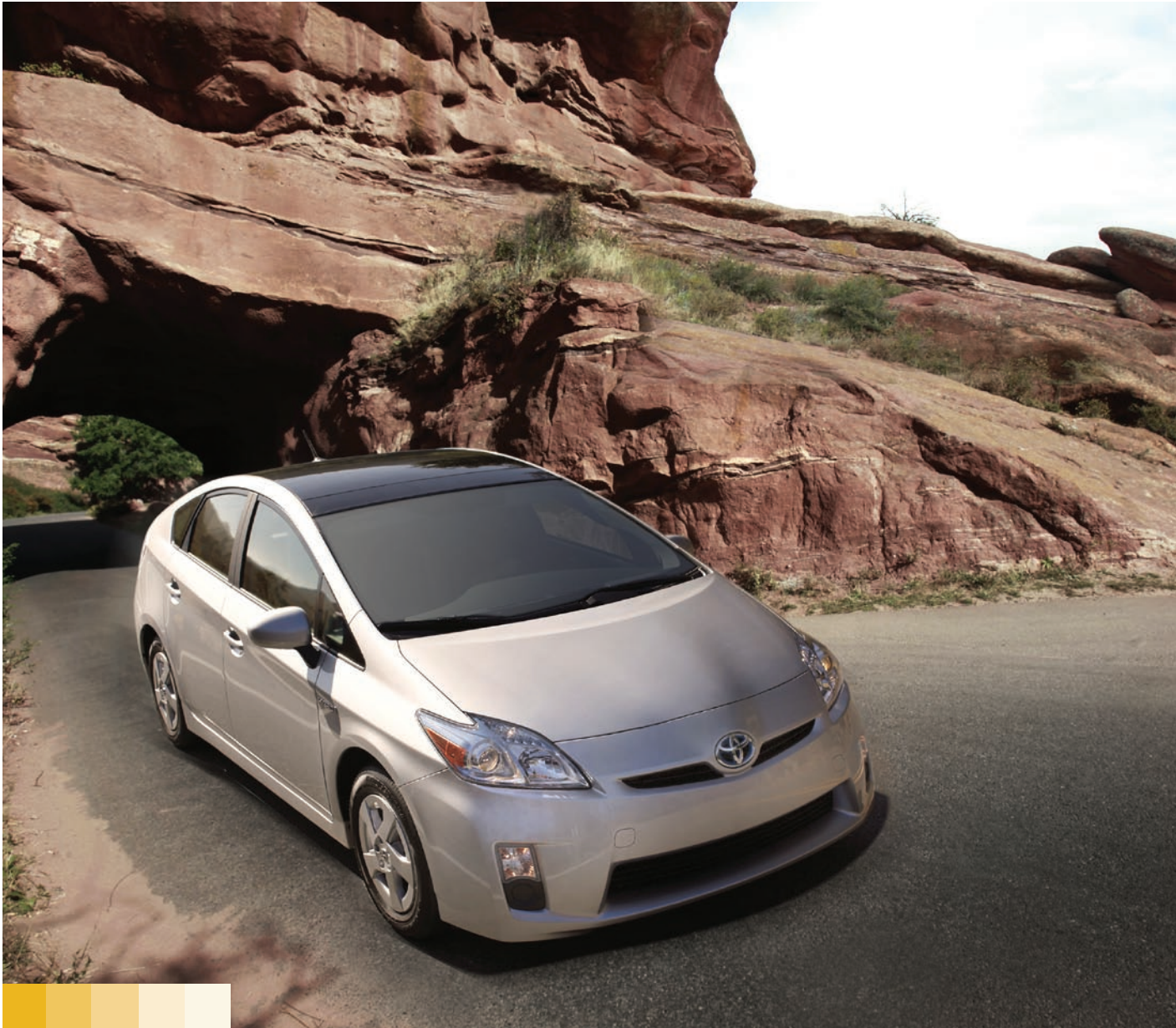


TOYOTA

2009 North America Environmental Report

Challenge, Commitment, Progress



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SCOPE OF THIS REPORT:

The period covered in this North America Environmental Report is fiscal year 2009 (April 1, 2008 through March 31, 2009) and product model year 2009. This report covers the Toyota, Lexus and Scion brands in North America. If data are presented with different dates, this is clearly indicated. This report was published in December 2009.

We report on our progress against our FY2007-2011 Environmental Action Plan. We also provide information on our company's overall economic investment in North America. This report covers activities across the North American region — the United States, Canada and Mexico.

This report is available on the Web. A French version is provided on the Web only. We listened to your comments and suggestions about last year's report, and used them to improve this report. We would appreciate hearing from you again. You may participate in a survey on the Web.

CONTACT TOYOTA MOTOR NORTH AMERICA, INC.

Environmental Report Manager | 601 Lexington Ave, 49th Floor, New York, NY 10022 | Email: environmentalreport@tma.toyota.com | © 2009
www.toyota.com | www.toyota.ca | www.toyota.com.mx

TOYOTA | dear reader

WE ARE PLEASED TO PRESENT THE NINTH ANNUAL Toyota North America Environmental Report. Since publishing our last report, much has happened in our world, most significantly an economic slowdown that has led to a sharp decline in demand for new vehicles. But our commitment to operating in harmony with the environment and to our vision for sustainable mobility has remained the same. Essentially, this means we look for improvements in our processes across our operations to reduce our impact on the environment, and we work in partnership with other companies, government and academia toward meeting society's transportation needs in a sustainable manner.

Just like many other companies, we were faced with difficult decisions during fiscal year 2009. We suspended production at several of our plants in North America for extended periods due to a decrease in demand for vehicles. This affects the status of some of our five-year Environmental Action Plan (EAP) targets that are measured on a per-vehicle-produced basis; achieving some of these targets is no longer on track. But even with these challenges, we accomplished a great deal. We made reductions in energy consumption, water use and waste generation that will benefit us even more when production levels rise again. We made progress toward meeting many of our EAP targets. Highlights of our performance include:

- Introduction of the third generation Prius, with an innovative, optional rooftop-mounted solar panel and improved fuel efficiency.

- Introduction of the Lexus HS 250h, which includes Ecological Plastics in approximately 30% of the combined interior and luggage areas.
- Installation of the second-largest solar panel array in the U.S. at our parts center in Ontario, California, which reduces greenhouse gas emissions associated with the facility's use of electricity.
- Reduction of 16% in energy consumption at our plant in Georgetown, Kentucky.
- Installation of water-borne paint systems at our plants in Princeton, Indiana, and Woodstock, Ontario, that lessen emissions of volatile organic compounds.
- Support for key environmental organizations throughout North America, such as the National Audubon Society, that work to make a difference for today and generations to come.

Our EAP identifies six key areas that guide us in understanding where we need to be and how we will get there. We have recognized one of these areas — Energy and Climate Change — as a priority issue for some time. With a new administration in the United States, the landscape surrounding climate change legislation has changed. Toyota supports the U.S. government's initiatives to reduce greenhouse gas emissions and improve fuel efficiency through a single national approach. We will continue to provide credible engineering and policy analysis to this process.



Yoshimi Inaba
Yoshimi Inaba
 Director
 Toyota Motor Corporation
 President & Chief Operating Officer
 Toyota Motor North America, Inc.
 Chairman & Chief Executive Officer
 Toyota Motor Sales, U.S.A., Inc.



Jim Lentz
Jim Lentz
 Managing Officer
 Toyota Motor Corporation
 President & Chief Operating Officer
 Toyota Motor Sales, U.S.A., Inc.



Dian D. Ogilvie
Dian Ogilvie
 Senior Vice President & Secretary
 Toyota Motor North America, Inc.



Tetsuo Agata
Tetsuo Agata
 Senior Managing Director
 Toyota Motor Corporation
 President & Chief Operating Officer
 Toyota Motor Engineering &
 Manufacturing North America, Inc.

The Lexus HS 250h was launched in 2009. It is Lexus' fourth hybrid, and is the most fuel-efficient model in the Lexus lineup. Ecological Plastics are used in the luggage-trim upholstery, cow-side trim, door scuff plate, tool box area, floor-finish plate, seat cushions, and the package tray behind the rear seats.



We remain committed to developing advanced technology vehicles as well as to improving traditional gasoline powered vehicles to ensure our lineup is the most fuel efficient available. These efforts are tied to our vision of sustainable mobility, which requires that we do our part to address the environmental impacts of vehicle exhaust and greenhouse gas emissions, noise, congestion, and reliance on petroleum.

No single technology presents the golden solution to help society achieve sustainable mobility; that is why we are evaluating a range of options. We are known for our hybrids, but we also have a fleet of fuel-cell and plug-in electric vehicles that are being tested for market acceptance and performance. These advanced technology vehicles have been designed with reducing the environmental impacts of mobility in mind.

Similarly, no single company can achieve a mobility system that is sustainable for society, but Toyota is working with government, academia, other businesses and energy providers on this pursuit. The car of the future requires a safe and reliable global energy system that can support the mobility needs of society.

Our EAP is a roadmap that describes our path forward; it remains steadfast regardless of what happens around us. The EAP helps us manage not only the environmental performance of our operations and vehicles, but also our progress toward achieving sustainable mobility. The EAP provides the structure for this annual environmental report. Here, we disclose our environmental performance in a transparent and open manner and provide our stakeholders with information necessary to evaluate that performance, year-on-year. We also provide information on other elements of sustainability, including economic data and a discussion of our cooperation with society. We hope that you find this report both interesting and informative, and we welcome your feedback on its content.



Shigeki Terashi

Shigeki Terashi
 Managing Officer
 Toyota Motor Corporation
 Executive Vice President
 Toyota Motor Engineering &
 Manufacturing North America, Inc.
 President
 Toyota Technical Center



Ray Tanguay

Ray Tanguay
 Managing Officer
 Toyota Motor Corporation
 Executive Vice President
 Toyota Motor Engineering &
 Manufacturing North America, Inc.
 President
 Toyota Motor Manufacturing Canada, Inc.



Steve St. Angelo

Steve St. Angelo
 Managing Officer
 Toyota Motor Corporation
 Executive Vice President
 Toyota Motor Engineering &
 Manufacturing, North America, Inc.
 President
 Toyota Motor Manufacturing, Kentucky, Inc.



Yoichi Tomihara

Yoichi Tomihara
 President & Chief Executive Officer
 Toyota Canada Inc.

TOYOTA |

environmental vision & action

Toyota's concept of sustainable mobility in North America is part of our vision of a future where mobility meets the needs of people and society without sacrificing environmental values. Our advanced technology vehicles are designed with reducing the environmental impacts of mobility in mind.



“The future of our industry depends upon our ability to develop technologies and products that enable sustainable mobility while meeting customer needs.”

– Akio Toyoda, President
Toyota Motor Corporation



TOYOTA IN NORTH AMERICA has taken responsible, step-by-step actions during the economic slowdown of the last year to make us a stronger company in the long term. By staying focused on the future, we were able to use production downtime as an opportunity to further develop our employees and continue to improve our operations. Our path forward has remained unchanged: We are committed to our Global 2020 Vision and The Toyota Way, both of which challenge us to operate in harmony with the environment.

Toyota’s Global 2020 Vision applies to all of Toyota’s operations worldwide. It requires us to innovate to meet the changing needs of people and society. We believe that technology and the technical skills of our work force can be harnessed to create prosperity while overcoming the adverse environmental impacts of mobility.

This is our greatest challenge — to bring the cycles of industry in harmony with the cycles of nature. Everything we do in our operations, from reducing our energy and water use to developing vehicles that are built with renewable materials, is designed to meet this challenge.

Beyond our walls, Toyota is striving to lead a transition to a new type of mobile society. Our concept of sustainable mobility in North America has evolved from our vision of a future where mobility meets the needs of people and society without sacrificing environmental values. Achieving sustainable mobility ultimately means achieving the harmony we strive for between industry and the environment.

But we cannot achieve this harmony alone. Sustainable mobility requires an interface among vehicles, people and infrastructure that can only be accomplished with the involvement of auto companies, government at all levels, and academia. This is why we participate in a number of

partnerships throughout North America that work toward solving the challenges of sustainable mobility. For example, we have been working with others to develop a safe and available hydrogen infrastructure for fuel-cell vehicles and durable, reliable batteries for plug-in hybrid and battery electric vehicles. We participate in forums on urban environmental design, and are involved in research projects that investigate diversified energy sources that can reduce our dependence on petroleum. We also have partnerships with universities to conduct on-the-road studies on the safety, durability and market acceptance of our advanced technology vehicles.

Our actions in support of our vision are conducted in The Toyota Way, which means we hold the two pillars of “continuous improvement” and “respect for people” in the highest regard. We also abide by The Toyota Way’s five practices:

- **Challenge:** To build a long-term vision and meet challenges with courage and creativity.
- **Kaizen:** To continuously improve our operations, always striving for innovation and evolution.
- **Genchi Genbutsu:** To always go to the source to find the facts and make correct decisions; to build consensus and expeditiously achieve our goals.
- **Respect:** To respect others and the environment, to build trust, and to take responsibility.
- **Teamwork:** To stimulate personal and professional growth, maximize individual and team performance.

We welcome challenge because it forces us to rethink fundamentals and it prompts innovation and creativity. It also insists that we take a long-term view, do our research, and be bold and creative in seeking solutions. Our five-year Environmental Action Plan (EAP) illustrates what we are doing to implement our vision and address the challenges we face. This report describes our progress against this EAP.

CHIEF ENVIRONMENTAL OFFICERS



Stephen Beatty
Managing Director
Toyota Canada Inc.



Kevin M. Butt
General Manager
Toyota Motor Engineering & Manufacturing North America, Inc.



Josephine S. Cooper
Group Vice President, Public Policy and Government/Industry Affairs
Toyota Motor North America, Inc.



