

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The automotive industry is a major contributor to national and global economies. In 2008, the industry employed approximately 2.6 million people in the United States and contributed almost 4 percent of the national Gross Domestic Product.

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In 2010, Ford will begin manufacturing the all-new Ford Focus, the first vehicle based on our new global "C-car" platform. This platform illustrates our ONE Ford plan to leverage our global product development resources to deliver exciting products with best-in-class quality and fuel economy while also reducing costs and improving quality.

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➤ Economic Impacts of the Auto Industry

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Economic Impacts of the Auto Industry

The automotive industry is a major contributor to national and global economies. From 2000 to 2009, the industry contributed an average of 3.6 percent of the U.S. Gross Domestic Product – or nearly \$440 billion. In 2009, the industry employed approximately 2.3 million people in the United States at automotive manufacturers, supplier businesses and dealerships. Of this total, nearly 670,000 worked directly for automakers and suppliers. Wage and salary compensation in the industry is substantial. In the United States, for example, the average weekly earnings of automotive production workers are double the average weekly earnings for all of private hourly production workers.

Motor vehicles and auto parts represent the single-largest export sector in the United States, with an average of \$106 billion worth exported from 2005 to 2009. The auto industry is a leader among U.S. manufacturing industries in research and development investment, spending approximately \$16 billion to \$18 billion each year on research and product development. Ford alone spent approximately \$19.7 billion on engineering, research and development activities the United States from 2007 to 2009.

The influence of the automotive industry is quite broad. In the United States, the auto industry supports jobs and economic benefits through related employment at dealers, suppliers and service shops, and through the expenditures of people employed by those industries. One recent study found that approximately 8 million private-sector jobs are impacted by U.S. auto manufacturers, suppliers and dealers, and the industry contributes more than \$500 billion in compensation annually.¹ The auto industry has one of the highest multipliers of any industry in the U.S. economy, and the industry is sufficiently large that its growth or contraction can be detected by changes in the GDP.² Studies have shown that, if the domestic auto industry were to fail, up to 3 million direct and indirect jobs would be lost in the first year.² This same study said the loss of the domestic auto industry would also reduce personal income in the United States by more than \$398 billion over three years and would cost the government more than \$156.4 billion over three years, due to increased transfer payments, decline in Social Security income and decline in personal income taxes.

1. Hill, Kim et al. 2010. *Contribution of the Automotive Industry to the Economies of All 50 States and the United States*. Available at the [Center for Automotive Research](#) Web site.
2. David Cole, et al. 2008. *CAR Research Memorandum: The Impact on the U.S. Economy of a Major Contraction of the Detroit Three Automakers*. Available at the [Center for Automotive Research](#) Web site.

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New Global C-Car Platform Illustrates ONE Ford Plan in Action

In 2010, Ford will begin manufacturing the all-new Ford Focus, the first vehicle based on our new global "C-car" platform.¹ This platform illustrates our ONE Ford plan to leverage our global product development resources to deliver exciting products with best-in-class quality and fuel economy while also reducing costs and improving quality.

Our new C-car platform is truly global; vehicles based on this platform will ultimately be sold in nearly 90 countries. It is also highly flexible; we plan to introduce 10 different C-sized models that use this one platform, which will replace three platforms currently in production regionally. The new Ford Focus will be the first vehicle from this platform available in all our global markets. It will reach dealerships in Europe and North America in early 2011 and in Asia Pacific and Africa in 2012. By 2012, we expect to produce two million vehicles per year globally from this platform. This high volume – and the economies of scale it provides – gives us the opportunity to offer customers around the world an array of new technologies and product features usually reserved for premium vehicles.

A Highly Flexible Platform

The Company's strategy to achieve profitable growth globally from this segment is built on leveraging a highly flexible platform as the basis for a wide range of products. The C-car platform will be used as the basis for four-door sedans, hatchbacks and multi-activity vehicles (similar to wagons or mini-vans). We will deliver this range of body styles by using different "top hats" on the common platform.

The new Ford C-MAX, revealed at the 2009 Frankfurt Motor Show, showcases the platform's flexibility. This vehicle, which will be available in European markets by late 2010, will include a five-door version and a seven-seat, multi-activity vehicle version (a first for Ford) called the Grand C-MAX. The Grand C-MAX will have twin sliding doors and innovative seat design to provide outstanding space and flexibility. A version of the seven-seat Grand C-MAX is also scheduled to launch in North America in late 2011. In 2013, we will introduce hybrid and plug-in hybrid products based on the C-MAX in Europe. These various vehicles exemplify the benefits of platform diversification; they all provide a distinctive alternative to the average sedan with the same footprint as a traditional C-car.

This level of flexibility will allow us to meet the needs of a wider range of consumers and to respond more quickly and effectively to changes in consumer demand. The platform's flexibility and commonality will also reduce the cost of developing new products.

Leveraging Global Product Development Resources

The new C-car platform was created by a single global product development team that was responsible for delivering the next-generation Ford Focus and a family of vehicles in this size segment. This is a new way of working for Ford. Following the ONE Ford approach, we have broken down regional barriers that had previously resulted in different standards that often caused unnecessary re-engineering of products and components. This global vehicle team approach will be used for all of our global products moving forward. The greater global commonality enabled by this approach lowers production costs and allows us to include more advanced technologies and features in affordable vehicles. For example, 80 percent of the parts on the new Focus are common across regions, a significant increase from previous vehicle programs.

Virtual manufacturing tools are a key enabler of our global product development process. The first new Focus was initially built on computers, which allowed all of our global design and production operations to participate in the product development process. Major advancements in computer design and modeling allow us to verify that our new global manufacturing approach is feasible,

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 - Working With Suppliers Suppliers
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 - Ford Focus
- Ford.co.uk:
 - Ford Focus
 - Ford C-MAX

whether production takes place in Michigan, Chongqing (China), Saarlouis (Germany) or in other plants around the world – even one that is not yet built. For more information on our virtual manufacturing technologies, please see [Improving New Product Development Process](#).

Plants around the world will build the new-generation global cars using shared processes, tools and technologies. Aligning plants in this way saves money. It creates economies of scale by developing common parts and tooling, and it saves on product development and tooling costs. This global approach also helps us deliver advances in quality across all our global operations.

Plants that will build the Focus-based vehicles include:

- The Michigan Assembly Plant in Wayne Michigan, formerly the Michigan Truck Plant, which is being retooled to make fuel-efficient smaller cars
- Saarlouis in Germany, the lead European assembly plant for the Ford Focus since its debut in 1998
- Valencia in Spain, a flexible manufacturing facility building both the Ford Fiesta and Focus models for Ford of Europe
- St. Petersburg in Russia, which builds both the Focus and Mondeo for the European market
- Chongqing in China, a new, state-of-the-art and highly flexible passenger car plant built with Ford's joint venture in China, Changan Ford Mazda Automobile

Strengthening Our Global Supply Base

The principles of Ford's four-year-old Aligned Business Framework (ABF), which sets down guidelines for Ford and suppliers to work together, paved the way for Ford to work effectively with strategic suppliers on a global basis in developing the new C-car platform. For example, ABF allowed Ford to bring in key suppliers for global meetings much earlier in the development process and to provide suppliers with a much greater level of detail on product features and manufacturing volumes and locations than was previously the case. By coordinating with Ford at an earlier stage, suppliers can drive significant cost efficiencies. This also contributes to ensuring consistent levels of excellent quality, whether we're building cars in the United States, Germany or China. In addition, providing a smaller number of suppliers with more business directly supports our ONE Ford goal of creating a viable company that delivers profitable growth for all – including our suppliers.

Taken together, these efforts to develop a common global platform have already driven efficiencies that have allowed Ford to reduce development costs more than 60 percent compared to vehicles developed as recently as 2006.

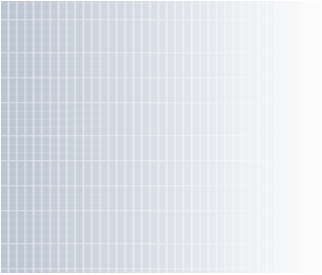
Designed to Meet Areas of Growing Consumer Demand Globally

Our global C-car platform is not just an internal exercise in global integration, quality improvements and cost reductions. It is also designed to help us better meet the needs of our global consumers.

The new Focus was developed using a global market research process that sought to understand commonalities and differences in consumer demand across our various markets. This research showed that customers increasingly want smaller cars with outstanding fuel economy, but without sacrificing any of the style, technology, connectivity and driving quality they demand from larger vehicles. Our next generation of C-cars show that Ford is ready to meet that challenge. We believe that the Focus combines the best from Europe, North America and Asia to deliver a new kind of small car product that is stylish, fuel efficient, affordable and fun to drive.

The new Focus is positioned to appeal to a major – and growing – international customer segment. One in four vehicles sold worldwide is a C-segment vehicle. C-cars are already the heart of the European car market, a mainstay in the Asia Pacific market and growing in importance in the Americas. Furthermore, consumer research for the next-generation Ford Focus found that customers from all three major regions of the world favored the same kinetic design, eliminating the need for regional differences and strengthening the mandate for a world-class, truly international product.

Our C-car platform vehicles will offer unprecedented levels of driver-convenience features, fuel economy and quality. The platform is designed to carry a wide range of fuel-efficiency and advanced powertrain technologies, to provide consumers with a range of fuel-efficient options. For example, the Ford Focus will use regionally relevant technologies to meet consumer demand for greater fuel efficiency, including EcoBoost™ engines and PowerShift dual-clutch technology, which improve fuel economy by up to 20 and 9 percent respectively compared to traditional engine and transmission technologies. Advanced clean diesels will also be offered in Europe. This platform will also form the base for one of our first commercially available battery electric vehicles – the Focus Electric – which will be available in the United States in 2011.



The C-car platform builds on the success of our global B-car platform, which is the base for the Ford Fiesta. The development of these platforms represents the future of Ford Motor Company and delivers on the promise of our ONE Ford plan. They leverage global resources; deliver exciting products with best-in-class quality and fuel economy; meet growing consumer needs; and deliver profitable growth for all our stakeholders.

1. Globally, vehicles are classified by size using letter codes. A "C-car" corresponds to a U.S compact car, a "B-car" corresponds to a sub-compact, and a "D-car" is a U.S. full-sized sedan.



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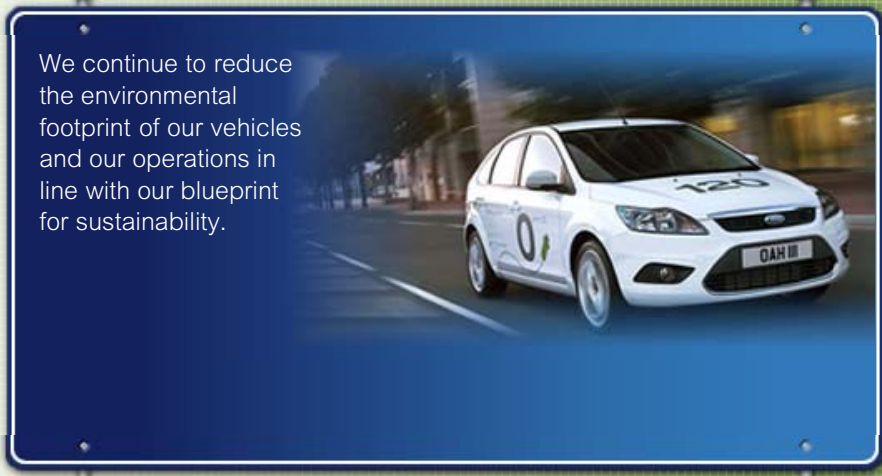
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Environment

2009 HIGHLIGHTS:

- For the fifth consecutive year, honored with an Energy Star Sustained Excellence Award from the U.S. EPA and DOE
- Reduced CO₂ emissions from our facilities by more than 44 percent from 2000 to 2009
- Reduced global water use by 16.6 percent and landfilled waste by 20.7 percent, relative to 2008



We continue to reduce the environmental footprint of our vehicles and our operations in line with our blueprint for sustainability.

This section reports on the environmental impacts of our operations, including those from our products, our manufacturing processes and our facilities and properties. For a high-level view of impacts throughout our value chain, please see [Our Value Chain and Its Impacts](#).

Assessing Materiality

The materiality analysis used to plan this report identified eight environment-related issues as among the most material:

- Low-carbon strategy
- Vehicle greenhouse gas (GHG) emissions
- Fuel economy
- Cleaner technologies
- Public policy: GHG/fuel economy regulation
- Low-carbon fuels
- Vehicle electrification
- Emissions trading and the cost of carbon


The analysis also revealed a global theme of increasing expectations regarding, and regulation of, a range of environmental issues associated with our products and manufacturing facilities. These issues include energy and water use (due to rising costs and concerns about long-term availability); tailpipe emissions and end-of-life management (due to increasing regulation); and product materials use (due to opportunities to improve the environmental performance of vehicles and cut costs through "cradle-to-cradle" solutions).

Some of these topics are covered in this section, while others are covered in the [Climate Change](#) section.

Precautionary Principle

The precautionary principle is the idea that if the consequences of an action are unknown, but are judged to have some potential for major or irreversible negative consequences, then it is better to avoid that action. We do not formally apply the precautionary principle to decision making across

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all of our activities. However, it has influenced our thinking. For example, in addressing climate change as a business issue, we have employed this principle.

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Progress and Goals

Progress

In 2009, Ford made significant progress on the environmental aspects of its products and operations. For example:

- In 2009, Ford committed that every all-new or redesigned vehicle we introduce will be best in class or among the best in class for fuel economy in its segment. Since then, we have followed through on this commitment with vehicles introduced in both the United States and Europe, and we will continue to do so with future product launches.
- For the 2009 model year, the Corporate Average Fuel Economy (CAFE) of our cars and trucks increased by 4.2 percent relative to 2008. Preliminary data for the 2010 model year shows a 3.2 percent improvement in CAFE for cars and a slight decline of 2.4 percent in CAFE for trucks compared to 2009.
- Ford is continuing to develop a comprehensive sustainable materials strategy to maximize the effectiveness and broaden the implementation of sustainable materials in our vehicles. One of the key goals of this strategy is to identify and globally implement materials technologies that improve environmental and social performance and lower costs. We also continue to expand our use of recycled and renewable materials.
- For the fifth consecutive year, Ford was honored with an Energy Star Sustained Excellence Award from the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE). This award recognizes Ford's continued leadership in and commitment to protecting the environment through energy efficiency.
- Ford reduced CO₂ emissions from our facilities by more than 44 percent from 2000 to 2009 and by 17.7 percent on a per-vehicle basis from 2000 to 2009.
- We continued our leadership in facility greenhouse gas reporting in 2009. Voluntary GHG reports were developed for all four Ford manufacturing sites in China. The CEO of Ford China presented these reports to senior Chinese government officials in December 2009.
- Ford continued to reduce water use and waste sent to landfill in 2009. We reduced global water use by 16.6 percent and landfilled waste by 20.7 percent, relative to 2008.
- Ford introduced packaging guidelines for the transport of parts and materials used in Ford vehicles. These guidelines require supplier-provided packaging to support corporate sustainability goals by seeking a neutral or positive environmental footprint through zero waste to landfill and the use of 100 percent recycled, renewable or recyclable materials.
- We won a 2009 Green Choice award from *Natural Health* magazine for continuous efforts to build a greener future. This award is based on a range of environmental action areas, including alternative energy use, greenhouse gas emissions, water use, recycling, operational energy footprints, and LEED® (Leadership in Energy and Environmental Design) green building certifications.

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2009 Year-Over-Year Environmental Performance Metrics and Goals

Products

Goal	2009 Accomplishments
Product Sustainability Index (PSI)	
Expand use of the PSI and Design for Sustainability principles in	<ul style="list-style-type: none"> 2009 Ford Fiesta developed using PSI

product development	
Sustainable Materials	
Increase the use of recycled, renewable and lightweight materials	<ul style="list-style-type: none"> Expanded use of soy foam seating Introduced soy foam headliner Introduced wheat straw reinforced plastics Expanded use of recycled content fabrics for seats and headliners Continued to develop strategy requiring recycled plastics and textile materials for many applications in North America
Increase use of and certification for allergen-free and air-quality-friendly interior materials	<ul style="list-style-type: none"> Established global design guidelines for allergen-free materials and in-vehicle air filtration that are being migrated across product lines
Eliminate mercury and lead content in vehicles	<ul style="list-style-type: none"> As of 2009, all Ford, Lincoln, and Mercury vehicles in the U.S. are mercury-free, with the exception of the Lincoln Town Car, which uses mercury in its high-intensity discharge headlamps Have eliminated use of lead wheel weights in North America and Europe
Product Fuel Economy and Greenhouse Gas Emissions	
Reduce CO ₂ emissions of U.S. and EU new products by 30 percent by 2020, relative to a 2006 model year baseline	<ul style="list-style-type: none"> Continued fuel economy improvements. Accelerated our electrification strategy. Worked to develop climate policies.
Have every all-new or redesigned vehicle we introduce be best in class or among the best in class for fuel economy in its segment	<ul style="list-style-type: none"> Since 2009, have followed through on this commitment with vehicles introduced in both the U.S. and Europe, and we will continue to do so in future product launches

Facilities

Metric	2009 Target	2009 Actual	2010 Target
Energy Use			
Facility energy efficiency (global)	3% improvement	8% improvement ¹	3% improvement
Facility energy efficiency (United States)	3% improvement	4.6% improvement ²	3% improvement
Energy use	No specific goal; continue use reductions	44% improvement compared to 2000 levels	No specific goal; continue use reductions
Emissions			
VOC emissions from painting at North American assembly plants	Maintain 24 g/sq meter or less	21 g/sq meter	Maintain 24 g/sq meter or less
Water Use			
Water use (global)	6% reduction	16.6% reduction	6% per unit reduction from 2009 ³
Waste Production			
Landfill waste (global)	10% reduction	20.6% reduction	10% per unit reduction from 2009 ⁴

1. Energy efficiency is calculated in million Btus per unit. For our global efficiency calculation, energy use is not adjusted for variances in production or weather. We experienced an improvement in global energy efficiency of 8 percent during 2009, despite an 8 percent reduction in production that year; global energy consumption was reduced by 16 percent, due in part to lower production volumes.
2. This is a percent improvement in our North American energy efficiency index, which is normalized based on an engineering calculation that adjusts for typical variances in weather and vehicle production. The Index was set at 100 for the year 2000 to simplify tracking against our target of 1 percent improvement in energy efficiency. Therefore, the 4.5 percent improvement in 2009 is based on a year 2000 baseline.
3. Starting in 2010, our main water use target will be set and tracked on a per-vehicle basis as opposed to total global use, as has been done in previous years.
4. Starting in 2010, our main waste reduction target will be set and tracked on a per-vehicle as opposed to a total global reduction, as has been done in previous years.



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Environmental Management

Ford has an environmental Policy and environmental Directives that apply to our operations globally (see our [Code of Conduct Handbook](#)). All Ford manufacturing facilities and our product development function are certified to ISO 14001, the leading global standard for managing environmental issues. In addition, we have asked our preferred "Q1" suppliers of production parts to certify their facilities. These commitments place our most significant potential environmental impacts under one comprehensive environmental management system.

In this section, we report on the environmental management systems we use in manufacturing and product development, as well as with our supply chain, to ensure that environmental issues are addressed.



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Manufacturing

Ford's manufacturing management sets environmental targets annually for all of our facilities. We develop these targets through a comprehensive process that considers past performance, future regulation trends, environmental technology advances, financial conditions and other relevant factors. The global targets are then translated into regional- and facility-level targets, which differ depending on the relevant regulations and financial and production constraints in each region. Within our powertrain operations, for example, goals are set by determining the highest-performing powertrain plant for each environmental performance metric. Then each "best-in-class" plant's performance becomes the new goal that every powertrain plant is required to meet. For more information on our best-in-class powertrain environmental initiative please see [Ford's "Best in Powertrain" Environmental Initiative Produces Impressive Results](#).

In 2005, we began to implement an Environmental Operating System (EOS) at our North American assembly plants. As a counterpart to our Quality Operating System, the EOS provides a standardized, streamlined approach to maintaining compliance with all legal and Ford internal requirements. The EOS drives compliance responsibility to the operations level by assigning compliance-related tasks to the appropriate personnel and tracking the completion of those tasks.

The EOS is integrated with other key management systems at the plant level, including ISO 14001. The EOS provides information, standardized tools and processes to support the ISO 14001 requirement to identify and manage compliance issues. The EOS has been fully implemented throughout our North and South American operations, and will be implemented throughout our global operations by the end of 2010.

Ford has moved to group ISO 14001 certification for its plants in North America. All powertrain plants share a single group certification. Likewise, assembly plants, stamping plants, Ford Customer Service Division facilities and South American plants each have their own group certification. Instead of being audited yearly by a third party, each plant is now audited every three years. Group certification saves time and money, with no degradation in plant environmental performance.

In 2007, we implemented the Global Emissions Manager (GEM) database, which provides a globally consistent approach for measuring and monitoring environmental data. This system helps us track our efforts to reduce water consumption, energy use, carbon dioxide emissions and the amount of waste sent to landfill. The data that GEM provides and the level of analysis it allows also helps us set more effective environmental management targets and develop more specific strategies for improving environmental performance. We are continuing to add metrics and tracking systems to GEM to further enhance our environmental management objectives.

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Product Development

In Ford's Global Product Development System, environmental objectives – including targets for fuel economy, vehicle emissions, the use of recycled and renewable materials, and restrictions on substances of concern – are defined at the outset of the design process for every new Ford vehicle. We track our progress toward these targets throughout the product development process. The targets are broken down from the vehicle level to the supplier or component level, and they enter into each contractual agreement signed between Ford and its suppliers.

As part of our ONE Ford global integration process, we are developing targets for a range of vehicle attributes, such as fuel economy, quality and safety, which will make our vehicles either leaders or among the leaders compared to competitor vehicles in the same segments. We develop these competitive vehicle attribute targets for every vehicle program, to deliver on key customer demands and Ford strategies, by using a range of consumer data, internal brand data and competitor vehicle data. Based on this process, in 2009 we committed that every all-new or redesigned vehicle we introduce will be the best in class or among the best in class for fuel economy in its segment. Since that time, we have followed through on this commitment with vehicles introduced in both the United States and Europe, and we will continue to do so in future product launches. For examples of 2010 and 2011 vehicles that meet this commitment, please see [Delivering More Fuel-Efficient Vehicles](#).

In addition, we have identified global leaders and attribute teams who coordinate the development of global product attributes targets in key areas such as sustainable materials, recycling, materials of concern, vehicle interior air quality and vehicle life-cycle issues. These leaders coordinate the global implementation of our corporate sustainability strategies and support our ONE Ford strategy to harmonize product development across regions.

We use our Design for Environment (DfE) tool to bridge the gap between product development and environmental management. DfE uses simplified life-cycle assessments and cost calculations, substance restrictions, checklists and other tools to identify and reduce significant impacts. We are continuing to broaden the range of issues we consider in our product development process as we move from Design for Environment to Design for Sustainability (DfS). Ford of Europe's [Product Sustainability Index](#) is incorporating DfS principles, in order to improve each vehicle's environmental, social and economic performance.

RELATED LINKS

This Report:

- [Delivering More Fuel-Efficient Vehicles](#)
- [Product Sustainability Index](#)



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Suppliers

ISO 14001 certification is expected of all "Q1," or preferred, production suppliers as well as nonproduction supplier facilities if the supplier has a manufacturing site or a nonmanufacturing site with significant environmental impacts that ships products to Ford.

We are continually improving our systems for influencing the integration of sustainability throughout our supply chain. We began this process by requiring all of our Q1 suppliers to obtain ISO 14001 certification for implementing and following an environmental management system in their facilities. In 2006, we attained our goal of having 100 percent of our Q1 production suppliers gain ISO 14001 certification for facilities supplying Ford. We also encourage our suppliers to extend the benefits of improved environmental performance by requiring their own suppliers to implement environmental management systems as well.

We work in cross-industry forums to encourage common approaches to the supply chain challenges of our industry. Since 2007, for example, we have been a member of the Suppliers Partnership for the Environment, an innovative partnership between automobile original equipment manufacturers, their suppliers and the U.S. Environmental Protection Agency. This partnership works to create new and innovative business-centered approaches to environmental protection and provides a forum for small, midsize and large automotive and vehicle suppliers to work together, learn from each other and share environmental best practices.

In 2006, we introduced our [Aligned Business Framework](#) (ABF), a strategy for working more closely with key suppliers to lower costs and improve quality. As part of this framework, ABF suppliers commit to managing and assuring proper working conditions and responsible environmental management in their facilities and in their supply chain.

Our work with ABF suppliers to date has focused on providing support and resources to help them align with Ford's Code of Basic Working Conditions and implement supporting processes, including responsible environmental management systems. Ford has committed to providing suppliers with a range of support and assistance based on our experiences in this area. During the fourth quarter of 2009, we held sustainability sessions in Dearborn, Michigan, and Cologne, Germany, which were attended by senior management from Ford and our ABF suppliers. Topics covered in these meetings included internal training development guidance, best practice sharing from suppliers on the topic of responsible working conditions, and environmental management in their own operations and their suppliers' operations.

We also held a workshop discussion on carbon measurement and management in the automotive value chain. In 2010 we will be conducting a pilot project with a select group of our suppliers that will involve the collection and reporting of greenhouse gas emissions data (see the [Climate Change](#) section for more information).

- RELATED LINKS
 - This Report:
 - Suppliers
 - Supply Chain Sustainability
 - Climate Change
 - Code of Basic Working Conditions
 - External Web Sites:
 - ISO 14001



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Sustainability Report 2009/10

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Design for Life-Cycle Sustainability

We use a life-cycle approach to assess and minimize the total adverse impacts of our vehicles from a sustainability perspective – from raw materials extraction and transportation through manufacturing and use to end of life. This approach considers and works to minimize negative impacts upfront in product design decisions. Called Design for Sustainability, the approach is integrated and holistic, to ensure that we achieve a balance between environmental, social and economic aspects in our product development process.

We are continuing to advance how we apply DfS principles. For example, we have developed a [Product Sustainability Index](#) tool, which has been in use in our European product development operations since 2002. This tool helps us assess and find opportunities to reduce the impacts of our products over their entire life-cycle – including environmental impacts such as CO₂, societal questions such as pedestrian protection and economic issues such as cost of ownership. We are increasing our use of sustainable materials and eliminating undesirable materials. We are also working to reduce greenhouse gases and other emissions from our facilities and vehicles by developing [cleaner and more energy-efficient production processes](#), improving the efficiency of our [packaging and transportation logistics](#), and introducing [cleaner and more fuel-efficient vehicles](#). Downstream in our value chain, we are working with drivers to educate them on ways to increase fuel economy and reduce vehicle emissions through our [eco-driving program](#). Upstream, we are working with our suppliers to increase the sustainability of our products throughout the [supply chain](#).

The remainder of this Environment section reports on our efforts to improve the sustainability of our products, operations and supply chain. For more information on our development of fuel-efficient vehicle technologies, please see the [Sustainable Technologies and Alternative Fuels Plan](#).

RELATED LINKS

This Report:

- [Product Sustainability Index](#)
- [Operational Energy Use and Greenhouse Gas Emissions](#)
- [Logistics](#)
- [Delivering More Fuel-Efficient Vehicles](#)
- [Eco-Driving](#)
- [Supply Chain](#)
- [Ford's Sustainable Technologies and Alternative Fuels Plan](#)



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Quantifying Our Environmental Impacts

The first important step in improving the life-cycle impacts of our products is to understand the environmental aspects of our products and the potential environmental impacts associated with them.¹ The stages of a vehicle's life-cycle include materials production, parts fabrication, vehicle assembly, vehicle operation (including fuel production), maintenance and repair, and end-of-life disposal and recycling. While estimates vary depending upon the specifics of the vehicle analyzed, one cooperative, multi-industry analysis of a typical family sedan (a spark-ignited, gasoline-powered, Taurus-class family sedan weighing 1,532 kilograms (kg)) found that during its life-cycle:

- 960 gigajoules of energy are consumed
- 21,000 kg of hydrocarbon are consumed
- 60,000 kg of carbon dioxide are emitted

In that study, it was assumed that the vehicle was driven a total of 120,000 miles at an average metro/highway fuel efficiency of 22.8 mpg. The study also found that:

- Vehicle operation consumes 86 percent of the life-cycle energy
- Vehicle operation generates 87 percent of the life-cycle CO₂
- Vehicle production generates 65 percent of the particulates and 34 percent of the life-cycle sulfur dioxide

This is consistent with a recent review of life-cycle studies, in which it was found that the operational stage generally accounts for 80 to 90 percent of the total energy consumption and CO₂ emissions of conventional gasoline-powered vehicles, depending on the vehicle's material composition, average fuel efficiency and lifetime drive distance. For example, an ISO 14040 reviewed life-cycle assessment study of the Ford Galaxy and S-MAX confirmed that the vehicle's use phase consumes more energy and produces more CO₂ emissions than the vehicle's other life-cycle phases. Other impact categories are mainly dominated by the mining and materials production phases. These findings were confirmed in subsequent studies for all other models developed using our [Product Sustainability Index](#).

1. *Environmental aspects* is a term used in the ISO 14001 framework to denote elements of an organization's activities, products and services that can interact with the environment. Potential environmental impacts include any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services. Local Ford facilities use corporate lists of environmental aspects and potential impacts to identify and amplify those aspects that apply to their operations.

RELATED LINKS

- This Report:
- Product Sustainability Index
- Ford.co.uk:
- Ford S-MAX
 - Ford Galaxy
- External Web Sites:
- ISO 14001



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Product Sustainability Index

Ford's European operations have been leading our efforts to incorporate the principles of designing for sustainability and the use of a life-cycle management approach. Ford began integrating Design for Environment principles into the product development process in the early 1990s. Initially we focused on designing our vehicles to facilitate end-of-life disassembly and recycling by taking into account the accessibility of parts to be disassembled, the type and number of different fasteners used and the marking of parts for easy identification. Based on several studies, however, it became clear that focusing on a single life-cycle phase (e.g., end of life) leads to sub-optimizations and potentially increased impacts in other life-cycle phases.

Since then, we have shifted our focus to include a more comprehensive life-cycle approach to improving the sustainability of our vehicles. This focus incorporates the material and component production phase and the use phase, as well as the end-of-life phase. Since 2002, we apply as a sustainability management tool the Product Sustainability Index, or PSI, in the development of all of our major new European vehicles. This tool follows a holistic Design for Sustainability approach that incorporates societal and economic aspects as well as environmental aspects¹ into our life-cycle analysis and design approach.

Ford's PSI tracks eight product attributes identified as key sustainability elements of a vehicle: life-cycle global warming potential (mainly CO₂ emissions); life-cycle air-quality potential (other air emissions); the use of sustainable materials (recycled and renewable materials); vehicle interior air quality (including allergy certification from TÜV Rheinland, a product testing organization); exterior noise impact (drive-by noise); safety (for occupants and pedestrians); mobility capability (seat and luggage capacity relative to vehicle size); and life-cycle ownership costs (full costs for the customer over the first three years).

The PSI process has been used to develop the 2006 Ford S-MAX and Galaxy, as well as the 2007 Mondeo, 2008 Kuga and 2009 Fiesta. As a result of using the PSI assessment system, all of these models have shown improvements in environmental, social and/or economic performance when compared to the previous models. The chart below shows specific performance and areas of improvement for each model. The PSI will be used on all future products developed by Ford of Europe. Detailed reports on the PSI analysis for these vehicles can be downloaded from [Ford of Europe's Web site](#).

RELATED LINKS

Ford.co.uk:

- Ford S-MAX
- Ford Galaxy
- Ford Kuga
- Ford Mondeo
- Ford Fiesta

External Web Sites:

- ISO 14001
- TÜV Rheinland

PSI Assessed Models Performance²

Measurement Method		
Emissions of CO ₂ and other greenhouse gases from raw material extraction to material, part, and vehicle production, driving period (150,000 km; incl. air conditioning) and final recycling/recovery (i.e., full vehicle life-cycle, cradle-to-cradle)		
	Performance*	Better/worse than previous model
2006 Ford S-MAX 2.0L TDCi with DPF	39 metric tonnes CO ₂	Similar
2006 Ford Galaxy 2.0L TDCi with DPF	40 metric tonnes CO ₂	Similar
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	37 metric tonnes CO ₂	Better
2008 Ford Kuga	37 metric tonnes CO ₂	No previous model
2009 Ford Fiesta ECONetic, Diesel	21 metric tonnes CO ₂	Better

2009 Ford Fiesta, Petrol 30 metric tonnes CO₂ Better

Measurement Method

Summer smog-related emissions from raw material extraction to material, part, and vehicle production, driving period (150,000 km; incl. air conditioning) and final recycling/recovery (i.e., full vehicle life-cycle, cradle-to-cradle)

	Performance	Better/worse than previous model
2006 Ford S-MAX 2.0L TDCi with DPF	37 kg ethene	Similar
2006 Ford Galaxy 2.0L TDCi with DPF	37 kg ethene	Similar
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	35 kg ethene	Better
2008 Ford Kuga	35 kg ethene	No previous model
2009 Ford Fiesta ECONetic, Diesel	22 kg ethene	Better
2009 Ford Fiesta, Petrol	32 kg ethene	Better

Measurement Method

Use of recycled and natural materials

	Performance	Better/worse than previous model
2006 Ford S-MAX 2.0L TDCi with DPF	18 kg of non-metals	Better
2006 Ford Galaxy 2.0L TDCi with DPF	18 kg of non-metals	Better
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	7.5% of non-metals	Better
2008 Ford Kuga	6% of non-metals	No previous model
2009 Ford Fiesta ECONetic, Diesel	8.5% of non-metals	Better
2009 Ford Fiesta, Petrol	9% of non-metals	Better

	Performance	Better/worse than previous model
2006 Ford S-MAX 2.0L TDCi with DPF	Substance management, TÜV-tested pollen filter efficiency and allergy-tested label	Better
2006 Ford Galaxy 2.0L TDCi with DPF	Substance management, TÜV-tested pollen filter efficiency and allergy-tested label	Better
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	Substance management; TÜV-tested interior and pollen filter efficiency	Better
2008 Ford Kuga	TÜV-tested interior and pollen filter efficiency	No previous model
2009 Ford Fiesta ECONetic, Diesel	TÜV-tested interior and pollen filter efficiency	Better
2009 Ford Fiesta, Petrol	TÜV-tested interior and pollen filter efficiency	Better

Measurement Method

dB(A)

	Performance	Better/worse than previous model
--	-------------	----------------------------------

2006 Ford S-MAX 2.0L TDCi with DPF	71 dB(A)	Better
2006 Ford Galaxy 2.0L TDCi with DPF	71 dB(A)	Better
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	69 dB(A)	Similar
2008 Ford Kuga	72 dB(A)	No previous model
2009 Ford Fiesta ECONetic, Diesel	69 dB(A)	Better
2009 Ford Fiesta, Petrol	72 dB(A)	Similar

Measurement Method

Complex method, structural stability, occupant safety, and pedestrian safety; active safety elements, etc. including Euro NCAP stars

	Performance	Better/worse than previous model
2006 Ford S-MAX 2.0L TDCi with DPF	Euro NCAP safety rating: 5 stars for adult occupant protection, 4 stars for child protection and 2 stars for pedestrian protection	Better
2006 Ford Galaxy 2.0L TDCi with DPF	Euro NCAP safety rating: 5 stars for adult occupant protection, 4 stars for child protection and 2 stars for pedestrian protection	Better
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	Euro NCAP safety rating: 5 stars for adult occupant protection, 4 stars for child protection and 2 stars for pedestrian protection	Better
2008 Ford Kuga	Euro NCAP safety rating: 5 stars for adult occupant protection, 4 stars for child occupant protection and 3 stars for pedestrian protection	No previous model
2009 Ford Fiesta ECONetic, Diesel	5-star Euro NAP rating for adult occupant safety; electronic stability control available for all versions	Better
2009 Ford Fiesta, Petrol	5-star Euro NCAP rating for adult occupant safety; electronic stability control available for all versions	Better

Measurement Method

Mobility service (including seats, luggage) to vehicle size; measured as vehicle shadow in m² and luggage areas in liters

	Performance	Better/worse than previous model
2006 Ford S-MAX 2.0L TDCi with DPF	10.25 m ² shadow area, 1171 l luggage, 5 seats	Better
2006 Ford Galaxy 2.0L TDCi with DPF	10.4 m ² shadow area, 435 l luggage, 7 seats	Similar
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	9 m ² shadow area, 530 l luggage, 5 seats	Better
2008 Ford Kuga	9.5 m ² shadow area, 410 l luggage, 5 seats	No previous model
2009 Ford Fiesta ECONetic, Diesel	7.5 m ² shadow area, 295 l luggage compartment	Better
2009 Ford Fiesta, Petrol	7.5 m ² shadow area, 295 l luggage compartment	Similar

Measurement Method

Sum of vehicle price and 3 years' service (fuel cost, maintenance cost, taxation) minus residual value

	Performance	Better/worse than previous model

2006 Ford S-MAX 2.0L TDCi with DPF	Approx. €22,100	Better
2006 Ford Galaxy 2.0L TDCi with DPF	Approx. €23,200	Better
2007 Ford Mondeo 2.0-liter TDCi Diesel with DPF	Approx. €18,300	Better
2008 Ford Kuga	Approx. €19,100	No previous model
2009 Ford Fiesta ECONetic, Diesel	Approx. €13,000	Similar
2009 Ford Fiesta, Petrol	Approx. €11,000	Better

Ford of Europe published a detailed PSI report in 2006, soon after the launch of the first vehicles for which PSI had been used from the beginning of vehicle development. The PSI assessment system has also been reviewed and certified by outside experts. One study, conducted by experts in the area of life-cycle science and sustainability, found the PSI to be a design and analysis step that provides a full sustainability assessment and meets the requirements of ISO 14040, the international life-cycle assessment standard. PSI assessments of the 2006 S-MAX and Galaxy vehicles were certified by the International Organization for Standardization for life-cycle assessment improvements. This certification process also verified the overall PSI methodology used for all subsequent PSI-developed models.

1. *Environmental aspects* is a term used in the ISO 14001 framework to denote elements of an organization's activities, products and services that can interact with the environment.
2. PSI-rated models are only available in Europe.



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Products

As a customer and product-driven company, our vehicles are the foundation of our business. Our products are also a major focal point of our environmental impacts and our efforts to reduce those impacts.

This section reports on the environmental aspects¹ of our products, from their design through their use to the end of their life-cycle. Specifically, we report on:

- The fuel efficiency of our products, as well as product-related greenhouse gas emissions
- Tailpipe emissions, including hydrocarbons, nitrous oxides, carbon monoxide and particulate matter that can contribute to smog formation and other air pollution issues
- Sustainable materials, including efforts to increase our use of recycled and renewable materials, improve vehicle interior air quality and eliminate substances of concern

1. Environmental aspects is a term used in the ISO 14001 framework to denote elements of an organization's activities, products and services that can interact with the environment.

According to the EPA, no automaker posted a larger fleet-wide gain in fuel economy between 2004 and 2009 than Ford. Based on EPA measurements, Ford's combined car and truck fuel economy has improved nearly 20 percent since 2004 – almost double the improvement of the next closest competitor.



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Fuel Economy and Greenhouse Gas Emissions

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- Fuel Economy Performance – Europe
- Fuel Economy Performance – Asia Pacific
- Fuel Economy Performance – South America

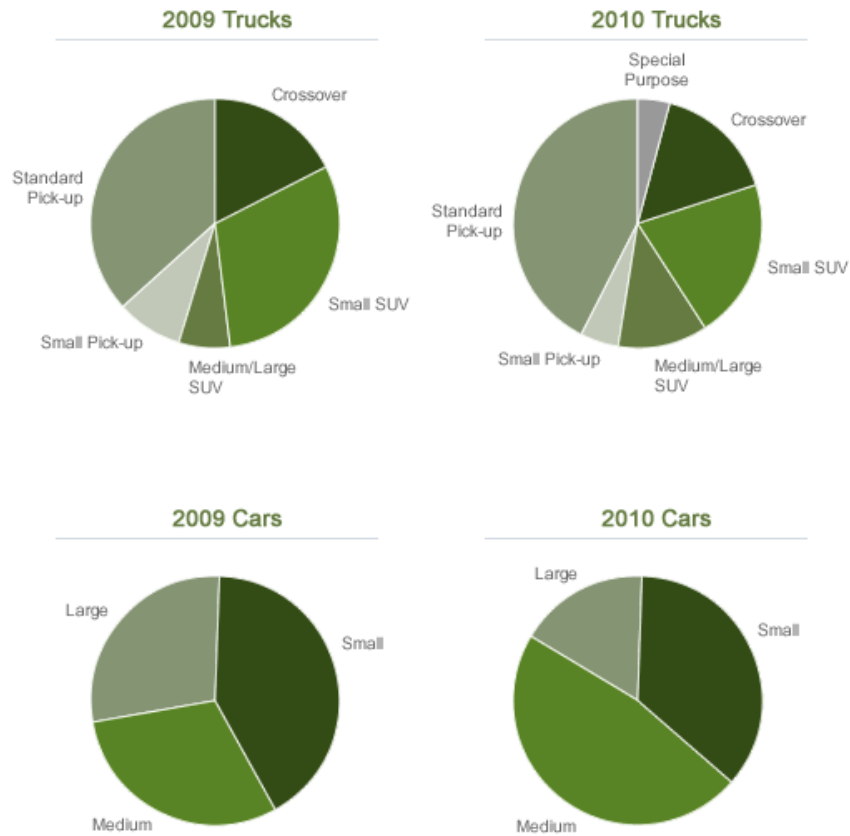
Our current fuel economy performance is discussed in this section. We are pursuing the development of new technologies with fuel economy benefits for the future, including additional hybrids, plug-in hybrids, battery electric vehicles, advanced diesel engines, hydrogen fuel cell vehicles and biofueled vehicles, as discussed in the [Sustainable Technologies and Alternative Fuels Plan](#). Our climate change strategy and participation in public policy processes related to climate change and fuel economy are discussed in the [Climate Change](#) section.

Fuel Economy Performance – U.S.

For the 2009 model year, the Corporate Average Fuel Economy (CAFE) of our cars and trucks increased by 4.2 percent relative to 2008. Preliminary data for the 2010 model year shows a 3.2 percent improvement in CAFE for cars and a slight decline of 2.4 percent in CAFE for trucks as compared to 2009. The projected increase in CAFE for our cars is due to increased customer demand for the more fuel-efficient midsize cars, which rose by 18 percent. This includes increased demand for the newly introduced 2010 Fusion Hybrid. The projected decrease in CAFE for our trucks can be attributed to increased demand for standard pickup trucks, which is up by approximately 6 percent and for medium and large SUVs, which is up by 5 percent. These mix shifts can be seen in the charts below.

RELATED LINKS

- This Report:
- Ford's Sustainable Technologies and Alternative Fuels Plan
 - Climate Change
 - Delivering More Fuel-Efficient Vehicles
 - EcoBoost™
 - PowerShift Transmission
 - Fuel Economy and CO₂ Emissions Data
- Vehicle Web Sites:
- Ford Focus
 - Ford Fusion
 - Ford Fusion Hybrid
 - Mercury Milan
 - Mercury Milan Hybrid
 - Ford Escape Hybrid
 - Mercury Mariner Hybrid
 - Volvo V50
 - Volvo C30
 - Volvo S40
- Ford.co.uk:
- Ford Focus
 - Ford Mondeo
 - Ford Fiesta
 - Ford Transit Connect
 - ECONetic Vehicles
- External Web Sites:
- www.fueleconomy.gov



Compared to the industry fuel economy average, Ford's 2010 MY U.S. vehicles rank better than average in four of ten categories, below average in two, and average in four. This can be seen in the [Fuel Economy of U.S. Ford Vehicles by EPA Segment](#) graphic.

According to the EPA, no automaker posted a larger fleet-wide gain in fuel economy between 2004 and 2009 than Ford. Based on EPA measurements, Ford's combined car and truck fuel economy has improved nearly 20 percent since 2004 – almost double the improvement of the next closest competitor. In addition, Ford's tailpipe CO₂ emissions are declining. Ford's fleet average CO₂ emissions have decreased (i.e., improved) 16 percent from the 2004 model year to the 2009 model year and are down approximately 5 percent from 2008.


In 2009, Ford committed that every all-new or redesigned vehicle we introduce will be best in class or among the best in class for fuel economy in its segment. Examples include the 2010 Ford Fusion and Mercury Milan hybrids, which, at 34/31 mpg, are fuel economy leaders in their class. Additional examples can be found in the section on [Delivering More Fuel-Efficient Vehicles](#).

For the 2010 model year, we offered 10 vehicles that get 30 mpg or better, based on highway fuel economy estimates. These vehicles include the Ford Focus, Ford Fusion, Ford Fusion Hybrid, Mercury Milan, Mercury Milan Hybrid, Ford Escape Hybrid, Mercury Mariner Hybrid, and Volvo V50, C30 and S40 (see below). Compared to 2009, the number of 2010 vehicles that achieve 30 miles per gallon or better has increased.