Christopher P. Reynolds
Group Vice President and General Counsel
Toyota Motor Sales, U.S.A., Inc.

FIGURE A



FIGURE B

TOYOTA'S GUIDING PRINCIPLES

ADOPTED JANUARY 1992, REVISED APRIL 1997

1. Honor the language and spirit of the law of every nation and undertake open and fair corporate activities to be a good corporate citizen around the world.
2. Respect the culture and customs of every nation and contribute to economic and social development through corporate activities in local communities.
3. Dedicate ourselves to providing clean and safe products and to enhancing the quality of life everywhere through our activities.
4. Create and develop advanced technologies and provide outstanding products and services that fulfill the needs of customers worldwide.
5. Foster a corporate culture that enhances individual creativity and teamwork value, while honoring mutual trust and respect between labor and management.
6. Pursue growth in harmony with the global community through innovative management.
7. Work with business partners in research and creation to achieve stable, long-term growth and mutual benefits, while keeping ourselves open to new partnerships.

TOYOTA'S EARTH CHARTER (APRIL 2000)

The Toyota Earth Charter, published in 1992 and updated in 2000, describes Toyota's Basic Action Policy and Action Guidelines regarding environmental improvements.

I. BASIC POLICY

1. Contribute toward a prosperous 21st century society

Aim for growth that is in harmony with the environment, and set a challenge to achieve zero emissions throughout all areas of business activities.

2. Pursue environmental technologies

Pursue all possible environmental technologies, developing and establishing new technologies to enable the environment and economy to coexist.

3. Take action voluntarily

Develop a voluntary improvement plan based on thorough preventive measures and compliance with laws, that addresses environmental issues on global, national and regional scales, while promoting continuous implementation.

4. Work in cooperation with society

Build close and cooperative relationships with a wide spectrum of individuals and organizations involved in environmental preservation, including governments, local municipalities and related companies and industries.

II. ACTION GUIDELINES

1. Always be concerned about the environment

Work toward achieving zero emissions at all stages, i.e., production, utilization and disposal;
Develop and provide products with top-level environmental performance;
Pursue production activities that do not generate waste;
Implement thorough preventive measures;
Promote businesses that contribute toward environmental improvement.

2. Business partners are partners in creating a better environment

Cooperate with associated companies.

3. As a member of society

Actively participate in social actions;
Participate in creation of a recycling-based society;
Support government environmental policies;
Contribute to nonprofit activities.

4. Toward better understanding

Actively disclose information and promote environmental awareness.

► ENVIRONMENTAL COORDINATION

Figure A illustrates environmental coordination and management for Toyota in North America. Our North American Environmental Committee (NAEC) serves to implement our corporate principles, establish strategy and policy, and generally coordinate Toyota's environmental activities in North America. The Executive Committee comprises the President from each North American affiliate as well as other key executives. Each Business Area within the Committee consists of a senior executive lead, as well as the Chief Environmental Officers (pictured on page 7) and environmental experts from each North American affiliate. The NAEC oversees development of the consolidated five-year Environmental Action Plan and the publication of this report. In addition, each of Toyota's North American affiliates has established an individual environmental governance and management structure.

► TOYOTA'S GUIDING PRINCIPLES AND EARTH CHARTER

Seven Guiding Principles serve as the fundamental management policy for Toyota's operations worldwide. The principles reflect Toyota's commitment to providing clean, safe

and innovative products, while respecting the environment and culture of the local communities in which we operate. These principles also form a foundation for Toyota's Earth Charter (please see Figure B above). To learn more about how the Guiding Principles and Earth Charter are put into action, please visit www2.toyota.co.jp/en/vision/index.html.

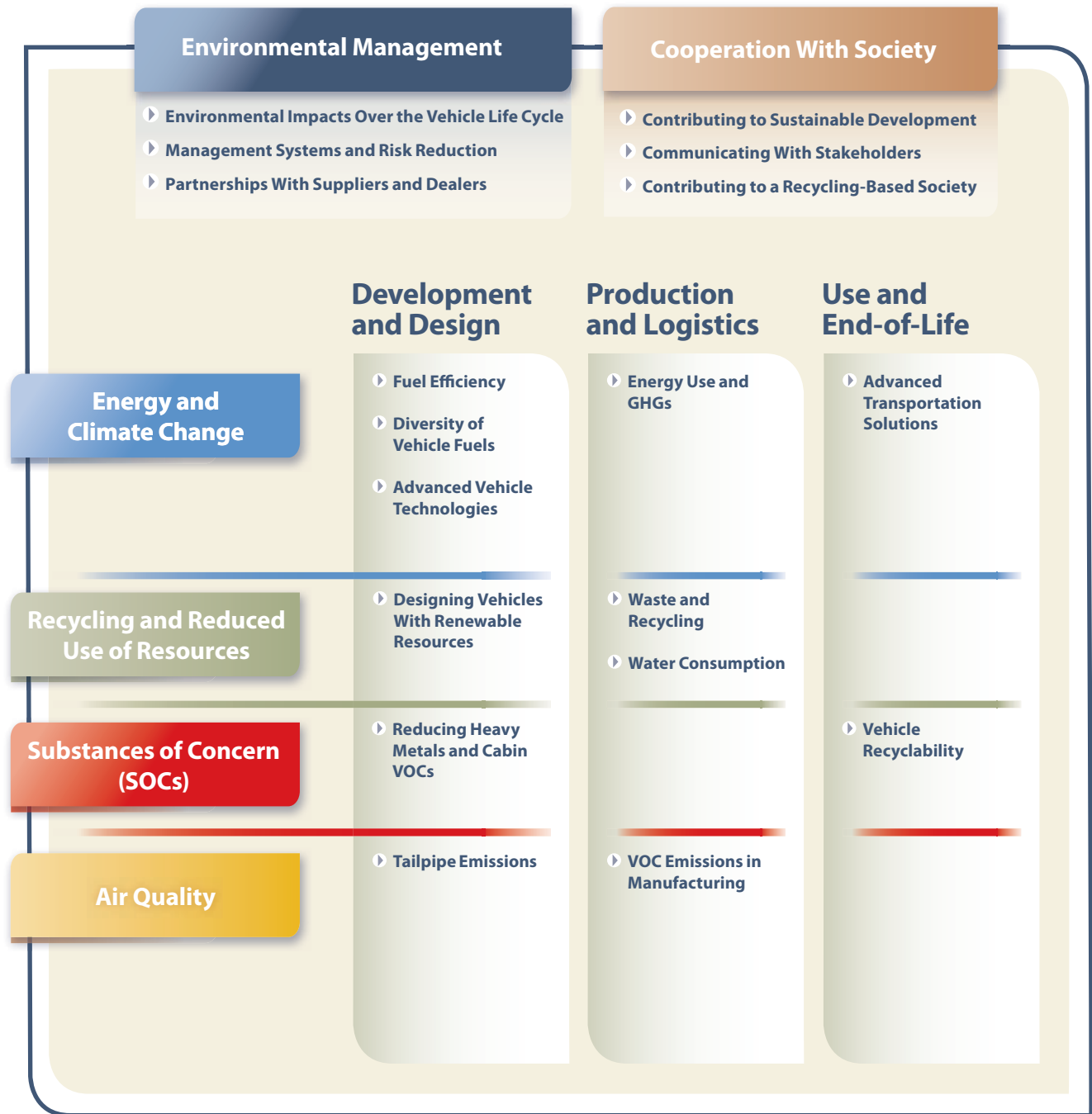
► ENVIRONMENTAL IMPACTS AT ALL POINTS OF THE VEHICLE LIFE CYCLE

We think holistically about environmental impacts at each life cycle stage and across all aspects of our business. We have identified four environmental areas that we consider to be most material to our environmental footprint: Energy and Climate Change, Recycling and Reduced Use of Resources, Substances of Concern, and Air Quality. Two additional areas — Environmental Management and Cooperation With Society — guide and enhance our efforts to address our environmental footprint in each vehicle life cycle stage. Together, these six areas structure this report (please see Figure C for a summary of the issues covered in each area).

FIGURE C

TOYOTA'S COMMITMENT TO THE ENVIRONMENT SPANS THE VEHICLE LIFE CYCLE

Toyota's Environmental Action Plan (EAP) reflects a commitment to addressing our environmental footprint. The EAP includes goals and targets that help us manage key challenges in the areas of Energy and Climate Change, Recycling and Reduced Use of Resources, Substances of Concern and Air Quality. We address these four areas across our business, in each vehicle life cycle stage. Our actions are guided by sound environmental management practices and enhanced by cooperating with stakeholders. Each year, we describe our progress against the EAP goals and targets through this report.



ENVIRONMENTAL ACTION PLAN

Our five-year Environmental Action Plan is presented in Figure D. The EAP is structured according to the action plan developed by our parent company, Toyota Motor Corporation (TMC). TMC's action plan can be found at www.toyota.co.jp/en/environment/vision/plan/fourth_plan.html.

Our action plan, just like TMC's, is framed around six key environmental areas, each with several goals that address our impacts. Each goal has one or more targets that were established to ensure progress toward the goal. This report describes the progress we have made in the third year of this five-year EAP. The status of many of our targets is "On Track,"

FIGURE D

| CONSOLIDATED SUMMARY OF SECOND TOYOTA NORTH AMERICAN ENVIRONMENTAL ACTION PLAN (FY2007-FY2011) | | |
|--|--------------------------------------|--|
| GOALS AND TARGETS | STATUS | PAGE |
| ENERGY AND CLIMATE CHANGE | | |
| GOAL 1: Promote the development of technologies to achieve best-in-class fuel efficiency performance | | |
| Targets: 1.1 Annually meet or exceed CAFE and CAFV standards in U.S. and Canada, respectively 1.2 Continue development and deployment of fuel-efficient technologies through the proactive engagement of stakeholders | ● ○ | 15, Fig. E 16 |
| GOAL 2: Introduce vehicle technologies, which support the diversification of energy and fuel sources | | |
| Targets: 2.1 Promote awareness of the CO ₂ reductions and energy security benefits of biofuels and synthetic fuels 2.2 Partner with industry and government to identify and solve challenges toward full-scale commercialization of alternatively fueled vehicles | ○ ○ | 16 17 |
| GOAL 3: Promote the development of clean-energy vehicles and ensure wider market acceptance | | |
| Target: 3.1 Demonstrate feasibility, support necessary infrastructure development, and advocate policies that promote progress toward full-scale commercialization of advanced vehicle technologies | ○ | 17 |
| GOAL 4: Promote initiatives to reduce traffic congestion through a variety of networking technologies | | |
| Target: 4.1 Provide advanced transportation solutions by integrating on-vehicle ITS technologies that allow drivers to communicate with public information systems | ○ | 20 |
| GOAL 5: Understand current CO₂ emissions volumes from North American operations and take action to reduce emissions | | |
| Targets: MANUFACTURING 5.1 Using FY2002 as a base year, reduce total energy usage of manufacturing facilities/operations in North America by 27% per vehicle produced to 6.3MMBTU/vehicle produced 5.2 Meet or exceed AAM Climate VISION target of a 10% reduction in CO ₂ emissions per vehicle from U.S. assembly operations by CY2012 (CY2002 base year) SALES AND LOGISTICS 5.3a By fiscal year 2011, reduce energy consumption of U.S. facilities by 18% compared to FY2001 baseline 5.3b By fiscal year 2011, reduce energy consumption of U.S. facilities by 26% compared to FY2001 baseline 5.4 Achieve 10% reduction in energy consumption from all Toyota Canada facilities by 2010 5.5 Track greenhouse gas emissions resulting from U.S. vehicle and parts logistics and continue to evaluate logistics-related emissions reduction methods (e.g., modal shifts, new technologies) | △ ● ● ○ △ ○ | 21, Fig. I 22, Fig. K 22 22, Fig. L 23 23 |
| RECYCLING AND REDUCED USE OF RESOURCES | | |
| GOAL 6: Further promote and apply the Design for Recycling (DfR) concept | | |
| Target: 6.1 Evaluate new materials from renewable resources toward further introduction of eco-friendly parts | ○ | 25 |
| GOAL 7: Reduce waste and the need to recycle material throughout all operations and processes | | |
| Targets: MANUFACTURING FACILITIES 7.1 Reduce nonsaleable waste (nonhazardous waste plus materials Toyota pays to be recycled) to 30 kg/vehicle 7.2 Maintain near-zero waste to landfill NONPRODUCTION FACILITIES: Vehicle Design Facilities: 7.3 Achieve zero hazardous landfill and reduce nonhazardous waste toward zero landfill SALES AND LOGISTICS FACILITIES 7.4 Recycle 75% of Toyota Motor Sales Headquarters waste by FY2010 7.5 Divert 95% waste from Toyota Canada main campus from landfill by FY2010 7.6 Reduce Toyota Canada facility paper consumption per person by 25% by FY2010 7.7 Reduce nonhazardous waste to landfill from U.S. North American Parts Operations by 62% from FY2006 baseline by FY2013 7.8 Achieve and maintain a 90% recycling rate at U.S. Toyota Logistics Services by FY2011 | ● ● ○ ○ ○ ○ ○ ● | 26, Fig.M 26 26 27 27 27 28 28 |
| GOAL 8: Reduce water consumption | | |
| Targets: MANUFACTURING: 8.1 Reduce water usage to 0.98 kgal/vehicle SALES AND LOGISTICS 8.2a For U.S. facilities, evaluate baseline in FY2008 and set reduction targets in FY2009, focusing on areas where water is most scarce 8.2b Maintain water consumption at FY2008 levels 8.3 Achieve 10% water consumption reduction from Toyota Canada facilities by 2010 | ● ● ● ○ | 29, Fig. N 30 30 30 |

meaning we are on track for achieving the target by the end of our five-year EAP. We will continue to work toward achieving these targets over the next two years. At the beginning of each chapter, we restate the relevant targets from this EAP. Throughout the report, we highlight key sentences that indicate whether a target has been achieved, is still being worked on, has been missed, or is not on track. These sentences are in **bold** and are followed by the target number from the EAP.

EAP Target Status:

- Achieved
- On Track
- △ Not On Track
- × Missed
- S Suspended

| GOALS AND TARGETS | STATUS | PAGE |
|---|--------|------------|
| SUBSTANCES OF CONCERN | | |
| GOAL 9: Promote management and further reduce the use of substances of concern (SOCs) | | |
| Targets: | | |
| 9.1 Reduce the use of mercury, lead, cadmium and hexavalent chrome in OEM and service parts and accessories to the <i>de minimis</i> levels in the EU Directive | ● | 33 |
| 9.2 Identify and solve challenges toward effective management of additional vehicle SOCs | ○ | 33 |
| 9.3 Facilitate SOC tracking and verification and support the development of SOC alternatives | ○ | 33 |
| 9.4 Develop and implement alternative materials to reduce vehicle cabin VOC levels | ○ | 33 |
| AIR QUALITY | | |
| GOAL 10: Reduce emissions to improve air quality in urban areas | | |
| Targets: | | |
| 10.1 Meet all applicable emissions standards, including Tier 2 and LEV II new vehicle certification standards | ● | 35 |
| 10.2 Maintain leading level in-use vehicle emissions compliance performance | ○ | 36 |
| 10.3 Promote the development of ultra low emissions technologies and introduce the lowest emitting vehicles | ○ | 36 |
| GOAL 11: Implement initiatives to reduce and track VOC usage and emissions | | |
| Targets: | | |
| 11.1 <i>Vehicle Painting:</i> Reduce body painting VOCs to a corporate average of 14.0 g/m ² | ● | 36, Fig. P |
| 11.2 <i>Vehicle Plastics:</i> Determine a VOC baseline in FY2006 and set plant targets that begin in FY2007 | ● | 37 |
| ENVIRONMENTAL MANAGEMENT | | |
| GOAL 12: Steadily reduce the environmental impact of Toyota vehicles over their product life cycle | | |
| Target: | | |
| 12.1 Introduce implementation of Eco-Vehicle Assessment System (VAS) on all new or redesigned vehicle models beginning in CY2007 | S | 39 |
| GOAL 13: Strengthen consolidated environmental management by incorporating environmental measures at the planning stages of a product or process | | |
| Targets: | | |
| NA OPERATIONS — ALL | | |
| 13.1 Minimize environmental risks and achieve leading levels of environmental performance | ○ | 39 |
| 13.2 Sales and Logistics: Maintain ISO 14001 certification at U.S. vehicle and parts logistics facilities | ● | 39 |
| 13.3 Sales and Logistics: Achieve ISO 14001 registration at two remaining (of nine total) Toyota Canada facilities by the end of 2007 | ● | 39 |
| 13.4 Zero annual notices of violation and complaints | × | 39 |
| 13.5 Consider LEED® (Leadership in Energy and Environmental Design) certification for new buildings/remodeling | ○ | 40 |
| 13.6 Manufacturing: Develop eco-plant plans for all new production facilities (designing plants to minimize environmental impacts) | ○ | 40 |
| GOAL 14: Enhance and further promote environmental management systems for business partners | | |
| Targets: | | |
| 14.1 SUPPLIERS: Update Toyota environmental requirements (Green Supplier Guidelines) for U.S. plant suppliers | ● | 40 |
| 14.2 DEALERS: Implement U.S. Dealer Environmental Training Programs (HazMat, environmental, pollution prevention) | ● | 41 |
| 14.3 DEALERS: Achieve LEED certification at eight dealerships and a Certified Service Center by FY2010. Continue to cultivate interest in LEED at dealers | ○ | 41 |
| COOPERATION WITH SOCIETY | | |
| GOAL 15: Actively contribute to sustainable development efforts | | |
| Targets: | | |
| 15.1 Strengthen Toyota's North American philanthropy efforts toward environmental/sustainable development projects and partnerships that contribute to development of new technologies, education and the preservation of biodiversity | ○ | 43 |
| 15.2 Toyota Canada to maintain 25% of total annual philanthropic contributions directed toward environmentally focused programs | ● | 43 |
| 15.3 Promote basic environmental research aimed at CO ₂ emissions reductions | ○ | 48 |
| GOAL 16: Enrich stakeholder communications | | |
| Target: | | |
| 16.1 Increase the transparency of Toyota's environmental plans, activities and performance by strengthening environmental communication with government agencies, eNGOs, business partners and local communities | ○ | 48 |
| GOAL 17: Contribute to the development of a recycling-based society | | |
| Targets: | | |
| 17.1 Launch at least 100 additional remanufactured parts applications per year | × | 49 |
| 17.2 Expand the availability of environmentally preferable paper in U.S. sales and marketing operations | ● | 49 |
| 17.3 Encourage the safe and environmentally appropriate disposal of tires by dealers through the TMS Tire Program | ○ | 49 |

TOYOTA |

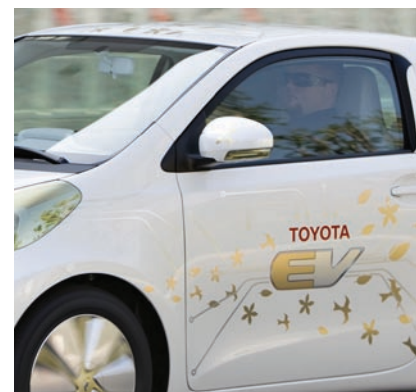
energy & climate change

Working with some of our logistics carriers, Toyota researched aerodynamic improvement equipment that would increase the fuel efficiency of trucks carrying our parts and vehicles. Installing this equipment on 18 of our in-house trucks has yielded a 6% improvement in fuel economy.



“As a leader in environmental issues, we are aggressively pursuing ways to make our products and operations more energy efficient. This is key to our vision for sustainable mobility.”

– James Lentz, President & Chief Operating Officer
Toyota Motor Sales, U.S.A., Inc.



ENERGY & CLIMATE CHANGE EAP TARGETS

- | | | |
|---|--|--|
| <p>1.1 ● Annually meet or exceed CAFE and CAFC standards</p> <p>1.2 ○ Continue development and deployment of fuel-efficient technologies</p> <p>2.1 ○ Promote awareness of biofuels and synthetic fuels</p> <p>2.2 ○ Partner with industry and government to identify and solve challenges toward full-scale commercialization of alternatively fueled vehicles</p> | <p>3.1 ○ Demonstrate feasibility of full-scale commercialization of advanced vehicle technologies</p> <p>4.1 ○ Integrate ITS technologies that allow drivers to communicate with public information systems</p> <p>5.1 △ Reduce total energy usage in manufacturing in North America by 27% per vehicle produced</p> <p>5.2 ● As per AAM Climate VISION, reduce CO₂ emissions 10% per vehicle from U.S. assembly operations by CY2012</p> | <p>5.3a ● Reduce energy consumption of U.S. sales and logistics facilities by 18% by FY2011</p> <p>5.3b ○ Reduce energy consumption of U.S. sales and logistics facilities by 26% by FY2011</p> <p>5.4 △ Reduce energy consumption by 10% from all Toyota Canada facilities by 2010</p> <p>5.5 ○ Track greenhouse gas emissions from U.S. vehicle and parts logistics and continue to evaluate emissions reduction methods</p> |
|---|--|--|

AT TOYOTA, TECHNOLOGY INNOVATION remains at the core of our vision for sustainable mobility, as well as a critical component of our five-year Environmental Action Plan (EAP). Our hybrid technology forms the foundation for our fuel cell, plug-in and electric vehicle development programs. Hybrid vehicles are helping us achieve better fuel efficiency and lower tailpipe emissions, both for carbon dioxide and criteria pollutants. This reduces the environmental impacts of driving — a key to making mobility more sustainable, particularly in urban areas where smog levels are most significant.

But for vehicle technology to continue to evolve, research is required into nonpetroleum energy sources that power a vehicle. Many of our advanced technology vehicles are designed to be powered by nonpetroleum fuels such as hydrogen, biofuels, and electricity. Each of these renewable fuels is truly sustainable only when produced in a manner that minimizes greenhouse gas (GHG) emissions. Therefore, Toyota conducts research and participates in partnerships that not only evaluate and advance the state of alternative fuel sources, but also consider the prerequisites for building a new fueling infrastructure such as that required by hydrogen. Solving these challenges toward full-scale commercialization of advanced technology vehicles is crucial to achieving a more sustainable mobility system.

Beyond the technology driving the next generation of mobility, we continue to make progress toward the goals and targets in our EAP that challenge us to decrease energy use and GHG emissions from our operations. While we were not able to implement as many capital projects because of the decrease in North American vehicle sales, we are still making reductions. By changing our attitude about how we use energy, we have found ways to scale back usage that will benefit us even when production volumes rise again. The challenge of making our products, manufacturing and distribution more energy efficient is considerable, but we are meeting it head on.

Our targets in the areas of fuel efficiency, advanced vehicle technologies, and energy and greenhouse gases are listed above, and described in this chapter.

▶ NEW FUEL ECONOMY AND GHG EMISSIONS STANDARDS

Climate change and energy security are complex issues that require the combined efforts of governments, policymakers, corporations and individuals working together. These partnerships are particularly essential in establishing GHG emissions and fuel economy standards that are effective, feasible, and fair. For its part, Toyota strives to bring credible engineering and policy analysis to the standard-setting process. We see regulations as a challenge that can be met with advanced technology solutions.

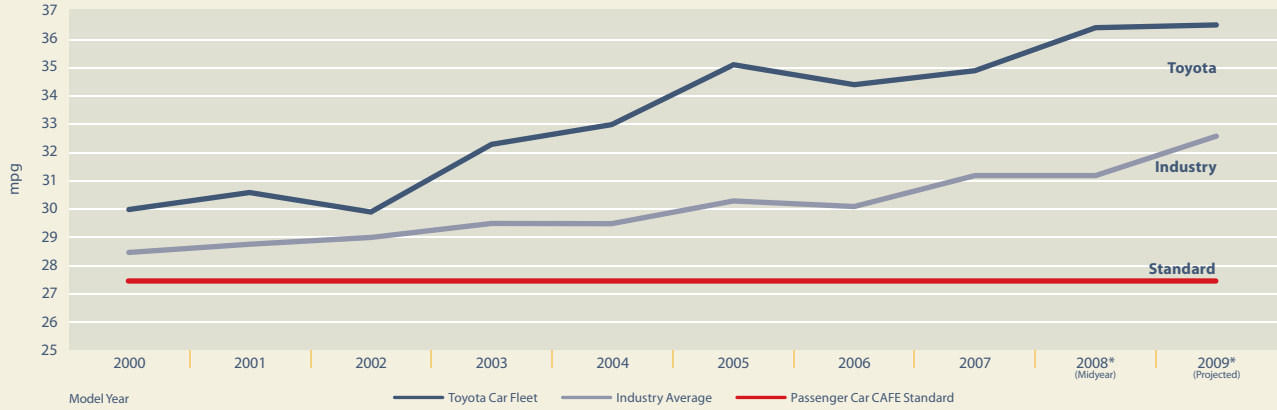
Over the last year there has been significant regulatory action surrounding GHG emissions and energy efficiency. Most notably for auto manufacturers, the National Highway Traffic Safety Administration (NHTSA) proposed updates to the U.S. Corporate Average Fuel Economy (CAFE) standards for the first time in 20 years. Shortly thereafter, the U.S. Environmental Protection Agency (EPA) initiated the regulatory process for developing the first-ever GHG vehicle emissions standards. EPA also granted a long-standing request for California and 13 other states to regulate GHG emissions from vehicles.

Toyota supports the intent behind each of the above actions which are consistent with our corporate goals for improving energy efficiency and reducing GHG emissions. The problem for Toyota is that, when implemented together, these programs presented the auto industry with a potential myriad of overlapping and inconsistent requirements administered by different levels of state and federal government.

Such a patchwork of requirements would have required a unique design for the same vehicle model depending on where it was sold in the U.S. As a manufacturer that distributes and sells the same full lineup of vehicles across the country, and indeed across much of North America, this would create serious complications for our vehicle distribution.