2010 Ford Fusion

For more information on United States fuel economy regulations, please see the [Climate Change](#) section.

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Fuel Economy Performance – Europe

In Europe, the Ford brand achieved a significant reduction in average vehicle CO₂ emissions. These emissions decreased by 8.1 g/km from 2008 to 2009. This was largely due to a changed model mix, including selling a higher proportion of smaller cars, which was likely caused by the economic downturn in 2009. Since 1995, the Ford brand in Europe has reduced the average CO₂ emissions of the vehicles we sell by 27.1 percent. We have achieved these reductions by introducing a variety of innovations, including advanced common-rail diesel engines (which are available across our European lineup) and lightweight materials.

In 2008, we began launching our ECONetic line of vehicles. These ultra-low-CO₂ versions of select Ford diesel vehicles, which are sold only in Europe, leverage several advanced fuel-saving technologies. The ECONetic name was chosen because it links ecologically sensitive technology to our "energy in motion" design philosophy, which combines driving quality and emotional styling. Our ECONetic cars use a combination of the latest common-rail diesel powertrains and other carefully selected features engineered to reduce CO₂ emissions to a minimum. These include: high-strength steels and other lightweight materials; electric power-assisted steering; an aerodynamics kit, including lowered ride height and aerodynamic details such as wheel covers and wheel deflectors; low-rolling-resistance tires; special low-viscosity transmission oil; and low-friction engine oils developed by Ford's fuel partner BP.

So far, we have launched ECONetic versions of the Ford Focus, Mondeo, Fiesta and Transit. In 2010, we introduced the second-generation ECONetic version of the Ford Focus, which emits only 99 g CO₂/km and achieves fuel economy of 3.8 L/100km. This performance was achieved by adding automatic start/stop technology and smart regenerative charging to the overall ECONetic kit.

Our ECONetic vehicles are being recognized for their significant improvements in fuel economy and CO₂ emissions. In December 2009, for example, the Ford Fiesta ECONetic won the "Green Car of the Year Award" from TopGear magazine.

The following table highlights the fuel economy and CO₂ improvements and other benefits of the ECONetic models introduced thus far.

Benefits of Ford's ECONetic Models


Model	Fuel Economy ¹ L/100km	CO ₂ Emissions	Other Benefits
2010 Ford Focus ECONetic, with 1.6-liter Duratorq® TDCi diesel engine and start/stop	3.8	99 kg/km	Best-in-segment CO ₂ emissions for conventional powertrain
2009 Ford Mondeo ECONetic, with 2.0-liter Duratorq TDCi diesel engine	5.2	139 kg/km	
2009 Ford Fiesta ECONetic, with 1.6-liter Duratorq TDCi diesel engine	3.7	98 kg/km	Best-in-segment fuel economy; exempt from the UK's CO ₂ -based road taxes

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Fuel Economy Performance – Asia Pacific

In our Asia Pacific and Africa region we are focusing our near-term fuel efficiency efforts on implementing our [EcoBoost™](#) engines and [PowerShift transmission](#) technology. In China, we will introduce the Ford Mondeo with an EcoBoost engine and PowerShift transmission in 2010. We expect this vehicle to be the best in its segment for fuel economy when it launches. In Australia, we will launch an EcoBoost version of the Ford Falcon in 2011. In our ASEAN markets, we will be launching the Ford Fiesta with a 1.6-liter Ti-VCT powertrain and six-speed PowerShift transmission². This vehicle will be the first in the B-car segment to offer consumers this level of sophistication in powertrain technology, and it will be among the leaders in its segment in fuel economy. In India, we recently introduced the Ford Figo, which has highly fuel-efficient 1.4-liter TDCi diesel and 1.2-liter gas engine options. This introduction is very significant to our success in

India, as fuel economy is the most important criterion in purchase considerations in that country.

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Fuel Economy Performance – South America

In South America, we are improving fuel economy by introducing some of the efficient engine and transmission technologies currently used in North America, as well as by using technologies specifically relevant to the widespread use of biofuels in Brazil. For example, we have implemented improved engine compression ratios – i.e., the ratio at which the air and fuel mixture is compressed in the engine combustion chamber – on flex-fuel vehicles in Brazil. This optimizes fuel efficiency in vehicles using biofuels, which are higher octane than petroleum-based gasoline. We have improved the gearing ratios on our "B car" offerings – including the South American Ford Fiesta, EcoSport and Ka – which further improves fuel economy. We also made significant improvements to the aerodynamics of the South American Ka for the 2010 model year, further increasing fuel economy.

We are working on additional fuel economy improvements for future model years of vehicle programs that are currently under development. For example, we introduced a new more efficient engine on the 2010 South American Focus, which also will be used on the all-new 2012 EcoSport. This engine will improve efficiency compared to current engines through reduced internal friction and improved electronic throttle controls. For the 2012 model year and beyond, we are planning to introduce even more fuel-efficient twin independent variable cam timing engines and direct-injection engines, Battery Management Systems, smart alternator systems, dual-clutch automatic transmissions and improved aerodynamics.

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1. These fuel economy numbers are calculated according to the European Fuel Economy Directive EU 93/116/EEC, which uses European drive cycles. They differ from fuel economy calculations developed in the United States or other regions of the world.
2. Our ASEAN markets include Vietnam, the Philippines, Malaysia, Thailand and Indonesia.



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Non-CO₂ Tailpipe Emissions

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- Vehicle Web Sites:
- Ford Focus
 - Ford Fusion Hybrid
 - Ford Escape Hybrid
 - Lincoln MKZ
 - Mercury Milan
 - Mercury Mariner Hybrid
 - Volvo S40
 - Volvo V50
- External Web Sites:
- EPA Tier 2 Regulations
 - California Air Resources Board Low Emission Vehicle Program
 - EPA Green Vehicles Guide

Vehicle smog-forming emissions result from the incomplete combustion of fuels, impurities in fuels, and the high-temperature oxidation of atmospheric nitrogen during the fuel combustion process. Regulated smog-forming tailpipe emissions include hydrocarbons, nitrogen oxides, carbon monoxide and particulate matter. These emissions are regulated in the United States by the Environmental Protection Agency under the Clean Air Act.

United States

In the United States, Ford completed the phase-in of the world's most comprehensive set of vehicle emissions requirements: the EPA's Tier 2 regulations. Tier 2 was fully phased in with the 2009 model year.

The Tier 2 program began with the 2004 model year. It coordinates the introduction of cleaner fuels with more stringent vehicle tailpipe emissions standards in order to achieve near-zero non-CO₂ tailpipe emissions from cars and light trucks. These regulations significantly reduce targeted vehicle emissions, including nitrogen oxides and non-methane organic gases, to help reduce the formation of ozone and particulate matter. The Tier 2 regulations apply to all passenger cars, light trucks and medium-duty passenger vehicles.

The comprehensive Tier 2 emissions program was designed specifically to address national air-quality issues in aggregate and includes targeted improvements in vehicle fuels. Because of this comprehensive approach, the Tier 2 program is more cost-effective and flexible than the state of California's program.

The results from the EPA's mobile source control programs, including the Tier 2 program, are impressive. The integrated and systematic approach has enabled significant reductions in smog-forming tailpipe emissions from our vehicles. By meeting these regulations, Ford has eliminated nearly 32 million pounds of smog-forming emissions from our light-duty fleet over the 2004 to 2009 model years. The EPA estimates that this program will reduce oxides of nitrogen emissions (from all relevant mobile sources) by at least 1.2 million tons by 2010.

For the California market, Ford is required to meet the state's stringent Low Emission Vehicle II (LEVII) emissions requirements for light-duty vehicles. Under the LEVII program, manufacturers are effectively required to produce a number of Partial Zero Emission Vehicles (PZEVs). A PZEV is associated with virtually zero vehicle emissions. Strictly speaking, PZEV vehicles are required to:

- meet California's Super Ultra-Low Emission Vehicle exhaust emissions standard (SULEVII),
- produce zero fuel system evaporative emissions, and
- be emissions compliant for a full useful life of 150,000 miles.

Ford's 2009 model year PZEV products included the Ford Focus, Fusion Hybrid and Escape Hybrid; the Mercury Milan, Mariner Hybrid and Sable; and the Volvo S40 and V50. For the 2010 model year, we will be offering a PZEV version of the Ford Focus; the hybrid versions of the 2010 Ford Fusion, Mercury Milan and the Lincoln MKZ will also meet the PZEV requirements.

To focus our resources most effectively in these difficult economic times, we have targeted an expanded role for technologies such as [EcoBoost™](#) that deliver fuel-efficiency and emission

benefits across our entire U.S. vehicle lineup. While introducing these new technologies, we are maintaining our commitment to the environment through the PZEV-compliant versions of products we make especially for the California market.

Information about the emissions performance of all Ford vehicles sold in the United States can be found at the [EPA's Green Vehicles](#) site.

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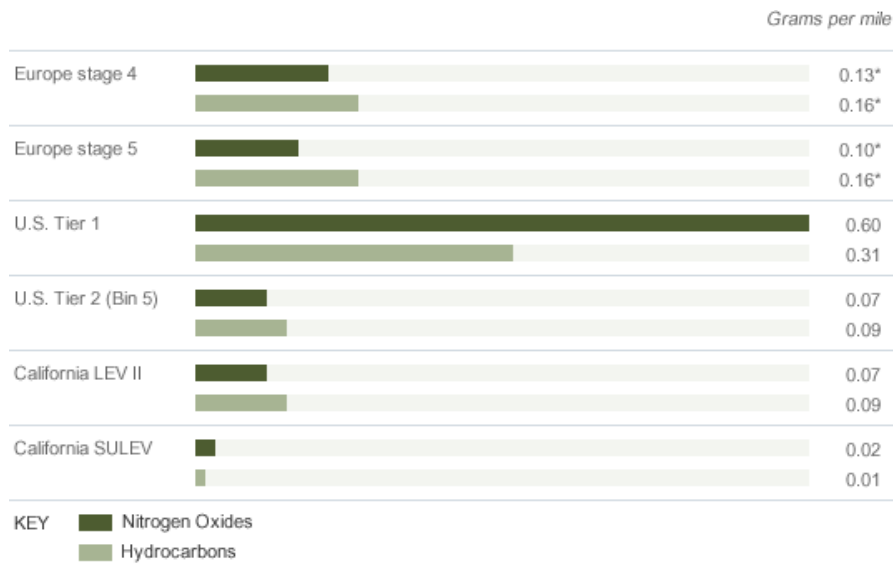
Europe

Since 1990, non-CO₂ tailpipe emissions from Ford vehicles sold in Europe have been reduced by up to 90 percent via the development of improved engine technologies (specifically diesel engines) and high-tech exhaust gas treatment devices. Ford of Europe has introduced diesel particulate filter systems on an increasing number of its new vehicles; we also have been installing these filter systems on older diesel-powered Ford vehicles, for owners who are interested.

Further air-quality improvements have been generated as we have introduced vehicles equipped with technology to meet the more-stringent Euro 4 and 5 emissions standards. All of our new passenger cars registered as of January 1, 2006, and all light-duty vehicles registered as of January 1, 2007, comply with the Euro 4 standard. In 2009, we started to introduce vehicles complying with Euro 5, which requires further reductions in nitrogen oxide (NOx) emissions and will be mandatory for all new vehicles registered from January 2011 onwards.

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Emissions Regulations in the United States and Europe



Grams per mile

	Nitrogen Oxides	Hydrocarbons
Europe stage 4	0.13*	0.16*
Europe stage 5	0.10*	0.16*
U.S. Tier 1	0.60	0.31
U.S. Tier 2 (Bin 5)	0.07	0.09
California LEV II	0.07	0.09
California SULEV	0.02	0.01

* Standard for vehicles using gasoline as a fuel

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Sustainable Materials

Materials are an important element of a vehicle's life-cycle sustainability. Choices about materials can influence the safety, fuel economy and performance of the vehicle itself and can have implications throughout the value chain. A material can be more or less sustainable based on a number of factors, including its origin (virgin, renewable or reclaimed), the resources used and emissions produced throughout its life-cycle, and its application.

Ford has been working for many years to increase the use of recycled and renewable materials and reduce the use of undesirable materials. Vehicles in North America typically are composed of 20 to 25 percent post-consumer recycled material by weight, primarily due to the extensive use of metals with recycled content. Therefore, Ford has concentrated its efforts on developing new uses for recycled materials in the non-metallic portions of the vehicle, which are typically composed of virgin materials. While the amount of recycled content in each vehicle varies, we are continuously increasing the amount of recycled material used in each vehicle line. As described in the section on [Design for Life-Cycle Sustainability](#), we use tools such as Design for Sustainability, life-cycle assessment and life-cycle costing to help make beneficial materials choices.

For many years, Ford has had a Voluntary Recycled Content Usage Policy, which sets targets for the use of non-metallic recycled content for each vehicle and increases targets year by year. Under this voluntary program, recycled materials have been selected for all of our vehicles whenever technically and economically feasible. Recycled materials are evaluated in-house versus comparable virgin grades, in order to guarantee appropriate mechanical properties and the same level of component performance that would be obtained with virgin materials.

We are now developing a comprehensive sustainable materials strategy to maximize the effectiveness and broaden the implementation of our efforts in this area. One of the key goals of this strategy is to identify and globally implement materials technologies that improve environmental and social performance and lower costs. To accomplish this, we are working with our commodity business planners and materials purchasers to communicate opportunities for the purchase of sustainable materials, develop and test pilot applications for new materials, and implement successful sustainable alternatives across multiple parts and vehicle lines. This process will standardize and broaden the use of sustainable materials in our vehicles. We are also developing global materials specifications, which will further facilitate the incorporation of sustainable materials where they meet performance requirements. By developing global specifications we will ensure that the benefits of more sustainable materials will have a global impact.

Whenever possible, we are introducing a recycled material specification into our virgin material specifications documents. This will simplify monitoring of the use of recycled content in our vehicles and will ensure that component engineers and Tier 1 Suppliers are confident in the recycled material, by means of a direct comparison with an equivalent virgin material.

A number of commodity purchasing plans already list recycled-content materials as a preferred material option, including those for battery trays, battery shields and wheel arch liners. For example, we developed a comprehensive resin strategy that requires the use of recycled plastics for underbody and aerodynamics shields, fender liners, splash shields, stone pecking cuffs and radiator air deflector shields manufactured in North America. Since 2009, these parts have been made out of post-consumer recycled waste from detergent bottles, tires and automotive battery casings. In 2010, we improved this strategy to specify the use of textile materials derived from 30 percent to 40 percent recycled content in the production of rear wheel liners. These fabric parts are 50 percent lighter than plastic wheel liners and absorb sound, which will enable improved noise vibration and harshness performance while potentially reducing the need for sound-deadening insulators, sprays and foams.

Many Ford vehicles already use recycled materials for these applications, including the Ford Flex, Focus, Fusion, Edge, Ranger, F-150 and Explorer; the Mercury Milan; and the Lincoln MKZ, MKX and Navigator. This recycled materials resin strategy saves money and reduces landfill waste. We

RELATED LINKS +

This Report:
[Design for Life-Cycle Sustainability](#)

Vehicle Web Sites:
[Ford Flex](#)
[Ford Focus](#)
[Ford Fusion](#)
[Ford Edge](#)
[Ford Ranger](#)
[Ford F-150](#)
[Ford Explorer](#)
[Mercury Milan](#)
[Lincoln MKZ](#)
[Lincoln MKX](#)
[Lincoln Navigator](#)



estimate that Ford saved \$4 million to \$5 million in 2009 by using these recycled materials and diverted between 25 and 30 million pounds of plastic from landfills.

In addition, Ford has a material specification that defines *post-consumer*, *post-industrial* and *depolymerized recycled content* and ensures that the use of in-house scrap is not counted towards recycling targets.

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Choosing More Sustainable Materials

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- Recycled Materials
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We are working to improve the sustainability of our vehicles by using more sustainable materials. This includes increasing the use of recycled, renewable, recyclable and lightweight materials. Recycled materials incorporate post-consumer and/or post-industrial waste materials; renewable materials are made from plant-based materials; and lightweight materials use special materials and/or designs that provide the same or better performance as other alternatives with less weight.

Recycled Materials

We have focused our efforts to increase recycled materials on non-metallic parts, which traditionally have little or no recycled content. [As described previously](#), we are mandating the use of post-consumer recycled materials in multiple exterior black parts as part of our comprehensive resin strategy. These materials were used in the underbody system of the 2009 Ford Flex, which won the Society of Plastics Engineers 2008 Vehicle Engineering Team Award for use of innovative materials. The Flex's recycled plastic underbody system uses approximately 20 pounds of post-consumer recycled waste per vehicle while reducing costs by 10 to 40 percent. We are also using post-consumer recycled carpeting in many exterior and under-hood parts that use nylon resins, including air cleaner housings, engine fans, fan shrouds, HVAC temperature valves, engine covers, cam covers and carbon canisters.

All of Ford's European vehicles use recycled polymers, where these are seen as contributing to a sustainable material supply and providing a more sustainable solution. The European Ford Focus, for example, uses a wide range of recycled material components, as follows.

- The battery tray is made of 50 percent recycled materials.
- The carpets contain approximately 20 percent recycled content.
- The heater and air conditioning housing contains 25 percent recycled content.
- The fan shroud contains 25 percent recycled content.
- The replacement bumpers are made from 20 percent recycled bumpers.
- The wheel arch liners are made from up to 100 percent recycled polypropylene.
- The air cleaner assembly is made from 25 percent recycled plastics.
- The fabric seat option is made from 100 percent recycled material.
- The roof lining, parcel shelf, instrument panel, insulation and soundproofing materials all include recycled textiles.

In the UK, we are also recycling bumpers that have been damaged in accidents or replaced in service. Ford dealers collect the bumpers, which are recycled into new bumpers and other plastic parts. Previously, dealers had to pay to dispose of these bumpers as waste. Now dealers store them in a container that is collected by Ford for free. One UK Ford dealer alone saved around £15,000 per year by participating in this project. In 2009, more than 23,000 bumpers across the UK Ford dealer network (equating to 70 metric tons of plastic) were diverted from landfill through this program.

In addition, we are using recycled materials for interior and surface parts. This can be much more challenging than using recycled materials for underbody, subsurface and exterior black parts, because it is difficult to get the necessary appearance and performance when using recycled materials. We are continuing to expand our use of recycled seat fabrics and seat

RELATED LINKS

This Report:

- Ford's Sustainable Technologies and Alternative Fuels Plan

Vehicle Web Sites:

- Ford Flex
- Ford Fiesta
- Ford Taurus
- Ford Mustang
- Ford F-150
- Ford Fusion
- Ford Escape
- Ford Super Duty
- Mercury Mariner
- Lincoln MKS
- Lincoln MKX
- Lincoln MKT
- Lincoln Navigator

Ford.co.uk:

- Ford Focus
- Ford Kuga

External Web Sites:

- USCAR

components that meet all appearance and performance requirements. The following table highlights these efforts.

Interior Recycled Materials Achievements

Vehicle	Material	Partner	Benefits
2011 Ford Fiesta – North America	25% post-consumer yarns for seat fabric	Aunde	<ul style="list-style-type: none"> Reduces consumer waste Reduces depletion of natural resources
	75% post-consumer yarns for non-woven headliner	Freudenberg	
2010 Ford Taurus SHO	100% post-consumer yarns for seat fabric	Miko Fabrics	<ul style="list-style-type: none"> Reduces waste Reduces energy required for yarn manufacturing by 64% and manufacturing-related CO₂ emissions by 60% Fabric manufacturing process uses only neutral, nontoxic dyes and no harmful solvents
2010 Ford Taurus SE	30% post-industrial yarns for seat fabric	Guilford	<ul style="list-style-type: none"> Reduces consumer waste Reduces depletion of natural resources
2010 Mustang Base Series	25% post-industrial yarns for seat fabrics	Sage Automotive Interiors	<ul style="list-style-type: none"> Reduces consumer waste Reduces depletion of natural resources
2010 F-150 XL, XLT & FX4	25% post-industrial yarns for seat fabrics	Sage Automotive Interiors	<ul style="list-style-type: none"> Reduces waste Reduces depletion of natural resources
2010 European Ford Focus RS (fabric option)	100% post-consumer yarns for seat fabric	Miko Fabrics	<ul style="list-style-type: none"> Reduces waste Reduces energy required for yarn manufacturing by 64% and manufacturing-related CO₂ emissions by 60% Fabric manufacturing process uses only neutral, nontoxic dyes and no harmful solvents
2010 Ford Fusion and Mercury Milan Hybrids	85% post-industrial yarns and 15% solution-dyed yarns in seat fabric	Milliken	<ul style="list-style-type: none"> Reduces energy use Reduces CO₂ emissions Reduces the use of dyes and chemicals Reduces water use Decreases the use of foreign oil
2010 Ford Fusion S series	27% post-industrial yarns for seat fabric	Guilford	<ul style="list-style-type: none"> Reduces waste Reduces depletion of natural resources
2010 Ford Escape and Mercury Mariner Hybrid and gas vehicles	100% post-industrial recycled yarns in seat fabric	Aunde	<ul style="list-style-type: none"> Reduces waste, water use and CO₂ emissions
2008–2009 Ford Escape and Mercury Mariner Hybrids and gas vehicles	100% post-industrial recycled yarns in seat fabric	Interface	<ul style="list-style-type: none"> Uses 600,000 gallons less water* Produces 1.8 million lbs. less CO₂ equivalents* Reduces electricity use by 7 million kWh*

* Based on an annual volume of 80,000 vehicles


Beginning in the 2009 model year, the seat fabrics in our new or redesigned vehicles will have least 25 percent post-industrial recycled content. In addition, many of our non-woven headliner fabrics now contain 50 to 75 percent recycled yarns, depending on their color.

In 2009, Ford joined a three-year research project investigating a new wood/plastic compound

known as "liquid wood." Early findings show excellent recycling potential, as the material can be reprocessed up to five times and has an overall near-neutral CO₂ balance.

We have expanded the use of recycled materials in several Class "A" decorative applications. For example, the 2011 Ford Super Duty® will use material derived from recycled battery casings on several aesthetic parts, such as license plate brackets, the 4x2's bumper valence panel and the fog lamp bezels. These parts are "molded in color" and color-matched to provide visual harmony. The Super Duty is also using post-industrial and post-consumer recycled plastic for its fascia lower valence. This plastic was a finalist for the 2009 Society of Plastics Engineers Innovation awards.

In most cases, plastics are "down-cycled" when they are recycled, which means that they cannot meet the original material specifications or use requirements of the virgin plastics from which they came. Our researchers are working on several projects that will recycle post-industrial recycled (PIR) and post-consumer recycled (PCR) plastic materials so they have the same level of quality and material specifications originally. For example, we are developing methods for recycling and cleaning PIR fascia and bumper scrap so that it can be molded into new fascias and bumpers. We are working to "upcycle" certain materials – that is, recycle it into uses with higher material and performance requirements than the virgin material. For example, we are working on upcycling post-consumer laundry and milk bottles into blow-molded automotive components. In addition, we are developing a method to recycle PIR and PCR polyurethane foam scrap to make new polyurethane foam components instead of landfilling it at the end of its life.

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Renewable Materials

We are actively researching and developing renewable material applications that will reduce our overall use of petroleum products and improve our carbon footprint, while providing superior performance. Research scientists at Ford's Research and Innovation Center in the United States, Ford's Research Center in Aachen, Germany, and Ford of Brazil are focused on developing automotive foams, plastics and composites that are derived from renewable resources.

Since 2002, our researchers have led the development of soy-based polyurethane foams for automotive applications. The manufacture of soy foam reduces carbon dioxide emissions, decreases dependency on oil and increases the utilization of renewable, agricultural commodities. Many technical difficulties had to be overcome to produce soy-based foams that met all durability and performance specifications. In 2007, Ford was the first automaker to implement this innovative technology (on the seat cushions and seat backs of the Ford Mustang), and we have since migrated its use to the Ford Expedition, F-150, Focus and Escape; the Mercury Mariner; and the Lincoln MKS and Navigator. In these vehicles, soy polyol replaces a portion of the standard petroleum-based polyol.

Ford currently has soy foam seats on more than two million vehicles on the road, which reduces petroleum oil usage by approximately one million pounds. Life-cycle analyses that compare soy foams with traditional petroleum-based foams show a net decrease of 5.5 pounds of CO₂ per pound of soy oil used. This results in a net decrease for Ford of greater than 5.3 million pounds of CO₂ annually, given our annual production of vehicles with soy foam seats. The soy foam used on the Mustang alone is expected to deliver a CO₂ reduction of 605,000 pounds annually.

Ford has been recognized for its leadership on soy foam technology through multiple awards, including the 2009 R&D 100 award from *R&D* magazine, which honors technologies across multiple industries that help to solve societal, scientific and/or business challenges. Additional awards for this material include the United Soybean Board's Excellence in New Uses Award (2006), the Society of Plastics Engineers' Environmental Division Award (2008), the Society of Automotive Engineers' International Environmental Excellence in Transportation Award (2008), and the Society of Plastics Engineers' Automotive Division Innovation Award in the Environment category (2008).

This year we have expanded our use of soy foam to include an industry-first application in headliners, which made their debut on the 2010 Ford Escape and Mercury Mariner. The soy-based headliner also provides a 25 percent weight savings versus a traditional glass-mat headliner.

Ford has licensed its soy foam technology to two companies – John Deere and Sears Manufacturing – that are investigating soy foam for seating applications in their agricultural equipment products. Soy foam not only uses a sustainable agricultural crop, but offers the potential for cost savings as well as stability from petroleum product price swings. Ford continues to collaborate with the United Soybean Board, which has sponsored research grants for new applications using soy products. For example, Ford scientists are currently assessing the use of soy meal, flour and hulls as fillers in synthetic rubber applications.

In 2009, Ford introduced the automotive industry's first application of wheat-straw-reinforced plastic. This material debuted in the third-row storage bins of the 2010 Ford Flex. Wheat straw is used to replace some of the glass fibers or talc materials commonly used to reinforce plastic parts. The use of wheat straw is a highly efficient use of natural fiber, because it is a byproduct of growing wheat that is typically discarded. Furthermore, the use of wheat straw-reinforced plastics in the 2010 Flex storage bins alone will reduce petroleum usage by some 20,000 pounds per year and CO₂ emissions by about 30,000 pounds per year. The material weighs up to 15 percent less than plastic reinforced with glass or talc. Additional implementations of wheat-straw-reinforced plastics under consideration by the Ford team include center console bins and trays, interior air registers, door trim panel components and armrest liners.


We are using engineered wood technology, which comes from a certified, sustainably managed forest and is a renewable resource, on several interior applications in North American vehicles. This wood, which is harvested under strict guidelines, is assembled into a composite and then stained to give it a warm, rich appearance. In addition, the use of engineered wood eliminates many of the extra processing steps necessary in producing real wood automotive trim parts, and the processing required is more environmentally friendly. For example, water-based stain can be used instead of solvent-based, and a solvent wash to remove oils is not needed. Additional bleaching and sealing operations are eliminated, which greatly reduces the production of volatile organic compounds. Engineered wood technology uses input materials more efficiently, so less waste material is sent to landfills. Engineered ebony wood was implemented on the 2008 Lincoln Truck, the 2008 and 2009 Navigator and the 2008 MKX. This technology will be used on the 2009 MKS.

In addition, we are using renewable materials on our European vehicles. For example, the Ford Mondeo uses a mixture of 50 percent kenaf plant fiber and 50 percent polypropylene in the compression-molded interior door panel. The average Ford vehicle sold in Europe uses between 10 and 20 kilograms of renewable materials, depending on the vehicle size class. Almost 300 parts used across Ford's European vehicles are derived from sources such as cotton, wood, flax, hemp, jute, and natural rubber.

For the future, Ford researchers are developing and formulating new materials and applications for other renewable materials, such as corn-based, compostable and natural-fiber-filled plastics. These materials will help to reduce the resource burden and waste generated by our vehicles and will help to reduce the weight of vehicles, thereby improving their fuel economy. For example, we are developing a sustainable replacement for the fiberglass now used between the headliner of a vehicle and the roof sheet metal. The replacement material is bio-based, reduces weight, improves acoustics and neutralizes odor.

We are also developing natural-fiber composites as a potential substitute for the glass fibers traditionally used in plastic automotive components to make them stronger. We are assessing the possibility of substituting up to 30 percent of the glass-fiber reinforcement in injection-molded plastics with natural sisal and hemp fibers. These parts have competitive mechanical and thermal properties and good surface appearance, and can be cost competitive. These natural-fiber-reinforced parts also reduce vehicle weight and life-cycle CO₂ emissions compared to glass-fiber-reinforced parts.

Finally, we are investigating ways to use plastics made entirely from sustainable resources such as corn, sugarcane and switchgrass. These bio-based materials could have multiple benefits, including reduced dependency on petroleum, reduced CO₂ emissions and the ability to compost instead of landfill materials at end of life. Ford researchers have made considerable inroads with polylactic acid (PLA) – a biodegradable plastic derived completely from the sugars in corn, sugar beets, sweet potatoes and other vegetables. When plastic parts made from PLA reach the end of their useful life, they can biodegrade in 90 to 120 days. In contrast, traditional petroleum-based plastics are projected to remain in landfills for hundreds of years. We are also assessing bio-yarns for use in making plant-based fabrics.

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Lightweight Materials

We are actively pursuing the development of cutting-edge materials to reduce the weight of our vehicles and improve their fuel economy without compromising safety or performance. For example, we are using nanotechnology to develop advanced lightweight materials that will allow us to decrease vehicle weight without sacrificing strength, safety, or performance. Much of this work focuses on developing the ability to model material properties and performance at the nanoscale, which will allow us to develop better materials more quickly and with lower research and development costs.

For example, Ford researchers recently implemented virtual aluminum casting

technology, which uses nanoscale modeling of one commonly used aluminum alloy to improve the performance and reduce the costs of lightweight aluminum engine blocks. We are continuing our work with Boeing and Northwestern University, begun in 2007, to expand nanoscale modeling to other alloy types. This research will allow Ford to develop and implement better lightweight materials and significantly reduce the research, testing and prototyping costs and time required to bring these new materials to production vehicles. This technology will advance Ford's goal of utilizing more recycled and recyclable materials by improving our ability to incorporate recycled aluminum without compromising the materials' performance characteristics.

In addition to this modeling work, Ford is experimenting with nano-filler materials in metal and plastic composites to reduce their weight while increasing their strength. For example, we are developing the ability to use nano-clays that can replace glass fibers as structural agents in reinforced plastics. Early testing shows that plastic reinforced with 5 percent nano-filler instead of the typical 30 percent glass filler has strength and lightweight properties that are better than glass-reinforced plastics.

Ford is working to understand the health and safety issues that may be posed by nano-materials. Ford has joined with other automakers under the United States Council for Automotive Research (USCAR) umbrella to sponsor research into nano-materials' potential impact to human health and environmental impacts. This research has addressed many health and environment-related questions so that we can focus our nano-materials research and development in areas that will be most beneficial.

Ford researchers are investigating new types of steel that are up to three times stronger than current steels and improve manufacturing feasibility because they can be formed into parts more easily. We are investigating polymeric plastic strengthening foams that are strong enough to stabilize bodywork in an accident but are light enough to float on water. These foams are being used to reinforce sections of the steel auto body, such as the B-pillars. In addition, we are working on surface coatings that reduce engine friction and remain intact even under the most adverse conditions.


Ford is increasing the use of aluminum and magnesium to reduce vehicle weight. For example, we implemented a new liftgate on the 2010 Lincoln MKT that combines a lightweight, die-cast magnesium inner panel with two stamped aluminum outer panels. This liftgate is more than 20 pounds, or 40 percent, lighter than a similar part made from standard steel.

In Europe, we launched a lightweight liftgate inner panel on the 2009 Ford Kuga, which reduced weight compared to a steel liftgate inner panel by 40 percent and reduced costs by 10 to 20 percent. This liftgate inner panel was a finalist for the Society of Plastics Engineers' 2008 Chassis/Hardware/Powertrain Innovation Award. Ford researchers in Europe are also developing alternative (copper-based) wire harness technologies that will enable significant weight reductions.

The European Fiesta stands on virtually the same footprint as the previous model, but weighs approximately 40 kilograms less, depending on engine choice, even after adding 10 kilograms of safety features and sound insulation. The use of high-strength steels – cold-and hot-formed – were the key to delivering the lighter weight and higher strength we needed for structural efficiency and crash performance. The materials used on the new Fiesta are setting a new benchmark in the small car segment.

Weight reduction alone may have relatively small impacts on fuel economy. By itself, a 10 percent reduction in weight results in approximately a 3 percent improvement in fuel efficiency. However, if vehicle weights can be reduced substantially, it becomes possible to downsize the powertrains required to run the vehicle. Weight reduction combined with powertrain rematching not only improves fuel economy, but helps maintain overall performance (compared to a heavier vehicle with a larger engine).

For more information on our weight-reduction activities, please see the [Sustainable Technologies and Alternative Fuels Plan](#).

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Improving Vehicle Interior Air Quality and Choosing Allergy-Tested Materials

At Ford, we regard it as our corporate social responsibility to develop and offer products that are safe, sustainable and progressive. As part of this effort, Ford is proactively addressing society's growing concern about air quality and allergies. Consistent with our ONE Ford global integration process, a global cross-functional team focuses on selecting interior materials to reduce the risk of allergies and volatile organic compounds and works with suppliers to verify that we meet voluntary initiatives through rigorous scientific testing. This team is committed to investigating and developing comprehensive global approaches and strategies to address issues relating to vehicle interior air quality. The team has established global design guidelines for materials and filtration and is migrating those guidelines across Ford's product line.

Ford of Europe vehicles were the first vehicles worldwide to be awarded an "allergy-tested interior" certification by TÜV Rheinland, a Germany-based organization that controls and approves quality standards for industrial and consumer products. To obtain this certification, components in the vehicle interior must meet strict requirements focused on three key areas: measuring and meeting standards for the in-vehicle concentration of volatile organic compounds; minimizing the risk of allergic reactions; and high-efficiency air filtration. The requirements for minimizing the risk of allergic reactions include ensuring that no substances with allergenic potential (e.g., latex, nickel, chromium VI) are used for components that are likely to have contact with people's skin. They also require the use of an efficient pollen filter to protect passengers against allergenic particles in the outdoor air. Eight of Ford's European models have met these requirements: the new Fiesta, the European Focus (including the Focus Coupe-Cabriolet), the C-MAX, Kuga, S-MAX, Galaxy and Mondeo. In February 2008, the Berlin-based European Center for Allergy Research Foundation awarded Ford with its quality certificate – an additional recognition of the Company's "allergy-tested interior vehicle" initiative.

RELATED LINKS

Ford.co.uk:

- Ford Fiesta
- Ford Focus
- Ford C-MAX
- Ford Kuga
- Ford S-MAX
- Ford Galaxy
- Ford Mondeo

External Web Sites:

- TÜV Rheinland
- European Centre for Allergy Research Foundation



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Eliminating Undesirable Materials

For more than 20 years, our Restricted Substance Management Standard has spelled out materials to be avoided or eliminated in Ford operations and in the parts and materials provided by suppliers. This and other [materials management tools](#) are helping us to meet and exceed customer expectations and ensure compliance with regulations.

Eliminating Mercury

Ford has decreased the use of mercury-containing components, which can pose problems at the end of a vehicle's life. In 2001, we eliminated mercury-containing switches, which accounted for more than 99 percent of the mercury used in our U.S. vehicles. Since that time, we have continued to focus on mercury reduction by working to eliminate this substance in the remaining mercury-containing components, including high-intensity discharge headlamps, navigation system screens and family entertainment system screens. As of 2010, all Ford, Lincoln and Mercury vehicles in the U.S. are mercury-free, with the exception of select vehicles with entertainment system displays and the Lincoln Town Car, which uses mercury in its high-intensity discharge headlamps.

In addition, we have helped to forge a collaboration between the Environmental Protection Agency, states, auto dismantlers, auto scrap recyclers, steelmakers and environmental groups to recycle mercury switches from end-of-life vehicles. This effort was rolled out across the United States in 2007 and now has more than 9,000 participants joining the effort from the recycling industry. By the end of 2009, more than three tons of mercury from these switches had been recovered. An online database tracks the number of participants in the program as well as the number of switches collected by state.

Eliminating Chromium and Lead

Hexavalent chromium – "hex chrome" for short – is a corrosion coating (used, for example, on nuts, bolts and brackets in cars and trucks) that the U.S. Occupational Safety and Health Administration lists as a potential lung carcinogen. We did not wait for global regulations banning the use of hex chrome to take effect: we phased out its use worldwide. By 2007, Ford eliminated all hex-chrome-containing parts in Europe and North America. Replacement coatings have been thoroughly tested to ensure that they meet Ford's performance requirements.


In North America, Ford has completed the transition away from lead wheel weights. In addition, Ford's Customer Service Division no longer offers lead wheel weights for sale to dealers, but offers steel wheel weights in their stead.

Ford has joined the EPA and other stakeholders in a commitment to reduce the use of lead in wheel weights through participation in the National Lead-Free Wheel Weight Initiative. Through this initiative, Ford has shared its experience with lead wheel weight phase-out with aftermarket wheel balancers, and encourages all stakeholders to discontinue the use of lead in wheel weights.

Since mid-2003, Ford of Europe phased out lead in valve seats for all new vehicle models approved for launch in the European Union. Also in Europe, we phased out the use of lead wheel weights and reduced the lead content in aluminum in new and serviced vehicles in mid-2005, and phased-out lead in pyrotechnic initiators by mid-2006. We further reduced the lead content in aluminum in 2008.

Reducing Undesirable Chemicals

Ford is one of the first automotive companies to begin efforts to reduce a range of undesirable chemicals that are monitored by the European Union, U.S. and Canadian governments. These chemicals include hexabromocyclododecane (HBCDD), a chemical that has been identified as a substance of concern under the European Union's REACH regulations (Registration, Evaluation,



Authorization, and restriction of Chemicals). Ford is also working to reduce decabromodiphenyl ether (Deca-BDE), another substance of concern that the EPA has proposed to regulate. Ford is working to eliminate these substances ahead of the timelines defined by governmental regulations by working with suppliers to develop new and "greener" alternative materials that will make our products more environmentally friendly.

[Report Home](#) > [Environment](#) > [Products](#) > [Sustainable Materials](#) > [Eliminating Undesirable Materials](#)



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End of Life

Automobiles are one of the most highly recycled consumer products in the world. All vehicles contain parts and materials – particularly iron, steel and aluminum – that can be recovered at the end of their useful lives. In North America, about 95 percent of vehicles that go out of registration are processed by a dismantler or scrap metal recycling facility, with 82 to 84 percent of the vehicle by weight recovered for reuse, remanufacturing or recycling.

In theory, end-of-life vehicles are nearly 100 percent recoverable. In practice, however, the cost in energy and labor to recover the final fractions often exceeds the value of the materials, and recent independently reviewed environmental studies suggest that such efforts offer no value to the environment. Ford focuses on achieving the highest economically viable and environmentally sound recovery percentage through a number of means, including selection of materials, labeling and providing information to dismantlers on materials and methods for treatment.

In the EU, automakers are required by EU Directive 2000/53/EC to ensure a cost-free take-back of vehicles (that they put on the market) at the end of their lives. This directive also requires that end-of-life vehicles (ELVs) are treated in an environmentally responsible manner. Since 2002, Ford has been at the forefront of providing return networks in the EU member states that have established regulations. Ford now has ELV take-back and recycling networks for Ford brand vehicles in 16 EU markets and participates in collective ELV recycling systems in another ten. For example, Ford was the first major manufacturer in the UK to put in place a comprehensive plan that met the European Commission's ELV directive. By working with Cartakeback.com, Ltd., we now have a network of more than 150 facilities providing unrivalled convenience to the last owner for the professional take-back, receipt and treatment of end-of-life vehicles.

In May 2007, Ford became one of the first European automakers to be certified in compliance with ELV requirements by demonstrating to external authorities that the Ford processes properly manage the reusability, recyclability and recoverability aspects of vehicles. In 2008, the Ford Fiesta, Focus, Focus Convertible, C-MAX and Kuga were certified as reaching recyclability of 85 percent and recoverability of 95 percent.

Ford has participated in research into alternative treatments for end-of-life vehicles. Most of the plastic, foam and other non-metal vehicle materials end up being shredded. Most of this "auto shredder residue" (ASR) ends up going to landfill. We have been working to assess the environmental impacts of burning ASR for energy. Together with other European automotive manufacturers, we sponsored a fully ISO 14040-compliant life-cycle assessment that showed that – from a purely environmental point of view – using recycling ASR for energy recovery is as beneficial as recycling it.

- RELATED LINKS
- This Report:
 - [Sustainable Materials](#)
 - Ford.co.uk:
 - [Ford Fiesta](#)
 - [Ford Focus](#)
 - [Ford C-MAX](#)
 - [Ford Kuga](#)
 - External Web Sites:
 - [Cartakeback.com](#)
 - [ISO 14001](#)



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Operations

We have adopted a rigorous and holistic approach to reducing the overall environmental impacts of our manufacturing facilities. We have established global facility environmental targets that address the range of our environmental impacts, including energy use, emissions, water use and waste generation.

Every facility uses a detailed scorecard to report against environmental targets, so that we can track and accelerate improvements. Progress toward the targets is reviewed throughout the year by senior management at regular Business Plan Review meetings. In addition, these targets become part of the performance review metrics for every plant manager and regional manufacturing manager, as well as others in the management hierarchy up to the Group Vice President of Manufacturing and Labor Affairs. Our 2009 and 2010 targets and progress are shown in the [Year-over-Year Environmental Targets](#) chart.

To facilitate performance tracking, we launched the Global Emissions Manager database (GEM) in 2007. This industry-leading database provides a globally consistent approach for measuring and monitoring environmental data, which helps us track and improve our efforts to reduce water consumption, energy use, carbon dioxide emissions and the amount of waste sent to landfill. GEM also provides a library of environmental regulations relevant to each plant, significantly increasing the efficiency of tracking and meeting those regulations.

This section reports on our facilities' environmental performance, including [energy use and greenhouse gas emissions](#), other [facilities-related emissions](#) (including volatile organic compounds), [water use](#), [waste reduction](#), [sustainable land use and biodiversity](#), [compliance](#) and [remediation](#).

Ford has reduced global energy consumption by 44 percent and water use by 62 percent since 2000.

- RELATED LINKS
- This Report:
- Operational Energy Use and Greenhouse Gas Emissions
 - Facilities-Related Emissions
 - Water Use
 - Waste Management
 - Sustainable Land Use and Biodiversity
 - Compliance
 - Remediation
 - 2009 Year-Over-Year Environmental Performance Metrics and Goals
 - Sustainability Governance
 - Sustainability Management



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Operational Energy Use and Greenhouse Gas Emissions

Operational energy use and greenhouse gas emissions are inextricably linked. The majority of our facilities' energy comes from fossil fuel sources, hence operational energy use is an important source of our companywide GHG emissions. Our efforts to reduce energy use and increase the use of renewable energy are also part of our strategy to reduce our GHG emissions and overall climate impacts. (See the [Climate Change](#) section for a discussion of our climate change strategy and product goals.)

We have been a leader in facilities-related GHG and energy-use reductions, public reporting of our GHG emissions, and participation in GHG reduction and [trading programs](#).

- In 2008, we were the first automaker to join The Climate Registry (TCR), a voluntary carbon disclosure project that links several state-sponsored GHG emissions-reporting efforts, including the California Climate Action Registry and the Eastern Climate Registry. As TCR members, we must demonstrate environmental stewardship by voluntarily committing to measure, independently verify and publicly report GHG emissions on an annual basis using TCR's General Reporting Protocol.
- We were the first automaker to participate in GHG reporting initiatives in China, Australia, the Philippines and Mexico. In late 2007, Ford of Mexico was recognized by the Mexican government for four consecutive years of participation in that country's voluntary GHG reporting program. Ford's first report was used as the template for subsequent reporting in that program.
- We voluntarily report GHG emissions in the United States and Canada.
- We were the first, and remain the only, automaker participating in the Chicago Climate Exchange (CCX), North America's first GHG emissions-reduction and trading program. Through the CCX, we have committed to reducing our North American facility emissions by 6 percent between 2000 and 2010.
- We were the first automaker to join the UK's Emissions Trading System, which required us to agree to GHG emissions targets for all of our UK-based operations. This system was predecessor to the current mandatory European Union Emission Trading Scheme.
- Since 2005, GHG emissions from our European manufacturing facilities have been regulated through the EU Emission Trading Scheme. These regulations apply to eight Ford and Volvo facilities in the UK, Belgium, Sweden and Spain.
- The U.S. Environmental Protection Agency issued a final rule on September 22, 2009, establishing a national GHG reporting system. Facilities with production processes that fall into certain industrial source categories, or that contain boilers and process heaters and emit 25,000 or more metric tons per year of GHGs, will be required to submit annual GHG emission reports to the EPA. Facilities subject to the rule were required to begin collecting data as of January 1, 2010, and submit an annual report for calendar year 2010 by March 31, 2011. Many of our facilities in the United States will be required to submit reports. Our proactive approach and early action on GHG reporting globally has prepared us for this new requirement.