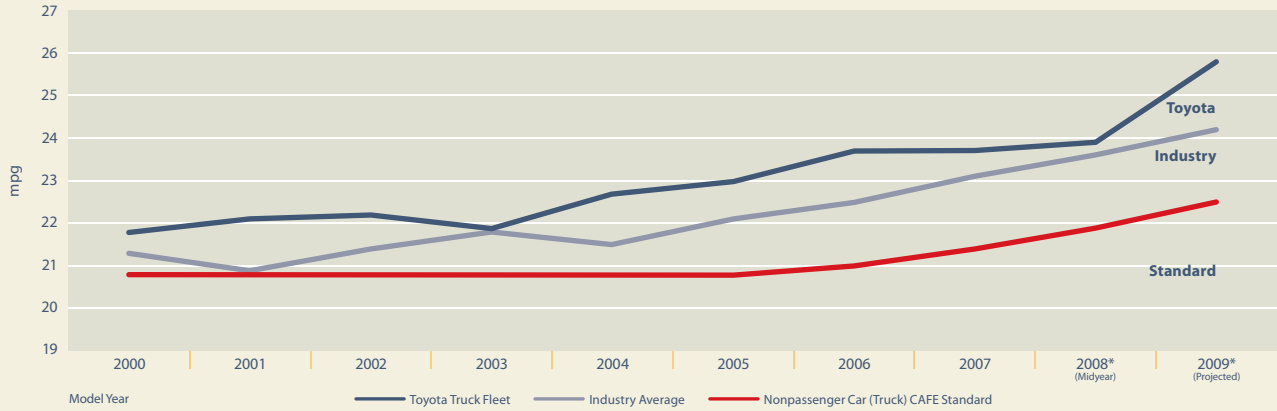
FIGURE E

U.S. Car Corporate Average Fuel Economy, or CAFE



↑ Indicates Better Performance

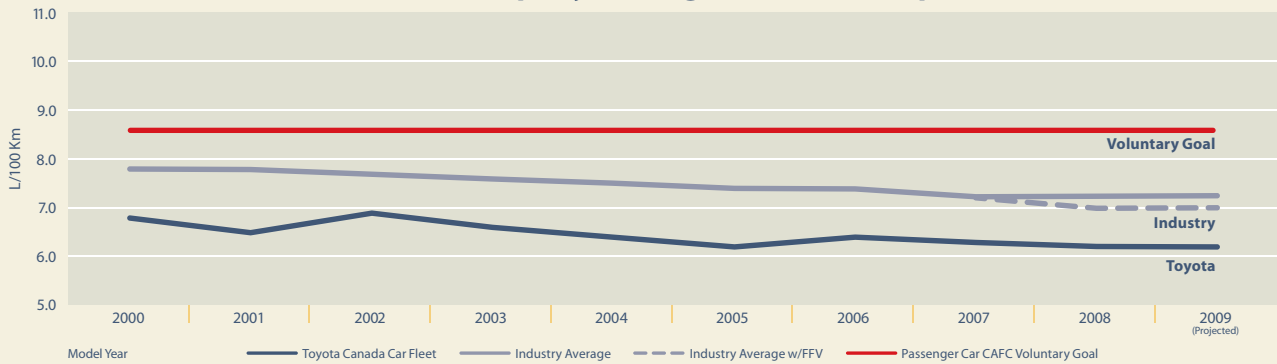
U.S. Truck Corporate Average Fuel Economy, or CAFE



↑ Indicates Better Performance

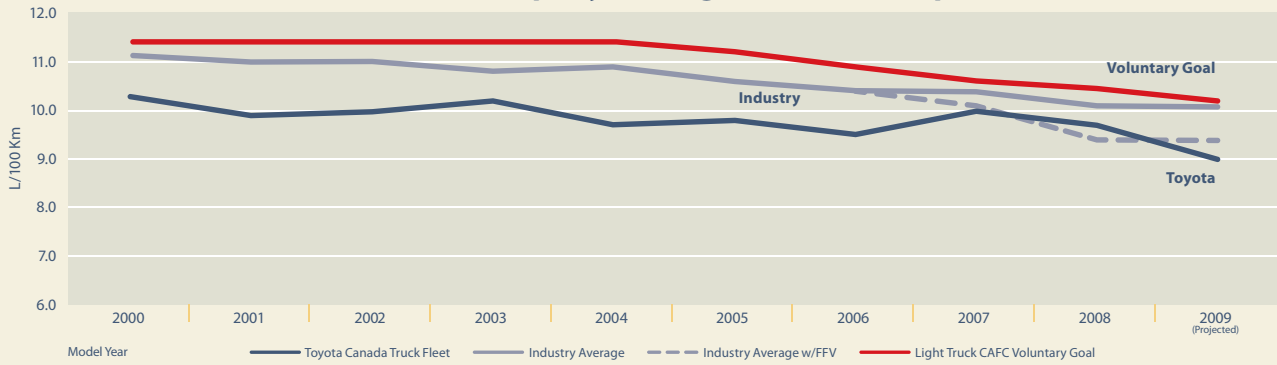
*Based on NHTSA projections using latest publicly available data.

Canadian Car Company Average Fuel Consumption, or CAFC



↓ Indicates Better Performance

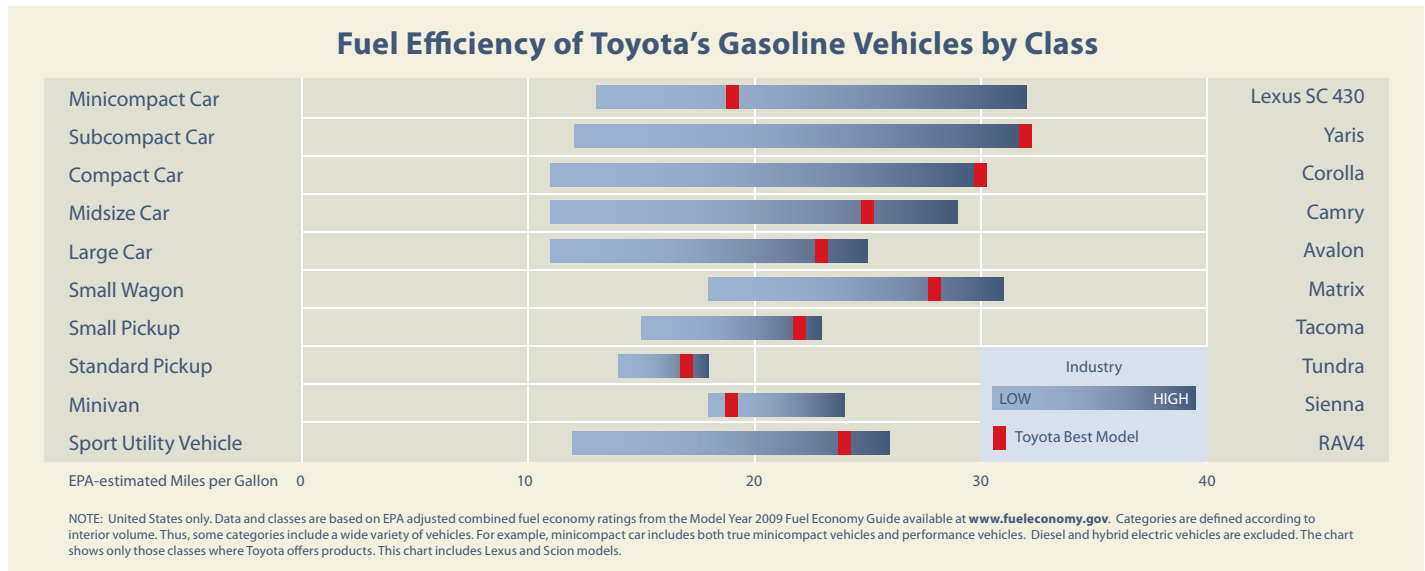
Canadian Truck Company Average Fuel Consumption, or CAFC



↓ Indicates Better Performance

NOTE: Unlimited use of flex-fuel vehicle (FFV) credits inflates reported CAFC results compared to actual fuel consumption.

FIGURE F



Acknowledging that the same technology is used to address both energy efficiency and GHG tailpipe emissions, Toyota and its partners in the auto industry, federal government, and California have agreed to work toward a One National Program (ONP) approach for fuel economy and GHG emissions standards. The ONP agreement calls for compliance with the most stringent numeric standards of the CAFE, EPA and California programs, but offers flexibility so that compliance with one program will result in compliance with all three. Such an approach is designed to achieve the overall goals among the various programs while enabling manufacturers to maintain one technology development and deployment plan for future products in the United States.

The ONP will cover model years 2012 through 2016. Toyota looks forward to working with EPA and NHTSA and the rest of the auto industry in crafting post-2016 standards.

▶ VEHICLE FUEL EFFICIENCY

Currently, fuel efficiency of new cars and trucks is regulated through the CAFE standards in the U.S. Today, the CAFE standard is 27.5 miles per gallon (mpg) for cars and 23.1 mpg for trucks. The Energy Independence and Security Act of 2007 increased the CAFE standard to at least 35 mpg by 2020 for the U.S. new vehicle fleet.

Under the One National Program mentioned above, NHTSA and EPA issued a proposal for new fuel efficiency and GHG emissions standards for which the new requirement has been accelerated to an equivalent of 35.5 miles per gallon by 2016.

Transport Canada continues to set voluntary Corporate Average Fuel Consumption (CAFC) targets of 8.6 and 10.45 liters of fuel burned per 100 kilometers traveled for cars and trucks, respectively. In Canada, manufacturers are able to use an unlimited (“uncapped”) amount of ethanol credits to

meet the light-duty truck CAFC requirement of 10.45 liters per 100 kilometers despite the fact that E85 is only available at four service stations in Canada. Toyota currently does not use flex-fuel credits for reporting of fuel consumption. As seen in Figure E, unlimited ethanol credit usage can inflate the fuel consumption reductions reported under the CAFC program compared to the on-the-road consumption likely to be achieved with a limited supply of E85. For this reason, Toyota supports a flex-fuel vehicle credit cap for E85 vehicles in Canada similar to the current caps used in the U.S.

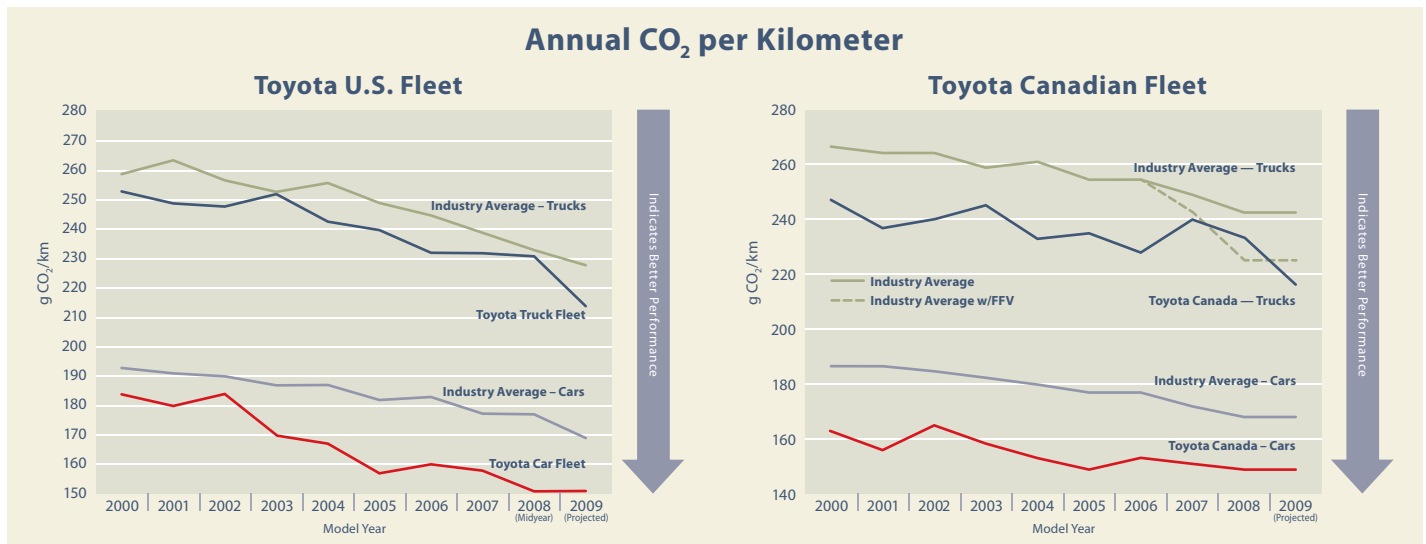
As shown in Figure E, we will exceed CAFE standards and CAFC targets for both passenger cars and light-duty trucks for the 2009 model year. (Target 1.1)

The most direct, immediate measure the auto industry can take to help meet the challenges posed by energy demand and climate change is to offer fuel-efficient products. Toyota offers the most fuel-efficient fleet of any full-line manufacturer (please see Figure F for more information on our gasoline vehicles). Both the U.S. EPA's 2009 Fuel Economy Guide and the Natural Resources Canada Fuel Consumption Guide list the Toyota Prius as the most fuel-efficient vehicle available for sale in the U.S. and Canada respectively.

The government of Canada recognized the Toyota Yaris and Toyota Prius as recipients of the 2009 ecoENERGY for Vehicles awards as the most fuel-efficient vehicles in their respective classes.

Last year, we reported how low viscosity SAE 0W-20 multigrade gasoline engine oil enables increased fuel economy performance over traditional, higher viscosity oils by reducing friction while maintaining the necessary lubrication in the engine. We have expanded our lineup of vehicles that use this grade of oil. A lower viscosity differential gear oil is specified in

FIGURE G



CO₂ emissions from Toyota's new vehicles are below that of the industry average in both the U.S. and Canada, for both cars and light-duty trucks. See previous CAFC discussion regarding the unlimited use of flex fuel vehicle credits.

the Sienna, Highlander and Venza (four cylinder), as well as in the Lexus RX. While the improvements to fuel economy seem minimal, they are representative of Toyota's philosophy toward continuous improvement.

We also help to meet the challenges posed by energy demand and climate change by developing technologies that improve fuel economy. (Target 1.2) We are continuing to revamp all of our conventional engines and transmissions to achieve increased fuel economy, improved air quality and reduced CO₂ output (please see Figure G). Toyota is considering several technologies for continued or new introduction including direct injection gasoline engines, forced induction systems and diesel engines.

Finally, we consider how material choices may impact fuel economy. When it comes to materials, lighter is better, but strength is needed for safety. The use of high strength steels meets this criteria and leads to a reduction in the number of parts needed to build a vehicle because the same properties can be achieved with fewer or lighter parts. The reduced mass leads to improved fuel efficiency. Toyota currently uses ultra high strength steel grades in 2009 model year vehicles.

▶ VEHICLE FUELS DIVERSITY

Toyota is investing in alternative-fuel vehicle technologies that will use a more diversified portfolio of energy and fuel sources. **We are not focusing on a single path away from conventional fuels; instead, we are exploring many alternatives, including biofuels from cellulose and renewably-generated hydrogen. (Target 2.1)** This is because while we are excited by the potential for alternative fuels to help meet the challenges posed by increasing energy demand and the threat of climate change, we recognize that continued advances are needed before these fuels can be commercialized broadly and reach their full potential.

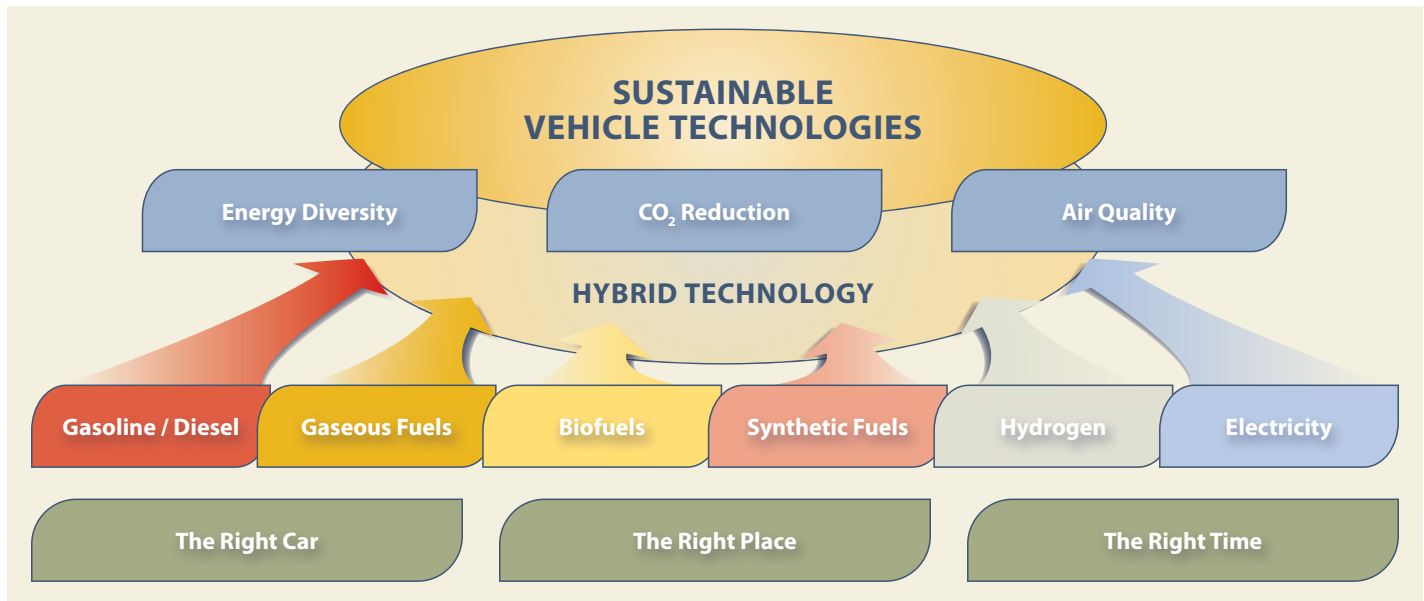
Biofuels are one example of this promise and challenge. Much of the activity in biofuels stems from the Renewable Fuels Standards (RFS) passed by Congress as part of the Energy Independence and Security Act of 2007. The RFS requires 36 billion gallons (136 billion liters) of biofuels to be produced by 2022 and also requires the fuels to meet certain life cycle GHG emissions criteria.

In 2007 and 2008, Toyota conducted studies with a pair of leading universities to examine the current state of biofuels research being conducted by academia and national laboratories. This work has helped Toyota better understand the direction of biofuel research and gauge the potential for biofuel commercialization to reach the levels needed to meet the RFS requirements.

Not surprisingly, much of the research is being directed toward producing biofuels from nonfood sources and reducing the energy and GHG emissions associated with their production. For example, in addition to corn and sugarcane, ethanol can be produced from the inedible portion of plants — cellulose. The process for producing "cellulosic" ethanol, though promising, has yet to be demonstrated at scale and proven economical.

This plus the costs and complexity of upgrading the fueling infrastructure to handle higher ethanol blends (above 10% ethanol) has resulted in the Department of Energy and many researchers taking a closer look at "drop-in" replacement biofuels. These "advanced biofuels" can be produced from biomass or algae and look very similar to petroleum. They are called "drop-in" because researchers are investigating ways to upgrade these fuels to allow them to be fed into existing oil refineries where they can be blended with other petroleum streams. Like cellulosic ethanol, production processes for these bio-hydrocarbon fuels have not been scaled up or proven economically viable. Other issues such as the logistics for

FIGURE H



transporting the feedstock from the field to the factory and biomass storage to allow the production facilities to run 24/7 also need to be addressed.

Adding to these technical and economic challenges, biohydrocarbon fuels have to contend with the RFS requirement that “advanced biofuels” reduce life cycle GHG emissions by at least 50% compared to petroleum fuels. This necessitates innovative production processes that burn some of the biomass feedstock for process heat, which adds further complexity and cost to the production facility. Biofuel production will continue to grow, though it appears unlikely to meet the volumes required by the RFS without a technological breakthrough.

▶ ADVANCED VEHICLE TECHNOLOGIES

We are continuing to invest in a variety of advanced vehicle technologies so that our future products will be ready to operate on the most promising of alternative fuels as they become available (please see Figure H). This includes an accelerated rollout of conventional hybrids across our entire lineup, hydrogen fuel cells, plug-in hybrids and pure electric vehicles. We are also researching advanced battery technologies beyond lithium-ion.

Toyota is working with industry and government to solve the challenges surrounding full-scale commercialization of these vehicles. (Target 2.2) Some of the programs we are involved with include the Society of Automotive Engineers’ (SAE) working groups to develop codes and standards for hydrogen infrastructure and electric vehicle charging standards, and vehicle demonstration and evaluation programs with three University of California campuses: Irvine’s National Fuel Cell Research Center, Berkeley’s Institute of Transportation Studies and Davis’ Institute of Transportation Studies for fuel-cell hybrids and plug-ins.

The University of California at Berkeley is evaluating consumer use and acceptance, infrastructure issues and environmental benefits of three advanced vehicle technologies — hybrid, plug-in hybrid, and fuel-cell hybrid. The campus has one plug-in hybrid, one fuel-cell hybrid and one 2008 Prius. Users fill out surveys about their experiences driving each of these vehicles. We expect to start seeing results in late 2009.

Evaluation programs, along with Toyota and Lexus ride-and-drive events featuring our hybrids, demonstrate the feasibility of these advanced technologies, as well as ensure wider market acceptance of our advanced technology vehicles. (Target 3.1)

Hybrid Vehicles

Toyota sees hybrid technology as a key component for improving the efficiency and minimizing the environmental impact of gasoline-powered vehicles, as well as an essential and enabling element of future powertrains that will run on a diverse array of fuels such as hydrogen and electricity. Toyota and Lexus combined have seven full hybrid vehicles on the market.

Worldwide, our goal is to sell one million hybrids a year by mid-next decade and offer a hybrid version of all our vehicles by the early 2020s. Toyota globally has sold more than two million hybrids worldwide since the first Prius was introduced in 1997.

In the spring of 2009, we launched the third generation Prius (2010 model year). Prius is available with a tilt and slide moonroof that has a solar panel built into the roof. The power generated by the solar panel powers a fan to ventilate the parked Prius on hot days. This feature is tied with the world’s first remote air conditioning system that allows the vehicle to be further cooled by the hybrid battery alone. Together, these

features reduce the load on the gasoline engine, which saves fuel and reduces GHG emissions. The 2010 Prius has an EPA emissions rating of AT-PZEV/Federal Tier 2 Bin 3 (the same as the 2009 Prius). The estimated combined fuel economy has improved to 50 mpg (3.8 liters per 100 kilometers) from 46 mpg (4.1 liters per 100 kilometers) for the second generation.

The 2010 Prius is available with an optional moonroof that has a solar panel built into the roof. The power generated by the solar panel powers a fan to ventilate the parked Prius on hot days.



In 2009, we also launched the 2010 Lexus HS 250h, the world's first dedicated luxury hybrid vehicle. The HS 250h is Lexus' fourth hybrid and has the best combined fuel mileage rating of any luxury car in the U.S. and Canada. The HS 250h sedan's combined fuel efficiency rating is more than 30% better than the most fuel-efficient model currently in the Lexus lineup, while earning a SULEV emissions rating utilizing regular 87-octane gasoline. The exhaust heat recovery system reduces engine warmup time, thus allowing it to stop earlier, more often, and for longer periods. A windshield with infrared-ray (IR) reduction properties, which helps keep the interior more cool, decreases the amount of air conditioning needed to lower the cabin temperature. In addition to the exhaust heat recovery system and the IR windshield, available power-saving LED headlamps also contribute to improved fuel efficiency and emissions.

For more information on Toyota hybrids, please visit www.hybridsynergydrive.com and www.hybridsynergydrive.ca.

For more information on Lexus hybrids, please visit www.lexus.com/hybriddrive and www.lexushybriddrive.ca.

Plug-In Hybrid Vehicles

As the global leader in hybrid vehicles, it is vital that Toyota explore expansion of our hybrid drive technology. A pathway that shows promise to reduce fuel consumption and emissions (including CO₂) is the plug-in hybrid vehicle (PHV).

Toyota's PHV offers all the advantages and utility of a conventional hybrid vehicle, plus gives the consumer the ability to recharge the on-board battery pack from home or any location with an electrical outlet. Depending on the driving profile, regular recharging can significantly reduce gasoline consumption and potentially reduce both mobile source GHGs and criteria pollutants. To maximize the vehicle's overall environmental benefits, clean electricity sources (wind, solar, nuclear, etc.) are required.

Our first PHV prototype is based on the 2008 Prius and designed to demonstrate the flexibility of our Hybrid Synergy Drive (HSD). With only software modifications and a second nickel-metal hydride (NiMH) battery pack, it can accelerate briskly and is capable of reaching 60 miles per hour (97 kilometers per hour) on electric propulsion alone. If higher speeds are needed or the battery is depleted, the engine starts and the vehicle operates like a conventional Prius. This intelligent "blending" of the gas and electric power by the HSD system benefits the user and the environment, while not requiring costly development of new vehicle powertrains or platforms that could limit mass marketability of the technology.

Beginning in late 2009, Toyota will start global delivery of 500 Prius PHVs based on the all-new 2010 Prius and using lithium-ion batteries. Of these initial vehicles, 150 will be placed with North American fleet customers who will monitor the vehicle performance and durability while offering feedback on how future customers might respond to the plug-in process.



Our PHV prototype is based on the 2008 Prius and designed to demonstrate the flexibility of our Hybrid Synergy Drive (HSD). It can accelerate briskly and is capable of reaching 60 miles per hour on electric propulsion alone.

The lithium-ion (Li-ion) batteries powering these PHVs will be built in conjunction with PEVE (Panasonic EV Energy Company, LTD), a joint venture in which Toyota owns 60% equity. The Li-ion battery technology is similar to what Toyota has been using in the Japanese-market Vitz mild hybrid for approximately four years. These stop/start hybrids make use of a 42V Li-ion battery to instantly restart the engine whenever the driver touches the throttle.

Although Toyota has more in-use experience with Li-ion batteries than most of our competitors, we are approaching deployment cautiously. Because of its superior energy density compared to NiMH chemistry, Li-ion technology is a leading contender for the PHV application. But the PHV duty cycle (regular deep discharges) is much harder on a battery than the frequent mild discharges traditional hybrid batteries must endure. Consumers have come to expect their hybrid vehicle battery will last the life of the vehicle and are unlikely to accept anything less from a PHV. This more aggressive duty cycle and Li-ion's sensitivity of temperature extremes are some of the reasons Toyota wants to confirm durability and reliability of the new battery technology with a modest fleet demonstration.

Over the last ten years our hybrids and their batteries have met or exceeded our customers' expectations for durability and reliability. As a result it is vital that any new technology be thoroughly tested before widespread deployment. This way our customers can be assured that they will not have to sacrifice dependability for new technologies.

Electric Vehicles

Toyota announced recently that we will introduce a production electric vehicle (EV) in the 2012 time frame. This vehicle will likely be similar to Toyota's FT-EV concept. This concept car was designed for an urban dweller who drives less than 50 miles (80 kilometers) a day or a suburbanite who has a short drive to public transportation. Toyota's approach is to reduce vehicle size and range, thereby requiring a smaller and less costly battery. This lower cost will increase the number of potential customers.

The environmental benefit of any new vehicle technology should be measured on a "well to wheel" basis, that is, the emissions generated during production of the fuel plus those generated while driving the vehicle. An EV produces no emissions while operating, but emissions generated during power production can vary greatly depending on fuel source. "Environmental success" of electric vehicles will depend in large part on the fuel — the source of the electricity used to power the vehicle. Electricity allows energy diversity, but from a CO₂ perspective, the benefits of electricity are largely dependent on the source (e.g., coal versus hydropower).

Toyota's FT-EV concept car was designed for an urban dweller who drives less than 50 miles a day or a suburbanite who has a short drive to public transportation. Toyota's approach to electric vehicles is to reduce vehicle size and range, thereby requiring a smaller and less costly battery.



Fuel-Cell Hybrid Vehicles

Toyota believes that fuel-cell hybrid vehicles (FCHVs) are another important part of our transportation future, and we have been actively developing this technology for over 15 years. In 2002 we began leasing the FCHV to customers in the U.S. and Japan. The experience gathered from over one million miles (1.6 million kilometers) of on-the-road operation has been applied to our latest generation fuel cell vehicle, the FCHV-adv, which we began delivering to limited test customers late last year.