Our participation in these reporting, emissions-reduction and trading schemes has played an important role in accelerating our facilities' GHG emissions reduction activities.

Ford has reduced global energy consumption by 44 percent since 2000 and reduced energy consumption per vehicle by 17.7 percent during the same period. In 2009, Ford improved energy efficiency in its North American operations by 4.6 percent, resulting in savings of

RELATED LINKS +

This Report:

- Climate Change
- Emissions Trading
- Facilities-Related Emissions
- Award-Winning New Machining Process Saves Money, Time, and Resources
- Ford's Best in Powertrain Environmental Initiative Produces Impressive Results
- Operational Energy Use and CO₂ Emissions Data

External Web Sites:

- EPA Energy Star
- The Climate Registry
- Chicago Climate Exchange
- E.U. Emissions Trading Scheme

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approximately \$15 million. We measure energy efficiency in North America using our Energy Efficiency Index.¹ To drive continued progress, we have set targets to improve our facility energy efficiency by 3 percent globally and 3 percent in North America in 2010.

We reduced our total facilities-related carbon dioxide emissions by approximately 50 percent, or 4.8 million metric tons, from 2000 to 2009. During this same period, we reduced facilities-related CO₂ emissions per vehicle by 27 percent. We have set a target to reduce our North American facility GHG emissions by 6 percent between 2000 and 2010 as part of our Chicago Climate Exchange commitment. The Company has also committed to reduce U.S. facility emissions by 10 percent per vehicle produced between 2002 and 2012, as part of an Alliance of Automobile Manufacturers program. Ford has already achieved a target to reduce absolute emissions from UK operations by 5 percent over the 2002–2006 timeframe, based on an average 1998–2000 baseline.

The EPA and U.S. Department of Energy again recognized Ford's energy-efficiency achievements by awarding us a 2010 Energy Star Sustained Excellence Award, which recognizes Ford's continued leadership and commitment to protecting the environment through energy efficiency. This is Ford's fifth consecutive year winning this prestigious award. The Energy Star Sustained Excellence Award requires organizations to demonstrate proficiency through the management of projects and programs, data collection and analysis, and communication actions, including community outreach and active participation in Energy Star industry forums. Among the achievements recognized by the award is a 30 percent improvement in the energy efficiency of Ford's U.S. facilities since 2000, equivalent to the amount of energy consumed by 110,000 homes.

Since 2007, we have been using a utility metering and monitoring system to collect incoming electricity and natural gas consumption data for all Ford plants in North America. We use this near-real-time information to create energy-use profiles for all Ford facilities and to improve decisions about nonproduction shutdowns and load shedding, which involves shutting down certain pre-arranged electric loads or devices when we reach an upper threshold of electric usage. During 2009, this metering and monitoring system was essential in helping us to minimize energy use during extended production slowdowns and production shutdowns. By using this tool and other best practices, Ford's manufacturing facilities reached record lows in energy use.

Ford continues to use energy performance contracting as a financing tool to upgrade and replace infrastructure at its plants, commercial buildings and research facilities. Through these contracts, Ford partners with suppliers to replace inefficient equipment, funding the capital investment over time through energy savings. Projects have been implemented to upgrade inefficient lighting systems, paint-booth process equipment and compressed air systems, and to significantly reduce the use of steam in our manufacturing facilities. Since 2000, Ford has invested more than \$220 million in plant and facility energy-efficiency upgrades.

Ford has also established a three-year global effort to consolidate and redesign its data centers using best practices identified by the DOE and EPA's Energy Star program. First, we are consolidating data centers to dramatically reduce the number of managed facilities and their total energy demand. By the end of 2010, we will have consolidated 20 existing centers into just six, a reduction of 70 percent. We are also "virtualizing" 2,000 servers into just 100 physical servers. These consolidations will result in a 90 percent reduction in power needs and a 95 percent reduction in cooling needs.

During this process we are changing the layout of our remaining data centers to maximize their energy efficiency. By directing conditioned air into equipment racks as opposed to cooling entire server rooms, expensive chilled air is used much more efficiently, and the load on building cooling equipment is reduced. We have also developed and implemented global data center design specifications, so that all new and remodeled data centers will meet high energy-efficiency standards. This three-year data center initiative is projected to yield \$35 million in operational cost efficiencies.

In 2010, we implemented a PC power management system to power down all of our desktop and notebook computers at night. The system, which is based on the NightWatchman® software application from 1E, overcomes many barriers of other power-down systems by allowing overnight data processing as needed, integrating power management and software delivery, and allowing custom power management solutions. We predict that this program will reduce our annual energy costs by \$1.2 million and our annual CO₂ emissions by 16,000 to 25,000 metric tons.

We have implemented a network-controlled system on plant air compressors in our powertrain and vehicle assembly plants. This industry best-in-class system significantly reduces energy consumption by improving the operational efficiency of large, centralized air compressors. It allows for the real-time collection of key performance data through an enterprise-wide, web-based data management tool. This data is then used to determine the overall efficiency of each system and identify savings opportunities. The savings opportunity reports are sent to plant managers, who can then initiate corrective actions. The system also allows for remote troubleshooting of the equipment, which can extend equipment life and reduce maintenance

costs. The system is also being used for remote operation of equipment at select facilities. As of January 2010, we had installed these systems at 29 plants on 181 compressors.

In addition, we are implementing a new paint process that eliminates the need for paint to cure after the prime coat. This technology, called "three wet," reduces CO₂ emissions by 15 percent and volatile organic compound emissions by 10 percent. For example, the three wet system produces 6,000 metric tons fewer CO₂ emissions per year compared to water-borne systems and 8,000 metric tons fewer CO₂ emissions per year compared to conventional high-solids, solvent-borne systems. In addition to these environmental benefits, this process maintains industry-leading quality and reduces costs. For example, three wet reduces paint processing time by 20 to 25 percent, which correlates to a significant cost reduction. The paint formulation contains new polymers and other additives to prevent running and sagging during the application process. Ford's laboratory tests show that this high-solids, solvent-borne paint provides better long-term resistance to chips and scratches than water-borne paint. In part due to the quality benefits of the three wet process, Ford tied for first place in the 2008 Global Quality Research System automotive quality survey for paint durability.² The process is expected to reduce costs per vehicle, because it allows the elimination of a spray booth and an oven, and the attendant energy costs required to run them.

We completed the installation of a full production enamel line using the three wet process at the Ohio Assembly Plant, which started production in March 2008. In 2009 Ford installed the three wet paint process at the Chennai plant in India and the Craiova plant in Romania. We are currently installing the process at the Cuautitlán Assembly Plant in Mexico, the new Chongqing plant in China and the Michigan Assembly plant in Wayne, Michigan, which is being retooled to produce the Ford Focus. We are continuing to evaluate additional plants for three wet conversion, as refurbishment actions are being planned in line with the corporate business plan.

In 2009, Ford continued to expand the use of a new parts washing system developed in partnership with our supplier ABB Robotics. Conventional parts washing systems remove dirt chemically by spraying parts with high volumes of water and detergent at low pressure. This system, in contrast, cleans parts mechanically by moving them in front of specialized high-pressure nozzles with a robotic arm. This new robotics-based system represents a significant leap forward in energy efficiency that also improves quality, flexibility, productivity and cost. It saves energy in part because, unlike previous systems, it does not require any heat. It also uses a much smaller water pump. Forty-seven of these new robotic washing machines are now in operation at Ford, and we have incorporated the technology as standard for all engine and transmission final wash applications, ensuring that the energy and cost savings will be realized by all future vehicle programs. Most recently, we implemented robotic parts washing at our Craiova and Cologne engine plants.

We are also capturing our own waste products and turning them into fuel. We have implemented "fumes-to-fuel" technology – which captures emissions from the painting process and uses them to generate electricity – in paint shops at three of our manufacturing facilities. This process cuts down on fossil fuel use and the resulting CO₂ emissions, as well as reducing emissions from our paint shops. For more information, please see the [Facilities-Related Emissions](#) section.

In Europe, our Dagenham facility has reduced its electricity usage per engine manufactured by 12 percent over the past two years. This improvement was achieved by decreasing the use of energy-intense operations, such as the generation of compressed air for handheld tools on the production line. In addition, high-energy use equipment was scientifically optimized on Dagenham's new engine manufacturing lines. This equipment requires 70 percent less energy per engine than was used on the existing lines. In 2007, Dagenham won national awards from two organizations – Business Commitment to the Environment and Business in the Community – for the facility's CO₂ reductions, energy efficiency efforts and other environmental actions.

Other efforts to improve the energy efficiency of Ford's plant operations include:

- Aggressively curtailing energy use during non-production periods
- Updating facility lighting systems by replacing inefficient high-intensity discharge fixtures with up-to-date fluorescent lights and control systems
- Installing automated control systems on plant powerhouses and wastewater treatment equipment to increase energy and process efficiency

1. The Index is "normalized" based on an engineering calculation that adjusts for typical variances in weather and vehicle production. The Index was set at 100 for the year 2000 to simplify tracking against energy efficiency targets.

2. The Global Quality Research System survey is undertaken for Ford by the RDA Group a market research and consulting firm based in Bloomfield Hills, Michigan



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Renewable Energy Use

Ford is actively involved in the installation, demonstration and development of alternative sources of energy. In November 2009, for example, Ford began powering the Genk, Belgium, plant with two wind turbines. The turbines, which were installed by local energy company Electrabel, each have an output of two megawatts of power, or enough to power 2,500 private homes. The turbines will deliver a significant portion of the electrical power needed by the Genk plant, which produces the Ford Mondeo, S-MAX and Galaxy models.

Ford's Dagenham Diesel Centre in the UK was the first automotive plant in the world to obtain all of its electrical power needs from two on-site wind turbines, which have been in operation since 2004. A third two-megawatt wind turbine will be installed at Dagenham in 2010.

A few miles from Dagenham, Ford's Dunton Technical Centre is also powered by electricity from renewable sources. Since March 2009, electric power on the 270-acre site, which is home to a team of approximately 3,000 engineers, has been purchased from 100 percent renewable sources. The majority of the electricity, supplied by GDF, is sourced from a combination of hydro, wind and waste to energy generation, and replaces energy from traditional sources that would have produced an estimated 35,000 metric tons of CO₂ emissions annually.

Since 2008, Ford has been sourcing renewable electricity to cover the full electric power demand of its manufacturing and engineering facilities at its Cologne plant in Germany. This includes the electricity needed for the assembly of its Fiesta and Fusion models at the plant. In addition, our Cologne Merkenich Development Center implemented a heat-energy reclamation joint venture with the local utility RheinEnergie. In early 2009, the Cologne facility was connected to one of RheinEnergie's boiler houses via a 2.6 km pipe. This pipe transfers what was formerly waste heat to a heat exchanger, which then uses that heat to produce electricity. Through these initiatives, the Company has reduced its CO₂ emissions by 190,000 metric tons per year.

In Wales, Ford's Bridgend engine plant was the first site retrofitted with one of the largest integrated, grid-connected solar/photovoltaic installations at a car manufacturing plant in Europe.

In North America, examples of installed renewable-energy technologies include a photovoltaic array and solar thermal collector at the Ford Rouge Visitors Center. The adjacent Dearborn Truck Plant has a living roof system, which uses a thick carpet of plants to reduce the need for heating and cooling while absorbing rainwater. At the Lima Engine Plant in Lima, Ohio, a geothermal system provides process cooling for plant operations as well as air tempering for employee comfort. This system uses naturally cooled 40°F water from two abandoned limestone quarries located on the plant site. The installation cost was comparable to that of the traditional chiller and cooling tower design that it replaced. This award-winning project eliminates the emission of 4,300 metric tons of CO₂ each year. In addition, we are investigating the expansion of our existing reclaimed landfill gas installation at the Wayne Assembly Plant.

At our Michigan Assembly Plant, we are building a smart renewable power storage system. We are collaborating with DTE Energy to build this stationary, battery-based energy storage facility, which will have 750 kw generation capacity and 2 MWh of power storage. This project will provide vital knowledge from a real-world integration of renewable energy, smart-grid technologies and battery storage infrastructure. For more on this project, please see [Ford's Green Partnerships with Federal and State Governments](#).



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Facilities-Related Emissions

We report on a variety of facilities-related emissions in the [Environment data section](#) of this Web site. Also, the [Operational Energy Use and Greenhouse Gas Emissions](#) section discusses GHG emissions from facilities.

In this section, we focus on how we are reducing emissions of volatile organic compounds (VOCs) at our facilities. VOCs are a significant aspect of Ford's manufacturing operations due to the size and number of paint shops that we operate.

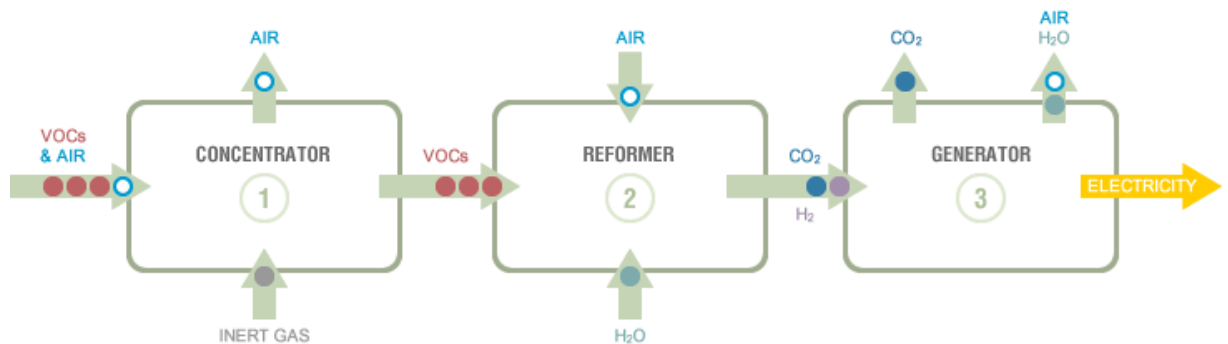
Since 2000, Ford's North American operations have cut the VOC emissions associated with the painting process (by far our largest source of VOC emissions) by more than 30 percent. In 2009, these operations emitted 21 grams of VOCs per square meter of surface coated. Because the control equipment used to reduce VOC emissions consumes significant amounts of energy, we have worked to identify innovative approaches to painting that meet cost, quality and production goals while allowing us to reduce energy use significantly and maintain environmental compliance.

In one innovative approach, Ford developed a "fumes-to-fuel" system in partnership with Detroit Edison. Initially tested at the Ford Rouge Center, the system concentrated fumes containing VOC emissions from solvent-based paint for use as fuel to generate electricity. The fuel was tested on a solid oxide fuel cell.

RELATED LINKS +

This Report:

- Operational Energy Use and Greenhouse Gas Emissions
- Facilities-Related Emissions Data



Generating electricity from paint fumes

Move over the numbers above to see what happens at each stage.

- 1 CONCENTRATOR**
Strips air from paint fumes, leaving concentrated volatile organic compounds (VOCs)
- 2 REFORMER**
Ford-patented process converts VOCs to hydrogen gas
- 3 GENERATOR**
Uses hydrogen gas as fuel for fuel cell or conventional power plant to make electricity

A production-scale fumes-to-fuel system was installed as a pilot project at Ford's Michigan Truck Plant. The Michigan Truck pilot used a specially designed Stirling cycle engine that was more cost effective than a fuel cell. The engine produced about 50 kilowatts of electricity to help power the facility. The only byproducts of this system were small amounts of water vapor, CO₂ and nitrogen oxides. The Stirling engine also produced heat during combustion, which may be another useful source of energy in the future.

To further support Ford's research and development efforts, in 2009 a research facility was built at

our assembly plant in Oakville, Canada, with support from the Canadian government. This site contains a production-scale version of the fumes-to-fuel system including a fluidized bed adsorber-desorber, a VOC fuel reformer, a 300 kW molten carbonate fuel cell, and a 120 kW internal combustion engine. The intent of this technology is to collect a portion of the VOCs from the spray booth exhaust, then super-concentrate the VOCs in fluidized bed concentrator, followed by condensing the VOCs for use as a fuel for either the 120 kW internal combustion engine or as feed to the VOC reformer which would then be used in the 300 kW molten carbonate fuel cell. The fluidized bed adsorber-desorber as well as the 120 kW internal combustion engine are running as planned. This system is now being evaluated and optimized with research and development occurring on-site. In 2010, the VOC reformer will be brought online to determine if it can reform the VOCs into a form suitable for use in a commercially available 300 kW molten carbonate fuel cell from an operations, energy efficiency and economic perspective. Ford's fumes-to-fuel system, with or without energy generation, has the potential to reduce carbon dioxide (CO₂) emissions by 80 percent to 85 percent compared to traditional abatement equipment. A fumes-to-fuel system with energy generation using the fuel cell also has the potential to eliminate nitrogen oxide emissions.

Recently Ford formed partnerships with two leading-edge Canadian universities to help drive the research and development of this innovative technology, which will hopefully lead to further environmental CO₂ improvements and potential cost savings compared to traditional abatement equipment.

Moreover, we are reducing VOC emissions with an innovative paint process called "three wet." This process reduces VOC emissions by 10 percent and has other environmental, financial and quality benefits. For more information on three wet, please see the [Operational Energy Use and Greenhouse Gas Emissions](#) section.



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Water Use

A decade ago, Ford launched a water-reduction initiative and set a target of 3 percent year-over-year reductions in water use. We have exceeded this goal. From 2000 to 2009, Ford's global manufacturing operations reduced water consumption by more than 62 percent, approximately 10.5 billion gallons. We reduced global water use by approximately 16.6 percent from 2008 to 2009 alone. Per vehicle, we reduced global water use from 5.6 cubic meters per vehicle in 2008 to 5.2 cubic meters per vehicle in 2009.

In 2009, we began developing a new water strategy that addresses the impacts of our water use from both an environmental and a social perspective. To help guide and inform our approach, we signed on as a founding responder of the Carbon Disclosure Project's (CDP) Water Disclosure initiative, which launched in late 2009 to help institutional investors better understand the business risks and opportunities associated with water scarcity and related issues. The CDP's original project focused on corporate disclosures of greenhouse gas emissions and climate change strategies, and we found our participation in that project to be very beneficial in helping us formulate our strategy for GHG reporting. We anticipate similar benefits from CDP Water Disclosure, which will provide a globally harmonized method of water reporting. For more information please see [Water: More Than Just Environmental Concerns](#).

This new strategy, which we are currently formulating, will build on the water use reduction strategy we began 10 years ago. When we initiated our water reduction goals in 2000, many facilities had little ability to track their water usage. Ford engineers thus developed a patented Water Estimation Tool (WET), a software program that helps facilities to predict their water usage. They then paired WET with WILD (Water Ideas to Lessen Demand), a list of practical ideas for reducing water use depending on where and when use is the greatest. Our facilities made good progress for several years, meeting or exceeding the 3 percent year-over-year water-reduction goal that applied to all facilities. To encourage continued progress, Ford environmental engineers are developing "single point lessons" that document practices demonstrated to save water. These lessons are cascaded for mandatory implementation in all facilities and are included in facility business plans. Single point lessons implemented thus far include leak identification, cooling tower optimization, and vehicle water testing.

Water use at each facility is also tracked in the Global Emissions Manager database, our global emissions management and tracking system. Water use is included in GEM in a monthly tracking scorecard reviewed by senior management.

In addition, we are using an innovative new machining process, called minimum quantity lubricant (MQL) machining, to reduce water use. In MQL machining, the cutting tool is lubricated with a very small amount of oil sprayed directly on the tip of the tool in a finely atomized mist, instead of with a large quantity of coolant/water mixture. The process saves hundreds of thousands of gallons of water per year. By eliminating the coolant/water mixture, MQL machining eliminates the need to treat and dispose of an oily waste stream. The MQL process is also delivering significant benefits in energy use, waste production, quality, working conditions and costs. We have already implemented the MQL system at a number of transmission plants in the United States, UK and Europe and are planning to use it at our Craiova, Romania, and Cologne, Germany, plants as we launch the production of new engines in these facilities.

Our Cleveland Casting Plant implemented significant water-reduction actions that focus on reducing water usage in the facility's large hydraulic units and electric induction, iron-holding furnaces, which were identified as major water-using sources in the plant. The project, which began in 2008, reduced water usage by 26.8 percent in 2008 and another 35 percent in 2009. Over the course of these two years, the project has saved more than \$1.2 million in city water costs alone. The plant was named the winner of Ford's 2009 Environmental Leadership Award for its innovative water-saving efforts.

RELATED LINKS

This Report:

- [Water: More Than Just Environmental Concerns](#)
- [Water Use Data](#)

External Web Sites:

- [CDP Water Disclosure](#)



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Waste Management

Ford's environmental goals include reducing the amount and toxicity of manufacturing-related wastes and ultimately eliminating the disposal of waste in landfills. Manufacturing byproducts include both hazardous and nonhazardous wastes. Ford has chosen to target eliminating the landfill of hazardous waste first, because this provides the quickest and most cost-effective benefits to human health and the environment.

In 2009, Ford facilities globally sent approximately 70,000 metric tons of waste to landfill, a decrease of 21 percent compared to 2008. Also in 2009, Ford facilities globally generated approximately 38,000 metric tons of hazardous waste, a decrease of more than 21 percent from 2008.

Seven of our facilities globally have achieved zero waste to landfill: the Windsor Engine Plant in Ontario, Canada; the Van Dyke Transmission Plant and Rawsonville Engine Plant in Michigan; the Cologne, Germany, manufacturing facilities, including the Engine and Vehicle Operations plants, technology development center and Ford Customer Service Division facility; the Saarlouis Body and Assembly Plant in Germany; and our assembly plant in India.

Ford India was declared winner of Ford's 2009 Asia Pacific and Africa Environmental Leadership Award for its "zero waste to landfill" initiative. The project was recognized as the leading green initiative in the region because it eliminates the disposal of materials to landfill and provides waste as an alternative fuel to the cement industry, thereby reducing demand for nonrenewable resources.

Managers at all of our plants strive continually to increase their waste recycling. Ford's Geelong foundry in Australia, for example, has developed processes to recycle foundry sand, scrap steel and process water. These recycling efforts are saving the plant almost \$900,000 annually. The foundry is one of the few facilities in the world that does not buy any steel or pig iron from external recyclers. Instead, the facility uses recycled scrap steel generated by Ford's nearby stamping plant. To use this scrap steel, which has been coated with zinc rust-proofing materials, the foundry developed a new melting process that makes it possible to reuse the metal scraps without impacting the environment. The facility has begun to recycle process water in a closed-loop system that allows water to be reused again and again. The foundry also developed a process to separate metal and different sand components from used foundry sand. Metals are melted down and fed back into the foundry process, while used sands are shipped off for use in cement manufacturing and road building.

In 2009, our Ohio Assembly Plant formed a cross-functional team with the goal of reducing expendable packaging waste. This team consisted of staff from the facility's environmental, material planning and logistics, janitorial, purchasing, finance, and maintenance and production functions. The team targeted major waste streams such as shrinkwrap, fiberboard drums, baled cardboard, gaylord boxes and plastics. Process flows were created for each of these targeted streams, which enabled the team to identify obstacles to waste reduction and put action plans in place. Comparing the months of January through August, compactor waste was reduced by 20 percent from 2008 to 2009, and total waste to landfill was reduced by 31 percent.

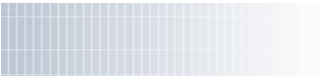
In Europe, our Dagenham facility has implemented waste-reduction and increased recycling efforts that have prevented more than 12,600 metric tons of waste from being sent to landfills for disposal. For example, metal filings and other waste from the machining process are squeezed dry of lubricants and then sold as briquettes for recycling. In addition, 20,000 square meters of floor concrete removed to install new engine lines was reused in the flooring of the new production line.

Our Dunton facility in England has initiated a waste management contract whereby all site general waste materials (450 metric tons in 2009) are recycled via a "materials recovery facility" instead of going direct to landfill, resulting in at least a 90 percent recycling rate. Dunton continues to segregate and recycle 100 percent of metal, paper, wood, cardboard, vehicles and parts, as well

RELATED LINKS

This Report:

- Award-Winning New Machining Process Saves Money, Time, and Resources
- Ford's Best in Powertrain Environmental Initiative Produces Impressive Results
- Logistics
- Waste Data



as waste electrical and electronic equipment.

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Sustainable Land Use and Biodiversity

Our activities have the potential to affect land use, nature and biodiversity, directly and indirectly. Our real estate portfolio includes properties for manufacturing and office use. The construction and operation of these facilities have direct impacts on land.

Ford's most significant potential impacts on land and biodiversity are indirect, occurring elsewhere in our value chain or arising from the use of our vehicles. Indirect impacts include the extraction of raw materials to make vehicle parts, habitat fragmentation from road construction, localized pollution from vehicles and the potential effects of climate change on biodiversity.

Many of our facilities have taken steps to improve biodiversity and wildlife habitat on their lands, as follows.

Sustainable Landscapes

A highly visible example of Ford's commitment to sustainability can be seen on more than 200 acres of Ford-owned land throughout southeast Michigan, which is adorned with sunflowers, wildflowers, prairie plants and other non-turf grass plantings. This landscaping provides habitat for wildlife: for example, fox, wild turkeys and coyote have been spotted on Ford properties. This landscaping reduces mowing and other maintenance costs. By replacing what otherwise would be traditional turf grass, the Company saves approximately 30 percent on the costs of labor, gas and fertilizer.

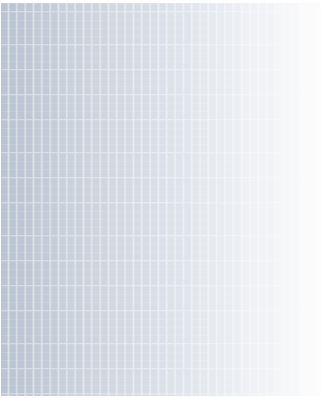
Creating Wildlife Habitat

Ford has created wildlife habitats at many of its facilities. We are committed to maintaining our existing wildlife habitat sites and to creating new sites as possible in the future. Wildlife habitats on Ford facilities range in size from five to more than 100 acres and include ecosystems as diverse as wetlands, woodlands, prairies, meadows and forests. Ford employees, often in partnership with local civic and education groups, develop and maintain the habitats, which host dozens of native plant and wildlife species. At many of the facilities, employees and other volunteers have built nature trails, erected bird and bat houses and planted wildflower gardens, in addition to establishing wildlife habitats. These facilities have developed community education programs to encourage broader understanding of the importance of corporate wildlife sanctuaries.

In 2009, Ford's Romeo Engine Plant in Romeo, Michigan, was awarded a Neighborhood Environmental Partners Award from the Michigan Department of Environmental Quality for its work to build wildlife habitat on the plant site. Plant employees have worked hard to preserve and enhance the wildlife habitat available on the site's 141 acres, planting trees and building nest boxes to attract native birds, including bluebirds and screech owls. To promote habitat awareness and increase community participation, the Romeo Engine Plant's wildlife team organizes an annual tree sale and plant exchange, and plant employees organize clean-ups and other activities to celebrate Earth Day.

In addition, in February 2010 Ford and Automotive Components Holdings announced the donation of a coastal wetland in Monroe, Michigan, to the U.S. Fish and Wildlife Service. The property, known as Ford Marsh, will add 242 acres to the Detroit River International Wildlife Refuge. In addition, we have created large natural reserves at our facilities in Valencia, Spain, and Kocaeli, Turkey.

Our Mexican operations and dealers are working to protect wildlife habitat and biodiversity. For the last 13 years our Mexican operation's "civic committee" has been funding work to protect the peninsular pronghorn, an endangered species in Baja, California. This project has used captive breeding and reintroduction into the wild to increase the number of pronghorns. When the program first began, there were only 160 pronghorns in the area. A comprehensive field census is currently underway, but project managers estimate there are now nearly 900. This project has received global attention because it is one of the only species that has been successfully



reintroduced into the wild and is reproducing naturally in its own habitat. This project is managed by Espacios Naturales y Desarrollo Sustentable, a nonprofit organization, and Comisión Nacional de Areas Naturales Protegidas, the government office that oversees natural protected areas. The project also receives support from Animal Kingdom, the San Diego Zoo and other international wildlife organizations.

Our Mexican operation's civic committee is funding a communications campaign to raise awareness about the more than 150 natural protected areas in Mexico. The campaign is intended to foster understanding of the important services that these natural areas provide to communities, including air and water purification, food and wildlife habitat. So far, this project has produced several videos of natural areas that are shown in cinemas, airline TV programs, buses, airports and other locations. The project also includes a print campaign. We are planning to assist with a second phase of this project, which will focus on how people can help to protect natural areas.



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Green Buildings

Ford is a leader in green building, committed to the sustainable design of our facilities and landscapes using the basic principles of resource effectiveness, life-cycle assessment, health, safety and environmental performance. Ford is a member of the U.S. Green Building Council and a supporter of its green building rating system, known as LEED® (Leadership in Energy and Environmental Design). The LEED system includes a series of standards used for certifying buildings as "silver," "gold" or "platinum." It is recognized as the industry standard for green building. Ford employees who are involved in the design, operation and maintenance of commercial and manufacturing facilities have obtained LEED Accredited Professional certification, which demonstrates their proficiency in the application of the LEED rating systems. Having this expertise in-house will continue to strengthen our knowledge and the speed at which we apply environmentally sustainable technologies and processes at our facilities.

Ford is evaluating existing buildings to achieve LEED certification. The LEED Existing Building Rating System helps building operators measure operations, improvements and maintenance on a consistent scale, with the goal of maximizing operational efficiency while minimizing environmental impacts. The standards are intended to promote healthful and environmentally friendly buildings that are also durable, affordable and high performing by focusing on six key areas: sustainable site management, water efficiency, energy and atmosphere impacts, materials and resource use, indoor environmental quality and innovations in operations.

Ford is piloting the Existing Building certification process on Corporate Crossings, an office building that Ford developed in 1999 in Dearborn, Michigan. Based on the experience of certifying this building, Ford hopes to expand certification to other office buildings.

Ford is working to advance green building practices through partnerships with our building-related service providers. These partnerships help to educate service providers and provide a forum to exchange information on the concepts of sustainable design. For example, we have held training sessions on site selection, water efficiency, energy use reductions, sustainable materials and resources, and indoor environmental quality.

Green Housekeeping Program

Ford promotes the use of environmentally friendly products in the operation and maintenance of its facilities. One example of this is the continued expansion of our "green housekeeping" program. Through this program, we are working with our Tier 1 suppliers and contractors to promote the use of environmentally friendly cleaning practices and water-based products that help to reduce the impact of facility operations on the environment. Our cleaning service providers use highly concentrated, water-based chemicals with more efficient packaging, which significantly reduces product waste and the amount of fuel required to ship products. These green housekeeping practices are now in use throughout our North American manufacturing locations and commercial office buildings.

Ford Rouge Center

Ford's largest green building initiative is the redevelopment of the 600-acre Ford Rouge Center in Dearborn, Michigan, into a state-of-the-art lean, flexible and sustainable manufacturing center. The focal point of the center, the Dearborn Truck Plant, boasts a 10.4-acre living roof, part of an extensive stormwater management system that includes bio-swales and porous pavement to slow and cleanse the water. The Dearborn Truck Plant also features abundant skylights to maximize daylight in the facility. The Rouge Center features 100 acres of sustainable landscaping to help restore soils and support wildlife habitat.

Rouge Visitor Center (LEED-Gold)

The redeveloped Ford Rouge Center includes the LEED-Gold certified Rouge Visitor Center, a

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- Operational Energy Use and Greenhouse Gas Emissions
- Sustainable Land Use and Biodiversity

External Web Sites:

- Leadership in Energy and Environmental Design (LEED)
- U.S. EPA Energy Star

30,000-square-foot facility featuring two multi-screen theaters and an observation deck. The facility uses rainwater for plumbing and irrigation, and solar panels to produce energy. In addition, "green screens" of shading vines cover some parts of the building in order to reduce energy use.

Fairlane Green (LEED-Gold)

Ford has developed a 1 million square foot green retail center on its 243-acre industrial waste landfill in Allen Park, Michigan, earning the national Phoenix Award for excellence in brownfield development. In addition, Fairlane Green Phase I received the nation's first LEED-Gold certification for a core and shell retail development, for its use of retention ponds for irrigation, sustainable landscaping and white roofs, and for the preservation of natural areas. The buildings feature high-efficiency heating and cooling systems, added insulation and weather sealing, and efficient windows and doors.

Product Review Center (LEED-Silver)

Ford's Product Review Center in Dearborn showcases Ford's latest products and green building principles. The LEED-Silver-certified building incorporates an innovative system to recycle water for irrigation and cooling, large windows to maximize daylight and extensive use of local and recycled materials.



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Compliance

Manufacturing Plant Notices of Violation

Ford received 12 notices of violation (NOV) from government agencies in 2009. Eight of the NOV's received were in the United States, two were in Britain, one was in Brazil and one was in Russia. The issuance of an NOV is an allegation of noncompliance with a regulation which could involve anything from a minor paperwork requirement to a permit limit, and does not necessarily mean that the Company was in noncompliance or received a penalty.

Offsite Spills

In 2009, offsite spills occurred at five Ford facilities in the United States and two in Britain. All required reporting and cleanup was completed in a timely fashion.

Fines and Penalties Paid

In 2009, Ford paid approximately \$130,000 in fines or penalties globally pertaining to environmental matters in our facilities. The vast majority of this was paid to settle a civil administrative enforcement proceeding against the Company arising from the Sterling Axle Plant's disclosure of several potential violations of its air permits in 2008.



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Remediation

Ringwood Mines Landfill Site

Ford Motor Company continues to address concerns raised in connection with Ford's prior disposal activities in New Jersey, including the adequacy of the prior investigation and cleanup of waste disposed of by Ford. The Ringwood site was used for decades for the legal and illegal disposal of a wide variety of wastes by the Borough of Ringwood and other parties. Ford used the site to dispose of waste materials (primarily cardboard, wood wastes and paint sludge from the former Mahwah Assembly Plant) from 1967 to the middle of 1971. Ford previously participated in remediation activities at the site in the 1980s and 1990s. In September 2004, Ford entered into an Administrative Order on Consent and Settlement Agreement (AOC) with the U.S. Environmental Protection Agency regarding additional environmental activities at the Ringwood site. The EPA also requested the Borough of Ringwood's assistance in completing work at the site, and the EPA issued a Unilateral Administrative Order to the Borough regarding the Ringwood site. Ford is conducting further remedial work at the site pursuant to the AOC, all under the direction of the EPA and the New Jersey Department of Environmental Protection. It is anticipated that a new AOC will be signed later this year that will split the site into different operable units. The AOC will require Ford and the Borough to conduct feasibility studies and remedial designs for each of the operable units. Construction of the final remedies may begin in 2011.

Atlanta Assembly Plant

Ford's Atlanta Assembly Plant ceased operations on October 27, 2006. The property was then sold to Jacoby Development, Inc. (JDI) in June 2008. JDI completed demolition and soil remediation activities at the site under Georgia's Hazardous Site Reuse and Redevelopment Act and received a Limitation of Liability letter dated October 23, 2009. As part of the property sale, Ford retained responsibility for groundwater remediation.

In January 2009, the Georgia Environmental Protection Department (GEPD) approved Ford's Corrective Action Plan for groundwater remediation. The groundwater remediation work was then initiated with a pilot test to evaluate the efficacy of in-situ groundwater treatment by injecting sodium persulfate (a strong oxidant) into the ground via multiple injection wells. The groundwater data collected following the pilot test showed that while the sodium persulfate was capable of degrading hydrocarbons in the groundwater, the injection approach for treatment would likely not be able to meet remedial goals because of the complex hydrogeological conditions encountered at the site.

With the GEPD's approval, Ford selected a more aggressive remediation alternative. In October 2009, Ford initiated remedial activities to excavate to the groundwater table in two areas (Areas #1 and #2) and directly mix the sodium persulfate into the saturated zone. As of January 2010, this remediation mixing had been completed in Area #1 and was approximately 50 percent complete in Area #2. It is expected that the mixing in Area #2 will be completed in the second quarter of 2010, with only ongoing groundwater monitoring remaining.



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Supply Chain

As part of our life-cycle approach to sustainability, we work to improve the environmental, social and economic impacts "upstream" of our own manufacturing plants, including the impacts of transportation and logistics and the activities of our thousands of global suppliers. We work with our suppliers in a variety of ways to manage the impacts that occur when they provide us with goods and services.

In this section we discuss how we manage materials throughout our supply chain, our strategies to improve the logistics of parts transportation and packaging, and our other supply chain sustainability efforts.

Ford's supply chain sustainability efforts include developing tools and strategies to manage materials throughout our supply chain, reducing the environmental footprint of the transportation and packaging of parts and finished vehicles, and working with our core suppliers to improve the sustainability of their products and processes.

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Materials Management Tools

To manage materials across the vehicle life-cycle, Ford has developed a comprehensive set of processes and system tools called the Global Materials Management Program. These processes and tools assist us in communicating materials requirements to suppliers, and in tracking the materials that they use in the parts they manufacture. These tools include the Global Material Approval Process (GMAP), which handles all materials processed in Ford's plants; Global Material Integration and Reporting (GMIR), a materials tracking tool for our engineers and suppliers; and the International Material Data System (IMDS), a reporting system used by multiple automakers.

The IMDS was developed by seven auto manufacturers (including Ford) in 1997 to handle the tracking, review and reporting of all vehicle components and service parts from all suppliers. Twenty-six companies globally are now official members. The IMDS is a web-based system used internationally by suppliers to report on the substances and materials contained in parts for our vehicles. Ford has cooperated with other automakers to align reporting requirements for restricted substances and to analyze the data provided. This helps us to identify substances and materials of concern and target them for elimination.

To further help our suppliers manage their materials and substance data, Ford developed and launched GMIR. Through the GMIR Supplier Portal, Ford lists all the parts that require reporting by suppliers; we also list suppliers' reporting and certification status. Thus the system allows every supplier to monitor its reporting status and understand which parts are required to be reported. This two-way communication helps clarify a very complex materials management task and saves time and money for Ford and its suppliers. Thanks largely to the GMIR Supplier Portal, in 2009 Ford gathered more materials data from its suppliers than any other automaker. Ford uses the information obtained through GMIR to populate the IMDS. Ford vehicle programs reached an average of 93 percent of parts reported in the IMDS in 2009. Based on the data reported, Ford was able to certify that all affected vehicles meet end-of-life directives in the EU, South Korea and Japan.

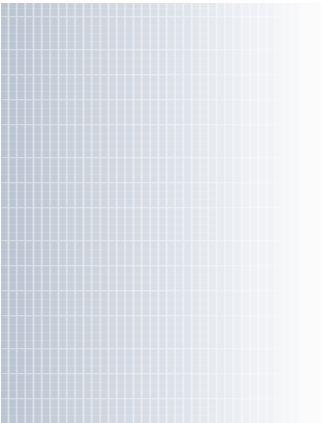
For non-dimensional materials (such as paint and adhesive) that are shipped directly to Ford plants, Ford launched GMAP – an electronic tool aimed at simplifying the global materials approval process. The GMAP process allows suppliers to use electronic transactions to submit their Material Safety Data Sheets and composition data. Internally, Ford approves communicate their decisions of approval or rejection electronically. This new process saves time and ensures better-quality data for complying with government regulations and Ford policies.

In addition, Ford has developed systems to track and manage the use of chemicals, in response to the REACH chemicals management legislation implemented by the European Union in 2007. REACH stands for Registration, Evaluation, Authorisation and Restriction of Chemical substances. The goal of the REACH legislation is to improve the protection of human health and the environment through better and earlier identification of the intrinsic properties of chemical substances. All manufacturers operating in Europe must provide information on the properties and safe handling of their chemical substances to a central database in Helsinki. In addition, the legislation calls for the progressive substitution of the most dangerous chemicals, once suitable alternatives have been identified. REACH provisions will be phased in over 11 years.

Ford has taken a leadership position in implementing REACH. For example, Ford has been a key member of the Global REACH Automotive Task Force and was the first chair of this taskforce. Ford is also the chair of the North American Automotive Industry Action Group's REACH Advisory Committee.

Ford has made great progress in complying with REACH. For example, we created a REACH manager position and formed a REACH taskforce to manage relevant activities, including conducting REACH inventory studies and generating all required reports for customers and consumers. In addition, we have worked extensively with our suppliers to ensure their compliance with REACH thus far. Ford's existing Global Materials Management Program has made it much easier for Ford and our suppliers to comply with these new requirements. Using these systems,

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for example, Ford conducted all of the "Substances of Very High Concern" inventory studies required by REACH and generated all required reports for consumers and governmental agencies. In addition, we have added all of the "Substances of Very High Concern" to our own Restricted Substances Management Standard: this ensures that we will get the necessary reporting from our suppliers. As a result of these efforts, Ford has the highest supplier response rate in the auto industry, and all of Ford's REACH-affected suppliers have committed to following REACH requirements through Ford's Global Materials Management Program.

More and more countries are adopting chemical and substance of concern regulations like REACH. Turkey and Romania adopted their own versions of REACH in 2009; China is planning to adopt its own version in October 2010; and the state of California is planning to implement the Green Chemistry law in 2011. Ford's Global Materials Management Program will provide an effective and efficient way for Ford to be a leader among auto companies in managing materials and meeting global chemical and environmental regulations.

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Logistics

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Ford's physical logistics operations provide the safe and efficient transport of parts from our supply base to our manufacturing plants (our "inbound" freight network) and of finished vehicles from the end of our assembly lines to our dealerships (our "outbound" freight network). Although logistics account for a relatively small percentage of total vehicle life-cycle emissions, we are working hard to maximize the efficiency of these operations to reduce both costs and environmental impacts. This work is managed by Ford's Material Planning and Logistics organization (MP&L), which is the department responsible for the design and operation of our global transportation networks and for engineering high-quality and efficient packaging to protect parts in transit.

SUMMARY OF FORD'S LOGISTICS-RELATED ENVIRONMENTAL ACHIEVEMENTS FOR 2009 AND 2010

- Reduced the road-based freight of parts and finished vehicles by increasing the use of rail and sea transport. (Switching from road to rail can save 40 percent of CO₂ emissions.)
- Reduced inland road-based transport within Spain by 29 percent by expanding from three sea ports of entry to six.
- Introduced a barge route between Romania and Bavaria and began using the Black Sea for imports into Russia.
- In North America, at the beginning of 2010, rail and intermodal rail shipments represented almost 40 percent of the network distance travelled, while accounting for less than 15 percent of the network carbon footprint. In North America, achieved an average of 8 percent fewer miles travelled by delivery trucks than at the end of 2009, and the network uses 70 percent rail miles and 30 percent road miles.
- Increased the use of alternative fuels and fuel-efficient driving practices on delivery vehicles.
- Implemented new packaging guidelines that require supplier-provided packaging to support corporate sustainability goals by seeking a neutral or positive environmental footprint through zero waste to landfill and the use of 100 percent recycled, renewable, or recyclable materials.
- Increased the use of reusable packaging containers to 90 percent in our European operations.

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CO₂ Footprinting


A key step in reducing logistics-related carbon dioxide emissions is understanding our current level of emissions, and being able to compare emissions of the various alternative transport routings. This data is increasingly required to support in-house reporting requirements, such as for our vehicle life-cycle emissions studies, and to support external reporting needs.

In 2008, MP&L established a global team specifically to address the climate change impacts of transportation logistics and in particular to generate metrics for CO₂ emissions. Since 2006, our European operations (in conjunction with our European Lead Logistics Partner DHL International) have been producing basic CO₂ metrics for our inbound network for both road and rail on a journey-by-journey basis, using CO₂ emissions factors available at the time. We are now expanding this work. During 2008 and 2009, Ford and DHL supported a Masters Project at Cologne University in order to investigate the best approach to calculate more-detailed freight-related CO₂ emissions. The original calculation method has now been greatly expanded to take into account the nature of different shipments and to include the latest-available emissions factors from the most widely recognized sources. In North America, we have developed a parallel process to generate CO₂ emissions data for our North American inbound freight network, and we have been reporting this data internally since January 2009.

As a further development, Ford's Transatlantic Lead Logistics Partner, UTi Worldwide, has developed a process for quantifying emissions from transatlantic ocean container freight, and is now calculating this data for Ford. Using this data, we began reporting on all inbound transport modes – rail, road and sea – in 2010. In 2010 we will start to generate metrics for outbound freight CO₂ emission reductions.

One of the key advantages of having transport emissions data available is that it can be used to study the impacts of different sourcing patterns. MP&L is actively supporting initiatives by the Purchasing department to develop mapping models for the entire supply chain for Ford's various vehicle lines, including both the transportation and manufacturing footprints in different source locations.