Two FCHV-advanced production vehicles were instrumented, filled with hydrogen and driven during rush hour from Torrance, California, to San Diego and back. Both FCHVs completed the 332-mile trip with enough hydrogen left in the tanks to keep going an estimated 100 miles.

This latest generation of technology overcomes two of the technical hurdles to commercialization, cold startability and vehicle range. By using innovative design solutions and minimizing the thermal inertia of the fuel-cell stack, we have succeeded in creating a system that can reliably start at temperatures below -30° C. We have also increased vehicle range between hydrogen refuelings by moving to in-house built 700 bar (10,000 psi) carbon fiber cylinders and improving fuel-cell system efficiency.

Last year, we described the seven-day trek along the Alaska-Canadian Highway. The prototype used for this trip is now our FCHV advanced production vehicle. To demonstrate the in-use driving range of this latest vehicle, we conducted a range and fuel economy evaluation with engineers from the National Renewable Energy Lab and the Savannah River National Laboratory. Two FCHV-advanced production vehicles were instrumented, filled with hydrogen and driven during rush hour from Torrance, California, to San Diego and back. The route included everything from bumper-to-bumper rush hour traffic to wide-open freeway driving. Both FCHVs completed the 332-mile (534-kilometer) trip with enough hydrogen left in the tanks to keep going an estimated 100 miles (160 kilometers). Fuel economy on the journey was approximately 68 miles per kilogram (109 kilometers per kilogram) of hydrogen. A kilogram of hydrogen has roughly the same energy as a gallon of gasoline.

FCHVs have been deployed to the University of California's Irvine and Berkeley campuses to understand customer behavior. We are also deploying FCHVs to New York with some of these vehicles going to New York's Port Authority to be used at John F. Kennedy and LaGuardia airports. New York is moving ahead with hydrogen infrastructure; two new hydrogen stations opened in the Bronx and at John F. Kennedy airport.

Toyota is also partnering with Shell to build a new hydrogen-only retail station near Toyota's U.S. sales headquarters in Torrance, California. Although this is a significant accomplishment, Toyota views the current lack of hydrogen infrastructure as one of the greatest threats to fuel-cell vehicle commercialization. Existing hydrogen stations are closing as fast as new ones are being built. Without additional stations, the consumer's ability to conveniently refuel will be reduced, resulting in overall dissatisfaction with fuel-cell technology.

We are confident that we can overcome the key remaining vehicle challenges of reducing the fuel-cell system cost and increasing the durability. Both have been improved significantly from our initial 2002 vehicles, and our engineers see a clear path to achieving cost and durability targets by 2015. We are targeting 2015 as the time frame for commercial introduction of the FCHV.

Toyota continues to participate in and support SAE's Committee on Safety Standards. Safety is a critical aspect of market readiness for the FCHV. We contributed to the drafting of two technical papers on FCHV safety in 2008. The first paper, SAE J2578 (*Recommended Practice for General Fuel Cell Vehicle Safety*, January 2009), provides introductory mechanical and electrical system safety guidelines that should be considered when designing fuel-cell vehicles for use on public roads. The second paper, SAE J2579 (*Technical Information Report for Fuel Systems in Fuel Cell and Other Hydrogen Vehicles*, January 2009), defines design, construction, operational and maintenance requirements for hydrogen storage and handling systems in on-road vehicles.

Fuel-cell hybrid vehicles continue to be an important part of our technology strategy in the pursuit of sustainable mobility.

▶ ADVANCED TRANSPORTATION SOLUTIONS

A key for the future of transportation safety and congestion management is the increased sophistication and proliferation of technologies that enable communication among vehicles and also between the vehicles and the roadway infrastructure. Such an approach is in harmony with the tenants of sound urban planning and sustainable mobility. At the 15th World Congress on Intelligent Transport Systems in November 2008, Toyota demonstrated applications of these technologies that were designed and developed by our engineers in Ann Arbor, Michigan. One of these applications was the Green Wave Advisor that works by the vehicle receiving phasing

information from traffic signals. The vehicle interprets the information and displays a suggested range of vehicle speeds that will enable the driver to pass through a series of green lights. **This advanced transportation solution is an example of our engineers developing networking technology that allows drivers and their vehicles to communicate with public information systems. (Target 4.1)**

▶ ENERGY AND GREENHOUSE GASES IN OUR OPERATIONS

We work to reduce energy consumption and greenhouse gases throughout all aspects of our business. Toyota's manufacturing and sales divisions were jointly presented with the 2008 Corporate Energy Management of the Year Award by the Association of Energy Engineers. We received the award for our accomplishments in developing, managing and implementing an outstanding corporate energy management program.

Last year we completed our first North America-wide greenhouse gas inventory. While various parts of our organization have been conducting GHG inventories for some time, the exercise facilitated communication across our various divisions and fostered institutional learning. Across our operations, this process helped us gain a better understanding of our GHG footprint and we are now looking for ways to further reduce our impacts.

Below, we describe our targets in energy consumption and GHG emissions.

Manufacturing

Toyota's North American manufacturing facilities consume more than \$147 million of energy annually, resulting in 1.1 million metric tons of CO₂ emissions per year. Reducing the environmental impact of our energy use is a sustainable business practice because it also reduces the cost of operation at our manufacturing facilities.

Energy

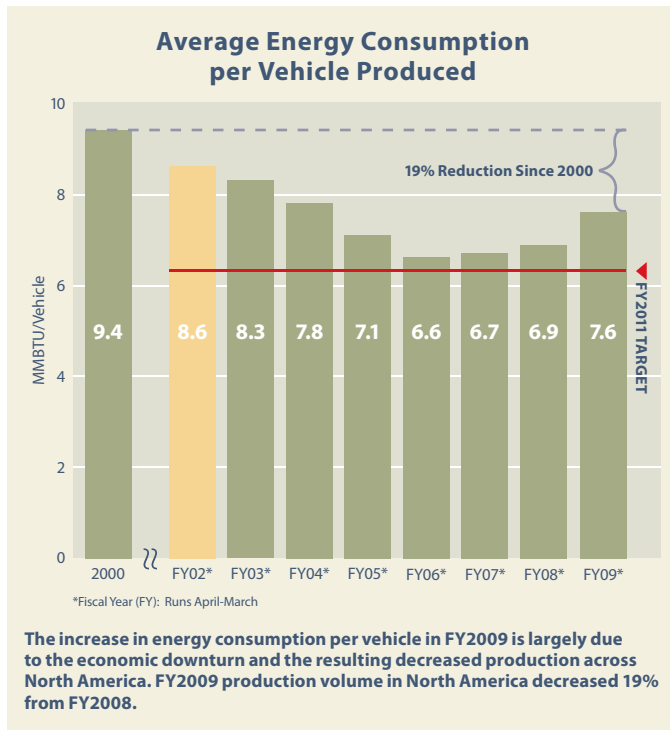
Toyota has been an Energy Star partner since 2003. In 2009, Toyota earned its fifth straight Energy Star Award from the U.S. Environmental Protection Agency and the U.S. Department of Energy. (Toyota earned the 2005 Energy Star Partner of the Year Award, then four Energy Star Sustained Excellence Awards.)

Our plant in Georgetown, Kentucky, and our joint venture plant in Fremont, California, earned Energy Star Plant awards, bringing the number of plant awards received since 2006 to 14. To be eligible for the plant awards, a plant's energy performance for the past 12 months must be in the top 25% of its industry, and the information used to calculate the plant's energy performance score must be certified by a professional engineer. Energy improvements at Toyota's U.S. plants have reduced CO₂ emissions by almost 150,000 metric tons since our FY2002 base year and saved over \$18 million annually.

Our manufacturing plant in Delta, British Columbia, is partnering with their local utility company to implement a Sustainable Energy Management Program. Through this program, the plant committed to a one million kilowatt-hour reduction in electricity usage per year for the next two years.

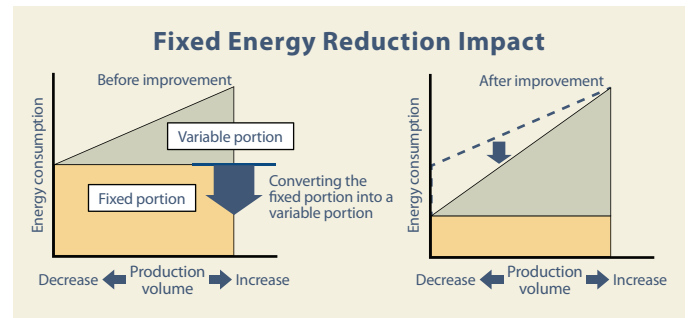
Using FY2002 as a base year, we have a target to reduce total energy use in our manufacturing operations in North America by 27% per vehicle produced by FY2011. **Over the past year, our overall energy use per vehicle increased (please see Figure I).** (Target 5.1) This is largely due to the economic downturn and the resulting decreased production across North America. If production volumes remain low, we may not reach our per vehicle energy target by FY2011 because much of the energy necessary to operate a plant is fixed and remains constant regardless of production fluctuations.

FIGURE I



We have responded to this challenge by focusing on the implementation of Toyota’s “just-in-time” concept beyond parts delivery to energy consumption. Just-in-time energy delivery means using the amount of energy needed only when it is needed. This year we took advantage of the production downtime by utilizing available maintenance, production and quality resources to work together to identify and implement fixed energy reductions. Benefits from these activities will continue when production volumes increase (please see Figure J). We provide a number of examples of these activities here.

FIGURE J



Just-in-Time Energy Delivery in California

Our Long Beach, California, facility implemented several *kaizens* that reduced energy consumption:

- Lowering the temperature and reducing the speed of the conveyor in the electro-deposition curing oven reduced natural gas consumption by 12.5%.
- Reducing the amount of time between equipment startup and start of production start times saved over 1,600 therms per year.
- Reducing the number of agitators used in the coating process saved over 172,000 kilowatt-hours.

Kentucky’s Race for the Green

Our Georgetown, Kentucky, plant held another competition this past year to encourage employees to find ways to reduce energy consumption throughout the plant. The plastics shop was the winner of this year’s “Race for the Green” competition, which was themed around NASCAR. While the competition was close throughout the year, during the December shutdown (a one-week period when a number of preventive maintenance and cleaning activities occur) the plastics shop reduced their energy use by 83% from the previous shutdown. This allowed them to win the competition. In total, the plant reduced its absolute energy consumption by 16% compared to fiscal year 2008.



The plastics shop at our Georgetown, Kentucky, plant was the winner of this year’s “Race for the Green” competition. During the December shutdown, the plastics shop reduced their energy use by 83% from the previous shutdown, allowing them to win the competition.

The following activities contributed to the plant’s overall energy reduction:

- The heat recovery system in one of the paint shops generates steam which is now fed back into the main plant steam system, allowing the facility to shut off the main steam boilers between the second and first shift periods.
- Air flows in the paint shop have been reduced; therefore, it takes less energy to condition the air.
- Fans and lights are turned off when no one is in the area.
- The parking lot, roadways and walkway lights were converted from high-pressure sodium to compact fluorescents. This reduced energy consumption by more than 711,000 kilowatt-hours (10,242 metric tons per year of CO₂ reduction).

Alabama Installs Solar Panels

Our plant in Huntsville, Alabama, was the first Toyota plant and the first in the area to install a photovoltaic system. The new five kilowatt solar panel generates enough energy to light four bays (over 16,000 square feet or 1,486 square meters) of floor space; the equivalent of 80 60-watt light bulbs. Throughout the project the plant has worked with their local energy provider to make the project a success. With the continued success of the project and the knowledge that has been gained, the plant will look to expand the project with the addition of new photovoltaic panels in coming years.

Greenhouse Gas Emissions

Energy use is the main source of greenhouse gases from our manufacturing plants. Worldwide, Toyota is committed to a 20% reduction in GHG emissions per unit sold by 2010, against a 2001 baseline.

Toyota in the U.S., along with other members of the Alliance of Automobile Manufacturers (AAM), participates in the U.S. Department of Energy Climate VISION program. Member companies have committed to reducing the level of GHGs emitted from manufacturing operations by 10% per vehicle produced by 2012, compared to a 2002 baseline. **We are exceeding this U.S. commitment (please see Figure K). (Target 5.2)**

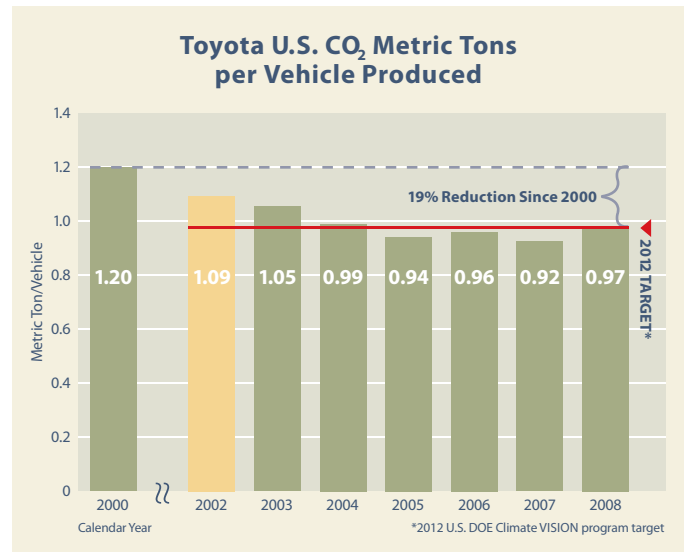
Sales and Logistics

Just as we do in manufacturing, we strive to improve energy efficiency and reduce greenhouse gas emissions in our logistics operations and sales offices.