There is currently no fully agreed-upon international standard for CO₂ measurements for freight transport. We are working with many key organizations to help develop standards that are both comprehensive and practical to apply. For example, we are working with the World Resources Institute on road-testing their new "Scope 3" reporting standards, and we are actively participating in the UK Department for Transport's Low Carbon Transport Supply Chain Steering Group.

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Parts and Vehicle Transport

In the majority of cases, we collect parts from our suppliers rather than have the suppliers deliver parts to our assembly plants themselves. This allows us to optimize all deliveries and thus minimize the total amount of transport required. Our inbound network is fully integrated with regional distribution centers, so that material for different plants can be collected together and then cross-loaded onto trailers routed to different final destinations. Since 2008, we have integrated transatlantic freight into the domestic networks operated by Ford of Europe and Ford North America. This integration has resulted in a reduction in the number of vehicles collecting materials from shared suppliers. For example, when suppliers are located close together, "milkround" routes are established where a single truck may visit a number of collection points. The net effect of these strategies is to minimize the number and length of journeys required, which in turn significantly reduces the environmental impact of our transportation. We work in conjunction with our Lead Logistics Providers to regularly review shipping quantities and collection frequencies, with the aim of continuously optimizing the networks. For example, in 2009 our North American Material Logistics Network collected material from 2,204 different origins or suppliers and shipped them to 37 destinations or plants, and used four origin distribution centers – called "cross docks" – to optimize delivery efficiency.

In addition, to increase overall transport efficiency, we have implemented contracts that encourage our freight carriers to carry third-party freight on return journeys rather than returning home empty.

We are maximizing the use of rail, river and short sea transport for the transport of inbound parts and materials and outbound vehicles to reduce fuel costs, emissions and road congestion. The environmental impact of rail freight is significantly less than that of road freight. It has been estimated that switching from road to rail can save 40 percent of CO₂ emissions.

For some time we have made use where possible of traditional rail services. For example, we move material by rail between our Cologne logistics hub in Germany and our Transit plant at Kocaeli in Turkey, and we move engines by rail from our Bridgend plant in Wales to our Valencia plant in Spain.

It can be difficult to expand the use of rail freight because rail terminals are not always sited near the facilities from which and to which we need to make materials and parts deliveries. To overcome this difficulty, we use "SWAP bodies" – standard freight rail containers that can be lifted on to specialist road trailers. For example, we use this system for parts shipments from suppliers in Italy to our facilities in Genk, Germany. Using this approach, road-based truck trailers are lifted

onto railway wagons at Verona and pulled by train to Genk. We use a similar process to transport materials to Genk from suppliers in Scandinavia.

In 2009 we pioneered a number of new "inter-modal" routes that use a combination of road and rail transport in order to achieve the environmental friendliness of rail for long distances, and the flexibility of road transport at either end of the journey. One example of this combined road/rail route approach is our transport system from northern Spain and southern France to our Saarlouis facility in Germany. Using this system, standard truck trailers from suppliers in Spain are driven directly onto rail wagons at a special terminus at Perpignan, France, near the Spanish border, then carried by train more than 1,000 km to Luxembourg, from where they are taken by road to Saarlouis. This approach is not only more environmentally friendly, it also reduces road congestion: the train-based freight from Perpignan to Luxembourg has the potential to keep 40 truck trailers a day off the French roads. We also focus on using water-based transport in Europe as much as possible for outbound vehicle deliveries. Following this approach, inland road-based transport within Spain has been reduced by 29 percent by expanding from three sea ports of entry to six. Moreover, we have increased our use of river transport: we use barges from our Cologne facility to a number of ports to the north and south. In 2009 we introduced a barge route between Romania and Bavaria, and we now use the Black Sea for imports into Russia.


Actions by Ford of Europe to reduce the carbon footprint of its vehicle transportation logistics operation were recognized by a prestigious Supply Chain Distinction Award in 2009. The judges honored Ford of Europe for its unparalleled performance in environmental supply chain planning and execution. This includes compliance with environmental regulations, minimizing waste from the supply chain process and the overall adoption of "green" practices across the chain.

In North America, rail is used for efficient long-distance transport of commodities such as metal stampings and powertrains. A single 86 inch high cube railcar can carry cargo equivalent to three to four 53-foot truck trailers. At the beginning of 2010, Ford's rail and intermodal rail shipments represented almost 40 percent of the network distance traveled, while accounting for less than 15 percent of the network carbon footprint.

Our Finished Vehicle logistics team in North America has focused its recent carbon footprint reduction efforts on reducing the number of miles traveled per vehicle within the network, thereby lowering the amount of fuel consumed to deliver them. Today, vehicles travel an average of 8 percent fewer miles to their destination than they did at the end of 2009, and the network is an efficient 70 percent rail miles/30 percent road miles. This mix provides an effective blend of cost, speed to market and carbon emissions management, given North American geography. Although short sea and river barge transportation is not a significant green option in North America, the modernization of the transportation fleet with a view toward fuel efficiency is an objective of shippers and carriers alike. Our North American logistics operations are also focused on improving load density, or the number of vehicles carried per conveyance, as a means to lower the number of conveyances employed, and thereby reduce the amount of fuel consumed.

We are working to reduce transport-related emissions by reducing the emissions of freight trucks themselves. In North America we have partnered with the Georgia Institute of Technology to research a number of aspects of emissions reduction. For example, we are developing best-practice guidance for our carriers to identify equipment modifications that will reduce fuel usage. We share potential best practices and the results of internal testing at regular communications meetings with our carriers, and we survey carriers annually on their implementation of fuel-efficient practices. In addition, we have been working on practical applications for alternative fuel and engine technologies in our logistics activities, and have carried out a number of trials using our in-house transport fleets. Our Rawsonville Plant has signed up to the Environmental Protection Agency's "SmartWay" program, and is monitoring improvements to its truck fleet's fuel usage. Our North American operations also work to decrease the number of transport runs required by making improvements in packaging density and trailer cube utilization.

Ford of Europe's in-house transport operations have been implementing a number of initiatives to reduce the emissions of their trucks. These include training in fuel-efficient driving and increasing the use of biofuels. We are using a lower emission propane (liquefied petroleum gas) van for all London-based delivery work. Also, we use a fuel additive on major inbound routes to reduce harmful nitrous oxide emissions. Our European transport operations have tested the use of driving speed limiters to improve fuel economy and the use of deflectors on new trailers to improve vehicles' aerodynamics. These and other efforts have allowed us to comply with Euro V emission rulings and reduce our emissions-related road tax costs.

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Packaging

Ford MP&L's Packaging Engineering department focuses on designing, procuring and optimizing packaging on a part-by-part basis to best suit the components being moved and the transport

required.

Packaging directly impacts a number of environmental elements throughout its life-cycle, including materials usage, freight and waste disposal. Over years of testing, tracking and performance improvement, we have confirmed that the best strategy to eliminate material waste and optimize freight efficiency is to use durable and returnable packaging for all but the longest supply chains.


We have developed a standard range of packaging that not only protects parts and makes them easy to handle at the assembly line, but also allows maximum storage density during transportation, thereby minimizing transport requirements. We review the packaging of production trial parts to assess opportunities to increase packing density prior to the full-volume launch of a product.

One of the benefits of standardizing packaging is that it makes packaging interchangeable between suppliers and programs. In Europe, we have contracts with third-party specialist packaging providers to control the issue, collection and pooling of standard packaging for our suppliers. This pooling greatly reduces transport requirements, as the packaging can be shipped to where it is next required rather than always having to return it to the supplier who last used it.

Currently, our European operations use 90 percent reusable containers, and we are seeking to increase that amount. For example, we are working to develop more direct routing for parts to our St Petersburg plant so that it is viable to use returnable packaging.

Our Asia Pacific and Africa team is investigating the use of returnable packaging for hazardous material shipments, to ensure that they meet transportation requirements and will reduce waste.

We are now working globally to share best practices between regions and to drive consistency in packaging for future global vehicle programs. Ford's latest packaging guidelines, published in April 2009, require that supplier-provided packaging supports corporate sustainability goals by seeking a neutral or positive environmental footprint through zero waste to landfill and use of 100 percent recycled, renewable or recyclable materials.

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Supply Chain Sustainability

We are working with our core suppliers to improve the sustainability of their products and processes. Our work with our Aligned Business Framework (ABF) suppliers to date has focused on providing support and resources to help them align with Ford's [Code of Basic Working Conditions](#) and implement supporting process, including responsible environmental management systems. Ford has committed to providing suppliers with a range of support and assistance based on our experiences in this area.

For example, during the fourth quarter of 2009, we held two sustainability sessions in Dearborn, Michigan, and Cologne, Germany, which were attended by senior management from Ford and our [ABF suppliers](#). Topics covered in these meetings included internal training development guidance and best practice sharing from suppliers related to responsible working conditions and environmental management in their owned operations as well as with their suppliers. We also held a workshop discussion on the topic of carbon measurement and management in the automotive value chain. We are now working with our suppliers to improve environmental performance and have begun to engage with suppliers in the data collection and reporting of greenhouse gas emissions (see the [Climate Change](#) section for more information).

We are also working with our suppliers to increase their use of sustainable materials and eliminate undesirable materials. While Ford has already made great strides in using more sustainable materials (as discussed in the [Sustainable Materials](#) section), we can expand these efforts by systematically working with our suppliers on sustainable materials. Toward that end, we are developing Commodity Business Plans and other materials purchasing strategies that require the use of sustainable materials. For example, we developed a purchasing strategy for recycled plastics resins and Commodity Business Plans for relevant parts that require the use of post-consumer recycled plastics. Beginning in 2009, underbody aerodynamics shields, front splash shields, stone pecking cuffs and radiator air deflector shields manufactured in North America are made from the approved recycled plastics or ultra-lightweight, sound-absorbing textile materials with 30 percent to 40 percent recycled content.

In Europe and North America, we have added environmental requirements to the formal agreements that we make with our suppliers. These requirements cover a range of issues, such as reducing materials of concern, using Design for Sustainability principles, increasing the use of sustainable materials and using materials that will improve vehicle interior air quality. We ask suppliers to use recycled materials whenever technically and economically feasible. All recycled materials are evaluated in-house to guarantee that they deliver appropriate mechanical properties and the same level of performance that would be obtained with virgin materials.

Sales and Service Sustainability Initiatives

In early 2010, Ford announced a new dealer sustainability program. The "Go Green" Dealer Sustainability Program is a voluntary initiative for Ford and Lincoln Mercury dealers to reduce their carbon footprint and improve the energy efficiency of their dealerships. Through this program, Ford will collaborate with dealers to implement cost-effective ways to improve the energy efficiency of their facilities, resulting in a long-term reduction in the individual dealership's carbon footprint as well as overall operating costs.

Dealers who participate will first receive a comprehensive energy assessment from sustainability experts at Ford. After the thorough assessment is completed, Ford and the dealer will work together to identify the best energy-saving options that are available and tailor a program to meet the needs of the dealer. Possible solutions are wide-ranging and can be implemented for dealers with existing facilities, as well as dealers who are constructing new facilities. Participating dealers will receive guidance on available state and federal tax credits and incentives, as well as access to technical expertise and resources to assist with the selection of energy-efficient products and equipment.

Ford has partnered with the Rocky Mountain Institute to pilot emerging technologies and

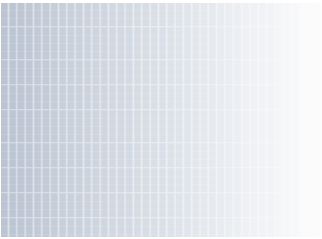
RELATED LINKS

This Report:

- Suppliers
- Sustainable Materials
- Code of Basic Working Conditions
- Climate Change
- Dealers

External Web Sites:

- Rocky Mountain Institute



advanced facility design strategies at the pilot dealerships in varied climate locations. The first pilot project, which is being conducted at Jarrett Gordon Ford Lincoln Mercury in Winter Haven, Florida, involves a major renovation incorporating a majority of the technologies identified from on-site energy assessments. The technologies include LED lighting, improved building insulation, highly energy-efficient air conditioning equipment, as well as daylighting systems and natural ventilation. Studies are also underway to install renewable energy and make the dealership a net-zero energy (i.e., carbon neutral) building.

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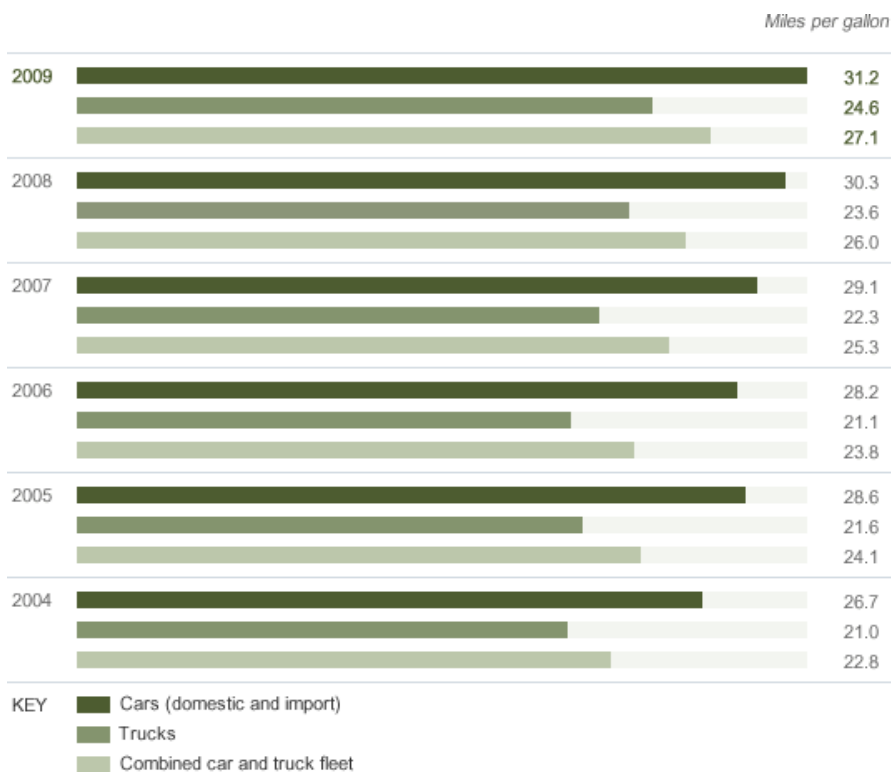
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A. Ford U.S. Corporate Average Fuel Economy



Miles per gallon

	2004	2005	2006	2007	2008	2009
Cars (domestic and import)	26.7	28.6	28.2	29.1	30.3	31.2
Trucks	21.0	21.6	21.1	22.3	23.6	24.6
Combined car and truck fleet	22.8	24.1	23.8	25.3	26.0	27.1


For the 2009 model year, the Corporate Average Fuel Economy (CAFE) of our cars and trucks increased by 4.2 percent relative to 2008. Preliminary data for the 2010 model year show a 3.2 percent improvement in CAFE for cars and a slight decline of 2.4 percent in CAFE for trucks as compared to 2009. For more

information, please see [Fuel Economy and Greenhouse Gas Emissions](#).

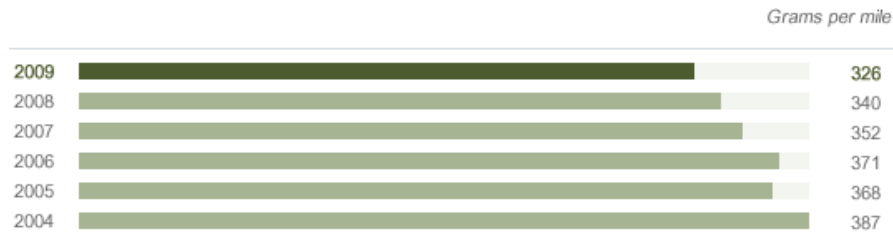
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B. Ford U.S. CO₂ Tailpipe Emissions Per Vehicle (Combined Car and Truck Fleet Average CO₂ Emissions)



Grams per mile


2004	2005	2006	2007	2008	2009
387	368	371	352	340	326

Improvement is reflected in decreasing grams per mile.

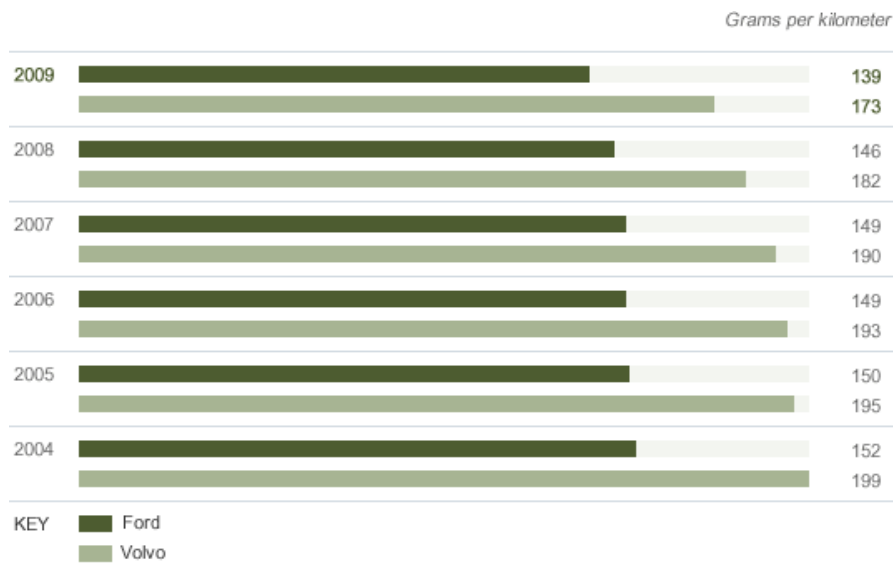
In 2009, Ford reduced U.S. CO₂ tailpipe emissions per vehicle for the third year in a row. See the [Climate Change](#) section for a discussion of our CO₂ emissions performance.

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C. Ford Europe CO₂ Tailpipe Emissions Per Vehicle




Grams per kilometer

	2004	2005	2006	2007	2008	2009
Ford	152	150	149	149	146	139
Volvo	199	195	193	190	182	173

Improvement is reflected in decreasing grams per kilometer. European and U.S. fleet CO₂ emissions are not directly comparable because they are calculated in different units and because they are assessed based on different drive cycles. In 2009, we switched from reporting European vehicle CO₂ emissions as a percent of a 1995 base to reporting actual fleet average CO₂ emissions, to parallel our reporting for other regions.

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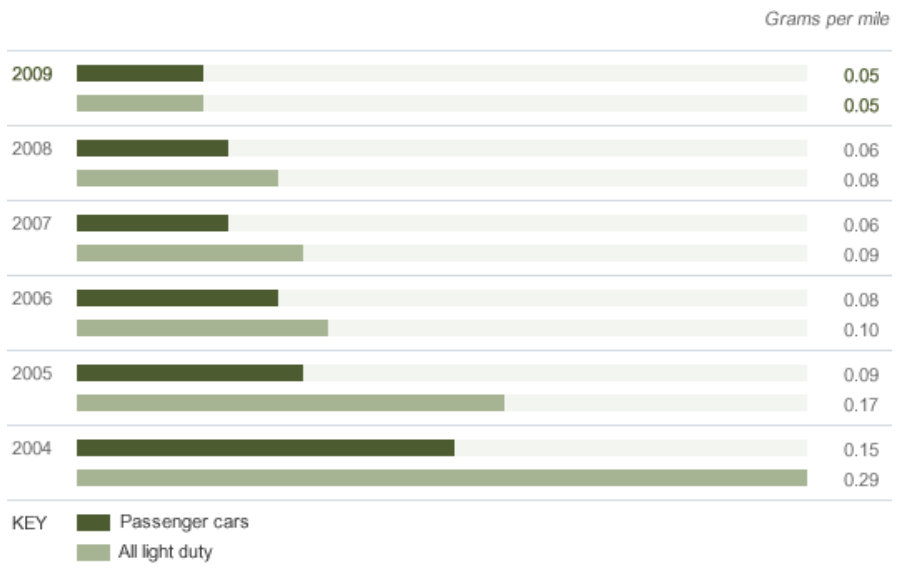
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A. Ford U.S. Average NOx Emissions



	2004	2005	2006	2007	2008	2009
Passenger cars	0.15	0.09	0.08	0.06	0.06	0.05
All light duty	0.29	0.17	0.10	0.09	0.08	0.05

In 2009, Ford reduced average NOx emissions for the seventh year in a row.

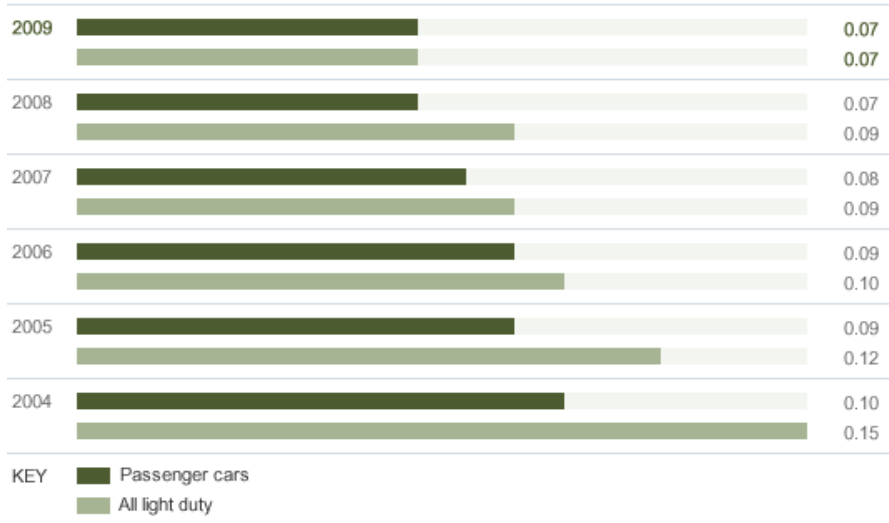
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B. Ford U.S. Average NMOG Emissions

Grams per mile



Grams per mile

	2004	2005	2006	2007	2008	2009
Passenger cars	0.10	0.09	0.09	0.08	0.07	0.07
All light duty	0.15	0.12	0.10	0.09	0.09	0.07

NMOG = Non-Methane Organic Gases

In 2009, Ford reduced average NMOG emissions for the seventh year in a row.



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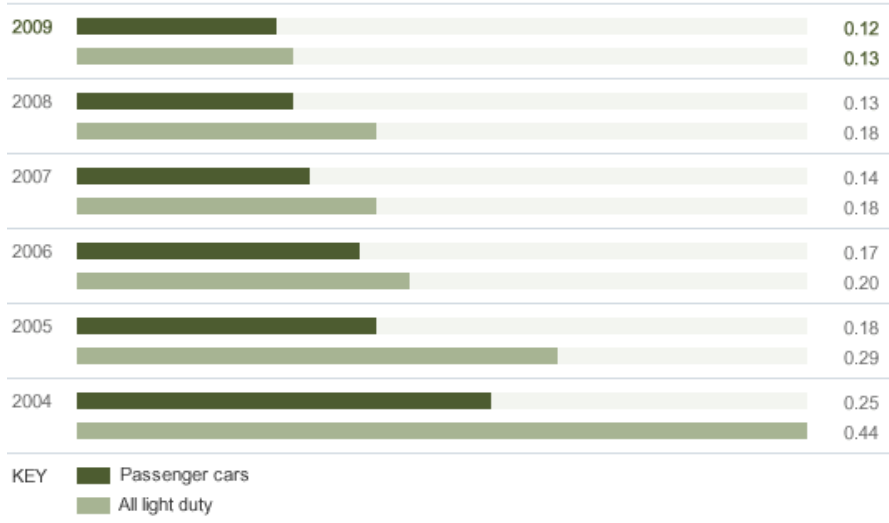
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C. Ford U.S. Average Vehicle Emissions

Grams per mile



Grams per mile

	2004	2005	2006	2007	2008	2009
Passenger cars	0.25	0.18	0.17	0.14	0.13	0.12

All light duty	0.44	0.29	0.20	0.18	0.18	0.13
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Average vehicle emissions are the smog-forming pollutants from vehicle tailpipes, characterized as the sum of [(NMOG + NOx emissions) x volume] for all products in the fleet.

In 2009, Ford reduced average vehicle emissions for the seventh year in a row.

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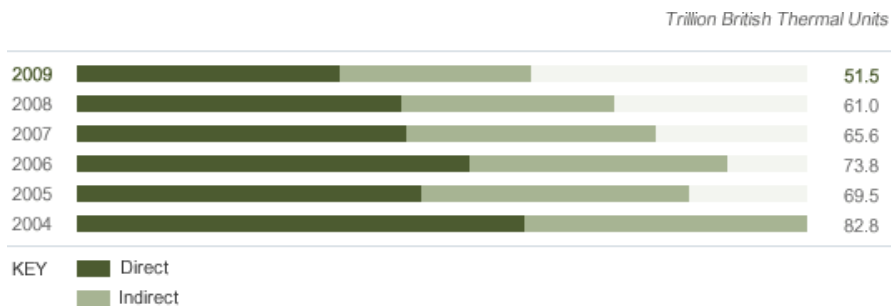
Operational Energy Use and CO₂ Emissions

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A. Worldwide Facility Energy Consumption



Trillion British Thermal Units

	2004	2005	2006	2007	2008	2009
Direct	50.8	39.0	44.6	37.3	36.7	29.8
Indirect	32.0	30.5	29.2	28.3	24.3	21.7
Total	82.8	69.5	73.8	65.6	61.0	51.5

Data have been adjusted to account for facilities that were closed, sold or new. This data does not include Automotive Components Holdings (ACH) facilities.

We reduced worldwide facility energy consumption for the fourth year in a row. These reductions were accomplished through a wide range of energy-efficiency projects and due to the drop in production. For more information, please see [Operational Energy and Greenhouse Gas Emissions](#).

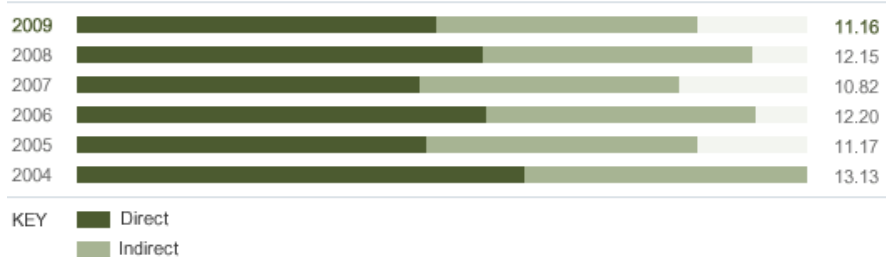
Data managed through the [Global Emissions Manager database](#)

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B. Worldwide Facility Energy Consumption Per Vehicle

Million British Thermal Units per vehicle



Million British Thermal Units per vehicle

	2004	2005	2006	2007	2008	2009
BTUs/vehicle direct	8.06	6.27	7.37	6.15	7.31	6.45
BTUs/vehicle indirect	5.07	4.90	4.83	4.67	4.84	4.71
Total	13.13	11.17	12.20	10.82	12.15	11.16

These data do not include Automotive Components Holding facilities.

Energy consumption per vehicle divides energy used by the number of vehicles produced. Averaging energy consumption per vehicles produced yields a somewhat imperfect indicator of production efficiency. When the number of vehicles produced declines, as it has since 2000, per-vehicle energy use tends to rise, because a portion of the resources used by a facility is required for base facility operations, regardless of the number of vehicles produced.

We believe that the long-term trend of declining per-vehicle energy use emissions indicate that more efficient production since 2000 is offsetting the tendency of these indicators to rise during periods of declining production. This interpretation is reinforced by our Energy Efficiency Index, which focuses on production energy efficiency and which has been steadily improving. Our Energy Efficiency Index target also has the effect of driving reductions in CO₂ emissions.



Data managed through the [Global Emissions Manager database](#)

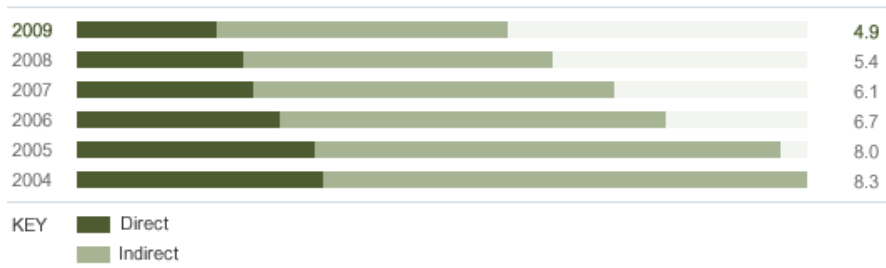
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C. Worldwide Facility CO₂ Emissions

Million metric tons



Million metric tons

	2004	2005	2006	2007	2008	2009
Direct	2.8	2.7	2.3	2.0	1.9	1.6
Indirect	5.5	5.3	4.4	4.1	3.5	3.3
Total	8.3	8.0	6.7	6.1	5.4	4.9

The data have been adjusted to account for facilities that were closed, sold or new. The data does not include Automotive Components Holdings facilities.

1. Sixty-one percent of Ford's global facility GHG emissions are third-party verified. All of Ford's North American GHG emissions data since 1998 are externally verified by The Financial Industry Regulatory

Authority, the auditors of the NASDAQ stock exchange, as part of membership in the Chicago Climate Exchange. In addition, all of our European facilities impacted by the mandatory EU Trading Scheme are third-party verified.

We reduced worldwide facility CO₂ emissions for the fifth year in a row. These reductions were accomplished through a wide range of energy efficiency projects. For more information, please see [Operational Energy and Greenhouse Gas Emissions](#).



Third-party verified (North America and EU) ¹



Reported to regulatory authorities (EU). Voluntarily reported to registry or other authority (U.S., Canada, Mexico, Australia, Philippines, Chongqing, China).

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D. Worldwide Facility CO₂ Emissions Per Vehicle

Metric tons per vehicle



KEY Direct
 Indirect

Metric tons per vehicle

	2004	2005	2006	2007	2008	2009
Direct	0.44	0.43	0.38	0.33	0.38	0.35
Indirect	0.88	0.85	0.72	0.68	0.71	0.70
Total	1.32	1.28	1.11	1.01	1.09	1.05

These data do not include Automotive Components Holding facilities.

CO₂ emissions per vehicle divides CO₂ emitted by the number of vehicles produced. Averaging CO₂ emissions by the number of vehicles produced yields a somewhat imperfect indicator of production efficiency. When the number of vehicles produced declines, as it has since 2000, per-vehicle energy use tends to rise, because a portion of the resources used by a facility is required for base facility operations, regardless of the number of vehicles produced.

We believe that the long-term trend of declining per-vehicle CO₂ emissions indicate that more efficient production since 2000 is offsetting the tendency of these indicators to rise during periods of declining production. This interpretation is reinforced by our Energy Efficiency Index, which focuses on production energy efficiency and which has been steadily improving. Our Energy Efficiency Index target also has the effect of driving reductions in CO₂ emissions.



Data managed through the [Global Emissions Manager database](#)

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E. Energy Efficiency Index

Percent



Percent


2004	2005	2006	2007	2008	2009
87.8	83.4	78.4	74.4	69.9	65.3

The Index, which covers energy use in North America, is "normalized" based on an engineering calculation that adjusts for typical variances in weather and vehicle production. The Index was set at 100 for the year 2000 to simplify tracking against our target of 3 percent improvement in energy efficiency.

We have improved our Energy Efficiency Index score every year since we began calculating this index in 2000. We have achieved these results through a wide variety of energy-efficiency improvements. For more information, please see [Operational Energy and Greenhouse Gas Emissions](#).

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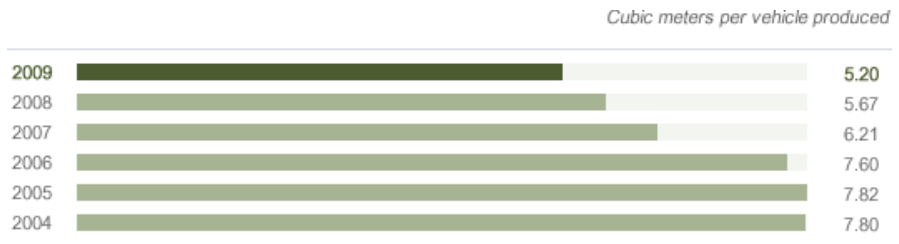
Water Use

DATA ON THIS PAGE

- A. Global Water Use Per Vehicle Produced
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- C. Regional Water Use

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A. Global Water Use Per Vehicle Produced



Cubic meters per vehicle produced

	2004	2005	2006	2007	2008	2009
	7.94	7.82	7.76	6.21	5.67	5.20

The reduction in water use from 2008 to 2009 reflects a long-term trend of reducing water use per vehicle each year. Ford facilities have achieved [reductions in water consumption](#) through a broad range of actions.

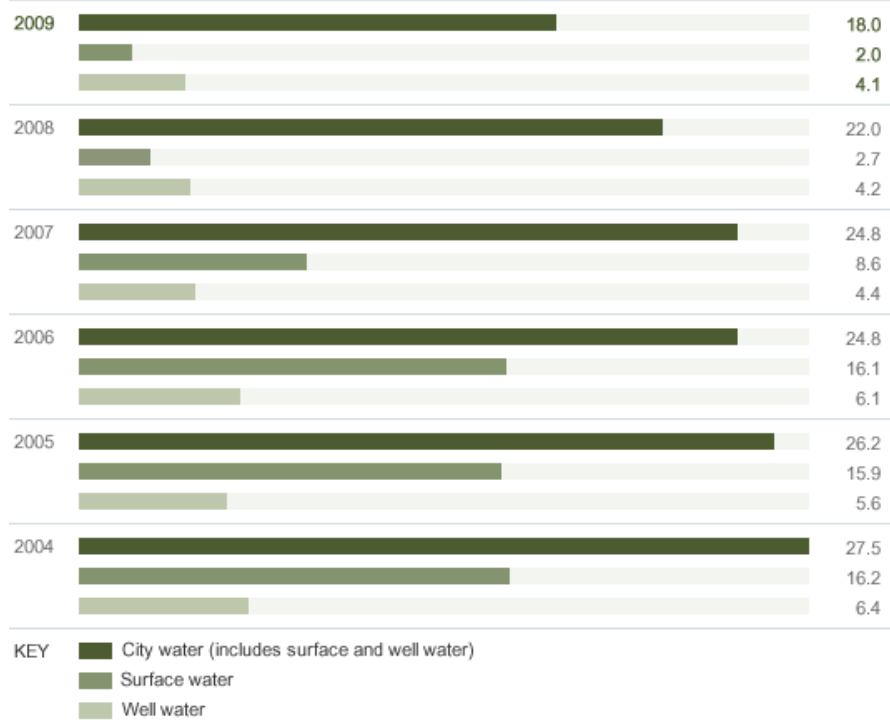
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B. Global Water Use By Source

Million cubic meters



Million cubic meters

	2004	2005	2006	2007	2008	2009
City water (includes surface and well water)	27.5	26.2	24.8	24.8	22.0	18.0
Surface water	16.2	15.9	16.1	8.6	2.7	2.0
Well water	6.4	5.6	6.1	4.4	4.2	4.1

From 2008 to 2009, we reduced our overall water use (from all sources) by 16.6 percent. This reduction exceeds our overall target of a 6 percent reduction in water use each year and reflects a long-term trend of reducing water use from all sources. Ford facilities have achieved [reductions in water consumption](#) through a broad range of actions.



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C. Regional Water Use

Premier Automotive Group is now included in Europe

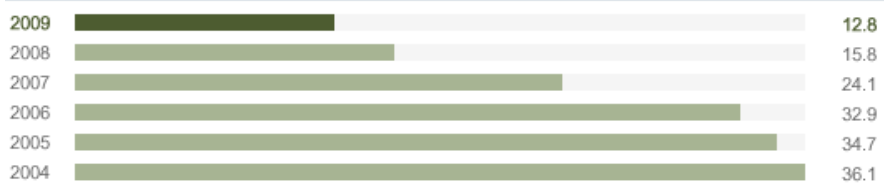
Asia Pacific and Africa



Europe



North America



South America



Premier Automotive Group is now included in Europe

Million cubic meters

	2004	2005	2006	2007	2008	2009
Asia Pacific and Africa	2.4	3.0	3.0	4.0	4.0	3.9
Europe	8.3	7.4	7.5	6.7	5.9	5.0
North America	36.1	34.7	32.9	24.1	15.8	12.8
South America	2.4	2.6	2.5	2.4	2.5	2.4

2008 Asia Pacific and Africa data changed from our last report due to improved data collection.

This year, [we reduced water use in all regions](#). We have a long-term trend of reducing water use in North America and Europe.

In Asia Pacific and Africa, water use has been increasing over the past few years, due largely to the increase in vehicles produced in this region. From 2008 to 2009, however, we reduced water usage in this region for the first time since 2003.

In South America, water use has remained largely constant since 2003.



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Emissions (VOC and Other)

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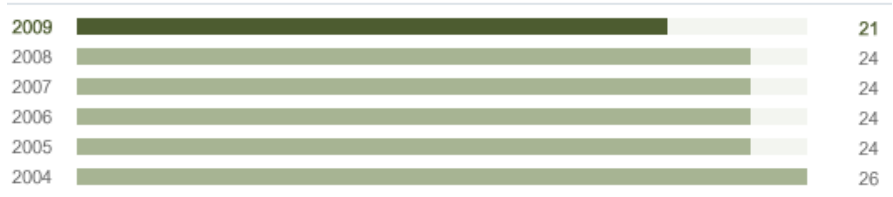
- A. North America Volatile Organic Compounds Released by Assembly Facilities
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- D. Ford Canada NPRI Releases
- E. Ford Canada NPRI Releases Per Vehicle
- F. Australia National Pollutant Inventory Releases (Total Air Emissions)

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A. North America Volatile Organic Compounds Released by Assembly Facilities

2010 target = 24

Grams per square meter of surface coated



2010 target = 24

Grams per square meter of surface coated

Year	2004	2005	2006	2007	2008	2009
Emissions (g/m ²)	26	24	24	24	24	21

We reduced VOC emissions in North America by 12.5 percent between 2008 and 2009, exceeding our goal of maintaining emissions at 24 grams per square meter of surface coated. We achieved this goal through, among other things, the use of mold-in-color plastics (which preclude the need for painting) and our fumes-to-fuel technology, which captures VOC emissions from our paint shops and uses them as an energy source.

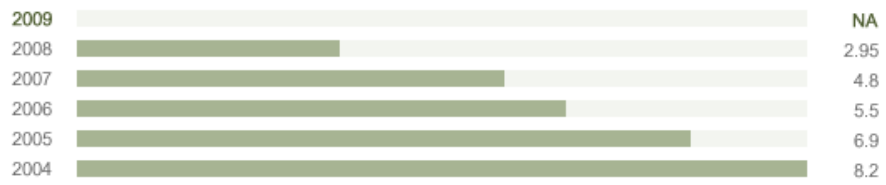
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B. Ford U.S. TRI Releases

Million pounds



Million pounds

2004	2005	2006	2007	2008	2009
8.2	6.9	5.5	4.8	2.95	NA


Releases reported under the U.S. Toxics Release Inventory are all in accordance with the law, and many of them are subject to permits. The data shown are the most recent reported to authorities.

Our U.S. Toxic Release Inventory releases decreased significantly from 2007 to 2008, continuing a long-term trend of reducing these releases. These reductions were achieved through material and process changes.

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C. Ford U.S. TRI Releases Per Vehicle

Pounds per vehicle



Pounds per vehicle


2004	2005	2006	2007	2008	2009
2.8	2.5	2.7	2.4	2.06	NA

Releases reported under the U.S. Toxics Release Inventory are all in accordance with the law, and many of them are subject to permits. The data shown are the most recent reported to authorities.

Our U.S. Toxic Release Inventory releases per vehicle decreased from 2007 to 2008, the third year in a row we have reduced these emissions. These reductions were achieved through material and process changes.

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D. Ford Canada NPRI Releases

Metric tonnes



Metric tonnes

2004	2005	2006	2007	2008	2009
1,026	693	600	5,503	726	NA

Releases reported under the Canadian National Pollutant Release Inventory are all in accordance with the law, and many of them are subject to permits. The data shown are the most recent reported to authorities.

Our Canada National Pollutant Release Inventory releases decreased substantially from 2007 to 2008. With this decrease, we return to a multi-year trend of reducing NPRI releases each year. These reductions were achieved through material and process changes.

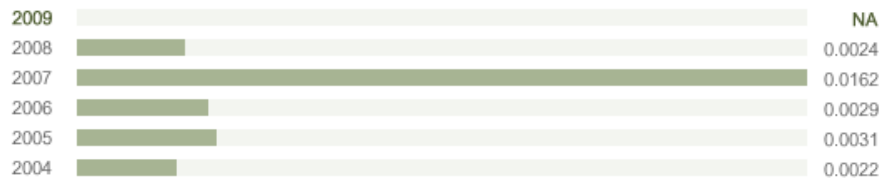
Reported to regulatory authorities ([Environment Canada](#))

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E. Ford Canada NPRI Releases Per Vehicle

Metric tonnes per vehicle



Metric tonnes per vehicle

2004	2005	2006	2007	2008	2009
0.0022	0.0031	0.0029	0.0162	0.0024	NA

Releases reported under the Canadian National Pollutant Release Inventory are all in accordance with the law, and many of them are subject to permits. The data shown are the most recent reported to authorities.

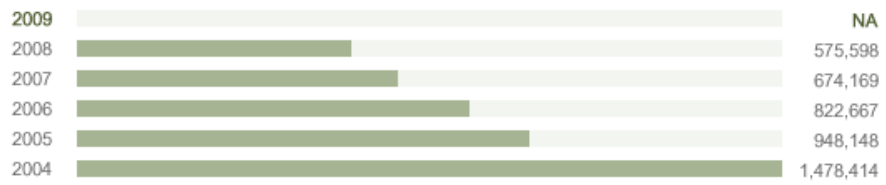
Our Canada National Pollutant Release Inventory releases per vehicle decreased substantially from 2007 to 2008. These reductions were achieved through material and process changes.

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F. Australia National Pollutant Inventory Releases (Total Air Emissions)

Kilograms per year



Kilograms per year

2004	2005	2006	2007	2008	2009
1,478,414	948,148	822,667	674,169	575,598	NA

Releases reported under the Australian National Pollutant Inventory are all in accordance with the law, and many of them are subject to permits. The data shown are the most recent reported to authorities.

Our ANPI releases decreased by 14 percent from 2007 to 2008, the fourth year in a row we have reduced these releases. These reductions were achieved through material and process changes.



Reported to regulatory authorities ([NPI](#))

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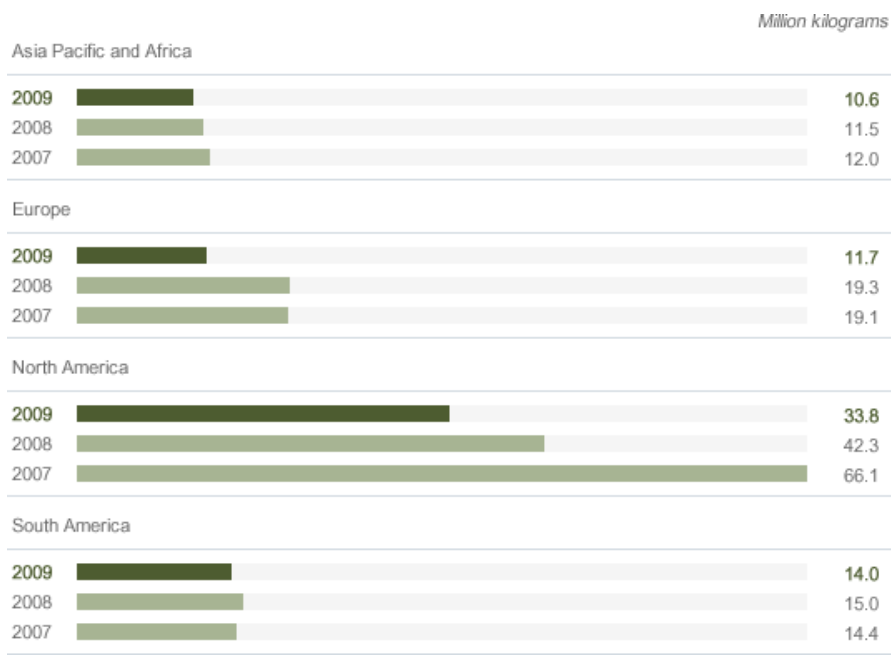
Waste

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- A. Regional Waste to Landfill
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- C. Regional Hazardous Waste Generation
- D. Hazardous Waste Generation Per Vehicle

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A. Regional Waste to Landfill



	Million kilograms		
	2007	2008	2009
Asia Pacific and Africa	13.5	11.5	10.6
Europe	19.1	19.3	11.7
North America	66.1	42.3	33.8
South America	14.4	15.0	14.0

The data for 2007 and 2008 have been corrected. Also, AutoAlliance International, our joint-venture plant in Flat Rock, Michigan that produces the Ford Mustang, is included for 2009.