Energy

Across North America, Toyota’s logistics operations and sales offices are working to reduce energy consumption. **In 2007, we reported that our U.S. sales and logistics sites achieved our target to reduce energy consumption (per building square foot) by 18% from a FY2001 baseline. (Target 5.3a)** We set a new target to reduce energy consumption by 26% by

FIGURE K

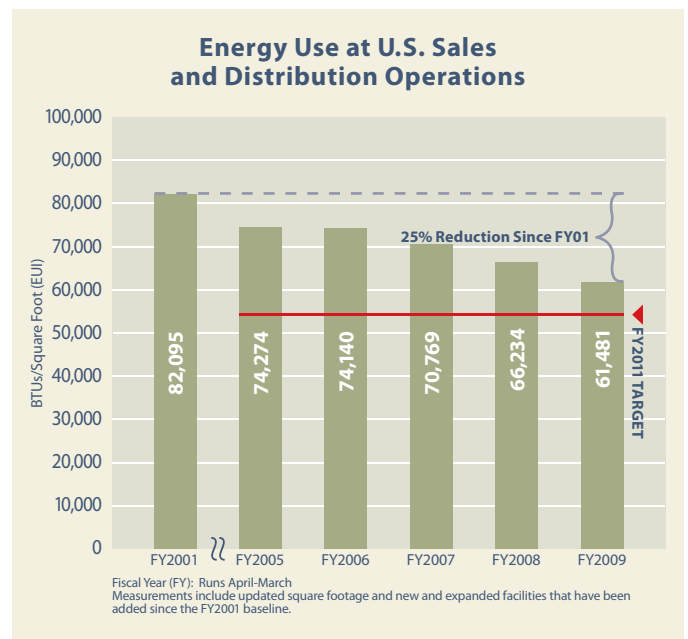


FY2011, from a FY2001 baseline. (We revised this target down from a 35% reduction to 26% as a result of the elimination of capital projects due to the current economic climate.)

As of the end of FY2009, we have reduced total energy consumption per square foot by 25% (please see Figure L). (Target 5.3b) A significant portion of the reductions over the past year are due to recommissioning and improving the HVAC systems at the U.S. sales headquarters complex in Torrance, California.

Five of our facilities were recognized last year by the U.S. EPA for improved energy efficiency. Efforts to optimize building performance and reduce energy consumption earned Energy

FIGURE L



Star Building awards for two buildings on the U.S. sales headquarters' South Campus. A minimum score of 75 is required for certification; the two buildings earned 94 and 86 points. Four buildings on the headquarters campus have now earned Energy Star awards.

Our parts center in Hebron, Kentucky, a 1.1 million square-foot (102,000 square-meter) warehouse, also earned an Energy Star award. The facility installed T-5 high output fluorescent lighting in the warehouse, added occupancy sensors, reduced the interior corridor lighting, and installed a building automation system to minimize the energy used in the warehouse and office.

Our parts center in Ontario, California, installed a photovoltaic array that came online in October 2008. The 2.3 megawatt system is the second largest single-rooftop solar array in North America. It is expected to produce more than 3.7 million kilowatt-hours per year, providing up to 58% of the electricity needed at the facility. The system contains over 10,400 panels and covers a surface area of 242,000 square feet (22,400 square meters).

Our parts center in Ontario, California, installed a photovoltaic array that is expected to produce more than 3.7 million kilowatt-hours per year. This will provide almost 58% of the electricity needed at the facility.



In Canada, we established a five-year target for our logistics facilities and office campus to reduce energy consumption by 10% by 2010, from a baseline of 2004. A growing number of employees and conversion of storage space to office space may be contributing to increased energy usage. **We are currently not on track for meeting our target, but we continue to look for opportunities to reduce our usage. (Target 5.4)**

Greenhouse Gas Emissions

Toyota's U.S. sales and logistics division has been tracking GHG emissions since 2000, using The GHG Protocol[®] developed by the World Resources Institute and the World Business Council for Sustainable Development. The scope of the inventory includes GHG emissions from purchased electricity, natural gas use, business travel, employee commuting, and logistics and supply activities (including our third-party logistics providers).

Much of our parts and vehicle transport is conducted by third parties. Because our activities influence the emissions of these third parties, we work with them to find ways to reduce GHG emissions.

We use the GHG inventory to help us evaluate logistics-related emission reduction methods. (Target 5.5) By restructuring routes and increasing load density, we reduced the mileage traveled by trucks transporting Toyota parts and accessories by over 2.5 million miles (four million kilometers) over the previous year. Toyota Logistics Services, our vehicle distribution arm, joined the SmartWaySM Transport Partnership as a shipping partner. The SmartWay program is an innovative collaboration between EPA and the freight industry to increase energy efficiency while significantly reducing greenhouse gases and air pollution. Through this partnership, Toyota has committed to increase the percentage of freight shipped by SmartWay carriers.

Aerodynamic Improvements Reduce GHGs From Trucking

Our logistics carriers drive over one million miles (1.6 million kilometers) per day, transporting parts and vehicles across North America. Working with our carriers, we conducted research on ways to improve the fuel efficiency of the trucks by adding aerodynamic improvement equipment such as boat tails and side skirts. In October 2008, we tested this equipment at our Arizona Proving Ground and on actual road routes, and found that between currently available aerodynamic improvements, as well as some additional in-house developed parts, an 11% improvement in fuel economy is possible. Some of our third-party carriers are already implementing some of this equipment on their fleet.

Our in-house vehicle delivery truck operation has tested additional aerodynamic improvement equipment such as removable mesh side tarps and belly pans. We have installed these on 18 trucks that run our longer routes, yielding a 6% improvement in fuel economy.



An engineer at the Toyota Technical Center in Ann Arbor, Michigan, designed aerodynamic improvement equipment that can increase the fuel efficiency of trucks carrying Toyota parts and vehicles.

LOOKING AHEAD

Over the next two years, the biggest challenge we continue to face in meeting our action plan targets is to find ways to make our products and our manufacturing operations more energy efficient, both in response to climate change legislation and consumer demand.

TOYOTA |

recycling & reduced use of resources

The parts center in Hebron, Kentucky, bales and recycles soft plastics. In order to maximize recycling across the network, the parts center receives shipments of plastic from a number of our parts distribution centers.



“At Toyota, we respect the earth’s resources and strive to use only what we need, when we need it.”

– Christopher Reynolds, Group Vice President and General Counsel
Toyota Motor Sales, U.S.A., Inc.



RECYCLING & REDUCED USE OF RESOURCES EAP TARGETS

- 6.1 ○ Evaluate new materials from renewable resources
- 7.1 ● Reduce nonsaleable waste to 30 kg per vehicle in manufacturing
- 7.2 ● Maintain near-zero waste to landfill in manufacturing
- 7.3 ○ Achieve zero hazardous landfill and reduce nonhazardous waste toward zero landfill at vehicle design facilities
- 7.4 ○ Recycle 75% of U.S. sales headquarters waste in FY2010
- 7.5 ○ Divert 95% waste from Canada’s main sales campus by FY2010
- 7.6 ● Reduce paper consumption by 25% per person at Canadian sales offices
- 7.7 ○ Reduce nonhazardous waste to landfill from U.S. parts operations by 62%
- 7.8 ● Achieve a 90% recycling rate at U.S. vehicle distribution centers
- 8.1 ● Reduce water usage in manufacturing to 0.98 kgal/vehicle
- 8.2a ● For U.S. facilities, evaluate water baseline in FY2008 and set reduction targets in FY2009
- 8.2b ● Maintain water consumption at U.S. sales and logistics sites at FY2008 levels
- 8.3 ○ Achieve 10% water consumption reduction at Canada sales and logistics sites by 2010

TOYOTA’S 2020 VISION of harmonizing the cycles of industry and nature can only be realized with next-generation manufacturing practices that advance recycling and reuse. We aim for zero emissions in all areas of our business by reducing emissions to air and water and minimizing waste.

We also consider resource use — the materials that go into making our vehicles, from the steel for the vehicle body to the fibers used in floor mats and seat cushions. When we design a vehicle, we look for opportunities to use Ecological Plastics. Since Ecological Plastics are made from renewable resources, they reduce the need for petroleum-based (nonrenewable) plastics. This “design for environment” thinking considers the entire life cycle of the vehicle, from manufacturing and distribution to use and disposal.

With cuts in our capital budgets due to the decrease in vehicle production, we have found our greatest challenge to be in reducing water consumption. Fresh water is one of our most precious resources, and reducing consumption will remain a priority for us going forward.

Our targets in the areas of design for environment, waste and recycling, and water consumption are listed above and described in this chapter.

► DESIGNING VEHICLES USING RENEWABLE RESOURCES

When we design a vehicle, we try to increase our use of renewable resources. Ecological Plastics, or plastics derived either completely from plant-derived material or in combination with petroleum-derived material, are now being used in scuff plates, headliners, seat cushions, trunk liners, door trims, and other interior vehicle parts. Ecological Plastic parts emit less CO₂ during their life cycle than do plastics made solely from petroleum.

Toyota has successfully developed bio-based plastics for injection molding. The plastic is a polypropylene/poly(lactic acid) (PP/PLA) alloy, and features PLA finely dispersed within PP. The material satisfies performance, appearance, and mass production capability requirements and has been successfully applied to interior parts.

Both the 2010 Prius and the new Lexus HS 250h contain Ecological Plastics. For example, both vehicles have seat cushions that contain foam made of a material derived from castor oil.

In the Lexus, Ecological Plastics are used in the luggage-trim upholstery, cowl-side trim, door scuff plate, tool box area, floor-finish plate, seat cushions, and the package tray behind the rear seats. Overall, approximately 30% of the total interior and luggage areas is covered with Ecological Plastics.

Toyota will continue to evaluate materials from renewable resources in order to introduce additional environmentally preferable parts in our vehicles. (Target 6.1)



Ecological Plastics are used on interior parts in a number of our vehicles. Both the 2010 Prius and the new Lexus HS 250h have seat cushions that contain foam made of a material derived from castor oil.

In addition to materials from renewable resources, we also look for materials that use less resources. For example, we introduced a new bumper fascia material on the Toyota Tundra in 2006. The material is made of Super Olefin Polymer 7, a thinner, lighter, stronger material than what was previously used. We recently completed the transition to this material in all North American models except for the Tacoma assembled at our joint venture plant in Fremont, California.

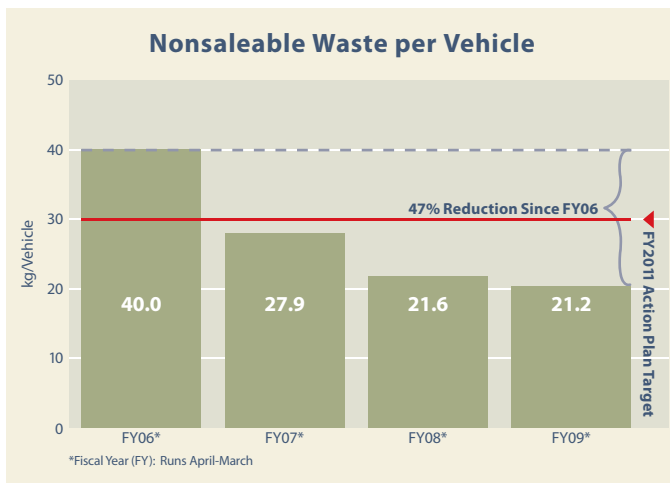
WASTE REDUCTION AND RECYCLING IN OUR OPERATIONS

We work to reduce waste and increase recycling across our operations. Below, we describe our progress against targets in these areas.

Manufacturing

The 5Rs — refine, reduce, reuse, recycle and recover energy — have been the key to waste reduction efforts in our manufacturing plants. We have reduced nonsaleable waste (waste plus materials Toyota pays to have recycled) to 21 kilograms per vehicle. **We continue to achieve our target of reducing this waste to 30 kilograms per vehicle by FY2011 (please see Figure M). (Target 7.1)**

FIGURE M



The following are examples of activities implemented within the past year that have reduced nonsaleable waste:

- Our plant in Buffalo, West Virginia, standardized the process for dispensing form-in-place gasket material (FIPG). The facility optimized and standardized the setting on the FIPG pump level indicator, allowing the pump to remove more material from the pail. Because more of the material is utilized, waste has been reduced by 66% (from 332 kilograms to 113 kilograms). This *kaizen*, or continuous improvement opportunity, is being shared with other Toyota plants worldwide.
- This same plant also implemented a plastics recycling program in 2004. The plant collects and bales plastic and donates it to the Jackson County Development Center. Income from the sale of the plastic benefits the Center's community rehabilitation program for the disabled. This past year, employees conducted a *genchi genbutsu*, or go and see, to trace the path of the plastics from collection and baling to sorting and recycling. The employees learned how to better sort plastics and trash and decreased the amount of trash that goes to the community center.

- Our plant in San Antonio, Texas, decreased paint waste by increasing the transfer efficiency of the paint spray guns in the plastics shop. Increasing the transfer efficiency increases the amount of material that adheres to the part. By increasing the transfer efficiency, we reduce the amount of virgin raw material consumed, which in turn reduces the amount of waste sludge generated.

Through our commitment to the 5Rs, our plants in North America collectively have maintained near-zero waste to landfill (defined as a 95% or greater reduction in waste to landfill from 1999 levels). (Target 7.2)

Cafeteria Waste Recycling

Employees at our assembly plant in Princeton, Indiana, challenged themselves to reduce general trash by 1.6 pounds (0.7 kilograms) per vehicle. After examining the components of their general trash, they found that the paper dishes in the cafeteria waste could not be recycled due to food contamination.

They implemented an on-site paper pulper to convert the dishes into a recyclable material. The pulper shreds the paper dishes and mixes them with water to form a paper slurry. Next, most of the water is removed and the semidry pulp is discharged. The extracted water is reused by the pulper and the pulp is sold to a paper recycling facility where it is used in products like paperboard and cardboard boxes. Since introducing this technology, additional waste streams, such as bathroom paper towels and break room waste, have been identified and incorporated into the pulping process. This *kaizen* reduced general trash by more than two pounds (0.9 kilograms) per vehicle, allowing the plant to exceed its goal.