In 2009, we reduced total waste to landfill by 20.5 percent compared to 2008. We reduced waste to landfill in all regions except for Asia Pacific and Africa. The slight increase in that region is due mainly to an increase in production. In North America, we reduced waste to landfill by 40 percent.

We [decreased waste to landfill](#) primarily through aggressive efforts to generate less waste and recycle more, and through the use of waste-to-energy incineration facilities.



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B. Waste to Landfill Per Vehicle



Kilograms

	2007	2008	2009
	18.87	17.76	15.20

The data for 2007 and 2008 have been corrected this year. Also, AutoAlliance International, our joint-venture plant in Flat Rock, Michigan that produces the Ford Mustang, is included for 2009.

Total waste to landfill per vehicle continued to decline in 2009. This shows we are reducing total waste regardless of production levels, and therefore using resources more efficiently.

We [decreased waste to landfill](#) primarily through aggressive efforts to generate less waste and recycle more, and through the use of waste-to-energy incineration facilities.

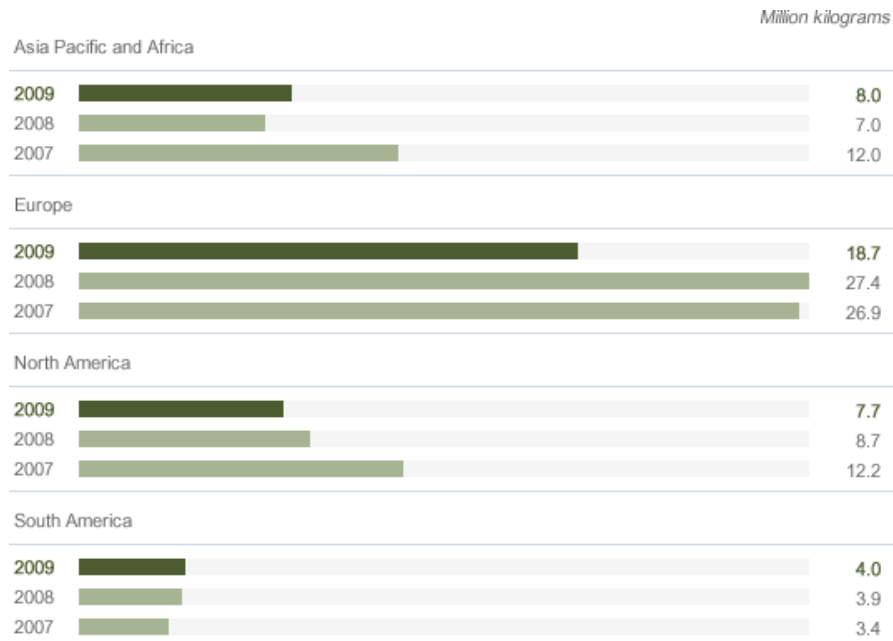


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C. Regional Hazardous Waste Generation



Million kilograms

	2007	2008	2009
Asia Pacific and Africa	12.0	7.0	8.0
Europe	26.9	27.4	18.7
North America	12.2	8.7	7.7
South America	3.4	3.9	4.0

We reduced the generation of hazardous waste in all regions from 2008 to 2009. In North America and Asia Pacific, this is the third year in a row we have reduced hazardous waste. These reductions are due to material and process changes.



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D. Hazardous Waste Generation Per Vehicle

Kilograms



Kilograms

	2007	2008	2009
	9.1	10.0	8.3

We reduced hazardous waste generation per vehicle from 2008 to 2009. This shows we are reducing hazardous waste regardless of production levels, and therefore using resources more efficiently.



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Ford's Best in Powertrain Environmental Initiative Produces Impressive Results

Beginning in 2009, Ford's Powertrain Operations management challenged our North American and European powertrain plants to reach a new level of best-in-class performance on four key environmental performance metrics that support Company objectives: electrical energy, hydrocarbon, water use and waste-to-landfill reductions. This program, called "Best in Powertrain," is intended to improve environmental performance by spurring learning and the sharing of best practices across all of the powertrain plants.

[Read more](#)

Ford Drives Green with Sustainable Printing

In 2009, a small but determined group from various departments within Ford joined together to develop a sustainable paper strategy for the Company. The strategy stated that all high-volume, consumer and employee printing projects should be produced using paper that contains at least 10 percent post-consumer recycled fiber and that is certified by the Forest Stewardship Council. Increasing the use of recycled paper may sound like a small step for an automotive company. However, the results have been anything but small.

[Read more](#)

Award-Winning New Machining Process Saves Money, Time, and Resources

In 2009, Ford introduced a new machining process that uses inputs more efficiently and significantly reduces waste production, energy use and costs. Ford's new process uses compatible coolant, oils and lubricants that enable the recycling and reuse of fluids, thereby significantly reducing the production of oily waste.

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Ford's Best in Powertrain Environmental Initiative Produces Impressive Results

Beginning in 2009, Ford's Powertrain Operations management challenged our North American and European powertrain plants to reach a new level of best-in-class performance on four key environmental performance metrics that support Company objectives: reductions in electrical energy use, hydrocarbon use, water use and waste to landfill. This program, called "Best in Powertrain" (BiP), is intended to improve environmental performance by spurring the learning and sharing of best practices across all Ford powertrain plants. A cornerstone of this program was the development of environmental performance goals for each of the four performance areas. The plants with the best performance on each of these metrics provide the goal that other plants are asked to achieve. Each plant is then asked to adopt annual "stretch" goals for reducing their environmental footprint in each of the four key measurement areas, based on a five-year glide-path that will enable them to reach the "Best in Powertrain" levels.

In each plant, the BiP program is spearheaded by environmental leadership teams for each of the four key performance areas. These teams are tasked with developing creative action plans to meet the BiP stretch goals for their plant over five years, in order to lessen the plant's environmental footprint. In addition, they were asked to both share best practice ideas and lessons learned with their counterparts at the other powertrain plants, and to adopt best practices developed at other powertrain plants.

"You get a much higher degree of ownership with this approach," said Kevin Poet, a launch manager at the Van Dyke Transmission Plant in southeastern Michigan. "And the process provided information resources and ideas to go along with the objectives, instead of just handing down targets."

The process of sharing information and performance accomplishments among plants is a key to the Best in Powertrain approach. For example, Poet noted that this process made information on how to improve environmental performance more easily accessible across plants. "By formalizing environmental performance reviews and reports, the BiP process ensured that the information was being used as intended, and it accelerated learning across locations. We had cross-plant discussion almost every week. At Van Dyke, we were able to take advantage of actions at other locations to improve our performance, and we learned how to avoid future issues that could affect our performance. A little friendly competition is not a bad thing, either," Kevin joked. "We cascaded what we learned about other plants' performance to our teams on the floor that are responsible for delivering to these objectives, and it gave them an incentive to go the extra mile."

Gary Johnson, Executive Director for Manufacturing in our Asia Pacific and Africa region (and formerly Director of Manufacturing for North America Engine) also pointed to information sharing and friendly competition when describing the success of the BiP program. "The BiP program kicked off as an opportunity for us to compare our plants globally in key categories," Gary said. "When we first put the metrics together, we uncovered differences of up to millions of dollars in usages from the best plant to the plant with the most opportunity for improvement. We kicked off with a meeting of all North American powertrain plants to show them the metrics and the differences, and to set up action plans to see what we could do to close the performance gaps. It wasn't easy at first, but once we had the data in front of everyone, and were able to show how different plants were meeting their targets, the rest of the plant teams started to follow. This approach has really created a lot of ownership and motivation at the individual plant level."

So far, the BiP program has had impressive results. Ford's powertrain plants have risen to the challenge and delivered significant improvements in all the environmental performance areas. As hoped, employees have also shared insights and ideas within plants and from plant to plant to spur increased innovation and performance improvements.

At the Windsor Engine Plant, in Windsor, Ontario, for example, the environmental team earnestly embraced the program and implemented actions throughout 2009 that significantly reduced their

environmental footprint. Among their accomplishments, they:

- Improved energy efficiency by 42 percent compared to 2006 (on a per-unit basis).
- Reduced water usage by 17 percent compared to 2008 (on a total-volume basis).
- Reduced hydrocarbon usage by 20 percent compared to 2008 (on a per-unit basis).
- Decreased waste to landfill by 90 percent compared to 2008 (on a total-volume basis). As a result of the waste-diversion efforts, the Windsor Engine Plant is Ford's first North American plant to achieve zero waste to landfill.

Karen LeBlanc, Environmental Management Representative at the Windsor Engine Plant, indicated that every department in the plant made significant efforts to help achieve the goals. For example, by increasing the performance efficiency of their cooling towers, they saved about 14 million liters of water in 2009. Teams made the environmental goals a priority, meeting twice a week to communicate, brainstorm and coordinate efforts for maximum effectiveness.

The Van Dyke Transmission Plant also exemplifies the success of the Best in Powertrain program. Prior efforts by the plant's employees had already achieved low levels of water use, hydrocarbon/oil use, electrical energy use and waste to landfill. However, they managed to improve their performance even more and to significantly exceed their BiP goals in all of the four key performance areas.

As a result of all the North American powertrain plants' actions, North American Powertrain Operations (NA PTO) exceeded Company targets in all four key performance areas. Specifically, the NA PTO reduced water use by 25 percent in 2009 on a total volume basis, compared to a targeted 6 percent reduction. They reduced waste to landfill by 60 percent on a total volume basis, compared to a targeted reduction of 10 percent. And they reduced hydrocarbon usage by more than 14 percent in 2009 vs. 2008. These results were largely due to the extensive actions taken by the Livonia Transmission Plant, Windsor Engine Plant and Sterling Axle Plant in increasing accountability for hydrocarbon usage and fixing water leaks.

In 2010, we are expanding the Best in Powertrain environmental initiative to include our Asia Pacific and South American powertrain plants, as well as formalizing the program in Europe, which will expand our learning community – and our environmental improvements – even further.



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Ford Drives Green with Sustainable Printing

In 2009, a small but determined group from various departments within Ford joined together to develop a sustainable paper strategy for the company. The strategy stated that all high-volume, consumer and employee printing projects should be produced using paper that contains at least 10 percent post-consumer recycled fiber and that is certified by the Forest Stewardship Council (FSC). Increasing the use of recycled paper may sound like a small step for an automotive company. However, the results have been anything but small.

Due to this strategy, Ford has used more than 12.6 million pounds of recycled-content paper rather than virgin paper over the past year, which translates into some pretty significant environmental benefits, including:

- 12,000 trees preserved
- 35,000 lbs. of water-borne waste not created
- 5.2 million gallons waste-water flow avoided
- 570,000 lbs. of solid waste not generated
- 1.1 million lbs. net greenhouse gases prevented
- 8.6 billion BTUs of energy not consumed

Using FSC-certified paper has been an important part of the initiative. FSC certification provides a highly recognized and respected third-party chain of custody review to confirm that the paper has been procured through sustainable practices. The certification requires that wood products have been sustainably handled from the forest where they are harvested, through the pulp purchased by the paper mill to the printer who manufactured the end project. It also supports a range of sustainable benefits. Using FSC-certified products helps to ensure that paper pulp is not harvested from endangered rainforest timber. In addition, most FSC paper is produced domestically, so it supports U.S. jobs.

Ford's strategy requests that printed pieces be labeled as recycled, with the amount of post-consumer waste content noted, along with the "FSC certified" logo and text stating that it was printed in the United States. This is not just a way to acknowledge Ford's use of sustainable paper – it is a key part of the education process. It helps to fulfil one of the goals of the project, which was to reinforce employee and consumer awareness of Ford's efforts to promote sustainable printing.

Implementing this new paper strategy has taken some concerted effort. Driving that effort has been a small group led by Nicole DesNoyer, a producer in Ford's Corporate Communications department, and including key suppliers and members from the Communications, Purchasing and Sustainability departments.

First, Nicole's team identified key projects that would be good candidates for conversion post-consumer recycled and FSC-certified paper. Then they met with the relevant Ford project leaders and discussed with them the environmental and social benefits of the print strategy. "One of the key things I do is to open an informative discussion with the project owner about why this important to Ford, how easy it is to do and how significant the benefits of changing to recycled paper can be," Nicole explained.

To serve as a model of what could be done, Nicole migrated all of the publications she managed – including Ford's Sustainability Report, the corporate financial Annual Report and the employee and retiree magazine @Ford – to paper with at least 10 percent post-consumer recycled content and FSC certification. This was used as an example to other project managers that it was possible to use recycled content paper without any loss in print performance, appearance or product quality. In most cases, it was cost-neutral to existing budgets.

With these successes under her belt, the team also worked with Ford's Purchasing department and Xpedx, Ford's primary corporate coated paper supplier, to build additional awareness among

Ford employees, marketing groups, creative agencies and suppliers about sustainable paper options. Working with Xpedx, Ford offered project managers a pre-established, limited range of paper options that contained 10 percent post-consumer recycled content and were FSC-certified. By limiting the number of paper choices and suppliers, Xpedx could buy and negotiate in large volumes with the major U.S. and international paper mills, allowing Ford to get the best pricing while still providing the user a variety of paper options with the desired sustainable characteristics.

Still, one of most common concerns about using the certified recycled paper was that it would cost more. However, by investigating current project specifications and working with the corporate paper merchants, the team was able to find acceptable sustainable papers that were cost-neutral or of minimal cost impact to projects.

Throughout the implementation process, the team aimed to increase upper management and project managers' awareness of the value of recycled and certified sustainable paper to Ford's corporate image, reputation for social responsibility and implementation of the "Drive Green" pillar of Ford's corporate mission. The team took their facts about resources saved and potential gains from using sustainable paper, as well as the menu of recycled paper options, to the managers. Ultimately, they received management support from a variety of Ford departments, including Corporate Communications, Marketing and Sales, Investor Relations, the Office of General Council, Ford Motor Credit Company, Sustainability, Environment & Safety Engineering, and Ford Customer Service. Some managers were skeptical at first, but in the end, all agreed to make the switch to certified post-consumer recycled paper.

As a result, Ford is now sustainably printing a number of high-volume projects, including internal and owner magazines; financial documents including 10Ks, proxy statements and annual reports; consumer vehicle catalogs; consumer direct mail and brochures; vehicle owners' manuals and glovebox packages; and service technician training manuals.

"I am continually motivated by how many people within Ford, the advertising agencies, creative partners and our suppliers are really excited and supportive of this effort," said Nicole. "Once we tell people about what we've accomplished, the support we have continued to achieve, and the fact that the paper performance and cost are comparable to virgin paper, most people are excited to get on board."

Nicole and the team admit that paper is a just small part of Ford's sustainability efforts, considering recent advances in vehicle fuel economy and electrification. However, switching to recycled paper was a lot easier to do than many had expected. "Compared to some of the technology and engineering this company has accomplished, this task is so easy," Nicole notes. And it may prove to make a difference with customers. "My goal is that if our sustainable efforts in print persuade a consumer to buy a Ford product over another brand because they notice we are serious about our social responsibilities, then our efforts are making the difference for the Company," Nicole said. "Plus, being environmentally responsible is just the right thing to do."

Looking to the future, the team is continuing to promote the use of post-consumer recycled paper. They are also working to expand the recycled paper strategy globally. "This is a really exciting time for Ford," Nicole explains. "We are in a positive state of change, and we are having some great successes and consistent forward momentum. This is a great time for people within Ford to be embracing these changes, and we hope we can continue to expand our progression to sustainable paper use throughout the Company."



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Award-Winning New Machining Process Saves Money, Time, and Resources

In 2009, Ford introduced a new machining process that uses inputs more efficiently and significantly reduces waste production, energy use and costs. Machining parts requires coolants, lubricants, hydraulic fluids and other hydrocarbon-based process fluids. In traditional machining, these fluids are incompatible, which means that once they are mixed together during the machining process, they are ruined for further use. The resulting waste liquid must be removed from the system regularly and disposed of as oily waste.

Ford's new process uses compatible coolant, oils and lubricants that enable the recycling and reuse of fluids, thereby significantly reducing the production of oily waste. Unlike previous machining systems, the "compatible fluids" process uses an ultra-filtration system that keeps the wash fluids clean, recycles all oil contaminants and reblends the coolant so that it can be reused. The process also reduces energy usage, because it allows the use of smaller coolant systems and reduces chiller and extraction requirements. In addition to these environmental benefits, the process improves operating conditions for plant employees, improves surface finish and tool life, and reduces machine downtime by reducing the need to clean or replace central wash filters from every six weeks to every two years. All of these benefits translate into both better performance and lower costs.

The compatible fluids system was piloted at Ford's Dagenham Engine Plant in Germany in the production of 1.4 and 1.6 liter engines. The benefits at this plant have been impressive. Compatible fluids machining reduced oily waste sent to landfill by 80 percent per year, resulting in savings of approximately \$400,000 per year. It also reduced the cost of hydrocarbon-based inputs per engine by 40 percent to 50 percent, making Dagenham's hydrocarbon costs the lowest in all of Ford's engine operations.

Based on these impressive results, the compatible fluids machining process received the 2009 Henry Ford Technology award, an award given by Ford Motor Company to researchers, engineers and scientists for their work on innovative automotive technologies. It also won the UK's Business in the Community Eco-efficiency Award.

We are rapidly expanding the use of compatible fluids machining. So far, it has been implemented in the Chihuahua and Bridgend engine plants and is currently being installed in seven other facilities around the world. We plan to continue to expand this process to our other global facilities. Once this process is implemented globally in all of our engine, powertrain and chassis plants, the savings will be considerable. We predict that we will save up to \$35 million per year globally due to reduced hydrocarbon usage, waste avoidance, reduced downtime, and improved tool life. Compatible fluids machining will help us continue to reduce our environmental footprint by reducing our use of hydrocarbons and energy and decreasing waste production.



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Society

IN THIS SECTION:

- See how we are engaging with stakeholders
- Learn more about our community giving

Maintaining strong and open relationships with our stakeholders plays an important role in our ability to meet our goals.



Our operations affect a broad range of stakeholders. We believe that maintaining strong and open relationships with our employees, customers, suppliers, dealers, investors and society at large plays an important role in our ability to meet our goals.

- RELATED LINKS
- This Report: Materiality Analysis

Positive relationships with employees and business partners help us improve efficiencies, cost and quality, and develop and deliver new innovations. Effective two-way communication with our customers, dealers and other stakeholders helps us understand and deliver the products that customers want. Strong relationships with our suppliers enable us to work together to implement the environmental and human rights initiatives that are critical to a sustainable business.

Assessing Materiality

Our [materiality analysis](#) identified that our relationships with stakeholders are an important issue for both the Company and our stakeholders. Specifically, the analysis identified the issues of employee relationships, supplier relationships, dealer relationships, and diversity and inclusion as highly or moderately important. In addition, workplace health and safety was identified as an issue of high potential impact on Ford and of moderate concern to stakeholders. We also found the issues of community engagement, impacts and contributions to be of high concern to stakeholders – particularly, of course, to members of the communities most directly affected by the Company – and of moderate potential impact on Ford. All of these types of issues are addressed in this section.

The materiality analysis showed customers to be most concerned with issues related to the competitiveness of our products, including fuel economy, quality, safety and tailpipe emissions. They were also concerned about clean vehicle and fuel technologies. These issues are addressed in the [Climate Change](#), [Environment](#) and [Economy](#) sections of this report.



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Progress and Goals

Over the last year, we made progress in a number of areas related to our key stakeholders. For example, we:

- Showed improvement in 72 percent of the 52 items evaluated in our employee Pulse survey. Among our salaried employees, overall employee satisfaction in 2009 improved slightly over 2008 levels.
- Continued our trend of steady and marked improvement in our global lost-time case rate (a major safety indicator); it dropped 14 percent from 2008 to 2009.
- Reinstated two important employee benefit programs for eligible salaried employees and approved funding for merit increases in 2010 in the United States.
- Launched a new, voluntary initiative for Ford and Lincoln Mercury dealers to reduce their carbon footprints and improve the energy efficiency of their dealerships.
- Increased our network of key suppliers to strengthen collaboration and drive mutual profitability and technology development.
- Expanded our leadership role in supplier diversity, adding to our program aimed at improving technical expertise of minority- and women-owned suppliers.
- Continued to win recognition for our diversity efforts.
- Supported hundreds of organizations with charitable grants totalling \$29 million.
- Provided more than 100,000 hours of employee and retiree community service work – the equivalent of \$2 million in in-kind corporate contributions.
- Surveyed our own employees about what sustainability means to them.

\$29 million

The amount of charitable grants the Ford Fund and other corporate giving programs gave to hundreds of organizations.

To learn about our commitments in some of these areas, see our [Goals and Commitments](#) table.



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Who Are Our Stakeholders?

We have sustained, interdependent relationships with several distinct categories of stakeholders: employees, customers, dealers, suppliers, investors and communities. Also important is our relationship to "society," which includes government agencies, nongovernmental organizations (NGOs) and academia. We identified these categories of stakeholders through internal analysis and discussion during the early phases of developing our sustainability programs.

Employees

At year-end 2009, we employed approximately 176,000 individuals at 80 plants worldwide. Substantially all of the hourly employees in our Automotive operations in the United States are represented by unions and covered by collective bargaining agreements. Most hourly employees and many nonmanagement salaried employees of our subsidiaries outside the United States are also represented by unions. These unions are key partners with Ford in providing a safe, productive and respectful workplace.

Ford faces workplace health and safety challenges similar to those of many multinational manufacturing companies. These challenges include, for example, establishing and reinforcing high, common expectations for the safety of our employees worldwide. Most of our manufacturing facilities have joint union/management safety committees that guide the development and implementation of safety programs in their operations.

Customers

Ford's customers make us who we are. Ford Motor Company serves more than 4.8 million customers worldwide. Our major regional markets include North America, South America, Western Europe, Eastern Europe, Russia, Asia and Australia.

In these regions, we serve three primary types of customers: individual retail consumers, small business customers and large commercial fleet customers. We will continue to expand our products and services for these existing customers while working simultaneously to gain new customers in emerging markets. In North America, we are focusing on increasing our offerings of smaller and more fuel-efficient vehicles. In all of our markets, our customers' mobility needs and desires are changing faster than ever.

Dealers

Our dealers are the face of Ford to our customers and communities. They are key employers and contributors to local economies. Ford and Lincoln Mercury dealers in the United States alone employed 155,687 individuals at the end of 2009, with an annual payroll of approximately \$5.5 billion.

Suppliers

Suppliers are an integral part of our business, and our success is interdependent with theirs. We rely on 1,600 production suppliers to provide many of the parts that are assembled into Ford vehicles. Another 7,000 suppliers provide a wide range of nonproduction goods and services, from industrial materials to computers to advertising.

We have reduced the total number of production suppliers eligible for new product sourcing from 3,300 in 2004 to about 1,600 in 2009 and 1,500 in 2010. We have identified specific plans that will take us to about 850 suppliers in the near- to mid-term, with a further reduction to about 750 suppliers targeted.

Our supply base is increasingly global. We are expanding production in several regions to serve the sales growth that is expected to occur in emerging markets. We are also expanding our

sourcing in these lower-cost emerging markets, as a way to serve both local markets and the global supply chain. These changes, and our efforts to ensure good working conditions in our supply chain, are discussed in detail in the [Human Rights](#) section of this report.

Investors

Our success as a company directly affects our approximately 165,000 investors. We have been focused on returning the company to profitability. (We now expect to deliver solid profits in 2010 with positive Automotive operating-related cash flow.) More information on our investors is available in the [Economy](#) section of this report. For detailed investor relations information, please visit: www.fordmotorcompany.com/about-ford/investor-relations.

We continue to maintain open communication with the investment community. We regularly host conference calls and participate in key automotive conferences during the year. In addition, our Investor Relations Web site is a good source of information for investors. It contains various Company reports, a schedule of events and investment information.

Communities

Our Company impacts the communities in which we operate in numerous ways, from the employment we provide and the taxes we pay, to the environmental and safety performance of our operations, to the ways in which we support and participate in civic life. Responsibly managing these impacts is not just about being a good neighbor; it is fundamental to the success of our business.

The communities in which we operate are composed of a diverse range of individuals and groups. They include our customers, our employees, our business partners and their employees, government regulators, members of civil society and community organizations, and those individuals who live and work around our facilities, among others. Developing and maintaining positive relationships with these varied groups is an important factor in our reputation and operational efficiency.

Engaging with These Stakeholders

Stakeholder engagement takes place in countless formal and informal ways every day across our Company, from meetings with local community groups to market research with customers to gatherings of Ford dealers and suppliers.

At the corporate level, we use a variety of mechanisms to engage with stakeholders on sustainability issues to help us better understand the broader societal issues that our Company addresses. Some of these are informal and ad hoc. In fact, simply picking up the telephone to discuss an issue with any of the numerous sustainability-related organizations or individuals with whom Ford has a relationship is a part of our standard protocol.

Indeed, the very process of engaging with stakeholders on our Sustainability Report has led to expanded and enhanced information in a number of areas, including our positions on key public policy and other issues.

Some of our more formal engagement mechanisms include the following:

- The creation of forums to gather stakeholder input on our activities, challenges and performance. As noted above, we work with stakeholder committees to help shape and provide feedback on our Sustainability Reports. We have also organized meetings with individuals and groups of stakeholders to solicit input on the key sustainability challenges and opportunities facing Ford. These and other engagements have provided valuable feedback on our sustainability strategy.
- Outreach on emerging and ongoing issues of particular importance to Ford or our stakeholders. We believe we have taken a thoughtful approach to our stakeholders as we work through challenging issues. For example, stakeholder input has been critical to the development and testing of our approach to human rights over the past several years. Several organizations, notably the Interfaith Center on Corporate Responsibility (ICCR), have been key partners with Ford, providing information, input and feedback at every step of the process, especially during conversations around shareholder resolutions. Our engagement with the ICCR and other stakeholders led us in part to make our public commitment to a 30 percent CO₂ reduction by 2020. We have done outreach to the United Nations Global Compact, particularly as we developed our strategy to be a global leader in human rights, and have worked with stakeholders to address specific issues in the automotive industry supply chain (see the [Human Rights](#) section for more detail).
- We also devoted particular efforts to engaging stakeholders on issues related to sustainable mobility, as further described in the Mobility section of this report. For example, we have

partnered with the Cascadia Center for Regional Development to investigate integrated transportation solutions in high-traffic corridors. What began as an informal discussion developed into a more formalized process with several NGOs and state officials.

- Engagement with local stakeholders in the communities in which we operate as part of our Code of Basic Working Conditions assessment process.
- Consultation with organizations that have implemented campaigns targeting Ford.
- Engagement with rating and ranking organizations in the investment community. This has provided insight into external perspectives on some important issues and our relative performance in addressing them.
- Offering new product test-drive opportunities to our employees, who, in turn, communicate about our vehicles to their friends and families.

Stakeholder	Communication Forums
<p>Communities/Society</p> <p>347 plants; distribution centers/warehouses; and engineering, research/development and sales facilities worldwide*</p> <p>*We have announced plans to close a number of North American facilities as part of our restructuring actions; facilities that have been closed to date are not included in the table. The table includes five facilities operated by Automotive Components Holdings, LLC (ACH), which is controlled by us. We have been working to sell or close the majority of the 15 ACH manufacturing plants; to date, we have sold five ACH plants and closed another five. We plan to close a sixth plant in 2011. We are exploring our options for the remaining ACH plants and intend to transition these businesses to the supply base as soon as practicable.</p>	<ul style="list-style-type: none"> ● Community Relations Committees ● Interactions with governments ● Membership in associations ● NGO dialogues
<p>Investors</p> <p>165,026 stockholders*</p> <p>*As of February 12, 2010</p>	<ul style="list-style-type: none"> ● Investment community forums ● Quarterly earnings communications ● Annual shareholders meeting ● Annual report ● Proxy statement ● SEC filings (e.g., 10-K, 10-Q, 8-K)
<p>Customers</p> <p>4.8 million vehicles</p>	<ul style="list-style-type: none"> ● Consumer Insight process ● Customer care programs ● Dealer interactions
<p>Suppliers</p> <p>1,600 production suppliers 7,000 nonproduction suppliers Over \$65 billion annual buy</p>	<ul style="list-style-type: none"> ● Top supplier meetings ● Aligned Business Framework supplier dialogue sessions ● Supplier quality roundtables ● Supplier Diversity Development Networking ● External supplier organizations, such as the Automotive Industry Action Group and the Original Equipment Suppliers Association
<p>Dealers*</p> <p>Ford: 11,682 Mercury: 1,780 Lincoln: 1,376 Volvo: 2,269</p> <p>* Worldwide dealerships, as of December 31, 2009. Because many of these dealerships distribute more than one of our brands from the same sales location, a single dealership may be counted under more than one brand.</p>	<ul style="list-style-type: none"> ● Intranet communications ● Brand sales and service representatives ● Brand Dealer Councils ● Dealer roundtables ● President's Circle ● Salute to Dealers ● Advertising and public service announcements
<p>Employees</p> <p>Approximately 176,000 employees*</p> <p>*As of December 31, 2009. These employee numbers do not include dealer personnel; 2009 employee numbers were adjusted to reflect the new accounting standard on the deconsolidation of many of our variable interest entities.</p>	<ul style="list-style-type: none"> ● Town hall meetings ● Labor-management committees ● Pulse survey ● Union representation ● Intranet surveys and chats ● Executive Council on Diversity ● Local Diversity Councils ● Employee Resource Groups



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Employees

Our employees are our most valuable resource. They are the ones who have helped us weather this most recent difficult period and who are moving us forward on our path to success.

Our "ONE Ford" program, now in its third year, aligns our efforts toward a common definition of success. ONE Ford provides consistent goals and expectations for employees, whether they work in Michigan or Shanghai, with a clear focus on the skills and behaviors we must demonstrate to accomplish One Team, One Plan, One Goal. All members of our global team are held accountable for incorporating ONE Ford into their daily work.

We have incorporated ONE Ford into our people processes to support employee development and drive accountability for moving the Company forward while demonstrating expected behaviors that tie back to our business:

- F: Foster Functional and Technical Excellence
- O: Own Working Together
- R: Role Model Ford Values
- D: Deliver Results

It is more important than ever that we invest in our employees, strengthen their technical and leadership skills and recognize them for delivering results that cultivate success. Even during our most difficult times, we have kept a focus on learning and leadership development.

All employees are encouraged to invest in their own professional development by developing an Individual Development Plan, or IDP, to help them meet current and future goals while maximizing performance in their current assignments. Employees work with their managers to help them identify strengths and areas for improvement.

We provide a comprehensive range of learning and development resources that align with ONE Ford. These include web-based and classroom training, special projects and task forces, as well as mentoring and coaching to foster functional and technical excellence, encourage teamwork, promote Ford values and enhance our ability to deliver results.

Similar to our vehicle strategy, our learning and development strategy has been to leverage our global scale and "commonize" as much as possible. We have created internal "colleges" that provide education and training in areas ranging from finance and information technology to product development and marketing. We offer global leadership development programs, including the Global Leadership Summit, which is aimed at executives and general managers, and the Global Executive Leadership Program, which is geared toward directors and senior managers. We also offer the Salaried Supervisor Institute/Program (SSI) for new or experienced leaders who want to enhance their ONE Ford skills.

ONE Ford is designed to build our employees' individual capability as well as our organization's capability to drive the business forward.



ONE FORD

ONE TEAM • ONE PLAN • ONE GOAL

ONE TEAM

People working together as a lean, global enterprise for automotive leadership, as measured by:

Customer, Employee, Dealer, Investor, Supplier, Union/Council, and Community Satisfaction

ONE PLAN

- Aggressively restructure to operate profitably at the current demand and changing model mix
- Accelerate development of new products our customers want and value
- Finance our plan and improve our balance sheet
- Work together effectively as one team

ONE GOAL

An exciting viable Ford delivering profitable growth for all

Expected Behaviors

Foster Functional and Technical Excellence

- Know and have a passion for our business and our customers
- Demonstrate and build functional and technical excellence
- Ensure process discipline
- Have a continuous improvement philosophy and practice

Own Working Together

- Believe in skilled and motivated people working together
- Include everyone; respect, listen to, help and appreciate others
- Build strong relationships; be a team player; develop ourselves and others
- Communicate clearly, concisely and candidly

Role Model Ford Values

- Show initiative, courage, integrity and good corporate citizenship
- Improve quality, safety and sustainability
- Have a can do, find a way attitude and emotional resilience
- Enjoy the journey and each other; have fun - never at others' expense

Deliver Results

- Deal positively with our business realities; develop compelling and comprehensive plans, while keeping an enterprise view
- Set high expectations and inspire others
- Make sound decisions using facts and data
- Hold ourselves and others responsible and accountable for delivering results and satisfying our customers



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Workforce Reductions

In recent years, we have had to take painful but necessary steps to reduce our salaried and hourly workforce, as part of our multi-year effort to return our North American operations to profitability.

Since 2005, we have reduced employment levels in our Ford North America business unit by about 65,700 individuals. We also have closed 12 manufacturing facilities in North America (including Automotive Components Holding plants). Four additional plant closures are slated to take effect by 2011.

As of December 31, 2009, our Ford North America business unit had approximately 70,000 salaried and hourly employees, including those at our ACH facilities. This compares with approximately 135,700 salaried and hourly employees on December 31, 2005. Most of our hourly worker reductions were the result of early retirement offers and voluntary separation packages to U.S. employees, including Ford employees at our ACH plants.

In 2009, we offered 42,000 hourly employees two opportunities to accept buyout and early retirement offers, which included payments of up to \$70,000 for newer workers and up to \$60,000 for those already eligible for retirement. Approximately 1,300 hourly employees accepted a buyout offer last year. We have attempted to handle workforce separations and plant closings with respect for the people and communities affected.

Ford fully complies with the federal Worker Adjustment and Retraining Notification Act (WARN), which requires companies to provide 60-day notifications of plant closures to employees.

See the Economy section of this report for more information on the [plant closures and separation agreements](#).

We have entered into collective bargaining agreements with the UAW (the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America) and CAW (the National Automobile, Aerospace, Transportation and General Workers Union of Canada). In 2007, we negotiated with the UAW a transformational agreement, enabling us to improve our competitiveness by establishing a Voluntary Employee Benefit Association (VEBA) trust to fund our retiree health care obligations.

In March 2009, Ford-UAW membership ratified modifications to the existing collective bargaining agreement that significantly improved our competitiveness, saving us up to \$500 million annually and bringing us near to competitive parity with the U.S. operations of foreign-owned automakers. The operational changes affected wage and benefit provisions, productivity, job security programs and capacity actions, allowing us to increase manufacturing efficiency and flexibility. Modifications to the VEBA Trust allowed for the smoothing of payment obligations and provided us the option to satisfy up to approximately 50 percent of our future payment obligations to the UAW VEBA Trust in Ford common stock.

On November 1, 2009, the CAW announced that a majority of its members employed by Ford Canada had voted to ratify modifications to the terms of the existing collective bargaining agreement between Ford Canada and the CAW. The modifications are patterned off of the modifications agreed to by the CAW for its agreements with the Canadian operations of General Motors Company and Chrysler, LLC, and are expected to result in annual cost savings. The agreement also confirms the end of production at the St. Thomas Assembly Plant in 2011.

On November 2, 2009, the UAW announced that a majority of its members employed by Ford had voted against ratification of a tentative agreement that would have further modified the terms of the existing collective bargaining agreement between Ford and the UAW. The latest modifications were designed to closely match the modified collective bargaining agreements between the UAW and our domestic competitors, General Motors and Chrysler. Among the proposed modifications was a provision that would have precluded any strike action relating to improvements in wages

RELATED LINKS

- This Report:
 - Capacity Alignment
 - Handling Downsizing Responsibly
 - Working with the UAW

and benefits during the negotiation of a new collective bargaining agreement upon expiration of the current agreement, and would have subjected disputes regarding improvements in wages and benefits to binding arbitration, to determine competitiveness based on wages and benefits paid by other automotive manufacturers operating in the United States. (See the [Economy](#) section of this report for more detail.)

In 2009, we negotiated new Ford collective bargaining agreements with labor unions in Argentina, Australia, Belgium, Brazil, Britain, France, Germany, Mexico, New Zealand, Russia, Spain and Taiwan. We began negotiations with labor unions in Thailand in the fourth quarter of 2009; these were expected to be completed in 2010.

In 2010, we are or will be negotiating new collective bargaining agreements with labor unions in Australia, Brazil, France, Germany, Mexico, New Zealand, Russia, South Africa, Spain, Taiwan, Thailand and Venezuela.

Our improved financial performance has resulted in some tangible improvements for our workforce in 2010. We were able to pay profit sharing to eligible UAW members. We have reinstated a 401(k) matching program and are awarding 2010 merit increases for our U.S. salaried employees.

We know that these compensation and benefits programs are valuable to our employees and their families, and we are pleased to be able to deliver on our promise to improve the competitiveness of our total compensation, as business conditions allow.

For our retirees, we have two principal qualified defined benefit retirement plans in the United States. The Ford-UAW Retirement Plan covers hourly employees represented by the UAW, and the General Retirement Plan covers substantially all other Ford employees in the United States hired on or before December 31, 2003. We established, effective January 1, 2004, a defined contribution plan generally covering new salaried U.S. employees hired on or after that date. Other U.S. and non-U.S. subsidiaries have separate plans that generally provide similar types of benefits. We report on contributions to, and the funded status of, our pension plans in our Annual Report on Form 10-K.



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Diversity and Inclusion in the Workplace

Ford makes diversity and inclusion a priority of our Company. We believe that building and supporting a culture of respect is a business imperative that enables all of our employees to do their best work. A critical element of our ONE Ford program is our ability to work together across a global enterprise. Diversity and inclusion play a key role in creating the culture that brings our different perspectives and experiences together. This helps us work as a unified team to most effectively improve our business.

Ford values the skills, strengths and perspectives of our talented and diverse team. Our customers are located around the world, and we believe our diversity will help us achieve global automotive leadership, enabling the Company to be more innovative and focused on individuals in the workplace and marketplace.

Our employees recognize Ford's efforts in this area. According to our 2009 employee Pulse survey, 81 percent of our workers believe Ford's management is committed to diversity.

For detailed information on our U.S. workforce by minority groups and gender, please view the [minority data charts](#).

Our definition of diversity includes all those things that make each of us unique individuals. Our backgrounds, opinions, experiences, perspectives and life situations are just some of the distinctions we bring to the global workplace. At Ford, diversity is:

- **Respect** – for our employees, customers, communities, dealers, suppliers and retirees
- **Appreciation** – of our differences
- **Inclusion** – of every person and every perspective
- **Integrity** – to do the right thing, always

We integrate our diversity strategy into our business using five focus areas:

- **Leading the way** – The executive leadership team, led by our CEO, champions diversity and inclusion at Ford. To work together effectively across the global enterprise, the leadership team ensures that diversity and inclusion perspectives are integrated into business objectives and key human resources processes.
- **Supporting our diverse workforce and strengthening our external partnerships** – Ford currently supports a number of employee networks, including 11 Employee Resource Groups that help to foster diversity and inclusion. These include groups for employees of African ancestry; Hispanic, Asian-Indian, Chinese and Middle Eastern employees; veteran and active military employees; employees dealing with disabilities; female professionals; working parents; gay, lesbian, bisexual and transgendered employees; and employees of multiple religious faiths. In addition to supporting our employees, these Resource Groups organize community volunteer activities and provide us with an opportunity to better understand the consumer needs and wants of individuals of diverse backgrounds. These groups operate in our business units throughout the world.
- **Fostering a respectful and inclusive environment** – Ford's commitment to inclusion is incorporated in ONE Ford expected behaviors and communicated in ongoing forums such as town hall meetings and training. As a part of these efforts, we have held a Diversity & Inclusion Summit each year since 1999. In 2009, we had a record-breaking number of employees from around the world who were nominated for their efforts in leading and cultivating a diverse and inclusive workplace and community. Thirty-one of these teams and individuals were recognized at a global ceremony, with participation from Argentina, Brazil, Canada, Great Britain, India, Mexico, Spain and the United States.
- **Supporting work/life flexibility** – We recognize that our employees are key to our

business success, so Ford has numerous policies and programs to support them. We encourage employees and managers to discuss both business and personal goals. Work/life flexibility solutions vary depending upon locations, teams and employees. Examples include the following:

- In Canada, we have a number of work/life flexibility programs, including "Summer Hours," which gives employees an opportunity to work with their managers to identify a compressed work week schedule during the summer months.
- In the United States, almost 100 percent of the salaried workforce use "flextime," which allows employees to vary their daily work times. We have approximately 3,000 employees on formal work programs that involve telecommuting, part-time work and compressed work arrangements. Many more employees develop informal arrangements with their supervisors for occasional work from home. Our Flexible Work Network provides "flex mentors" to help advise employees on effective ways to work differently.
- In Europe, we offer a variety of flexible working patterns. In the UK and Germany, for example, we support part-time working and telecommuting and offer child care facilities for the children of our employees.
- Ford South America established different programs aiming to leverage work/life flexibility, including flexible work locations and lactation areas for nursing mothers.

Other corporate employee resources that the Company provides include Employee Assistance Programs, "mothers' rooms" and wellness initiatives.

Ford has longstanding policies clearly stating that harassment in the work environment because of race, religion, color, age, sex, national origin, disability, sexual orientation or veteran status is a violation of the spirit and intent of the Company's nondiscrimination policies, and Ford has a commitment to zero tolerance of this type of behavior. These policies apply to all individuals, including part-time, supplemental and agency employees. Ford understands its responsibility to foster a respectful work environment free of harassment or discrimination at all levels of the organization. We take this responsibility extremely seriously and thoroughly investigate any claim of violation(s).

Our collective bargaining agreements address this issue and allow union-represented employees the right to use the grievance process. Ford's [Code of Basic Working Conditions](#), as well as several global Policies and Directives, directly address the issue of respect and inclusion. These include:

- Local Equal Employment Opportunity Policy Statement
- Policy Letter No. 2: "Relationships with Employees"
- Policy Letter No. 6: "Equal Opportunity and Affirmative Action"
- Directive B-110: "Anti-Harassment/Zero Tolerance"

In the United States, a number of avenues are available to employees who wish to make and/or document a complaint. These processes are communicated to all employees through the Open Door Policy and through various policies posted online. Some of these avenues are:

- Reporting the incident or concern to a supervisor or any other member of management
- Filing a complaint with the local human resources office
- Contacting the human resources representative at the division office or at World Headquarters in Dearborn, Michigan
- Calling the corporate hotline, which is answered at World Headquarters
- Using peer review, which is an internal alternative dispute resolution process

The Company also has longstanding strong relationships with the Equal Employment Opportunity Commission (EEOC) and state civil rights agencies. In 2004, the Company signed a Universal Agreement to Mediate with the EEOC, which enhances our pledge to address claims of discrimination and/or harassment quickly and efficiently. We stand committed to cooperating with those civil rights agencies that provide resources to the people of our diverse communities in an effort to eliminate discrimination or harassment in the workplace.

Furthermore, the Company tracks data internally, which enables us to measure the effects of our policies and practices for prohibiting and preventing discrimination, harassment and any other unwanted or illegal behavior, and to leverage those policies to address issues efficiently and improve the overall morale of our workers. The internal tracking data and results are proprietary to Ford Motor Company.



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Diversity Awards

We have received hundreds of awards in the last few years from publications and organizations that recognize the value we place on diversity and inclusion. For example, we have been recognized by DiversityInc as a Top Company for Diversity since that award's inception. Specific diversity awards given in 2009/2010 include the following:

- America's Top Organizations for Multicultural Business Opportunities – DiversityBusiness.com
- Corporate Equality Index 100% Rating – Human Rights Campaign
- Diversity Elite 60 – *Hispanic Business Magazine*
- Diversity Leader – *Profiles in Diversity*
- Most Admired Employer for Minorities in Research Science – *U.S. Black Engineer & Information Technology* magazine
- Rainbow Award – [Belgian Business Association](#)
- Stonewall List of the UK's most gay-friendly employers
- Top 25 Employers in India – Hewitt
- Top 10 Best Companies for Supplier Diversity – *DiversityInc*
- Top 25 Companies for Female Executives – National Association of Female Executives
- Top 25 Supplier Diversity Company – *Hispanic Business Magazine*
- Top 50 Companies for Diversity – *DiversityInc*
- Top 50 Companies for Engineers – *U.S. Black Engineer & Information Technology* magazine
- Top 100 Employers – *Black Collegian*
- Top Diversity Company – *Diversity/Careers in Engineering and IT Magazine*
- Top Supporter of Historically Black Colleges and Universities
- Urban Truck of the Year – On Wheels, Inc.
- 40 Best Companies for Diversity – *Black Enterprise Magazine*
- HR Executive of the Year – American Society of Employers
- Legacy in Motion Executive of the Year – *Michigan Chronicle*
- Marketing Executive of the Year – MAXX



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Employee Satisfaction

In 2009, 80 percent of our salaried employees participated in the annual [Pulse survey](#), which provides insight into employees' overall satisfaction with the Company, their jobs, diversity and other aspects of workplace satisfaction.

The Pulse survey includes a total of 52 items, eight of which make up what we call the Employee Satisfaction Index (ESI). Sixty-eight percent of respondents gave favorable ratings on the ESI in 2009, up two percentage points from 2008 levels and the third consecutive year of improvement; we also continue to be above external benchmarks on this index. Compared with 2008, about 72 percent of the 52 items improved, 10 percent declined and about 18 percent remained the same.

The area showing the greatest improvement was employee overall satisfaction and satisfaction with information received from top management. Other areas showing improvement included supervision, diversity, and employee perceptions about work-related stress. In addition, employee satisfaction with actions being taken to improve quality maintained a high level of favorable employee satisfaction.

As part of our efforts to increase satisfaction, we are constantly improving our strategies for fostering open dialogue with employees. We know that communication is especially important during difficult financial times, and we have been enhancing our internal communication efforts to build trust and increase transparency. For example, we hold weekly interactive webcasts with all employees, during which employees can submit questions directly to top executives. We also have a web-based forum for submitting and discussing innovative ideas.

For more information on the [Pulse survey](#), see the Data section of this report.

In 2009, we sent surveys to approximately 6,000 of our employees to gauge their understanding of sustainability and how their individual efforts impact sustainability issues. More than three-quarters of the 1,144 respondents, for example, said they believe that sustainability can have a considerable to great impact on corporate reputation. The results also showed that employees had varying definitions of sustainability, with 36 percent defining it as "corporate profitability;" only 5 percent mentioned social issues as a part of sustainability.



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Workplace Health and Safety

In 1999, Ford began a Safety Leadership Initiative aimed at making our workplaces safer. In the decade since, we have seen dramatic results, with overall injury rates dropping to a tenth of their previous levels. We are very competitive within our industry; however, we want to be the best. The practices established in this initiative are now so fully a part of how we run our business that we've dropped the term "Initiative" and now simply call it "Health and Safety Leadership."

The "health" part of health and safety is also an increasing focus for Ford. This is driven by growing recognition of the impact that health issues like heart disease, diabetes and obesity can have on the well-being of our employees, as well as the cost of providing health care to our current and retired workforce in the U.S. (See the Economy section for [further discussion of health care costs.](#)) By helping employees to prevent serious diseases and effectively manage chronic conditions, we can have a positive impact on our employees' quality of life and our bottom line.

Our top executives and managers remain committed to ensuring that our people remain safe and healthy while working as part of our ONE Ford team. Management compensation has been more heavily weighted to safety results, including serious injury performance.

We organize workplace health and safety programs using the framework described in this section.

A SAFE WORKPLACE =						
SYSTEMATIC LEADERSHIP	+	SAFE CONDITIONS	+	SAFE ACTS	+	RELATIONSHIP MANAGEMENT
=		=		=		=
Governance		Design		Awareness		Internal Relationships
+ Evaluation		+ Maintenance		+ Training & Competency		+ External Relationships
+ Accountability		+ Operating Systems		+ Motivation & Compliance		+ Effective Communication
		+ Workplace Environment Controls				



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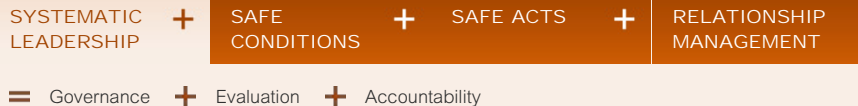
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Systematic Leadership

A SAFE WORKPLACE =



The "leadership" in Health and Safety Leadership reflects our view that leaders at all levels achieve the safety results they expect and demand. When leaders demand safe behaviors and conditions, everyone develops a zero-injury mindset. We seek to build safety leaders at all levels in the organization.

We consider systematic leadership to have three components: governance, evaluation and accountability.

Governance

We have comprehensive governance systems for health and safety management. Our overarching Occupational Health and Safety (OHS) policy is established through a corporate Policy Letter and Directives. In addition, global OHS standards cover all health and safety topics, including safety, ergonomics, occupational hygiene, toxicology, clinical operations, fire and security.

The most efficient and cost-effective way to reduce safety and ergonomic risks in the manufacturing process is to engineer them out upfront. Our global manufacturing engineering teams use the latest technology of "virtual manufacturing" to predict and eliminate risks during the design stage.

We have strengthened our global governance of workplace health and safety by reviewing key health and safety indicators more frequently with senior management. We review safety regularly at the plant level and in regional OHS committees. Our President and CEO and senior operating team review safety performance as part of their regular Business Plan Review, as does the global Manufacturing Operating Committee.

Evaluation

Health and safety specialists conduct Safety and Health Assessment Review Process (SHARP) audits at our manufacturing facilities as an integral part of our manufacturing management systems. During 2008, we launched a major global revision of SHARP to streamline and simplify it and align it with Ford's current corporate standards and plant operating systems. The SHARP audit is now more similar to other internationally recognized management systems documents. To supplement SHARP, we developed during 2009 a global Safety Operating System to assist our plants in identifying all the tasks required by our safety standards and how they should be managed.

We also conduct unannounced audits, as well as audits of special high-risk areas. Facility staff perform SHARP self-assessments and more frequent internal audits to verify key processes. Any significant incidents are reported weekly on a global basis so plant managers at other facilities can learn from each incident and take preventive action.

Nonmanufacturing sites conduct yearly self-assessments of their OHS risks and performance. All sites must respond to a series of safety questions that have been integrated into the Ford General Auditor's Office basic audit review program.

We also conduct a safety culture survey, which was recently integrated into our overall annual

Pulse survey of employees, to assess employee perceptions of our health and safety effectiveness. The results of this survey, combined with audits and routine gathering and sharing of performance data, provide a comprehensive picture of health and safety performance trends, as well as early warning of conditions that could lead to a decline in performance. The results of the 2009 Pulse survey show that the vast majority of Ford employees – 85 percent – are satisfied with the Company's safety culture.

Accountability

We establish accountability for health and safety performance through our business planning and scorecard processes, which set targets and assign responsibility for meeting those targets. Business Operation and plant managers are responsible for health and safety in the operations they manage, and their performance in this area is a significant factor in their incentive compensation. In addition, safety performance is included in the scorecards of salaried employees as appropriate, including those of the CEO and business unit leaders.

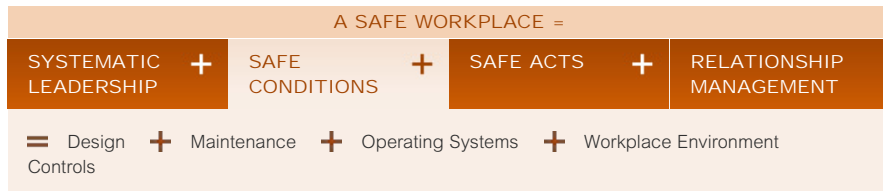
We have also increased accountability expectations for plant workers, which has contributed to the long-term reduction in serious work injuries. In the spring of 2008, for example, we imposed stricter penalties for workers who break safety rules that could result in serious or fatal injuries, despite the training they have received. Flagrant violators are liable for suspension or termination – even on a first offense. Since the introduction of these penalties in North America, we have seen a drop in serious injuries resulting from energy control and power lockout violations, from nine injuries in 2007 to three in 2009.



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Safe Conditions



A safe workplace is in part a product of the design and maintenance of the facility and its equipment, effective work processes and appropriate safeguards for potentially hazardous conditions. We use a variety of processes and programs to assess and manage risks. When potential hazards cannot be addressed through engineering, we use personal protective equipment and procedural controls to help prevent accidents and exposures.

We use internal and external benchmarking to drive health and safety improvements. Internal benchmarking helps us learn from plants that have demonstrated exemplary results and share the key leadership attributes that drive Occupational Health and Safety excellence. Our annual President's Health and Safety Award program is used to identify the global best practices for replication. For results, see the [Workplace Safety data](#).

External benchmarking on injury performance and safety processes serves to challenge our facilities to achieve best-in-class performance and document effective injury performance and management processes.

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Safe Acts

A SAFE WORKPLACE =



Even the best-designed workplace is only as safe as the behavior of the people who work there. We raise awareness of safety issues and reinforce it consistently with employees via regular communication at work group meetings and trainings for managers, supervisors and engineers who design equipment.

We analyze our serious injury events and deploy specific actions to prevent recurrence. For example, our safety professionals provide management with measurable feedback on a regular basis via a new Safe Behavior Index that we launched in North America in 2008. The Index, which was already in place in our South American and Asia Pacific operations, measures observations of people not working safely and allows us to take corrective actions when required. We are also improving our analyses throughout all manufacturing facilities for nonstandard production and maintenance jobs, such as repairs in unplanned locations, as well as infrequent or unexpected maintenance tasks. Outside of our manufacturing facilities, Ford has developed safe driving standards for employees driving on Company business. We also provided national leadership in the United States by banning handheld text messaging while driving on Company business.

In the first quarter of 2009, we held a 90-day challenge to focus on reducing slip-and-fall injuries. We are also reviewing the snow and ice removal procedures at our facilities with an eye toward developing new standards, since many of the slip-and-fall injuries occur as employees enter or exit our buildings.



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Relationship Management

A SAFE WORKPLACE =

SYSTEMATIC LEADERSHIP + SAFE CONDITIONS + SAFE ACTS + RELATIONSHIP MANAGEMENT

Internal Relationships + External Relationships + Effective Communication

We know that to manage health and safety effectively, we must maintain good relationships with all stakeholders. Our unions globally share our commitment to a safe working environment and have been our partners at every step of the Health and Safety Leadership effort and other health and safety programs. We also maintain important external relationships with regulatory agencies, professional organizations and suppliers. In the United States, the formal partnerships among Ford, the UAW, the U.S. Occupational Safety and Health Administration and its state counterparts are a visible example.

We use multiple communication channels to reinforce safety messages, from our internal video broadcast system to messages from senior executives. In addition to regular safety talks, we periodically hold safety stand-downs that shut production at our plants to focus attention on a safety message. We can communicate nearly instantaneously with health and safety specialists worldwide, alerting those at similar facilities when a significant accident occurs, so they can take appropriate preventive action.



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Health as a Strategic Advantage

We have many programs and processes to ensure that our working environment does not damage the health of our people. A natural extension of this idea is to seek to enhance the health of our workforce, their families and the communities in which we operate. Good health contributes to well-being, longevity and productivity, among other benefits. And since families tend to share health habits – good and bad – promoting health among our employees can contribute to healthier communities.

In the United States, where health care costs are a major issue for the Company, we have increased our emphasis on health and wellness programs. We are providing resources and tools to employees to help them make sound choices about health care services and coverage, and to help them understand the benefits of being a better health care consumer.

We are collaborating with communities and government agencies by:

- Promoting and investing in the adoption of health care information technology (HIT) through local initiatives, with funding assistance from government. HIT will enable physicians and hospitals to have access to all the information they need to provide their patients with the most appropriate care.
- Participating in regional health care quality measurement and public reporting initiatives, with potential data-sharing and funding assistance from government.

We also provide health programs to our employees and their families in varying forms in many other countries. We are working to ensure that all of these programs are designed and administered in a way that delivers optimum health results. In addition, we are developing a comprehensive global health strategy to ensure that our efforts are targeted at local health priorities and that our people receive quality health care when they need it. Working with employees to identify and modify their personal health risk factors is a core element of the strategy. We are also working to leverage our global strengths by improving the way we share and coordinate our health promotion programs. We developed and published a global set of standard health metrics to be used to assess the health of our workforce and track the results of programs aimed at improving it. Examples of the metrics include smoking and obesity prevalence, rates of diabetes and hypertension, and the number of employees whose diabetes or hypertension is successfully controlled.

Elements of health and wellness programs around the world include health screenings, education and promotional campaigns. For example, Ford of Brazil implemented "Programa Viva Bem," which promotes health campaigns in areas such as weight control, stress management, nutrition, diabetes prevention, breast cancer prevention and flu vaccination. These campaigns reduce absenteeism while reflecting positively on Ford's social commitment. Ford of Mexico developed programs at its facilities targeting similar issues. Health strategies vary by region and are flexible, in order to be tailored to local needs.



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Our 2009 Safety Record

Ford's workplace safety record in 2009 was mixed. On the positive side, a major safety indicator – lost-time case rates – continued to improve, dropping 14 percent compared to 2008.

Improving our safety record is not only good for our employees, it's good for our business. We have calculated that progress in lost-time cases and days lost saves the Company approximately \$30 million in direct costs each year.

Tragically, we experienced four fatalities, including three direct Ford Motor Company employees – two in North America and one in Europe. Additionally a construction contractor at our Ford India site was fatally injured. We deeply regret the deaths that occurred and offer our sincerest condolences to the family members, friends and co-workers of the four individuals. Ford has fully cooperated with the appropriate investigating and reporting agencies, and has taken actions intended to prevent similar accidents from happening in the future.

We also experienced 128 serious injuries among our direct employees. In most of the cases, the causes were related to slip, trip and fall events or performing work not according to our standards.

For more information, see the [data section](#) of this report.



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Engaging with Our Employees

This section on employees has described the myriad ways we engage with our employees. For example, we work closely with our employees' unions to develop agreements and governance plans through a collective bargaining process. Policy and procedures involving information, consultation and negotiations with employees over changes in the reporting organization's operations (e.g., reorganization, plant shutdown, employee transfers and reductions) are negotiated with the appropriate union. In addition, joint labor-management committees are set up at each plant to give employees an opportunity to influence working conditions and practices.

For our salaried employees, most of whom are not covered by union agreements, we have a strong Code of Conduct and comprehensive Policy Letters and Directives covering topics, including diversity, relevant to our employees. We also practice regular two-way communication with all employees through weekly webcasts, quarterly town hall meetings, manager-to-employee business cascades, surveys and informal communications, and we survey our salaried employees annually using the Pulse survey.



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Customers

Our customers' wants and needs continue to evolve. We monitor consumer trends and develop and promote products to fit particular market segments. In recent years, we have paid particular attention to the growing demand for more fuel-efficient and cleaner vehicles. Please see the Economy section of this report for a full discussion of our customers.

Diversity of Customers

Our customers are increasingly diverse. Our Insight program helps dealers better understand and serve minority customers. The program includes web-based cultural training, in-dealership workshops and assistance in developing comprehensive multicultural strategies.

As part of our multicultural efforts, we have launched a multi-language Asian-American Web site. Meanwhile, our integrated Spanish Web site – Ford's "Mi Negocio" (My Business) – is one of the most comprehensive of its kind in the auto industry, offering a one-stop resource and outreach services in key Hispanic markets.

Engaging with Our Customers

Maintaining good relationships with our customers is one of our most important activities. We provide a variety of means for customers to reach us, including mail, email and toll-free phone. We reach out to customers and potential customers through focus groups and other market research, and we track customer satisfaction.

We also gather online, consumer-generated content to learn what consumers are saying about both our Company and the industry in general. Increasingly, customers are using these electronic media – including Web sites, discussion groups, blogs and social networks – to research, discuss and problem-solve topics related to their current vehicles and those they are interested in purchasing. In recent years, we have been participating more actively in this social media arena, monitoring consumer-generated content found online. Summary reports are developed based on what we find and gather online, to convey what consumers are saying about our Company and our products. These reports are cascaded throughout the Company – from brand managers and product development engineers all the way up to senior-level management.

In addition to listening to what customers are saying online, we are also increasingly sharing information and engaging in discussions through various social media. In an effort to accomplish authentic interaction between the Company and web users, we are democratizing our social media efforts to enable any Ford employee to interact in online communities on our behalf. In 2009, we began to train employees in how to do this, giving them clear guidelines consistent with our ONE Ford principles. Our goal is to maintain our position as the world's leading social automotive brand and to humanize the Company by building relationships with our customers and providing value through these kinds of social media communications.



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Dealers

As the public face of Ford within our communities, our dealers are key employers and contributors to local economies, especially in rural areas and small towns. At our current and expected future U.S. market share, however, we have too many dealers, particularly in metropolitan areas, which makes it difficult to sustain a healthy and profitable dealer base. To address this overcapacity, we are working with our dealers in efforts to downsize, consolidate and restructure our Ford, Lincoln and Mercury network in our largest 130 metropolitan market areas in the United States, to provide targeted average-year sales for Ford dealers of around 1,500 units and for Lincoln Mercury dealers of around 600 units. As part of these efforts, the number of dealers in our Ford, Lincoln and Mercury network in the United States has been reduced from about 4,400 at the end of 2005 to 3,550 at the end of 2009. (For more on our dealer restructuring, please see the Economy section of this report.)

Although we are reducing our dealer count in the United States to better match market demand, we are working to expand our network of dealers in markets where we have growth opportunities.

Dealer Diversity

Ford continues to lead the automotive industry in its percentage of minority-owned dealerships – with 215, or 5.6 percent, of our 3,871 U.S. dealerships.¹ Over the past year, we restructured our Dealer Development (DD) Investment Program, which had provided funding for qualified candidates who dedicated themselves to a career in automotive retailing. As part of an effort to reduce the number of DD dealerships, we worked with 32 minority dealers so they could become private-capital owners through one-time discount buyout offers. We expected to complete another 10 minority dealer transitions by the end of the first quarter of 2010.

This year, we are restructuring our Minority Dealer Operations office to better support our minority dealer base. We are launching a Diversity Dealer Advisory Board for formalized relationships with Ford senior management. We aim to create minority retail career opportunities, enhance existing dealer profitability/viability, identify multicultural marketing opportunities, and improve existing education, training and community involvement.

Dealer Sustainability Program

In 2010, we launched a voluntary sustainability initiative for our Ford and Lincoln Mercury dealers to reduce their carbon footprints and improve the energy-efficiency of their dealerships. The goal of the "Go Green" Dealer Sustainability Program is simple: collaborate with dealers to implement cost-effective ways to improve the energy-efficiency of their facilities. We partnered with the Rocky Mountain Institute, a leading energy-efficiency organization, to pilot new technologies and architectural design principles.

Dealers who choose to participate will receive a comprehensive energy assessment from sustainability experts at Ford. After the assessment, Ford and the dealer will collaborate on energy-saving options available and will tailor a program to meet the specific needs of each dealer.

Ford dealer Brian Jarrett, president of Jarrett Gordon Ford in Winter Haven, Florida, for example, expects to cut his monthly energy bill by 80 percent by adopting all of the recommendations from the program. He plans to invest about \$500,000 to change the 1,000-watt exterior light bulbs on his lot to 175-watt LED bulbs. He also plans to install energy-efficient interior lights, light sensors and low-flow toilets. He calculates that his energy savings will pay for his investment in six years.

Engagement with Dealers

Dealer relations is a key priority for us. The Dealer Council was created as a forum for open

dialogue between Dealer Council members and Ford. Through the council process, dealers can voice their concerns, needs and ideas for working more productively as a team. To ensure that communication lines remain open, Dealer Council members also participate as members of National Dealer Advisory Panels, including the following:

- Customer Viewpoint Advisory Panel – customer satisfaction rating system, Viewpoint survey
- Product Committee – current and future product cycle plan, including lineup, design, styling and color/trim
- Order Complexity Task Force – reduction of vehicle ordering complexity, order guide simplification
- Marketing Dealer Advisory Board – vehicle packaging strategy, advertising creative, incentive programs
- Training Advisory Board – dealership employee training and recognition
- Parts and Service Manager Advisory Committee – fixed operations programs, including employee recognition/retention
- Commercial Truck Advisory Board – sales, marketing and product programs
- Service Marketing Advisory Committee – service marketing strategy and advertising
- Consumer Experience/Dealer Profitability Committee – enhancing the overall consumer experience and network profitability



The feedback gathered through these interactions has helped us develop various programs, change policies and enhance processes to improve customer handling and other significant elements of the dealers' business. Dealer priorities and Ford management responses are published annually, providing transparency to the discussions between the Company and its dealers.

In addition to the Dealer Councils and Advisory Panels, dealer satisfaction is measured in various ways, including the biannual survey of the National Automobile Dealers Association (NADA), as well as day-to-day interaction with our dealers. Approximately 54 percent of dealers provided feedback through the Summer 2009 NADA survey process, which showed notable improvement in many areas – including some of the highest ratings ever from Ford and Lincoln Mercury dealers. With respect to our Ford dealers, we saw significant positive changes in every overall score – something we are particularly proud of, given the difficult year the industry faced. Our dealers rated us more favorably in terms of franchise value, policies and procedures, and people. In fact, the Overall Index Ranking shows Ford dealers moved up 14 spots and are now included in the Top 10 list of automotive brands.

1. Numbers are as of December 31, 2009, for Ford, Lincoln, Mercury and Volvo dealerships.

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Salute to Dealers



Dealer Principals Honored with the 2010 Salute To Dealers
 Left to right: Phil Smith of Dick Smith Ford, Raytown, Missouri, Dan Pfeiffer of Pfeiffer Lincoln Mercury, Grand Rapids, Michigan, Edsel B. Ford, Don Price of Lafayette Ford, Inc., Fayetteville, North Carolina and Gregg Middlekauff of Middlekauff Ford/Lincoln Mercury, Twin Falls, Idaho.

Ford annually recognizes dealers' outstanding contributions to their communities through its "Salute to Dealers" program. The program was established in 2001 to demonstrate our commitment to dealers who provide outstanding products and services and improve the lives of those in need. Dealers from all four of our brands (Ford, Lincoln, Mercury and Volvo), representing nearly 4,000 dealership franchises in the United States and Canada, were eligible to be nominated. Ford is very proud of the contributions made by the dealers who are nominated for this award and the 82 men and women who have been selected as Salute to Dealers honorees since the program's inception. Considering the high quality and community spirit of our dealer body, this is a tribute to their hard work and dedication to make the world a better place.

Of the 69 nominations received, four dealer principals were chosen for the 2010 Salute to Dealers award. They are:

- **Daniel Pfeiffer, Pfeiffer Lincoln Mercury, Grand Rapids, Michigan**
 Through the years, Dan Pfeiffer has positively affected countless lives by actively participating in fundraising for charitable organizations and community development projects. His dealership recently donated time and materials to repair vehicles for more than 20 needy families in the area. As a huge supporter of the arts and culture, Dan was also instrumental in bringing to the community a botanical garden and sculpture park, which attracts nearly 600,000 visitors a year. His fundraising efforts and donation of family land were also key to the construction of Faith Hospice of Byron Center, which provides compassionate, end-of-life care and allows family members to stay with their loved ones.
- **Don Price, Lafayette Ford, Fayetteville, North Carolina**
 Family values and a tradition of respect and personal involvement characterize Don Price's commitment to the community, where he serves an active role in the Kiwanis Club, the local school system and the Military Affairs Council. With a focus on education and military sponsorship, Don is dedicated to improving education and the quality of life for our military troops and their families. He regularly holds "welcome home" and other celebrations at his home for the soldiers and airmen of Fort Bragg and Pope Air Force Base and their families, as well as raising funds to support educational scholarships and grants.
- **Gregg Middlekauff, Middlekauff Ford Lincoln Mercury, Twin Falls, Idaho**
 Gregg Middlekauff has a deep-rooted commitment to the well-being of children in the community, as witnessed by his active leadership roles in key organizations and causes.

These include serving as President of the local Boys & Girls Club, where he contributes his time and funding; the establishment of the Middlekauff Foundation, whose motto is, "Change a child's life...change the world;" and his Commitment to Kids event, where his dealership performs free safety checks on car seats and bicycles. Gregg also contributes considerable time and funds to support the Southern Idaho Learning Center, an organization that works with children who have learning disabilities.

- **Phil Smith, Dick Smith Ford, Raytown, Missouri**

Reaching out to neighbors, whether they are thousands of miles away or just down the street, is the passion behind Phil Smith's life. His support and on-site involvement in the Guatemala Ministry and the annual Labor of Love fundraising walks have touched thousands of lives. In addition to these efforts, he regularly volunteers at a local soup kitchen and at the Jackson County Prison, where he provides spiritual support and guidance to prisoners.



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Suppliers

Ford and its suppliers must work jointly to deliver great products, have a strong business and make a better future. In today's economic environment, achieving lower costs and improving quality require an unprecedented level of cooperation with suppliers and the maintenance of strong supplier relationships.

Beginning in 2005, we introduced an Aligned Business Framework (ABF) with our strategic suppliers to accomplish these goals. In 2009 and early 2010, we expanded the ABF, adding new members to our select group of key component and service suppliers that we have chosen for long-term relationships and closer collaboration. With the new members, there are now 90 companies in the ABF network, including 67 production and 23 non-production suppliers from around the world. (Minority- and women-owned suppliers make up nearly 15 percent of the ABF network.)

We are committed to maintaining strong relationships with our ABF and other suppliers by:

- Adhering to Ford Supplier Relationship Values
- Deploying a single global product-creation process that combines aggressive execution of product plans with minimal variances
- Enhancing process stability, commonality and reusability
- Improving communication by providing real-time performance data to the supply base
- Providing suppliers with greater access to senior Ford managers in small-group settings
- Establishing organizational stability models in Manufacturing, Product Development and Purchasing
- Improving order fulfillment
- Engaging the supply base in discussions about process stability, incoming quality and corporate citizenship, and involving suppliers in coalitions to create awareness of industry issues

It is important that our suppliers share our commitment to environmental and social performance. We have developed programs and partnerships to help align our suppliers' practices with our own.



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Human Rights

Since 2005, the core contract governing Ford's business relationship with our production and nonproduction suppliers has reflected the requirements in our Code of Basic Working Conditions that prohibit the use of forced labor, child labor and physical disciplinary abuse. Ford requires suppliers to ensure that products – no matter where they are made – are manufactured under conditions that demonstrate respect for the people who make them. In 2008, we expanded our training, corporate engagement and industry collaboration programs with the goal of making an even stronger impact in the markets in which we do business. We have conducted trainings and assessments of suppliers in 20 countries and developed an approach to ensure alignment with our Code throughout our supply chain. For more detail, see the [Human Rights](#) section.

RELATED LINKS

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[Human Rights](#)



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Environmental Performance

Ford requires its "Q1" (preferred) production suppliers to attain ISO 14001 environmental management certification of manufacturing facilities that ship products to Ford. ISO 14001 certification is also expected of Q1 nonproduction suppliers if the supplier site is a manufacturing site or a nonmanufacturing site with significant environmental impact.

By 2006, 100 percent of Q1 production suppliers had achieved ISO 14001 certification. Suppliers that did not meet the deadline were not eligible for Q1 status, which is a prerequisite for consideration for future Ford business. We also encourage our suppliers to extend the benefits of improved environmental performance by requiring their own suppliers to implement environmental management systems as well.



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Sustainability Report 2009/10

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Supplier Diversity Development

Ford remains strongly committed to utilizing and developing supplier companies that are owned by minorities and women. Our Supplier Diversity Development Office works with business leaders, trade associations and community-based organizations that represent the interests of diverse businesses. In 2009, Ford purchased \$2.7 billion in goods and services from approximately 200 minority-owned suppliers and more than \$539 million in goods and services from more than 200 women-owned businesses. Tangible accomplishments like these have earned Ford a seat at the "Billion Dollar Roundtable," an exclusive group of 17 companies that purchase a minimum of \$1 billion annually from diverse suppliers. Despite a challenging economic environment, Ford is unwavering in its commitment to incremental year-over-year percentage increases in sourcing from diverse suppliers. We encourage similar actions across our supply chain. In 2009, more than 400 of our largest Tier 1 suppliers purchased more than \$1.03 billion from minority- and women-owned enterprises in support of Ford business.

In 2009, Ford expanded its leadership role in supplier diversity by adding two companies to the Joint Technology Framework (JTF), a special program aimed at improving the technical expertise of diverse suppliers. We added Piston Automotive, LLC, and Saturn Electronics & Engineering, Inc., to the JTF, bringing the number of minority- and women-owned companies in the program to eight.

We launched JTF in 2008 to assist suppliers in developing innovative products and technical expertise. Under the program, suppliers are given access to specific product and process intellectual property from Ford Research and Advanced Engineering. Suppliers are then licensed by Ford to develop the technologies and processes for potential future use by Ford, other automakers or manufacturers in other industries.



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Supplier Sustainability Leadership

For several years, Ford has recognized supplier companies that demonstrate leadership in environmental and social performance with a corporate responsibility award. Suppliers must meet several criteria, including ISO 14001 certification at all manufacturing sites, full acceptance of Ford's Global Terms and Conditions, and demonstration of overall sustainability leadership by incorporating environmental and social considerations into their business.

In June 2009, Ford selected two winners for the 2008 Corporate Responsibility Recognition of Achievement Award: Hewlett Packard and Michelin North America. The Recognition of Achievement Award is given to suppliers that improve customer satisfaction by leading key initiatives in several areas, including: Corporate Responsibility; New Consumer-Focused Technology; Warranty Improvement; Diversity and Community Service; and Consumer Driven 6-Sigma.



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Investors

We provide information to and interact regularly with investors through a variety of means, including our corporate Web site, annual report and regulatory filings, annual meeting and periodic analyst conference calls. We also engage with socially responsible investment organizations that are seeking information to use to evaluate our sustainability performance. These interactions help us stay abreast of and respond to investor concerns.

Our [Investor Relations Web site](#) is a good source of information for investors. It contains various Company reports, a schedule of events and investment information.



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Fundamental changes are underway within our industry and our Company, including increased competition globally and changing markets for our products, with the bulk of future sales growth expected to occur in emerging markets. At the same time, we and other companies are expanding sourcing in these lower-cost emerging markets, as a way to serve both local markets and the global supply chain. These changes are affecting not only how we manage our operations, but also how we engage with and affect the communities in which we operate.

Whether doing business in Michigan or Malaysia, we seek to respect and make a positive contribution to our host communities. Operating in emerging economies, however, does bring with it some new community issues for us to understand and manage.

One of these issues is human rights. Specifically, we must ensure that our products, no matter where they are made, are manufactured under conditions that demonstrate respect for the people who make them. We also must respect the rights of people living in the communities around our facilities, as well as our suppliers' facilities, who may be affected by those operations. We view respect for human rights as not only a core operational issue, but also as a key to maintaining the trust and respect of local communities. That trust is critical if we want to continue to operate and, increasingly, sell our products in those locations. See the [Human Rights](#) section for more information.

We also work closely with the communities in which we operate to minimize negative impacts of our corporate restructuring.



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Engaging with Communities

To effectively and sustainably manage community relations issues, we must embed them in our core business practices and seek to manage them with the same rigor as other aspects of our business.

Anticipated changes in the market for our products have implications for how we engage with local communities. The mobility needs of potential customers in emerging markets differ in some fundamental ways from those in the developed markets the auto industry has primarily served to date. Local community engagement is a key strategy Ford is using to learn about and understand how best to meet the needs of these critical and fast-growing markets. (See the [Mobility](#) section for more on this topic.)

In recent years, we have taken steps to develop a more integrated approach to managing the different dimensions of our community involvement. Our goal is to more closely connect our traditional community relations programs, community impact assessment processes and human rights efforts. Over time, we also want to link all of these efforts with our development of new products and services to meet the unique mobility needs of communities in emerging markets. In our view, this approach will not only increase efficiencies, but also maximize our impact and effectiveness.

The release of our Code of Basic Working Conditions (CBWC) as a formal Policy Letter reinforced that our behaviors and actions include a focus on issues outside the walls of our plants and facilities. The performance criteria for CBWC assessments of owned and operated facilities now address several key community issues and evaluate engagement with members of the local community.

Our work to develop and implement the CBWC has helped to establish our trustworthiness in communities in which we are developing our sustainable mobility strategy. In our view, developing a deep understanding of the unique mobility needs of emerging markets is a pre-condition of being able to do business in those places.



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Investing in Communities

Ford has a long history of investing in the communities in which we operate. Ford's commitment to supporting local communities through charitable contributions and volunteer efforts remains unchanged, despite our recent business conditions. Ford delivers on this commitment through the Company's community relations arm, formally known as Ford Motor Company Fund and Community Services.

Founded as a not-for-profit organization in 1949, Ford Motor Company Fund and Community Services is responsible for the Company's philanthropy and volunteerism efforts. Made possible by Ford Motor Company profits, the organization makes contributions to qualified U.S. not-for-profit organizations that enhance and improve opportunities for those who live in the communities in which Ford operates. It supports organizations in three strategic areas: auto-related safety, education and American heritage.

In addition to donations from the Fund, Ford also makes direct corporate contributions to a variety of charitable organizations and causes.

In 2009, Ford contributed a total of \$29 million. Of that amount, \$20 million was in the form of grants awarded by Ford Motor Company Fund; the remainder was direct corporate giving. The total amount is less than in previous years, reflecting the challenging business conditions that affected the Company's core automotive business in 2009.

In addition to grants, we encourage our employees to participate in programs that build stronger communities through the Ford Volunteer Corps. During 2009, some 20,000 Ford employees and retirees in 44 countries provided more than 100,000 hours of work on more than 1,000 community service projects – the equivalent of \$2 million of in-kind corporate contributions. Many of these volunteer projects received mini-grants to provide resources to complete the project.

Increasingly, Ford is expanding abroad with its community relations. In 2009, Ford continued its partnership with the GlobalGiving Foundation, an organization that has worked with Ford Motor Company Fund to expand our giving to international communities affected by major disasters.

During 2009, Ford provided immediate assistance to victims of Typhoon Morakot, which struck Taiwan in August 2009. In addition, Ford's Asia Pacific Africa personnel, in cooperation with GlobalGiving and the Asia Injury Prevention Foundation, expanded Ford's Driving Skills for Life Program in China, India, Indonesia, the Philippines, Taiwan, Thailand, and Vietnam.

The Mexican Center for Philanthropy recognized Ford of Mexico in 2009 as a Socially Responsible Company for the eighth consecutive year. The award is given to companies that encourage quality of life in the workplace, strong ethics, environmental care in its operations and close involvement in the community. Ford and its dealers were lauded for rebuilding eight of 209 schools that Ford and Ford dealers have built throughout Mexico during the last 43 years.

RELATED LINKS +

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- Ford Motor Company Fund and Community Services
- External Web Sites:
- Ford GlobalGiving Portal

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Ford Motor Company Fund and Community Services



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Ford Motor Company Fund and Community Services supports organizations in three strategic areas: auto-related safety, education and American heritage and legacy. The following are examples of some of our most significant or new programs:

- The Fund supports teen safe driving through its award-winning [Driving Skills for Life](#) program, a safe-driving curriculum that has trained more than 341,000 students since 2003. Developed by Ford, the Governors Highway Safety Association and a panel of safety experts, the free program educates teens with a combination of ride-and-drive events, educational materials, customized in-school events and an interactive Web site. The program, which has received numerous awards, including the World Traffic Symposium Award, was expanded into international markets in 2008.
- The [Ford Partnership for Advanced Studies](#) uses an academically rigorous curriculum to provide high school students with 21st-century learning experiences to enhance real-world skills. More than 60,000 students in 27 states have participated in the program, which relies on collaboration among high schools, community organizations, higher education institutions, government entities and businesses. The program has been awarded the National Governors Association's first Public-Private Partnership Award for innovative educational programming, among other awards.
- Corazón de mi Vida is a national bilingual initiative on child passenger safety developed by Ford Motor Company Fund and Community Services in partnership with the national Latino Motorist's Institute and the National Highway Traffic Safety Administration. Latino families, child care providers and the Spanish-speaking community in El Paso, Phoenix and San Antonio are informed about the important role that safety seats and seat belts play in saving children's lives. Through continued support from Ford, more than 2,700 child safety seats have been distributed, more than 380 bilingual child safety seat technicians have been trained and our safety messages have reached approximately 2.2 million people. A second initiative, See Me Safe, focuses on educating parents, caregivers, medical professionals, safety advocates and the community about the appropriate use of child passenger safety restraints. Developed in partnership with Meharry Medical College in Nashville, Tennessee, See Me Safe has distributed 1,350 car seats and reached 300 health care providers through its Prescription for Safety workshops since 2007.
- In 2009, the Fund continued to support organizations and initiatives that preserve America's heritage, including the new Gettysburg Museum & Visitor Center, and a new two-year exhibit at Mount Vernon that showcases artifacts from the Washington collection. In addition, Ford Made in America, a consortium of small-budget orchestras performing a newly composed classical piece, premiered in Reno, Nevada. "Chasing Light..." by composer Joseph Schwantner, will be performed by 58 orchestras in all 50 states by 2010.
- Ford employees and Ford Motor Company Fund are major supporters of the United Way in the United States, giving nearly \$7 million in 2009 to support numerous community-based social

services organizations.

- A new initiative – Ford Mobile Food Pantries – consists of financial support and the donation of three Transit Connect vans to organizations in southeast Michigan that claim, rescue and distribute food to those in need, including many who never before have relied on this help. Gleaners Food Bank, Forgotten Harvest and United Way used these vans to deliver more than 1.3 million meals and 1.6 million pounds of food in 2009. Many Ford volunteers assisted in this effort, including 275 individuals who delivered Meals on Wheels during the Thanksgiving and holiday season.
- Ford also has a long history of working with disabled American veterans. As a major contributor to the [Jesse Brown Memorial Youth Scholarship Program](#), for example, Ford provides scholarships to students who volunteer at local Veteran's Administration (VA) medical centers. For 15 years, Ford has also been a sponsor of the [National Disabled Veterans Winter Sports Clinic](#), which brings hundreds of disabled veterans to the mountains of Colorado to participate in adaptive sports, including skiing, snowmobiling, sled hockey and rock wall climbing. In addition, Ford has donated 141 vehicles since 1996 to the Disabled American Veterans, which in turn gives them to VA hospitals across the country.

Ford also supports a wide variety of organizations through corporate contributions and sponsorships. Highlights include the following:

- For more than 20 years, Ford has been involved in helping find a cure for juvenile diabetes. See the [juvenile diabetes case study](#) for more information.
- Ford has also been a long-time supporter in the fight against breast cancer. For 16 years, Ford has been a National Series Sponsor of the [Susan G. Komen Race for the Cure®](#) series and has dedicated more than \$105 million to the cause in donations and in-kind gifts. Ford's commitment goes well beyond the October race; it lasts 365 days a year and focuses on raising awareness, support and donations for this cause, including customized apparel that is sold on [fordcares.com](#). This specially designed clothing and accessory line, called "Warriors in Pink," is dedicated to those fighting this disease, and 100 percent of net proceeds go to Susan G. Komen for the Cure. Since 2006, we have sold more than \$4 million of the Warriors in Pink products. In addition, more than 50,000 Ford employees and thousands of dealership employees are involved in races and supporting the cause in their local communities.
- In 2009, Ford volunteers raised \$193,000 for the [March of Dimes](#). In 2010, Ford CEO Alan Mulally and UAW president Ron Gettelfinger were selected to serve as national co-chairs of the organization's annual March for Babies event.
- Ford volunteers raised \$117,949 for the [National Multiple Sclerosis Society](#) in 2009.



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Ford Volunteer Corps

In addition to the financial contributions made by Ford and Ford Motor Company Fund and Community Services to hundreds of organizations globally in 2009, thousands of Ford employees and retirees volunteered to help build stronger communities around the world.

Volunteerism has been an integral part of Ford Motor Company since its creation in 1903. The Company's many volunteer efforts were unified in 2005 when Bill Ford, then chairman and CEO, founded the Ford Volunteer Corps. Ford volunteers immediately responded to the tsunami that devastated Southeast Asia and to the two hurricanes that hit the U.S. Gulf Coast.

Even in difficult economic times, we believe it is important to help the communities in which our employees work and live. Volunteer efforts help to build the morale of our employees. There's a strong business case for volunteerism, too: our volunteer projects help to strengthen the name of Ford and enhance purchase consideration for future buyers.

The Ford Volunteer Corps comprises salaried employees and retirees across six continents who work to strengthen their communities. Ford Motor Company offers its U.S. salaried employees two workdays per year to volunteer in the community. Employees form MODEL Teams and volunteer to help nonprofit organizations. Last year, more than 20,000 Ford employees and retirees in 44 countries provided more than 100,000 hours of volunteer time for their communities, or the equivalent of \$2 million in in-kind corporate contributions.

In 2009, Ford held five "Accelerated Action Days" – concentrated one-day efforts to meet critical needs identified by our agency partners. In March, we focused on the needs of children and families. In May, we zeroed in on the environment and outdoor projects. In September, the theme was community building projects – renovating and repairing shelters, missions and homes for children. In November, we focused on veterans and their families. And in December, we helped to feed the hungry.

Software designed and launched by the Ford Volunteer Corps aligns our volunteer projects with the needs of nonprofits across the United States. Using this system, employees can go online to sign up for volunteer projects based on their interests and availability. In prior years, our volunteers would essentially tell the nonprofits when we would provide hands-on assistance, without fully assessing when would be the best time for the nonprofits. Now, our nonprofit partners can tell us when they need help and what manner of assistance they need.

In 2009, Ford held its fourth annual Global Week of Caring, a week-long series of volunteer events around the world, coordinated by the Ford Volunteer Corps. During one week in early September, about 12,000 Ford employees in 44 countries contributed more than 38,000 hours of their time to approximately 220 volunteer projects.

During the 2009 Global Week of Caring, participants built homes, renovated shelters and schools and fed the hungry, to name just some of the efforts. Ford retirees can participate side-by-side with current employees on volunteer projects.

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View all data on this page as [charts](#) | [tables](#)

A. Employee Satisfaction, Pulse Survey

Percent satisfied

Employee Satisfaction Index



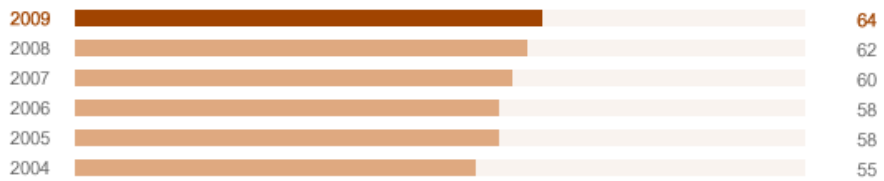
Company Success Mindset



Management Commitment to Diversity



Overcoming Workplace Obstacles



Percent satisfied

	2004	2005	2006	2007	2008	2009
Employee Satisfaction Index	61	62	62	64	66	68
Company Success Mindset	82	83	82	82	85	85
Management Commitment to Diversity	75	77	76	77	80	81
Overcoming Workplace Obstacles	55	58	58	60	62	64

In 2006, the Pulse survey was changed to incorporate new dimensions. While there was no change to the number or content of the existing 55 core questions asked on Pulse, they were realigned into eight revised dimensions. These changes were made because the revised dimensions are better focused on current business priorities and can provide a framework for more focused feedback and action planning. In addition, the revised Employee Satisfaction Index can be benchmarked externally; none of the prior 13 dimensions could be benchmarked outside the Company.

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Employee Satisfaction

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B. Overall Dealer Attitude

Relative ranking on a scale of 1–100 percent

	2004	2005	2006	2007	2008	2009
Ford (summer/winter score)	70/69	70/72	64/64	69/64	68/69	80/71
Lincoln Mercury (summer/winter score)	64/61	64/64	62/64	66/64	64/66	71/66
Industry (summer/winter score)	73/74	74/74	70/71	72/70	72/73	74/70

Overall dealer attitude is measured by the National Automobile Dealer Association (NADA) Dealer Attitude Survey. Scores are for the summer and winter respectively of the year noted.

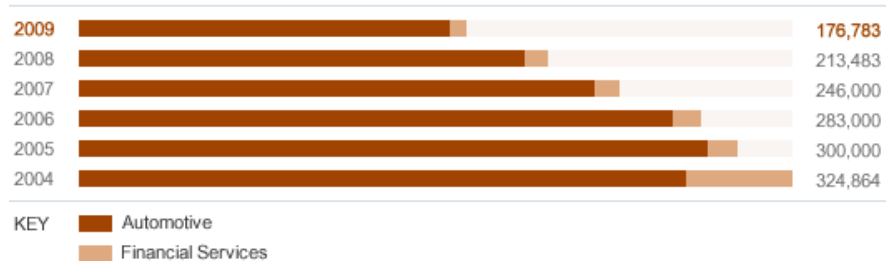
Approximately 54 percent of dealers provided feedback through the Summer 2009 NADA survey process, which showed notable improvement in many areas – including some of the highest ratings ever from Ford and Lincoln Mercury dealers. With respect to our Ford dealers, we saw positive changes in every overall score.

In This Report:
Engagement with Dealers

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C. Employment by Business Unit

Average number of people employed



Average number of people employed

	2004	2005	2006	2007	2008	2009
Automotive	276,029	286,000	270,000	235,000	203,316	168,610
Financial Services	48,835	14,000	13,000	11,000	10,167	8,173
Total	324,864	300,000	283,000	246,000	213,483	176,783

These employee numbers do not include dealer personnel; 2009 employee numbers have been adjusted to reflect the new accounting standard on the deconsolidation of many of our variable interest entities.

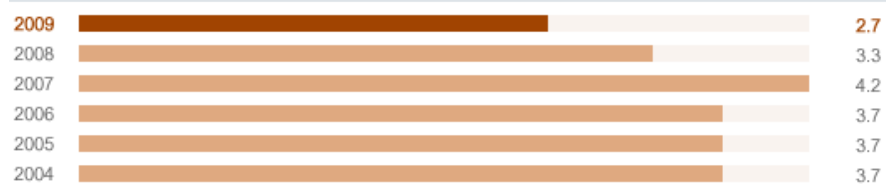
Reported to regulatory authorities

In This Report:
Workforce Reductions

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D. Total Purchases from Minority-owned Businesses – United States

\$ billion



\$ billion

2004	2005	2006	2007	2008	2009
3.7	3.7	3.7	4.2	3.3	2.7

From 2003 to 2007, purchases from non-minority, women-owned businesses were included within total

purchases from all minority suppliers. Beginning in 2008, we provided separate data for women-owned businesses, which accounted in part for the reduced amount of purchases in 2008.

The decrease in spending for minority- and women-owned suppliers in 2009 was due to a variety of factors, including: overall deterioration in sales volume, particularly in trucks and SUVs where diverse suppliers were concentrated; year-over-year declines in Ford North America overall purchases, reflected in the spending with diverse suppliers; supply base consolidation; inability of minority- and women-owned suppliers to maintain and secure lines of credit from lenders; and a supplier overdependence in the automotive business that led to failures of minority-owned businesses during the economic downturn.

In This Report:
[Supplier Diversity Development](#)

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E. Total Purchases from Women-owned Business – United States

	<i>\$ billion</i>
2009	0.539
2008	0.763

	<i>\$ billion</i>
2008	2009
0.763	0.539

From 2003 to 2007, purchases from non-minority, women-owned businesses were included within total purchases from all minority suppliers. In 2008, we began breaking out separate data for purchases from non-minority, women-owned businesses.

The decrease in spending for minority- and women-owned suppliers in 2009 was due to a variety of factors, including: overall deterioration in sales volume, particularly in trucks and SUVs where diverse suppliers were concentrated; year-over-year declines in Ford North America overall purchases, reflected in the spending with diverse suppliers; supply base consolidation; inability of minority- and women-owned suppliers to maintain and secure lines of credit from lenders; and a supplier overdependence in the automotive business that led to failures of minority-owned businesses during the economic downturn.

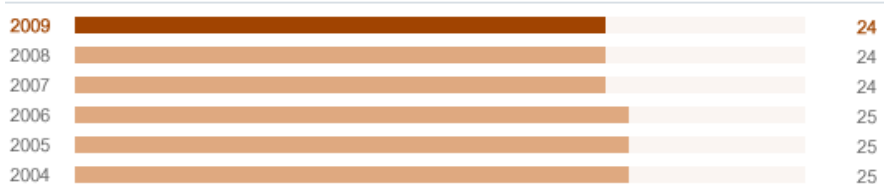
In This Report:
[Supplier Diversity Development](#)

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F. U.S. Employment of Minority-group Personnel and Women at Year-end

Percent

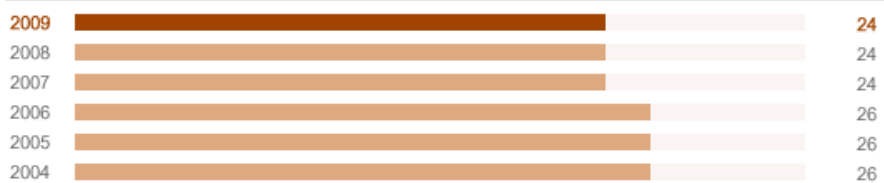
Minority-group personnel - total



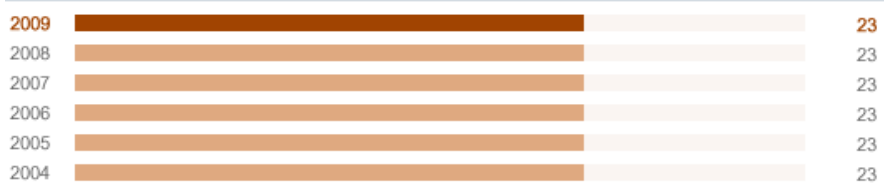
Minority-group personnel - salaried



Minority-group personnel - hourly



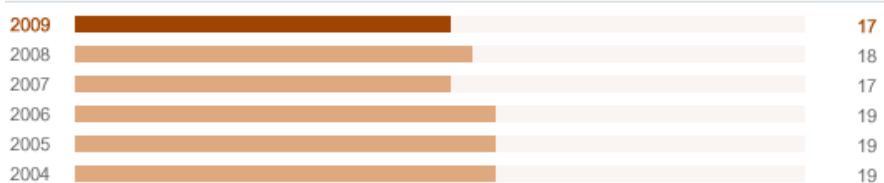
Women - total



Women - salaried



Women - hourly




Percent

	2004	2005	2006	2007	2008	2009
Minority-group personnel – total	25	25	25	24	24	24
Minority-group personnel – salaried	24	23	23	24	23	23
Minority-group personnel – hourly	26	26	26	24	24	24
Women – total	23	23	23	23	23	23
Women – salaried	33	31	31	32	32	31
Women – hourly	19	19	19	17	18	17

To align with the 2003–2007 reported data, 2008 data has been modified to reflect the Total Company. Previously, 2008 data reported Ford Automotive data only.

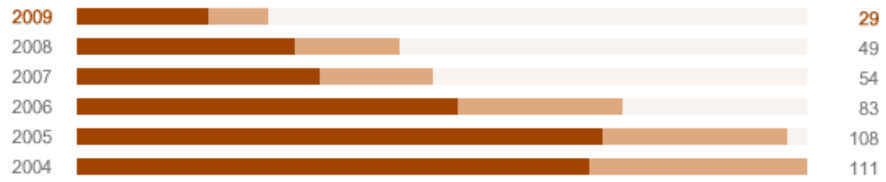
In This Report:



Diversity and Inclusion in the Workplace
Diversity Awards

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G. Charitable Contributions

\$ million



KEY  Ford Motor Company Fund
 Corporate


\$ million

	2004	2005	2006	2007	2008	2009
Ford Motor Company Fund	78	80	58	37	33	20
Corporate	33	28	25	17	16	9
Total	111	108	83	54	49	29

The total amount is less than in previous years, reflecting the challenging business conditions that affected the Company's core automotive business in 2009.

In This Report:

Investing in Communities

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H. Volunteer Corps

Thousand volunteer hours



Thousand volunteer hours

	2006	2007	2008	2009
	80	86	100	100

The Ford Volunteer Corps was founded in 2005, and 2006 is the first year data are available. However, volunteerism and community service have long been a part of Ford's culture, and these efforts were formalized in 1997 with the creation of the 16-hour Community Service Program.

In This Report:

Ford Volunteer Corps

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I. Working Conditions Assessment Status for Supply Chain


Working Conditions Assessments (as of 12/31/09)	Americas	Asia Pacific and Africa	Europe	Global Total
Average violations per assessment	11.4	10.0	12.7	10.7
Assessments completed to date	208	353	54	615
Follow-up assessments completed to date (third party and/or internal)	60	157	60	277

Working Conditions Training (as of 12/31/09)	Americas	Asia Pacific and Africa	Europe	Global Total
Training sessions completed to date	43	42	7	92
Total number of attending companies	599	708	171	1,478
Total number of trained managers	835	716	222	1,773

Scope of Impact: Suppler-Submitted Data (as of 12/31/09)	Global Total
Training cascade to management, individuals trained	10,624
Training cascade to workforce, individuals trained	183,052
Communication to suppliers, number of sub-tier companies	20,778

In This Report:

Suppliers: Human Rights

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SOCIETY

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Data

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Workplace Safety

DATA ON THIS PAGE

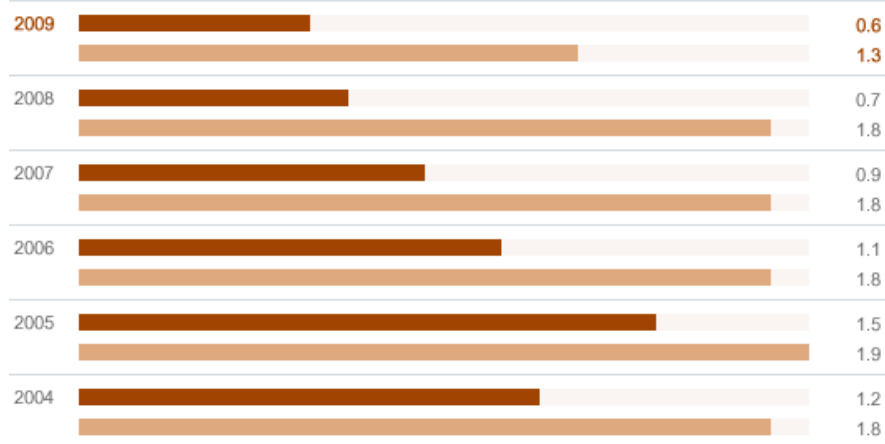
- A. Global Lost-time Case Rate (per 100 Employees)
- B. Lost-time Case Rate by Region (per 100 Employees)
- C. Workplace Health and Safety Violations
- D. Global Fatalities

View all data on this page as [charts](#) | [tables](#)

Note: In prior years, we reported our Global Severity Rate and Severity Rate by Region (both per 100 employees). We do not use these metrics to make business decisions, so we no longer track or report them.

A. Global Lost-time Case Rate (per 100 Employees)

Cases with one or more days away from work per 200,000 hours



KEY Ford Motor Company (global)
 U.S. Bureau of Labor Statistics average for NAICS Code 3361 (motor vehicles manufacturing)

Cases with one or more days away from work per 200,000 hours

	2004	2005	2006	2007	2008	2009
Ford Motor Company (global)	1.2	1.5	1.1	0.9	0.7	0.6
U.S. Bureau of Labor Statistics average for NAICS Code 3361 (motor vehicles manufacturing)	1.8	1.9	1.8	1.8	1.8	1.3

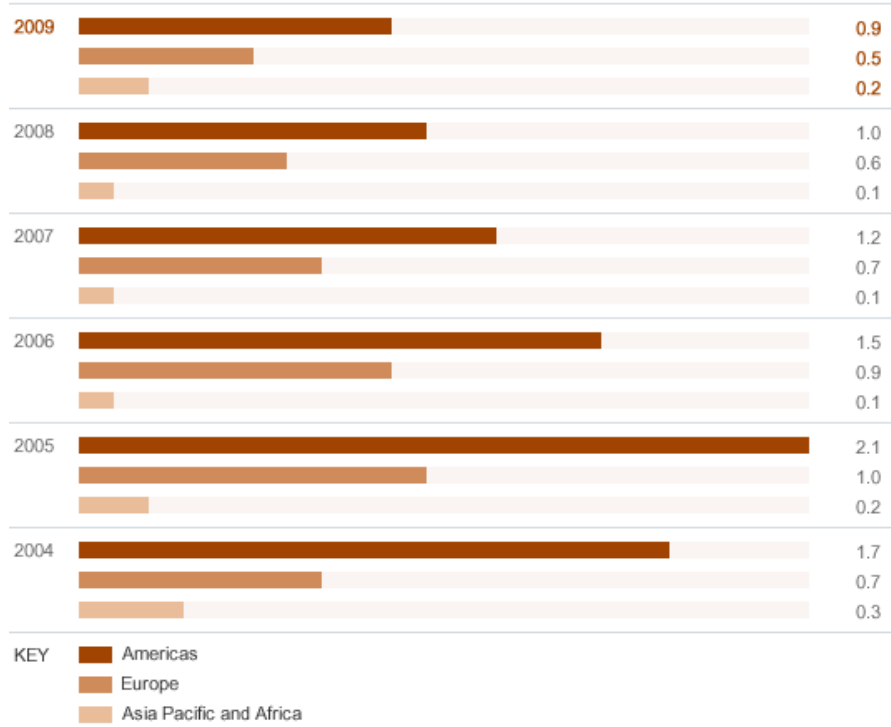
In This Report:

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B. Lost-time Case Rate by Region (per 100 Employees)

Cases with one or more days away from work per 200,000 hours




Cases with one or more days away from work per 200,000 hours

	2004	2005	2006	2007	2008	2009
Americas	1.7	2.1	1.5	1.2	1.0	0.9
Europe	0.7	1.0	0.9	0.7	0.6	0.5
Asia Pacific and Africa	0.3	0.2	0.1	0.1	0.1	0.2

European data were amended for 2005.

 Reported to regulatory authorities

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C. Workplace Health and Safety Violations

Number of violations



Number of violations

	2005	2006	2007	2008	2009
Americas	8	1	9	7	0

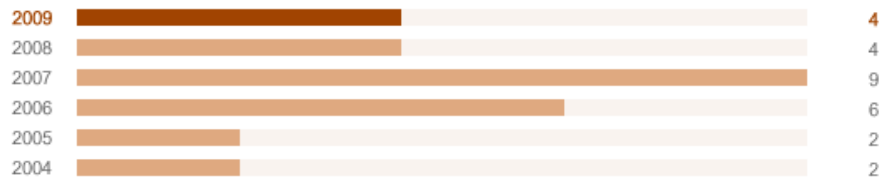
Europe	0	0	0	0	0
Asia Pacific/Africa	0	0	0	0	0
Total	8	1	9	7	0

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D. Global Fatalities

Number of fatalities



Number of fatalities

2004	2005	2006	2007	2008	2009
2	2	6	9	4	4

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Vehicle Safety

DATA ON THIS PAGE

- A. 🔄 Percent of Nameplates Achieving 3-star or Better in Rollover NCAP
- B. 🔄 Percent of Nameplates Achieving 4-star/4-star Frontal NCAP or Better
- C. 🔄 Percent of Nameplates Achieving 5-star/5-star Frontal NCAP
- D. 🔄 Percent of Nameplates Achieving 4-star/4-star or Better in LINCAP
- E. 🔄 Percent of Nameplates Achieving 5-star/5-star or Better LINCAP
- F. 🔄 IIHS Frontal Offset – Percent of Nameplates Achieving "Good" Rating
- G. 🔄 Number of IIHS Top Safety Picks by Manufacturer
- H. 🔄 Euro NCAP Results 2006–8
- I. 🔄 U.S. Safety Recalls

RELATED LINKS

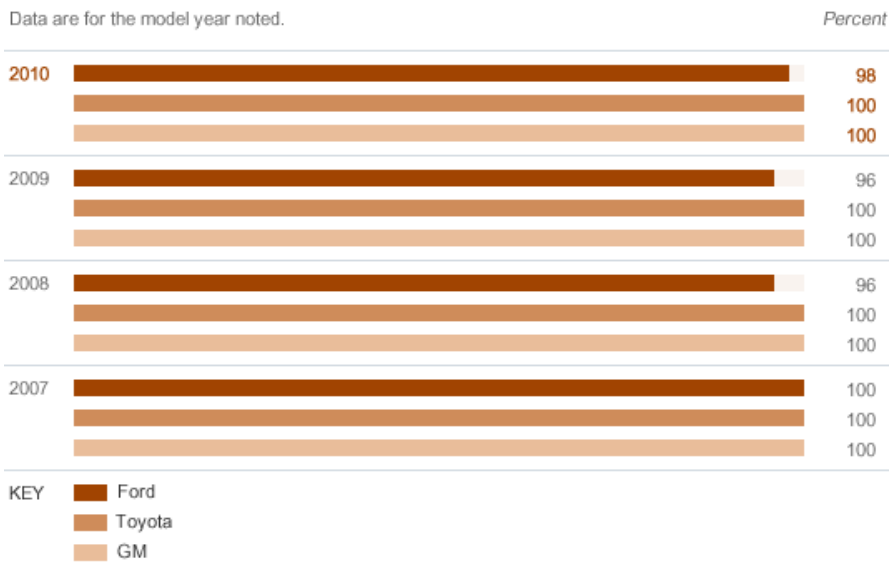
- Complete ratings data by vehicle can be found on the following Web sites:
- Insurance Institute for Highway Safety
- NHTSA's New Car Assessment Program
- European New Car Assessment Program

View all data on this page as [charts](#) | [tables](#)

TOOLBOX

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A. Percent of Nameplates Achieving 3-star or Better in Rollover NCAP




Data are for the model year noted.

	Percent			
	2007	2008	2009	2010
Ford	100	96	96	98
Toyota	100	100	100	100
GM	100	100	100	100

U.S. New Car Assessment Program


[Read about the U.S. New Car Assessment Program.](#)

Ford believes the NHTSA rollover resistance metric is flawed as it does not include a measure of the benefits of electronic stability control systems (ESC). NHTSA's studies have shown the benefits of ESC systems and their potential to improve vehicle stability. Ford believes ESC equipped vehicles should be credited in the resistance to rollover NCAP.

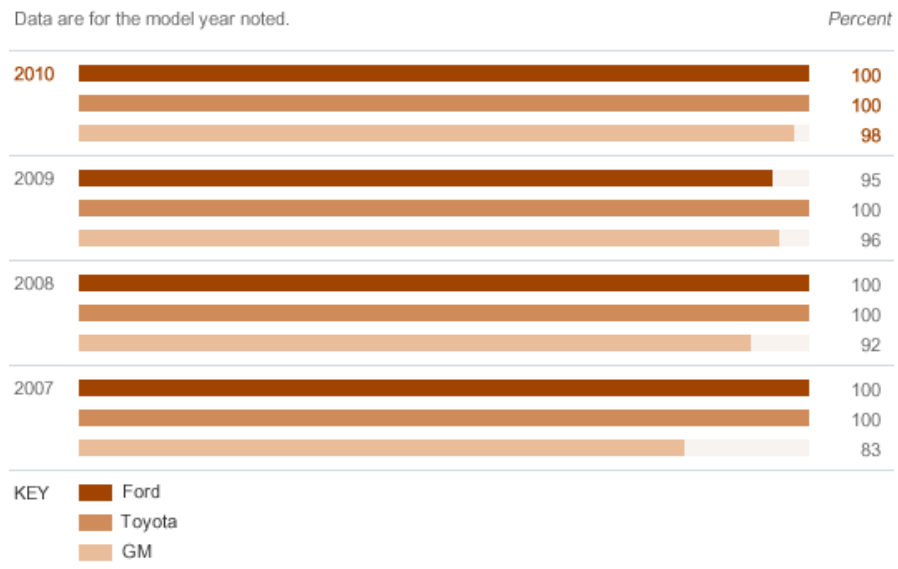
 Third party rated ([NHTSA](#))

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B. Percent of Nameplates Achieving 4-star/4-star Frontal NCAP or Better




Data are for the model year noted. Percent

	2007	2008	2009	2010
Ford	100	100	95	100
Toyota	100	100	100	100
GM	83	92	96	98


U.S. New Car Assessment Program

[Read about the U.S. New Car Assessment Program.](#)

 Third party rated ([NHTSA](#))

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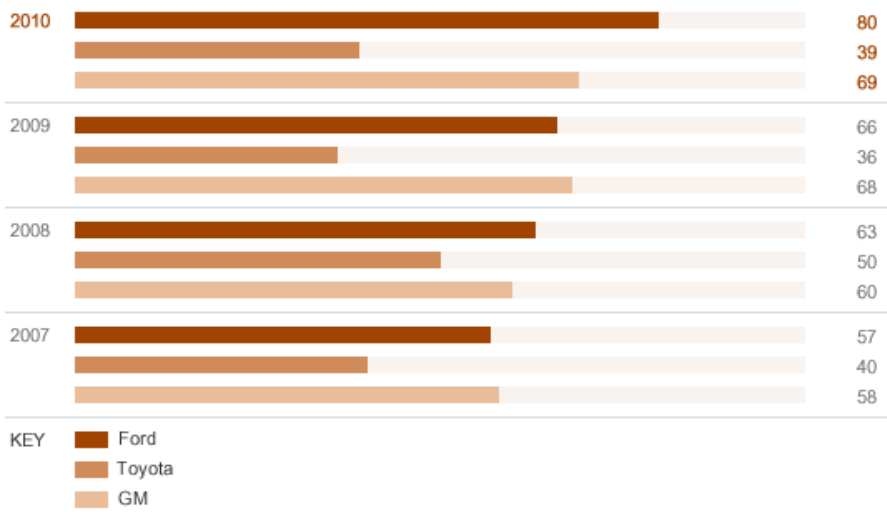
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C. Percent of Nameplates Achieving 5-star/5-star Frontal NCAP

Data are for the model year noted.

Percent



Data are for the model year noted.


Percent

	2007	2008	2009	2010
Ford	57	63	66	80
Toyota	40	50	36	39
GM	58	60	68	69

U.S. New Car Assessment Program


[Read about the U.S. New Car Assessment Program.](#)

From the 2007 to 2010 model years, the percentage of Ford vehicles achieving 5-star/5-star ratings in frontal NCAP tests has increased by 40 percent. Improvements like this are driven in part by our internal Public Domain Guidelines, which are Ford guidelines that focus specifically on helping to ensure that our vehicles earn top marks in relevant public domain assessments.

 Third party rated ([NHTSA](#))

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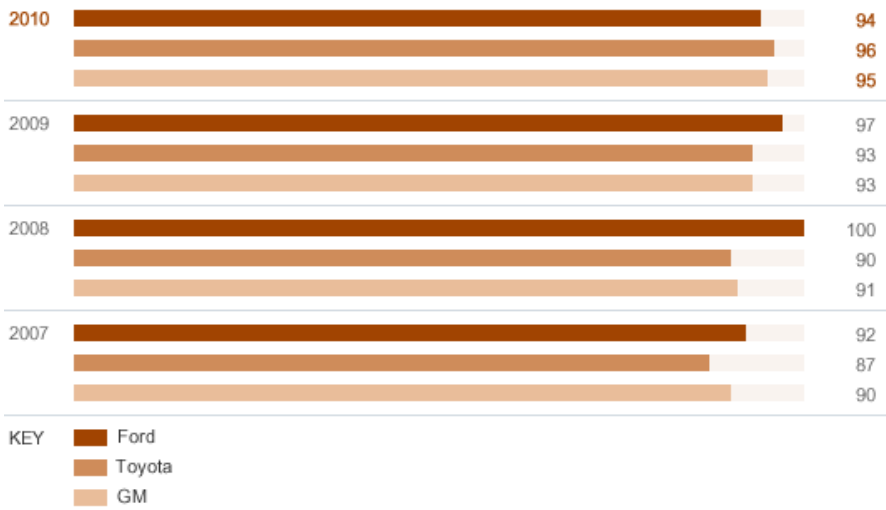
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D. Percent of Nameplates Achieving 4-star/4-star or Better in LINCAP

Data are for the model year noted.

Percent



Data are for the model year noted.

Percent

	2007	2008	2009	2010
Ford	92	100	97	94
Toyota	87	90	93	96
GM	90	91	93	95

U.S. New Car Assessment Program

[Read about the U.S. New Car Assessment Program.](#)



Third party rated ([NHTSA](#))

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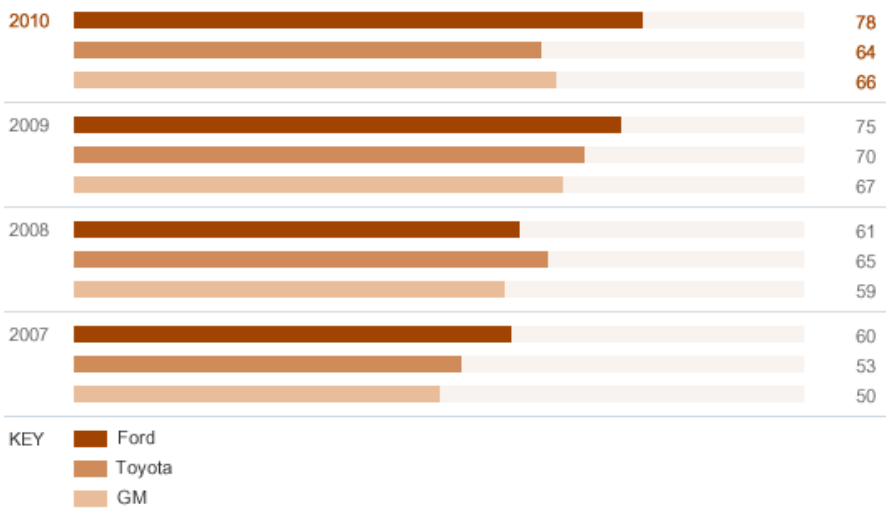
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E. Percent of Nameplates Achieving 5-star/5-star or Better LINCAP

Data are for the model year noted.

Percent



Data are for the model year noted.

Percent

	2007	2008	2009	2010
Ford	60	61	75	78
Toyota	53	65	70	64
GM	50	59	67	66

U.S. New Car Assessment Program

[Read about the U.S. New Car Assessment Program.](#)

From the 2007 to 2010 model years, the percentage of Ford vehicles achieving 5-star/5-star or better ratings in the Lateral Impact New Car Assessment Program has increased by 30 percent. Improvements like this are driven in part by our internal Public Domain Guidelines, which are Ford guidelines that focus specifically on helping to ensure that our vehicles earn top marks in relevant public domain assessments.



Third party rated ([NHTSA](#))

In This Report:

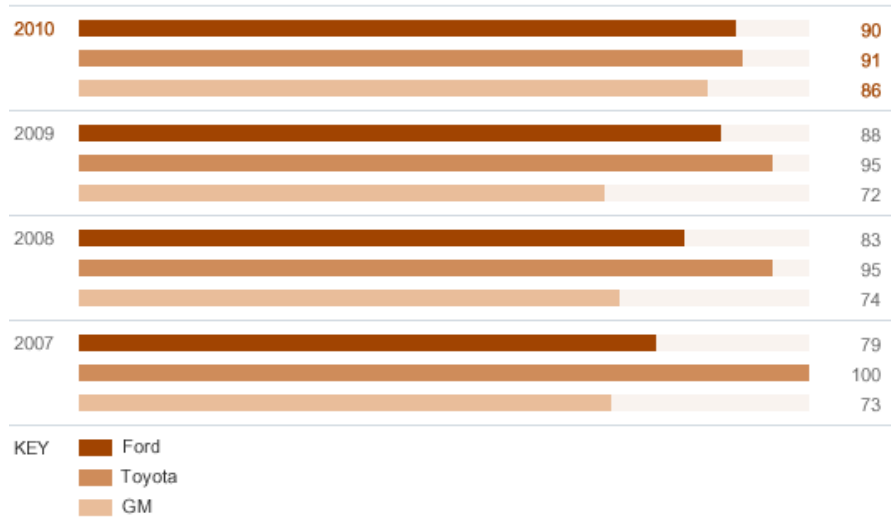
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F. IIHS Frontal Offset – Percent of Nameplates Achieving "Good" Rating

Data are for the model year noted.

Percent



Data are for the model year noted.

Percent

	2007	2008	2009	2010
Ford	79	83	88	90
Toyota	100	95	95	91
GM	73	74	72	86

In the 40 mph offset test of the Insurance Institute for Highway Safety (IIHS), 40 percent of the total width of a vehicle strikes a barrier on the driver's side. The forces in the test are similar to those involved in a frontal offset crash between two vehicles of the same weight, each going just less than 40 mph. Test results can be compared only among vehicles of similar weight. Like full-width crash test results, the results of offset tests cannot be used to compare vehicle performance across weight classes.


Based on a vehicle's performance in three areas evaluated in the frontal offset crash tested – structural

performance, injury measures and restraints/dummy kinematics – the IIHS assigns a vehicle an overall crashworthiness measure of Good, Acceptable, Marginal or Poor. For more information, go to www.iihs.org.

 Third party rated ([IIHS](#))

In This Report:

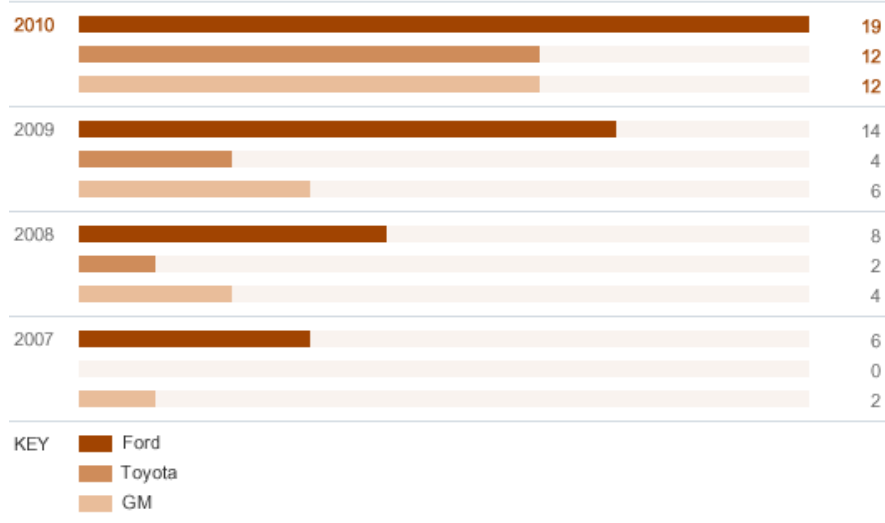
Vehicle Safety
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G. Number of IIHS Top Safety Picks by Manufacturer

Data are for the model year noted.

Number of vehicles



Data are for the model year noted.

Number of vehicles

	2007	2008	2009	2010
Ford	6	8	14	19
Toyota	0	2	4	12
GM	2	4	6	12

To earn a Top Safety Pick from the Insurance Institute for Highway Safety (IIHS), a vehicle must receive a rating of "good" in offset frontal impact, side impact and rear impact evaluations, and offer electronic stability control. Top Safety Picks are the best vehicle choices for safety within size categories. 2005 (2006 Model Year) was the first year the IIHS issued Top Safety Picks. For 2010, vehicles will also be expected to earn a "good" rating in roof strength tests.

From the 2007 to 2010 model years, the percentage of Ford vehicles earning Top Safety Picks from the IIHS has increased by 217 percent. Improvements like this are driven in part by our internal Public Domain Guidelines, which are Ford guidelines that focus specifically on helping to ensure that our vehicles earn top marks in relevant public domain assessments.

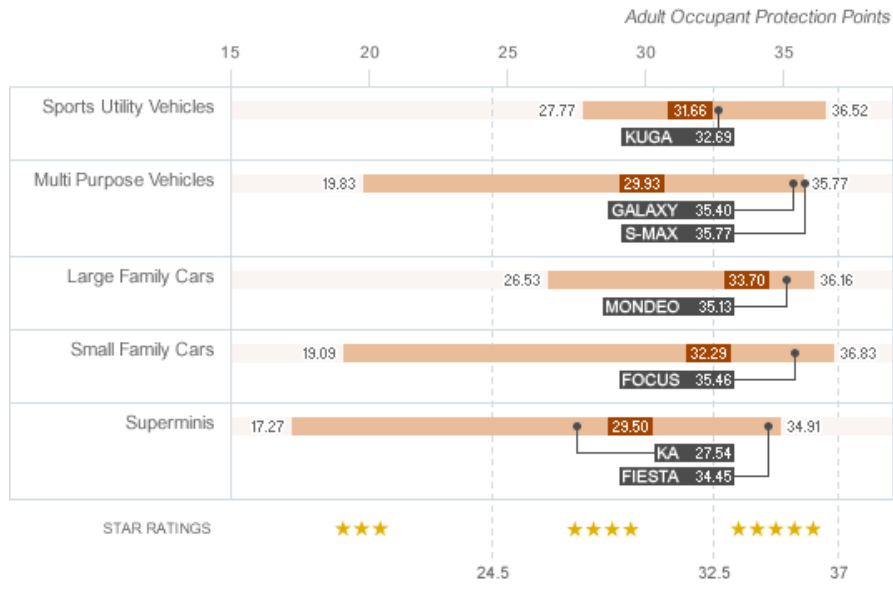
 Third party rated ([IIHS](#))

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H. Euro NCAP Results 2006–8



KEY Industry MIN AVG MAX
Ford ●

Adult Occupant Protection Points


	Industry Low	Industry High	Industry Average	Ford results
Sports Utility Vehicles	27.77	36.52	31.66	Ford Kuga: 32.69
Multi Purpose Vehicles	19.83	35.77	29.93	Ford Galaxy: 35.40, Ford S-MAX: 35.77
Large Family Cars	26.53	36.16	33.7	Ford Mondeo: 35.13
Small Family Cars	19.09	36.83	32.29	Ford Focus: 35.46
Superminis	17.27	34.91	29.50	Ford Ka: 27.54, Ford Fiesta: 34.45

EuroNCAP has developed more-stringent requirements, which went into effect in 2009. However, EuroNCAP does not test all vehicles annually, so no Ford vehicles have yet been assessed under the new system. For the vehicles noted in the chart, "adult occupant" ratings range from 0 to 5 stars. 3 star = up to 24.5, 4 star = 24.5 to 32.5, 5 star = 32.5 and above; maximum = 37 points. For additional information, go to www.euroncap.com.

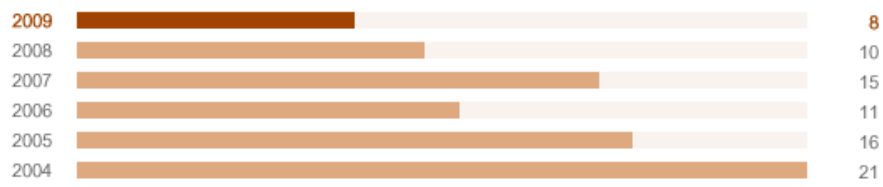
 Third party rated ([Euro NCAP](http://www.euroncap.com))

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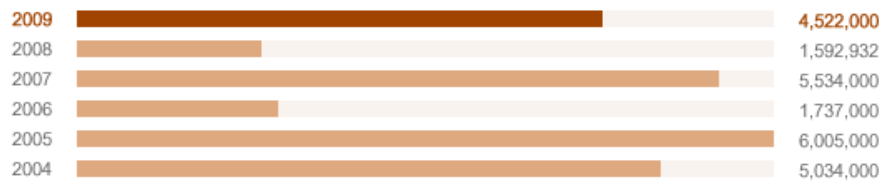
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I. U.S. Safety Recalls




Number of units



	2004	2005	2006	2007	2008	2009
Number of safety recalls	21	16	11	15	10	8
Number of units	5,034,000	6,005,000	1,737,000	5,534,000	1,592,932	4,522,000

Recalls are by calendar year rather than model year. A single recall may affect several vehicle lines and/or several model years. The same vehicle may have multiple recalls. (Source: U.S. National Highway Traffic Safety Administration.)

All but 12,000 of the 4.5 million vehicles recalled in 2009 are older models (1992–2003) that were equipped with faulty Texas Instruments speed control deactivation switches. Although the data shows the majority of the vehicles equipped with these switches do not pose a significant safety risk, we recalled them to reassure customers and eliminate any future concerns.

 [Reported to regulatory authorities \(NHTSA\)](#)

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U.S. New Car Assessment Program

Government star ratings are part of the New Car Assessment Program (NCAP) of the U.S. National Highway Traffic Safety Administration (NHTSA). The NCAP rating system is in the process of being significantly altered. As such, fewer vehicles (of all makes) will receive top ratings in the future. Changes to the NCAP system were slated to apply to 2010 model year vehicles, but NHTSA delayed implementation and will now first apply the tougher requirements to 2011 model year vehicles. The following describes how the NCAP system has been applied to date.

In NHTSA's frontal crash rating tests, vehicles with belted front-seat test dummies are crashed into a fixed barrier at 35 mph, which is equivalent to a head-on collision between two similar vehicles, each moving at 35 mph. Since the test is designed to reflect a crash between two similar vehicles, one can meaningfully compare vehicles from the same weight class (within +/- 250 lbs) when looking at frontal crash test ratings.

Instruments measure the force of the impact to each test dummy's head, chest and legs. NHTSA uses the readings from these instruments to estimate the chance that a real occupant would sustain a serious injury in the tested frontal crash. A serious injury is defined as one that requires immediate hospitalization and may be life-threatening.

For side crash ratings, belted test dummies are placed in the driver seat and rear passenger seat (driver's side). The side crash rating is designed to represent an intersection-type collision with a 3,015 lb barrier moving at 38.5 mph into a standing vehicle. The moving barrier is covered with material that has "give" to replicate the front of a vehicle. Since all rated vehicles are impacted by the same size barrier, it is possible to compare all vehicles with each other when looking at side crash protection ratings. Instruments measure the force of impact to each dummy's head, neck, chest and pelvis. Side crash star ratings indicate the chance of a serious chest injury for the driver, front seat passenger and the rear seat passenger (first and second row occupants).

What do the stars mean?

Chance of serious injury



Frontal Crash Rating
10 percent or less
11–20 percent
21–35 percent
36–45 percent
46 percent or greater

Side Crash Rating
5 percent or less
6–10 percent
11–20 percent
21–25 percent
26 percent or greater

For more information, go to www.nhtsa.dot.gov.

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Case Studies

- Ford and Juvenile Diabetes
- Water: More Than Just Environmental Concerns

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Case Studies

IN THIS SECTION

Ford and Juvenile Diabetes

Each year, more than 15,000 children in the U.S. are diagnosed with Type 1 diabetes. The disease, which can strike suddenly, has no cure. For more than 25 years, Ford has been involved in helping to find a cure.

[Read more ▶](#)

Water: More Than Just Environmental Concerns

A decade ago, Ford made a commitment to decrease our water use, setting a target of 3 percent year-over-year reductions. Since we launched our Global Water Conservation Initiative in 2000, our global manufacturing facilities have saved more than 10.5 billion gallons of water – a reduction of an impressive 62.4 percent. Water use per vehicle decreased by 44.7 percent from 2000 to 2009. But we realize there's a lot more we can – and should – do.

[Read more ▶](#)



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SOCIETY

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Water: More Than Just Environmental Concerns

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Ford and Juvenile Diabetes

Each year, more than 15,000 children in the United States are diagnosed with Type 1 diabetes. That's 40 children a day. The disease, which can strike suddenly, has no cure.

While insulin can help manage the disease, it does not prevent devastating complications such as kidney failure, blindness, nerve damage, amputations, heart attack and stroke, as well as complications during pregnancies.

For more than 25 years, Ford has been involved in helping to find a cure through our support of the [Juvenile Diabetes Research Foundation](#) (JDRF). In 1983, Ford hosted a JDRF fundraising walk in Dearborn. In 1998, the grassroots employee initiative now known as the Ford Global Walk Team began, with Edsel B. Ford II as the corporate team chair. The event has grown dramatically over the last decade. Since 2002, Ford has been the JDRF's largest corporate – and only international – sponsor.

Ford volunteers donate significant time to leverage the Company's financial support of the JDRF. In 2009, an estimated 12,000 Ford employees, retirees, families and friends, in 10 countries and across three continents, participated in walks and held book sales, silent auctions and raffles to raise money for diabetes research. Together with support from national partner companies, they raised more than \$3.4 million, bringing the total amount raised by Ford volunteers to more than \$30 million since 1998.

Ford is proud to have been presented with the JDRF President's Award for eight consecutive years, earning recognition as the Top Corporate Sponsor in the world.

The JDRF is the leading charitable funder and advocate for juvenile diabetes research. Since its founding in 1970, the JDRF has awarded more than \$1.4 billion to diabetes research, including more than \$101 million in fiscal year 2009.



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 - Employees
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Water: More Than Just Environmental Concerns

A decade ago, Ford made a commitment to decrease our water use, setting a target of 3 percent year-over-year reductions. Since we launched our Global Water Conservation Initiative in 2000, our global manufacturing facilities have saved more than 10.5 billion gallons of water – a reduction of an impressive 62.4 percent. Water use per vehicle decreased by 44.7 percent from 2000 to 2009.

But we realize there's a lot more we can – and should – do. Water conservation has quickly become a critical global issue that extends well beyond environmental concerns. There are significant social and economic implications, too. Among some of the sobering statistics:

- Less than 3 percent of the Earth's water is freshwater. Of that, less than 0.5 percent is accessible to plants, animals and humans.
- Global water consumption is increasing at more than double the rate of human population growth and is expected to triple in the next 50 years.
- If per capita consumption continues to increase at its current rate, the global population will be using over 90 percent of all available freshwater within 25 years.
- An estimated one-third of the world's population currently lives in water-stressed regions. This is expected to increase to two-thirds within 25 years.
- Some 1.2 billion people do not currently have access to clean water.

Water use and availability are, and will continue to be, important to Ford's operations. Many key vehicle manufacturing processes require the use of water. And water is used at every point in our supply chain. Yet, in some areas where we have facilities, freshwater availability is limited.

Our Water Strategy

We have embarked on a new water strategy that looks at our water use from both an environmental and social perspective.

In 2010, we will be identifying additional opportunities for water reduction with an eye toward setting other water targets and goals. We are engaging with stakeholders to better understand water-related issues that impact Ford Motor Company. And we are assessing the consequences for water quality and availability that may result from the increased production of electric and battery-electric vehicles.

To help guide and inform our approach, we signed on as a founding responder of the Carbon Disclosure Project's (CDP) Water Disclosure, which launched in late 2009 to help institutional investors better understand the business risks and opportunities associated with water scarcity and related issues. The CDP's original project focused on corporate disclosures of greenhouse gas (GHG) emissions and climate change strategies, and we found our participation in that project to be very beneficial in helping us formulate our strategy for GHG reporting. We anticipate similar benefits from CDP Water Disclosure, which will provide a globally harmonized method of water reporting.

By understanding our risk through water usage reporting – and implementing our strategy – we believe we can play an important role in developing and implementing solutions to worldwide water challenges.

Water is increasingly becoming a human rights issue – as in a "right to water." Companies that under-perform on water issues will face scrutiny over human rights violations. This will be especially true for companies with operations in water-stressed areas.

Our Work in Mexico

Ford's Hermosillo Stamping and Assembly Plant is located in the Sonoran Desert of northwest Mexico, south of the Arizona border. There, an extended drought that began in 1995, coupled with population growth, created a severe water shortage. At Hermosillo, we have cut water use despite a doubling in the production of vehicles. This unusual feat has been accomplished through the addition of innovative water treatment systems that allow extensive recycling of water within the plant.

As one of the area's largest water users, the plant responded to the drought conditions by cutting water usage by 43 percent between 1995 and 2000. But when it was selected for expanded vehicle production in 2003, water use was projected to double.

To accommodate the growth in production without increasing water use, the plant installed a biological water treatment system called a Membrane Biological Reactor, now also installed at our plants in Chihuahua, Mexico; Chennai, India; and Chongqing, China. The system uses an ultra-filtration membrane process followed by reverse osmosis to make 55 percent of the plant's wastewater suitable for high-quality reuse within the plant's processes. The treated water can also be used for irrigation, bringing to 65 percent the amount of wastewater that can be recycled.

As a result, our water consumption per vehicle unit at the plant has dropped by over 34 percent since 2000.

Overall, our worldwide facilities have been able to reduce water consumption by tracking water use during plant downtimes; by optimizing cooling tower operations; and by investing in advanced technologies. Our Global Emissions Manager (GEM) database helps track our efforts.

As we look ahead, we will be developing ways to integrate a water strategy throughout all elements of our operation, including engaging our employees on community volunteer efforts geared toward water protection and conservation. We will also focus on our suppliers and how they are addressing issues of water scarcity.



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Preparing this report is a valuable opportunity for us to assess and improve upon our economic, environmental and social progress and performance.

To continue to do so, we need your feedback.

Write:

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For customer service issues or complaints please call 800-392-3673 in the US, 1-800-565-3673(FORD) in Canada or go to www.customersaskford.com.



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Brand and Country-Level Reports

- [Mazda Social and Environmental Report](#)
(PDF download)
- [Brazil GHG Accounting and Reporting Program – 2008 Report](#)
(English version, pdf, 619kb)
([Portugese version](#), pdf, 621kb)
- [Changan Ford Mazda Automobile Co., Ltd – Chongqing, China – 2008 GHG Report](#)
(pdf, 976kb)
- [Changan Ford Mazda Automobile Co., Ltd – Nanjing Assembly Plant – 2008 GHG Report](#)
(pdf, 663kb)
- [Changan Ford Mazda Engine Co.,Ltd – 2008 GHG Report](#)
(pdf, 609kb)
- [Jiangling Motors Co., Ltd – 2008 GHG Report](#)
(pdf, 1.02Mb)

Past Reports

- [Ford Mexico Greenhouse Gas Report](#)
(pdf, 460kb)
- [Ford Philippines 2007 Greenhouse Gas Report](#)
(pdf, 316kb)
- [Changan Ford Mazda Automobile Co., Ltd – Chongqing, China – 2007 GHG Report](#)
(pdf, 678kb)

Ford Sustainability Report 2008/9 Feedback

- [Feedback from SAM research](#)
(pdf, 20kb)
- [SustainAbility Benchmark Feedback](#)
(pdf, 335kb)
- [Ford Response to Carbon Disclosure Project](#)
(pdf, 193kb)

Financial Reports

- [Annual Report 2009](#)
(pdf, 8.06Mb)
- [Form 10-K](#)
(pdf, 1.11Mb)
- [Form 8-K](#)
(pdf, 246kb)
- [Notice of 2010 Annual Meeting of Shareholders and Proxy Statement](#)
(pdf, 643kb)


Human Rights

- [Santa Rosa Human Rights Assessment](#)


(pdf, 61kb)

 [Camacari Human Rights Assessment](#)

(pdf, 111kb)

 [Ford Motor Company of Southern Africa Human Rights Assessment](#)

(pdf, 85kb)

 [Vsevolozshk Human Rights Assessment](#)

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 [Chicago Human Rights Assessment](#)

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 [Hermosillo Human Rights Assessment](#)

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 [Michigan Human Rights Assessment](#)

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 [Broad Meadows Human Rights Assessment](#)

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 [Lio Ho Human Rights Assessment](#)

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 [Pacheco Human Rights Assessment](#)

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 [Changan Human Rights Assessment \(October 10, 2006\)](#)


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 [Changan Human Rights Assessment \(June 10, 2009\)](#)

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 [Code of Basic Working Conditions](#)

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Product Sustainability Index

 [Ford of Europe's Product Sustainability Index. OECD Workshop](#)

(pdf, 259kb)

 [Product Sustainability Index Report. Ford S-MAX and Ford Galaxy](#)

(pdf, 507kb)

 [Product Sustainability Index Fact Sheet. Ford Fiesta](#)

(pdf, 166kb)

 [Product Sustainability Index Fact Sheet. Ford Kuga](#)

(pdf, 128kb)


 [Product Sustainability Index Fact Sheet. Ford Mondeo](#)

(pdf, 105kb)

 [Managing Sustainable Product Development](#)

(pdf, 39kb)

Miscellaneous

-  [Ford Rouge Center Brochure](#)
(pdf, 11.52Mb)
-  [Chicago Climate Exchange certificate](#)
(pdf, 150kb)
-  [Technology and Innovation](#)
(HTML format)
-  [Volvo Cars Environment](#)
(HTML format)
-  [Climate Change Emissions and Stabilization. Sustainability Report 2006/07](#)
(pdf, 117kb)

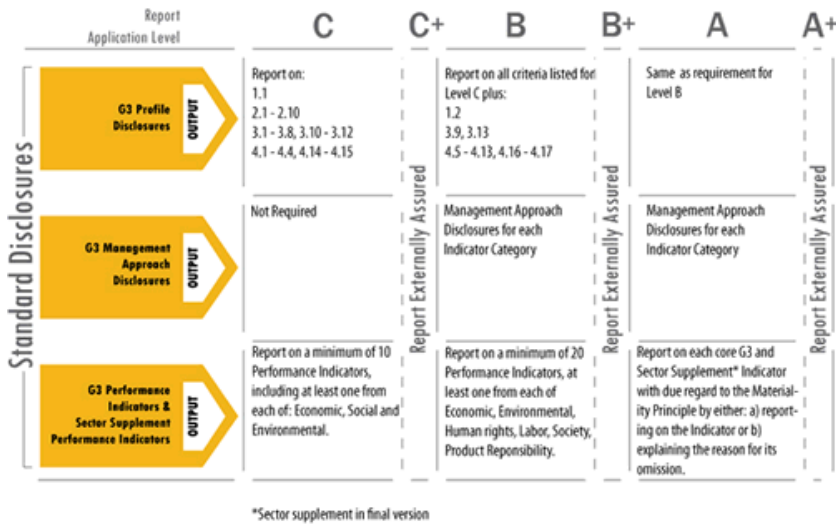


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GRI Index



This report is aligned with the Global Reporting Initiative (GRI) G3 Sustainability Reporting Guidelines released in October 2006, at an application level of A. To locate the elements and information contained within the guidelines, use the index below. For a detailed explanation of the indicators, visit the GRI Web site.



RELATED LINKS +

External Web Sites:
Global Reporting Initiative

KEY

- Yes, this indicator is reported on
- This indicator is partially reported on
- No, this indicator is not reported on
- Click on this icon to see notes related to that indicator, including explanations of core elements and indicators not covered in the report.



Additional indicators are shown in bold

➔ 1. Strategy and Analysis

Element	Status	Report Links	Notes
1.1 Statement from the most senior decisionmaker of the organization (e.g., CEO, chair or equivalent senior position) about the relevance of sustainability to the organization and its strategy.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Letter from William Clay Ford, Jr. Letter from Alan Mulally 	
1.2 Description of key impacts, risks and opportunities.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Letter from William Clay Ford, Jr. Letter from Alan Mulally Letter from Sue Cischke Our Value Chain and Its Impacts Material Issues Performance Summary Ford's Goals, Commitments, and Status Sustainability Governance and Integration 	

➔ 2. Organizational Profile

Element	Status	Report Links	Notes
2.1 Name of the organization.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Our Operations 	
2.2 Primary brands, products and/or services.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Our Operations Products and Services 	
2.3 Operational structure of the organization, including main divisions, operating companies, subsidiaries and joint ventures.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Our Operations Products and Services 	

2.4	Location of organization's headquarters.	■	<ul style="list-style-type: none"> • Manufacturing 	
2.5	Number of countries where the organization operates, and names of countries either with major operations or that are specifically relevant to the sustainability issues covered in the report.	■	<ul style="list-style-type: none"> • Manufacturing 	
2.6	Nature of ownership and legal form.	■	<ul style="list-style-type: none"> • Our Operations 	
2.7	Markets served (including geographic breakdown, sectors served and types of customers/beneficiaries).	■	<ul style="list-style-type: none"> • Products and Services • Dealers 	
2.8	Scale of the reporting organization, including: number of employees; net sales (for private sector organizations) or net revenues (for public sector organizations); total capitalization broken down in terms of debt and equity (for private sector organizations); and quantity of products or services provided.	■	<ul style="list-style-type: none"> • Our Operations • Manufacturing • Economy Data • Products and Services 	
2.9	Significant changes during the reporting period regarding size, structure, or ownership including: the location of, or changes in operations, including facility openings, closings, and expansions; and changes in the share capital structure and other capital formation, maintenance and alteration operations (for private sector organizations).	■	<ul style="list-style-type: none"> • Sustaining Ford • Workforce Reductions • Workforce 	
2.10	Awards received in the reporting period.	■	<ul style="list-style-type: none"> • 2009 Awards and Recognition • Quality Awards and Ratings • Operational Energy Use and Greenhouse Gas Emissions • Diversity Awards 	

➔ 3. Report Parameters

Report Profile

Element	Status	Report Links	Notes
3.1	Reporting period (e.g., fiscal/calendar year) for information provided.	■	<ul style="list-style-type: none"> • Overview
3.2	Date of most recent previous report (if any).	■	<ul style="list-style-type: none"> • Overview
3.3	Reporting cycle (annual, biennial, etc.).	■	<ul style="list-style-type: none"> • Overview
3.4	Contact point for questions regarding the report or its contents.	■	<ul style="list-style-type: none"> • Contact

Report Scope and Boundary

Element	Status	Report Links	Notes
3.5	Process for defining report content, including: determining materiality; prioritizing topics within the report; and identifying stakeholders the organization expects to use the report.	■	<ul style="list-style-type: none"> • Materiality Analysis • Who Are Our Stakeholders?
3.6	Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers). See GRI Boundary Protocol for further guidance.	■	<ul style="list-style-type: none"> • Overview
3.7	State any specific limitations on the scope or boundary of the report.	■	<ul style="list-style-type: none"> • Overview
3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations and other entities that can significantly affect comparability from period to period and/or between organizations.	■	<ul style="list-style-type: none"> • Performance Summary • Economy Data • Environment Data • Society Data
3.9	Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report.	■	<ul style="list-style-type: none"> • Performance Summary • Economy Data • Environment Data • Society Data
3.10	Explanation of the effect of any re-statements of information provided in earlier reports and the reasons for such re-statement (e.g., mergers/acquisitions, change of the base years/periods, nature of business, measurement methods).	■	<ul style="list-style-type: none"> • Performance Summary • Economy Data • Environment Data • Society Data

3.11	Significant changes from previous reporting periods in the scope, boundary or measurement methods applied in the report.		<ul style="list-style-type: none"> Overview 	
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GRI Content Index

Element	Status	Report Links	Notes
3.12		<ul style="list-style-type: none"> GRI Index 	

Assurance

Element	Status	Report Links	Notes
3.13		<ul style="list-style-type: none"> Assurance 	

➔ 4. Governance, Commitments and Engagement

Governance

Element	Status	Report Links	Notes
4.1		<ul style="list-style-type: none"> Corporate Governance – Board of Directors Governance and Management Structures Sustainability Governance and Integration 	
4.2		<ul style="list-style-type: none"> Corporate Governance – Board of Directors 	
4.3		<ul style="list-style-type: none"> Corporate Governance – Board of Directors 	
4.4		<ul style="list-style-type: none"> Corporate Governance – Board of Directors Who Are Our Stakeholders? 	
4.5		<ul style="list-style-type: none"> Sustainability Governance and Integration 	
4.6		<ul style="list-style-type: none"> Corporate Governance – Board of Directors Ethical Business Practices 	
4.7		<ul style="list-style-type: none"> Corporate Governance – Board of Directors 	
4.8		<ul style="list-style-type: none"> Ethical Business Practices Sustainability Governance and Integration Policy Letters and Directives 	
4.9		<ul style="list-style-type: none"> Corporate Governance – Board of Directors 	

4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental and social performance.	■	<ul style="list-style-type: none"> • Corporate Governance – Board of Directors
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Commitments to External Initiatives

Element	Status	Report Links	Notes
4.11	■	<ul style="list-style-type: none"> • Environment 	
4.12	■	<ul style="list-style-type: none"> • Climate Change Policy and Partnerships • Policy Letters and Directives • Ford's Approach to Urban Mobility: Catalyst for Learning, Collaboration, and Action • Human Rights • Collaboration within the Automotive Industry • Expanding Impact on Working Conditions • Public Policy Positions 	
4.13	■	<ul style="list-style-type: none"> • Climate Change Policy and Partnerships • Ford's Approach to Urban Mobility: Catalyst for Learning, Collaboration, and Action • Collaboration within the Automotive Industry • Vehicle Safety: Collaborative Efforts • Ford's Green Partnerships with the Federal and State Governments • Participation in the Policy-Making Progress 	

Stakeholder Engagement

Element	Status	Report Links	Notes
4.14	■	<ul style="list-style-type: none"> • Who Are Our Stakeholders? 	
4.15	■	<ul style="list-style-type: none"> • Who Are Our Stakeholders? 	
4.16	■	<ul style="list-style-type: none"> • Who Are Our Stakeholders? • Engaging with Our Employees • Customers • Dealers • Investors • Engaging with Communities 	
4.17	■	<ul style="list-style-type: none"> • Who Are Our Stakeholders? • Materiality Analysis • Assurance • Public Policy 	

➔ 5. Management Approach and Performance Indicators



Disclosure on Management Approach

Element	Status	Report Links	Notes
Economic	■	<ul style="list-style-type: none"> • Economy • Sustaining Ford 	



Environment	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Manufacturing
Labor	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Employees Workplace Health and Safety
Human Rights	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Human Rights
Society	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Society
Product Responsibility	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Delivering New Products How We Manage Vehicle Safety

Economic


Economic Performance

Element	Status	Report Links	Notes
EC1 Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings and payments to capital providers and governments.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Economy Data Society Data 	
EC2 Financial implications and other risks and opportunities for the organization's activities due to climate change.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Climate Change Risks and Opportunities 	
EC3 Coverage of the organization's defined benefit plan obligations.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Workforce Working with the UAW 	
EC4 Significant financial assistance received from government.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Ford's Green Partnerships with the Federal and State Governments Financing Our Plan and Improving Our Balance Sheet 	

Market Presence



Element	Status	Report Links	Notes
EC5 Range of ratios of standard entry-level wage compared to local minimum wage at significant locations of operation.	<input type="checkbox"/>		
EC6 Policy, practices, and proportion of spending on locally based suppliers at significant locations of operation.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Human Rights Society Data 	
EC7 Procedures for local hiring and proportion of senior management hired from the local community at locations of significant operation.	<input type="checkbox"/>		

Indirect Economic Impacts

Element	Status	Report Links	Notes
EC8 Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind or pro bono engagement.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Society Data Investing in Communities 	
EC9 Understanding and describing significant indirect economic impacts, including the extent of impacts.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Economy: Progress and Goals Economic Impacts of the Auto Industry 	

Environmental

Materials

Element	Status	Report Links	Notes
EN1 Materials used by weight or volume.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Sustainable Materials 	
EN2 Percentage of materials used that are recycled input materials.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Sustainable Materials 	

Energy


Element	Status	Report Links	Notes
EN3 Direct energy consumption by primary energy source.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Operational Energy Use and CO₂ Emissions 	

EN4	Indirect energy consumption by primary source.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Operational Energy Use and CO₂ Emissions
EN5	Energy saved due to conservation and efficiency improvements.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Operational Energy Use and CO₂ Emissions Operational Energy Use and Greenhouse Gas Emissions Renewable Energy Use
EN6	Initiatives to provide energy-efficient or renewable energy-based products and services, and reductions in energy requirements as a result of these initiatives.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Fuel Economy and Greenhouse Gas Emissions Improving Fuel Economy Migration to Alternative Fuels and Powertrains Ford's Green Partnerships with the Federal and State Governments Electrification: A Closer Look A Look Inside the "Black Box" Supply Chain Sustainability
EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Operational Energy Use and CO₂ Emissions

Water

Element	Status	Report Links	Notes
EN8	Total water withdrawal by source.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Global Water Use By Source
EN9	Water sources significantly affected by withdrawal of water.	<input type="checkbox"/>	<ul style="list-style-type: none"> Water Use
EN10	Percentage and total volume of water recycled and reused.	<input type="checkbox"/>	<ul style="list-style-type: none"> Water Use

Biodiversity

Element	Status	Report Links	Notes
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	<input type="checkbox"/>	<ul style="list-style-type: none"> Sustainable Land Use and Biodiversity 
EN12	Descriptions of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Sustainable Land Use and Biodiversity
EN13	Habitats protected or restored.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Sustainable Land Use and Biodiversity
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	<input type="checkbox"/>	<ul style="list-style-type: none"> Sustainable Land Use and Biodiversity Green Buildings
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	<input type="checkbox"/>	

Emissions, Effluents and Waste

Element	Status	Report Links	Notes
EN16	Total direct and indirect greenhouse gas emissions by weight.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Operational Energy Use and CO₂ Emissions
EN17	Other relevant indirect greenhouse gas emissions by weight.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Fuel Economy and CO₂ Emissions
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Climate Change Our Strategy: Blueprint for Sustainability Improving Fuel Economy Migration to Alternative Fuels and Powertrains Ford's Green Partnerships with the Federal and State Governments
EN19	Emissions of ozone-depleting substances by weight.	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Emissions (VOC and Other) Facilities-Related Emissions
EN20	NOx, SOx and other significant air emissions by type and	<input checked="" type="checkbox"/>	<ul style="list-style-type: none"> Environment Data: Emissions (VOC and

Element	Status	Report Links	Notes
weight.		Other	
		Environment Data: Tailpipe Emissions	
EN21	<input type="checkbox"/>		
EN22	<input type="checkbox"/>	Environment Data: Waste	
EN23	<input type="checkbox"/>	Compliance	
EN24	<input type="checkbox"/>		
EN25	<input type="checkbox"/>		

Products and Services

Element	Status	Report Links	Notes
EN26	<input type="checkbox"/>	<ul style="list-style-type: none"> Design for Life-Cycle Sustainability End of Life Improving Fuel Economy Migration to Alternative Fuels and Powertrains 	
EN27	<input type="checkbox"/>	<ul style="list-style-type: none"> Sustainable Materials End of Life 	

Compliance

Element	Status	Report Links	Notes
EN28	<input type="checkbox"/>	Compliance	

Transport

Element	Status	Report Links	Notes
EN29	<input type="checkbox"/>	Logistics	

Overall

Element	Status	Report Links	Notes
EN30	<input type="checkbox"/>		

Social: Labor Practices and Decent Work

Employment

Element	Status	Report Links	Notes
LA1	<input type="checkbox"/>	<ul style="list-style-type: none"> Employees Our Operations Society Data: Employment by Business Unit 	
LA2	<input type="checkbox"/>		
LA3	<input type="checkbox"/>		

Labor/Management Relations

Element	Status	Report Links	Notes
LA4	<input type="checkbox"/>	Who Are Our Stakeholders?	

LA5	Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements.		<ul style="list-style-type: none"> Employees Workforce Reductions Handling Downsizing Responsibly
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Occupational Health and Safety

Element	Status	Report Links	Notes
LA6		<ul style="list-style-type: none"> Workplace Health and Safety 	
LA7		<ul style="list-style-type: none"> Our 2009 Safety Record Society Data: Workplace Safety 	
LA8		<ul style="list-style-type: none"> Health as a Strategic Advantage Ford and Juvenile Diabetes 	
LA9		<ul style="list-style-type: none"> Relationship Management 	

Training and Education

Element	Status	Report Links	Notes
LA10		<ul style="list-style-type: none"> Safe Acts Ethical Business Practices Supply Chain 	
LA11		<ul style="list-style-type: none"> Employees Workforce Handling Downsizing Responsibly 	
LA12			

Diversity and Opportunity

Element	Status	Report Links	Notes
LA13		<ul style="list-style-type: none"> Corporate Governance – Board of Directors Diversity and Inclusion in the Workplace Society Data: Engagement and Community 	
LA14		<ul style="list-style-type: none"> Diversity and Inclusion in the Workplace Society Data: Engagement and Community 	

Social: Human Rights

Strategy and Management

Element	Status	Report Links	Notes
HR1		<ul style="list-style-type: none"> Ford's Commitment to Human Rights Working Conditions in Ford Plants 	
HR2		<ul style="list-style-type: none"> Ford and the Automotive Industry Supply Chain 	
HR3		<ul style="list-style-type: none"> Supply Chain Profile Society Data: Engagement and Community 	

Non-Discrimination

Element	Status	Report Links	Notes
HR4		<ul style="list-style-type: none"> Society Data: Engagement and Community Ford's Commitment to Human Rights 	

Freedom of Association and Collective Bargaining

Element	Status	Report Links	Notes
HR5	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Working Conditions in Ford PlantsFord and the Automotive Industry Supply ChainSociety Data: Engagement and Community	

Child Labor

Element	Status	Report Links	Notes
HR6	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Working Conditions in Ford PlantsFord and the Automotive Industry Supply ChainSociety Data: Engagement and Community	

Forced and Compulsory Labor

Element	Status	Report Links	Notes
HR7	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Working Conditions in Ford PlantsFord and the Automotive Industry Supply ChainSociety Data: Engagement and Community	

Security Practices

Element	Status	Report Links	Notes
HR8	<div style="width: 0%; height: 10px; background-color: #808080;"></div>		

Indigenous Practices

Element	Status	Report Links	Notes
HR9	<div style="width: 0%; height: 10px; background-color: #808080;"></div>		

Social: Society

Community

Element	Status	Report Links	Notes
SO1	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Who Are Our Stakeholders?CommunityHandling Downsizing Responsibly	

Corruption

Element	Status	Report Links	Notes
SO2	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Ethical Business Practices	
SO3	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Ethical Business Practices	
SO4	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Ethical Business Practices	

Public Policy

Element	Status	Report Links	Notes
SO5	<div style="width: 100%; height: 10px; background-color: #808080;"></div>	<ul style="list-style-type: none">Public PolicyClimate Change Policy and PartnershipsSteps to Reduce Health Care Costs	

- [Policy Letters and Directives](#)
- [Sustainability Governance and Integration](#)
- [Participation in the Policy-Making Progress](#)

SO6	Total value of financial and in-kind contributions to political parties, politicians and related institutions by country.	<input type="checkbox"/>		
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Anti-Competitive Behavior

Element	Status	Report Links	Notes
SO7	Total number of legal actions for anti-competitive behavior, anti-trust and monopoly practices and their outcomes.	<input type="checkbox"/>	

Compliance

Element	Status	Report Links	Notes
SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.	<input type="checkbox"/>	<ul style="list-style-type: none"> • Compliance • Society Data: Workplace Health and Safety Violations

Social: Product Responsibility

Customer Health and Safety

Element	Status	Report Links	Notes
PR1	Life-cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.	<input type="checkbox"/>	<ul style="list-style-type: none"> • Building Ever-Safer Vehicles • How We Manage Vehicle Safety
PR2	Information on all legal proceedings and incidents of non-compliance can be found in the Company's Annual Report on the Form 10-K.	<input type="checkbox"/>	

Products and Service Labeling

Element	Status	Report Links	Notes
PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	<input type="checkbox"/>	
PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.	<input type="checkbox"/>	
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	<input type="checkbox"/>	<ul style="list-style-type: none"> • Customer Satisfaction and Quality • Economy Data: Product, Quality and Service

Marketing Communications

Element	Status	Report Links	Notes
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion and sponsorship.	<input type="checkbox"/>	<ul style="list-style-type: none"> • Policy Letters and Directives
PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion and sponsorship by type of outcomes.	<input type="checkbox"/>	

Customer Privacy

Element	Status	Report Links	Notes
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	<input type="checkbox"/>	

Compliance

Element	Status	Report Links	Notes
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PR9 Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.



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Notes to GRI Index

2. Organizational Profile

RELATED LINKS +

External Web Sites:
Global Reporting Initiative

Element	Notes
2.7	More detailed information on our products and services is reported on in our annual financial reporting, including our 10-K and Annual Report .
2.8	Information on our scale is reported on in our annual financial reporting, including our 10-K and Annual Report .

4. Governance, Commitments and Engagement

Governance

Element	Notes
4.4	Information on contacting our Board of Directors can be found at www.fordmotorcompany.com/about-ford/company-information/corporate-governance/contact-information/contact-board-829p
4.6	Ford's Code of Business Conduct and Ethics for Members of the Board Of Directors can be found at www.fordmotorcompany.com/doc/directors_code_of_ethics.pdf
4.8	Ford's Code of Conduct Handbook is publicly available at www.fordmotorcompany.com/about-ford/company-information/corporate-governance/corporate-governance-policies/governance-policy-803p

5. Management Approach and Performance Indicators

Economic

Economic Performance

Element	Notes
EC1	Information related to operating costs is referenced as "automotive costs of goods sold" in the Company's Annual Report on Form 10-K . Information related to payments to providers of capital is referenced as "cash paid interest expenses" and "stockholder dividends" in the Company's Annual Report on Form 10-K . Ford considers employee compensation proprietary.
EC4	In addition to the technology partnerships discussed, our local or regional operations sometimes enter into agreements with governments to receive incentives such as reduced taxes or fees in return for commitments to job creation or other economic development activities. The nature and magnitude of these agreements are not tracked centrally.

Market Presence

Element	Notes
EC6	Ford does not track this information, because local sourcing has not appeared as an important issue in our materiality analyses. However, we use local suppliers everywhere we operate, and in several localities in which we operate, suppliers set up operations nearby to support Ford operations. In addition, the local economic development model described is aligned with our Supplier Diversity Development initiatives. Attributes of our Supplier Diversity Development initiatives include: economic development rationale, local employment opportunities and workforce development, supplier development and a considerable financial history of purchases from minority- and women-owned companies. These initiatives operate exclusively in the United States and are driven in part by compliance with federal requirements. Globally, a mandated Black Economic Empowerment Program also drives supplier development and local employment for Ford in South Africa.
EC7	Ford doesn't track this information, because our materiality analysis determined that the procedures used for local hiring and proportion of senior management hired from the local community is not a material issue. However, Ford's recruiting initiatives are designed to be inclusive and hire from all segments of the diverse populations and communities in which we live and work.

Opportunities for employment and advancement are available on a nondiscriminatory basis – without regard to race, color, religion, age, gender, sexual orientation, national origin, handicap or veteran status. We take affirmative action in accordance with the law to have minorities and women represented appropriately throughout the workforce and to provide qualified handicapped persons, disabled veterans and veterans of the Vietnam era opportunity for employment and advancement.

Indirect Economic Impacts

Element	Notes
EC9	Our established accounting methods allow us to track expenditures for items like environmental protection and controls, safety investments, etc., but do not include methods for estimating costs associated with indirect economic, environmental or social costs and benefits. For example, during the last five years, we took charges to our consolidated income for engineering, research and development we sponsored in the following amounts: \$ 4.9 billion (2009), \$7.3 billion (2008), \$7.5 billion (2007), \$7.2 billion (2006), \$8.0 billion (2005), \$7.4 billion (2004). Engineering, research and development is focused on improving the performance (including fuel efficiency), safety and customer satisfaction of our products, and to develop new products.

Environmental

Materials

Element	Notes
EN1	In our materiality analysis, the use of sustainable materials appears as a significant issue, and we provide extensive coverage of that issue. However, accounting for total amount of every material used has not been identified as a material issue for internal or external stakeholders.
EN2	We report on our use of recycled materials and our efforts to increase recycled content in our vehicles. However, accounting for the exact percentage of recycled materials used in all of our vehicles has not been identified as a material issue for internal or external stakeholders.

Biodiversity

Element	Notes
EN11	We believe that protecting biodiversity is an important issue, and we report on our efforts to increase and protect wildlife habitat. However, the location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas is not material based on our materiality analysis.

Emissions, Effluents and Waste

Element	Notes
EN21	Significant discharges to water by type are not currently tracked at the corporate level. The Company is collecting baseline data on discharges to municipal wastewater treatment plants, and this data will be reported as soon as practical. In addition, the large majority of wastewater discharges are treated before discharge. However, detailed discussion of this indicator is not included in this report because it is not a material issue based on our materiality analysis.
EN22	This is an area in which Ford is increasing its tracking and reporting. We currently report on waste by type categorized into hazardous and non-hazardous. We also report on waste disposal to landfill. With our new GEM database, we are now tracking waste disposal methods beyond landfill (i.e., recycling, reuse, compost, incineration, other.) With this new data tracking tool, we will be able to more report fully on this metric in the next few years.

Products and Services

Element	Notes
EN27	In the United States, approximately 85 percent of vehicle materials are recycled, and in Europe it is higher because of take-back legislation. In other countries, the amount of materials reused is likely as high or higher. Based on our materiality analysis, reclamation of product packaging is not material for Ford.

Overall

Element	Notes
EN30	Our established accounting methods allow us to track expenditures for items like environmental protection and controls, but do not include methods for estimating costs associated with indirect economic, environmental or social costs and benefits. For example, during the last five years, we took charges to our consolidated income for engineering, research and development we sponsored in the following amounts: \$4.9 billion (2009), \$7.3 billion (2008), \$7.5 billion (2007), \$7.2 billion (2006), \$8.0 billion (2005), \$7.4 billion (2004). Engineering, research and development is focused on improving the performance (including fuel efficiency) of our products, and to develop new products.

Social: Labor Practices and Decent Work

Employment

Element	Notes
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LA1	Ford reports on the number of employees covered by collective bargaining agreements. The remaining elements of the indicator are not a material issue for Ford.
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LA2	We do not report on turnover because the information is considered proprietary.
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Labor/Management Relations

Element	Notes
LA4	Substantially all of the hourly employees in our Automotive operations in the United States are represented by unions and covered by collective bargaining agreements. Most hourly employees and many nonmanagement salaried employees of our subsidiaries outside the United States are also represented by unions.

Occupational Health and Safety

Element	Notes
LA6	Approximately 75 percent of the Company's workforce globally are covered by the health and safety committees. This includes the entire manufacturing workforce and some staff organizations.
LA7	Does not include subcontracted workers.

Training and Education

Element	Notes
LA10	While Ford offers its employees a wide array of educational and training opportunities, the Company does not currently track the information needed to report on this indicator. We have reported on training related to several material issues; however, compiling average hours for all training is not considered material.

Diversity and Opportunity

Element	Notes
LA13	We do not report diversity data outside of the United States because diversity categories vary regionally. In addition, this data has not been identified as a material issue by our analyses.
LA14	We do not report on the ratio of basic salary of men to women because the information is considered proprietary.

Social: Human Rights

Non-Discrimination

Element	Notes
HR4	Ford does not report on the number of incidents of discrimination and actions taken because the information is considered proprietary.

Social: Society

Anti-Competitive Behavior

Element	Notes
SO7	Legal actions are described in the Company's Annual Report on the Form 10-K .

Compliance

Element	Notes
SO8	Additional information on fines for non-compliance with laws and regulations can be found in the Company's Annual Report on the Form 10-K .

Social: Product Responsibility

Customer Health and Safety

Element	Notes
PR2	Information on all legal proceedings and incidents of non-compliance can be found in the Company's Annual Report on the Form 10-K .

Products and Service Labeling

Element	Notes
PR3	Ford's vehicles are subject to numerous labeling requirements that vary by country, region and state. We maintain compliance through our normal product requirement compliance systems. We report on the sourcing of components of our products on vehicle stickers. We report on safe use of the product or service in vehicle manuals. In Europe, we use an Eco-label that goes beyond legal requirements and also inform customers in the driver's manual about the impact of air conditioning on real-world fuel economy. Eco-labels also discuss substances that might produce an environmental or social impact. Ford of Europe also reports on disposal of products. In the United States, Ford makes vehicle dismantling guides available.

Marketing Communications

Element	Notes
PR7	Information on all legal proceedings and incidents of non-compliance can be found in the Company's Annual Report on the Form 10-K .



Compliance

Element	Notes
PR9	Information on all legal proceedings and incidents of non-compliance can be found in the Company's Annual Report on the Form 10-K . Detailed discussion of this indicator was omitted from the report because it is not considered material.



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UNGC Index

Human Rights

UNGC Principle	Report Links
1. Businesses should support and respect the protection of internationally proclaimed human rights.	<ul style="list-style-type: none"> • Ford's Commitment to Human Rights
2. Businesses should make sure that they are not complicit in human rights abuses.	<ul style="list-style-type: none"> • Ford's Commitment to Human Rights • Ford and the Automotive Industry Supply Chain

Labor Standards

UNGC Principle	Report Links
3. Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	<ul style="list-style-type: none"> • Code of Basic Working Conditions
4. Businesses should uphold the elimination of all forms of forced and compulsory labor.	<ul style="list-style-type: none"> • Code of Basic Working Conditions
5. Businesses should uphold the effective abolition of child labor.	<ul style="list-style-type: none"> • Code of Basic Working Conditions
6. Businesses should uphold the elimination of discrimination in respect of employment and occupation.	<ul style="list-style-type: none"> • Code of Basic Working Conditions

Environment

UNGC Principle	Report Links
7. Businesses should support a precautionary approach to environmental challenges.	<ul style="list-style-type: none"> • Environment • Climate Change
8. Businesses should undertake initiatives to promote greater environmental responsibility.	<ul style="list-style-type: none"> • Environmental Management • Climate Change
9. Businesses should encourage the development and diffusion of environmentally friendly technologies.	<ul style="list-style-type: none"> • Design for Life-Cycle Sustainability • Ford's Sustainable Technologies and Alternative Fuels Plan

Anti-Corruption

UNGC Principle	Report Links
10. Businesses should work against corruption in all its forms, including extortion and bribery.	<ul style="list-style-type: none"> • Code of Basic Working Conditions • Ethical Business Practices



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Glossary

5- to 6-speed + ASC	5- to 6-speed advanced series compensated transmission
ABF	Aligned Business Framework, Ford's strategy for working more closely with key suppliers
ACC	Adaptive Cruise Control, a technology that helps drivers maintain a safe distance from the vehicle in front of them
ACEA	European Automobile Manufacturers' Association (Association des Constructeurs Européens d'Automobiles)
ACH	Automotive Components Holdings, LLC, a Ford-managed temporary business entity comprised of former Visteon Corp. plants and facilities in the United States and Mexico
ADFSO	Aggressive Deceleration Fuel Shut-Off, a technology for improving fuel efficiency
Aero	Aerodynamics
AFLS	Adaptive Front Lighting System, Ford's advanced swiveling headlight system
AIAG	Automotive Industry Action Group, a U.S.-based association of automotive OEMs, suppliers and service providers
ANCAP	Australasian New Car Assessment Program, a vehicle safety testing organization supported by the New Zealand government and Australian state governments
ANCIS	Australian National Crash In-depth Study, of which Ford is a founding member
Annual Report on Form 10-K	An audited annual financial report required by the U.S. Securities and Exchange Commission containing more detailed information about the Company's business, finances and management than the annual report
B car	Generic term for a small car (e.g., the size of a Ford Fiesta)
BEV	Battery electric vehicle, a vehicle that has no internal-combustion engine and does not use any onboard gasoline; instead, it runs on a high-voltage electric motor
Biodiesel	A diesel alternative made from vegetable oils obtained from oil seeds, including soy, canola, palm and rapeseed, or from animal fat
Bio-ethanol	A gasoline alternative derived from plant material (e.g., corn, sugar cane, sugar beets)
Blueprint for sustainability	The name of this report and, more specifically, Ford's strategy for meeting our goal of reducing our U.S. and EU new vehicle CO ₂ emissions by 30 percent by the year 2020, compared to a 2006 model year baseline
BMS	Battery Management System, a Ford technology that improves the efficiency of a vehicle's electrical system
CAA	U.S. Clean Air Act
CAFE	Corporate Average Fuel Economy, a U.S. regulation requiring auto companies to meet certain sales-weighted average fuel economy levels for passenger cars and light trucks and report these numbers annually
CAMP	Crash Avoidance Metrics Partnership, an association of original equipment manufacturers, suppliers and the U.S. government conducting pre-competitive research on active safety features
Carbon Mitigation Initiative	A research partnership based at Princeton University and supported by BP and Ford
CAW	National Automobile, Aerospace, Transportation and General Workers Union of Canada
CBWC	Ford's Code of Basic Working Conditions, which articulates our commitments on key human rights and labor rights issues
C car	Generic term for a midsize car (e.g., the size of a Ford Focus)
CCX	Chicago Climate Exchange, a greenhouse gas emissions-reduction and trading program for emission sources and projects in North America
Ceres	A network of investors, environmentalists and other public interest groups that works with companies and investors to address sustainability challenges

CFMA	Changan Ford Mazda Automobile Co., Ltd., one of Ford's joint ventures in China
CO ₂	Carbon dioxide, a primary greenhouse gas
DfE	Design for Environment, a tool for bridging the gap between product development and environmental management
DfS	Design for Sustainability, a tool similar to DfE but broader in scope
DOE	U.S. Department of Energy
DSFL	Driving Skills for Life, Ford's driver education program
E85	A fuel blend of 85 percent bio-ethanol and 15 percent gasoline
EcoBoost™	Ford engine technology that uses turbocharging, direct injection and reduced displacement to increase fuel economy and performance while reducing CO ₂ emissions
ECONetic	A line of European Ford model vehicles with reduced CO ₂ emissions
Electrification	The process of developing the technology and infrastructure necessary to replace traditional oil-based vehicle fuels with electricity
ELV	End-of-life vehicle; an EU Directive requires manufacturers to take back ELVs and ensure environmentally sound recycling and disposal
Environmental aspects	The elements of an organization's activities, products and services that can interact with the environment
EOS	Ford's Environmental Operating System, which is integrated with ISO 14001 and used for driving environmental compliance
EPA	Environmental Protection Agency, a U.S. government agency
EPAS	Electric power assisted steering, a technology that boosts fuel economy and decreases CO ₂ emissions
ESI	Employee Satisfaction Index, eight questions on Ford's annual Pulse survey of employees
ETS	The EU's Emission Trading Scheme
EU	European Union
Euro 4 and Euro 5	Europe's tailpipe emissions standards; the Euro 5 standard is currently being phased in
EuroNCAP	European New Car Assessment Programme, a vehicle safety testing organization based in Belgium and backed by seven European governments and the European Commission
EV	Electrified vehicle, a generic term for any vehicle that is powered – at least in part – by an electric motor
FCV	Fuel cell vehicle, a vehicle that uses an onboard fuel cell to create electrical power through a chemical reaction based on hydrogen fuel
FFV	Flexible fuel vehicle, a vehicle that can be run on any blend of unleaded gasoline with up to 85 percent ethanol
Flexible manufacturing	The use of common platforms and shared manufacturing technologies that allow a single plant to make multiple models and switch relatively rapidly between them, allowing faster response to changing customer demand
Fuel cell	A type of power plant that generates electricity by combining oxygen and hydrogen, and can be used in different sizes and configurations to power vehicles or buildings
Fuel economy	The distance that can be traveled on a single gallon of fuel
Fuel efficiency	The amount of fuel (in ton-miles-per-gallon) needed to move a vehicle of a certain weight a certain distance
GEM	Ford's Global Emissions Manager database, used for measuring, monitoring and recording environmental data
GHG	Greenhouse gas, for example carbon dioxide (CO ₂), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF ₆) and water vapor
GMAP	Ford's Global Material Approval Process, a materials management process
GMIR	Ford's Global Material Integration and Reporting system, a materials tracking tool used by our engineers and suppliers
GQRS	Global Quality Research System, a study conducted quarterly for Ford by the RDA Group, a market research and consulting firm
GRI	Global Reporting Initiative, a multistakeholder process and independent institution whose mission is to develop and disseminate globally applicable sustainability reporting guidelines
GRSI	Global Road Safety Initiative, a joint industry association funding road safety projects in developing countries
GTDI	Gasoline turbocharged direct injection
GTR	Global Technical Regulations, safety regulations being developed that harmonize U.S. and European regulatory requirements
HEV	Hybrid electric vehicle; a full hybrid can run exclusively on battery power, exclusively on gas power or on a combination of both

H ₂ ICE	Hydrogen internal-combustion engine, an engine that uses the same basic technology as gasoline-powered ICEs but runs on hydrogen fuel
ICE	Internal-combustion engine, an engine powered by fuel ignited (by either spark or compression) inside a cylinder
IIHS	Insurance Institute for Highway Safety, a U.S.-based nonprofit organization
IMDS	International Material Data System, a materials reporting system used by multiple automakers
ISO 14001	The leading global environmental management system standard, developed by the International Organization for Standardization
JDRF	Juvenile Diabetes Research Fund, a nonprofit organization to which Ford contributes funding and support
JMC	Jiangling Motors Corporation, Ltd., one of Ford's joint ventures in China
LEAD	Ford's Leadership Education for Automotive Dealerships program
LEED	Leadership in Energy and Environmental Design, the "green building" rating system of the U.S. Green Building Council
LEV	Low Emission Vehicle, a level of standards for tailpipe emissions (hydrocarbon, carbon monoxide and oxides of nitrogen) enforced in California and states that have adopted California standards
LEV program	The unique vehicle emissions program adopted by California for the control of tailpipe and evaporative emissions that provides several sets of emissions standards
Life-cycle assessment	Process of assessing the environmental, social and economic impacts of a product system over its entire life-cycle, from cradle to grave, including material production, product manufacture, product use, product maintenance and disposal at end of life
Materiality	Materiality as used in this sustainability report does not share the meaning assigned to this concept for purposes of financial reporting. For the purposes of this report, we consider material information to be that which is of greatest interest to, and which has the potential to affect the perception of, those stakeholders who wish to make informed decisions and judgments about the Company's commitment to environmental, social and economic progress.
MAV	Multi-activity vehicle
MQL	Ford's Minimum Quantity Lubricant machining process
MY	Model Year, the manufacturer's annual production period which includes January 1 of the calendar year. For example, production of 2009 model year vehicles might begin in June 2008 and end in May 2009, but could start as early as January 2, 2008, and end as late as December 2009. We report fuel economy by model year because that is how it is reported to government agencies, and therefore, this data corresponds to what is available in the public domain.
NADA	National Automobile Dealers Association, an industry association of car and truck dealers
NCAP	New Car Assessment Program, the U.S. government's safety testing program
NGO	Nongovernmental organization
NHTSA	National Highway Traffic Safety Administration, a U.S. government agency
NMOG	Non-methane organic gases
NOV	Notice of violation (e.g., from a regulatory agency)
NPRI	National Pollutant Release Inventory (Canada), similar to U.S. TRI
NSC	National Safety Council, a U.S.-based nonprofit organization
NV opt	Optimization of the engine speed (N) and vehicle speed (v) ratio
OEM	Original equipment manufacturer
OHS policy	Ford's Occupational Health and Safety policy
ONE Ford	Ford's accelerated restructuring plan; One Team unified in pursuing One Plan to deliver One Goal: An exciting, viable Ford
OSRP	Occupant Safety Research Partnership, a group within the U.S. Council for Automotive Research that researches and develops advanced crash-test dummies and other pre-competitive safety systems
PAS	Ford's Partnership for Advanced Studies, our flagship education program
PDGs	Public Domain Guidelines, internal Ford guidelines that focus on ensuring that our vehicles earn top marks in public domain assessments
PHEV	Plug-in hybrid electric vehicle, a vehicle similar to an HEV in that it is equipped with both an electric battery and a gas-powered engine; however, PHEVs are equipped with a high-capacity battery that can be charged from an ordinary household socket
PowerShift	Ford's fuel-efficiency-boosting, six-speed, dual-clutch transmission system
PSI	Product Sustainability Index, a tool used by Ford of Europe to incorporate life-cycle analysis into product development
Pulse survey	Ford's annual, voluntary survey of salaried-employee satisfaction
PZEV	Partial Zero Emission Vehicle, a vehicle standard that is part of the LEV II Program

REACH	Registration, Evaluation, Authorization and Restriction of Chemical Substances (EU legislation)
RFS	Renewable Fuel Standard, a provision within the U.S. Energy Independence and Security Act of 2007 requiring a significant increase in the use of biofuels
RSC	Roll Stability Control®, Ford's electronic stability control system
SDGs	Safety Design Guidelines, Ford's stringent internal engineering design targets
SHARP audits	Ford's Safety and Health Assessment Review Process audits
Six-speed transmission	A transmission using six gears, for improved fuel economy compared to typical four-speed transmissions
Stakeholder	Anyone who is impacted or believes they are impacted by the operations or practices of the Company, including customers, employees, business partners, shareholders, governments, communities and nongovernmental organizations. Some also consider the environment a stakeholder.
Sustainability	A business model that creates value consistent with the long-term preservation and enhancement of environmental, social and financial capital. Also, meeting the needs of the present without compromising the future.
Sustainable Technologies and Alternative Fuels Plan	Ford's product strategy, outlining the near-, mid- and long-term steps we are taking to develop and deploy vehicle and fuel technologies to implement our blueprint for sustainability
SUV	Sport utility vehicle
SULEV	Super Ultra-Low Emission Vehicle, a level of standards for tailpipe emissions enforced in California and states that have adopted California standards
Tank-to-wheels CO ₂ emissions	A subset of well-to-wheels CO ₂ emissions; includes the CO ₂ generated by burning the fuel in the vehicle
TCR	The Climate Registry, a voluntary carbon-emissions reporting project
TGW	"Things gone wrong," a metric measured by the GQRS
Tier 1 Suppliers	Suppliers sourcing directly to our assembly plants
Tier 2 Suppliers	Suppliers not sourcing directly to our assembly plants
Tier 2 Emissions Standards	The U.S. federal program, starting with the 2004 model year, to control vehicle emissions standards
Tire	Optimized tire rolling resistance and pressure
TRI	Toxics Release Inventory, an inventory of releases and transfers of certain chemicals that are required to be reported to the U.S. government
TÜV Rheinland	A German-based product-testing company
UAW	The International Union, United Automobile, Aerospace and Agricultural Implement Workers of America
UNGC	United Nations Global Compact, a global policy initiative through which business agree to align their operations with 10 principles in the areas of human rights, labor, environment and anti-corruption
URP	University Research Program, a Ford program for collaborating with researchers at more than 100 universities worldwide
USCAP	U.S. Climate Action Partnership, a group of businesses and environmental organizations promoting national legislation to reduce greenhouse gas emissions
VEBA	Voluntary Employee Benefit Association trust, an independent trust designed to ensure health care coverage for current and future Ford employees
VOCs	Volatile organic compounds, compounds that vaporize (become a gas) at relatively low temperature
WBCSD	World Business Council for Sustainable Development
Well-to-tank CO ₂ emissions	A subset of well-to-wheels CO ₂ emissions; measures the CO ₂ generated by excavating the feedstocks and producing and distributing the fuel or electricity
Well-to-wheels CO ₂ emissions	Accounts for emissions from the vehicle itself, as well as CO ₂ emissions resulting from the production and distribution of fuel
WET	Water Estimation Tool, a Ford software program that helps facilities to predict their water usage
WHC	Wildlife Habitat Council, a U.S.-based nonprofit organization
WHO	World Health Organization, the international organization providing leadership on global health matters
WILD	Water Ideas to Lessen Demand, Ford's list of practical ideas for reducing water use
WRI	World Resources Institute, a U.S.-based nonprofit organization
ZEV	Zero Emission Vehicle, the lowest level of standards for vehicle emissions enforced in California and states that have adopted California standards