Employees at our plant in Princeton, Indiana, use a pulper to shred paper dishes from the cafeteria, paper break room waste, and bathroom paper towels and mix them with water to form a paper slurry. The pulp is sold to a paper recycling facility for use in products like paperboard and cardboard boxes.

Nonproduction Facilities

At our nonproduction facilities, including our design centers and our manufacturing headquarters campus, we are working toward our target of zero waste to landfill. (Target 7.3)

Our design and development centers have agreements with hazardous waste haulers so that waste will not be sent to a landfill and whenever possible will be recycled or used for fuel blending.

At our North American manufacturing headquarters campus in Erlanger, Kentucky, and the design and development facility in York, Michigan, we removed everyone’s individual trash cans and installed stations where employees sort their trash into compostable material, noncompostables, paper, cans and bottles. By training people to properly segregate their waste at our Erlanger facility, and providing waste containers at the point of generation, we were able to increase the amount of compostable material by almost 27 tons (537% increase) from FY2008 to FY2009. Compost generated from this material is utilized for landscaping. Paper, cans and plastic bottles are sent to a recycler.

Toyota’s design research facilities in Newport Beach, California, and Ann Arbor, Michigan, have been recycling modeling clay since their inception in 1973. Because recycled clay has a different color and is difficult to work with, the build-up layers of a full-size model include recycled clay. In addition, all scale models consist of recycled clay, saving 50% of new clay use.

Sales and Logistics

Toyota’s sales and logistics division is responsible for transporting parts and vehicles across North America. Two of the largest waste streams from these operations are packaging and cafeteria waste. We manage our environmental impacts by setting targets to reduce the amount of waste we generate, increase our recycling rate, and reduce waste that we send to landfills.

In 2008, U.S. sales and logistics sites in Fremont, Long Beach, San Francisco, Ontario and Torrance won a Waste Reduction Awards Program (WRAP) award. WRAP is administered by the California Integrated Waste Management Board (a state agency). The program recognizes California businesses and nonprofit organizations for their outstanding waste reduction efforts.

Both our vehicle and parts distribution centers in Portland, Oregon, received the City of Portland Recycle Works Award for their waste reduction and recycling programs. The parts distribution center in Cincinnati, Ohio, won the Ohio Governor’s Award for Outstanding Achievement in Environmental Stewardship. This award is given to companies that have an established environmental management system that is integrated into their daily operations, and have aggressive environmental performance goals.

We also look for ways to promote recycling in our communities. For the past few years, several Toyota locations have organized “E-Waste Roundups” on Earth Day for Toyota employees to bring electronic waste from home to be recycled. These roundups give the materials a second useful life, and also keep toxic materials out of landfills.

Recently these roundups have been combined with efforts to collect clothing and eyeglasses. During this year’s events, over 15,000 pounds (6,800 kilograms) of consumer electronics were rounded up at the U.S. sales headquarters in Torrance, California, as well as 4,500 pounds (2,000 kilograms) of clothing and household goods collected for Goodwill Industries. Over 6,100 pounds (2,700 kilograms) of clothes, eyeglasses, batteries, cell phones and other electronic equipment were collected at our Canadian sales headquarters in Toronto, Ontario.



As part of Earth Day, several Toyota locations organized “E-Waste Roundups” for employees to bring electronic waste from home to be recycled. Clothing and household goods were also collected. Almost 25,000 pounds (11,400 kilograms) were rounded up at our U.S. and Canadian sales headquarters events.

Sales

Toyota’s U.S. sales headquarters focuses on *kaizens* that reduce the overall amount of waste produced and increase the recycling rate of the remaining waste. We have a target to recycle 75% of the waste from our U.S. sales headquarters campus in Torrance, California, by FY2010. **In FY2009, we achieved a 71% recycle rate. (Target 7.4)** The campus was able to maintain zero waste to landfill during this time. Additional efforts are being taken to increase recycling to meet the 75% goal.

Toyota’s Canadian sales headquarters has a target to divert 95% of its waste from landfill by FY2010. **We diverted 93% of our waste in 2008, and anticipate achieving the diversion target by FY2010. (Target 7.5)** In addition, we are expanding our waste diversion efforts to our parts distribution centers.

At our Canadian sales headquarters, we also have a target to reduce paper consumption by 25% per person by FY2010 from a baseline year of 2004. **We achieved our target ahead of schedule and so far, have reduced our paper consumption 28% since 2004. (Target 7.6)**

Our Denver, Colorado, regional office implemented a recycling program last year that significantly reduces the amount of waste being landfilled. They also reduced paper usage by changing all their printers to double-sided printing. With Toyota's encouragement, Flying Horse Catering partnered with Colorado State University and the 4-H Club Ranch in Castle Rock, Colorado, to start a food composting service. Flying Horse Catering is now providing this composting service to all its customers, including our Denver office.

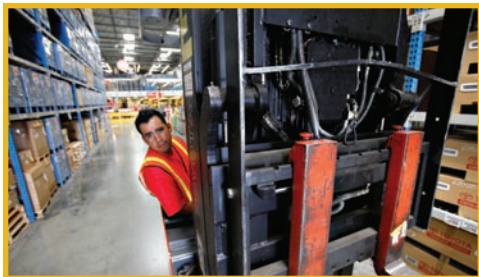
Parts Distribution

Our North American Parts Operation (NAPO) has a target to reduce nonregulated waste sent to landfill by 33% by FY2011, from a FY2006 baseline. This target was exceeded in FY2008, so in FY2009, NAPO revised the target to reduce waste to landfill by 62% by FY2013. **In FY2009, NAPO reduced waste to landfill by 55%. (Target 7.7)**

Our parts center in Hebron, Kentucky, generates approximately 200 pounds (90 kilograms) of soft plastic per day, so they recently began baling plastics for recycling. In order to maximize recycling across the network, the parts center also uses reverse logistics on existing return truck hauls to receive shipments of plastic from our parts distribution centers in Boston, Baltimore, Cincinnati and Kansas City. The plastic is being recycled by a company that makes playgrounds and decking material.

Our parts center in Ontario, California, has 163 pieces of powered equipment (mainly forklifts) that were using petroleum-based hydraulic fluids. In April 2009, the facility completed the switch to vegetable oil. This switch reduces their resource use of petroleum.

The parts center in Ontario, California, switched from petroleum-based hydraulic fluids to vegetable oil in its powered equipment. This reduces their resource use of petroleum.



The parts distribution center (PDC) in Boston partnered with a new waste vendor last year to help increase recycling and decrease waste to landfill. The PDC was recycling cardboard, metal, wood and "wet trash." The new vendor helped them identify additional recycle streams, including catalytic converters, wire harnesses, alternators and aluminum. They worked with the vendor to ensure that recycling collection points were located throughout the facility. As a result of their efforts, landfill waste was reduced by 27,068 pounds

(12,278 kilograms) during the first year. Employees are better educated about recycling, and are now looking for additional opportunities.

Parts Packaging

Toyota's North American Parts Operation uses over 45,000 reusable metal shipping containers in place of cardboard and wood pallets. Returnables are used between selected North American Parts Operation locations and vehicle distribution centers, dealers and suppliers. These returnables are also used increasingly for shipments to Canada and Puerto Rico. The metal shipping containers are returned to the nearest parts center and reused.

In 2008, we launched new returnable module programs with nine suppliers. By implementing this program with one of our carpet mat manufacturers, we reduced the use of large corrugated master packs by 100 per day. Our parts centers in Ontario, California, and Hebron, Kentucky, have also increased the use of metal returnable containers, which reduced the amount of corrugated cardboard used.

As a result of these programs, in FY2009 we avoided the use of 25.9 million pounds (11.7 million kilograms) of wood and 9.4 million pounds (4.3 million kilograms) of corrugated cardboard.

Vehicle Distribution

Our vehicle distribution centers (VDCs) in the U.S. have a target of recycling 90% of their waste by FY2011. In FY2008, we achieved this target. **Our target now is to maintain this recycling rate, which we accomplished in FY2009. (Target 7.8)** In addition, our VDCs have a target disposal rate of 0.25 pounds (0.11 kilograms) or less per vehicle processed.

Our vehicle distribution center in Georgetown, Kentucky, was disposing of all of its food waste at the local landfill. Last year, the site began a composting program. Compost is segregated on site, and then sent to the in-vessel composting machine at the adjacent plant. The plant's compost feeds a large on-site garden that has been helping a charitable organization, God's Pantry, distribute 2.5 million pounds (1.1 million kilograms) of produce. The garden also produces a full crop of pumpkins used at the Toyota Child Development Center for carving at Halloween.



Our vehicle distribution center in Georgetown, Kentucky, sends its food waste to our plant nearby for composting. The plant's compost feeds a large on-site garden that produces a full crop of pumpkins used at the Toyota Child Development Center for carving at Halloween.

The VDC also reduced its hazardous waste by replacing two hazardous chemicals with nonhazardous substitutes. The two chemicals, an adhesive remover and Prep Solve, were replaced with nonhazardous Johnson’s® Baby Shampoo and Unisource’s® Quick Solve Degreaser. The site no longer needs to manage the rags soaked with these chemicals as hazardous waste.

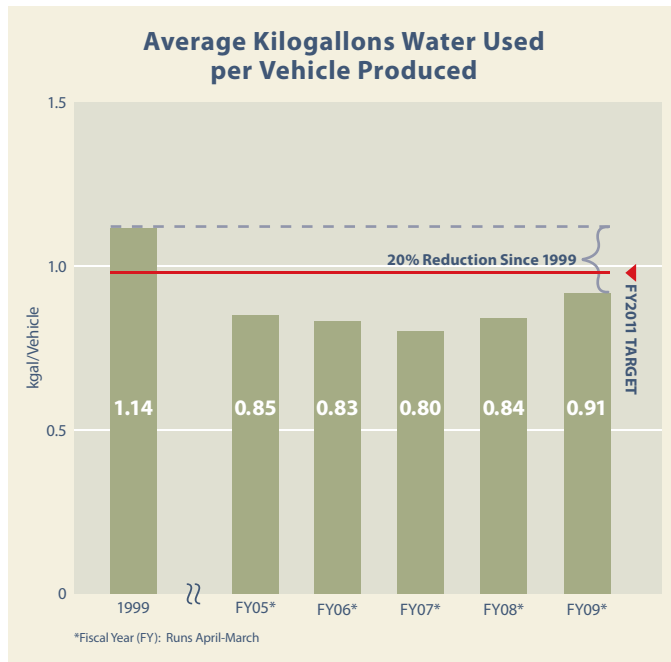
▶ **WATER CONSUMPTION IN OUR OPERATIONS**

Maintaining a clean supply of drinking water is becoming an increasingly difficult challenge. A growing number of experts agree that water shortages are going to be more frequent in the next 10-20 years, especially in the western portion of the U.S., unless we begin to take action now. At Toyota, we are taking steps to conserve water across our operations in North America. Below, we describe our progress against targets in this area.

Manufacturing

We continue to look for opportunities to reduce water usage and reuse water in our manufacturing processes. Our water use per vehicle produced was adversely affected this year because of the decline in production volumes. **However, we are still achieving our target of reducing water use at our North American manufacturing plants to 0.98 kilogallons per vehicle by FY2011 (please see Figure N). (Target 8.1)**

FIGURE N



Again in FY2009 we conducted *kaizen* “water blitzes” at a number of our plants. One of the activities of the blitzes is to map out the process water requirements and process water

discharge characteristics. With this information the plant is able to identify opportunities for water reuse and can benchmark with similar facilities. For example, our plant in Cambridge, Ontario, was able to reduce its final stage rinse water by 75% because of *yokotening*, or transferring, process improvement opportunities from our joint venture plant in Fremont, California. This resulted in a reduction of over 20 million gallons (75,700 cubic meters) per year in water consumption at our Cambridge plant. No- and low-cost *kaizens* like this were a focus of the water blitzes because of economic conditions.

Reusing Process Water

Scrubbers at our casting plant in Troy, Missouri, use city water to capture emissions from the casting process. Because the scrubbers do not have a rigid water quality requirement, the plant investigated reusing discharge water from other processes. It was determined the reject and quench water from the reverse osmosis process could be reused in the scrubber. This reduces the amount of city water used in the scrubber and reduces wastewater treatment costs. Currently 500,000 gallons (1,890 cubic meters) per year are being reused, and we are investigating expanding the project to reuse almost two million gallons (7,570 cubic meters) per year.

Our joint venture plant in Fremont, California, studied the flow and use of city water in the paint shop and identified two opportunities for *kaizen*: the city water used in the paint booth and the central humidification system. The paint shop diverted reject water from the central humidification system to the paint booth track water and the paint booth scrubber systems. By adjusting the flow control during booth cleaning, the paint shop reduced the need for additional water in the booth. Since the completion of these *kaizens*, the plant has saved 11.6 million gallons (43,910 cubic meters) of water to date.

Reducing Process Water Usage

In Huntsville, Alabama, minerals in the city water supply were causing calcification in the cooling towers. Our plant purchased a water softener that removes those minerals before they enter the cooling tower. This has reduced water consumption by about 50%, because the plant has to “blow down” — or clean the cooling towers — less frequently to flush out the mineral buildup.

Our Princeton, Indiana, plant implemented a *kaizen* to treat municipal water with an existing demineralization system that allowed us to eliminate three million gallons (11,360 cubic meters) per year in filter backwash water. The resulting water has a lower mineral content than the municipal water, making cooling towers operate more efficiently. Future reductions are expected to exceed an additional 10 million gallons (37,850 cubic meters) per year.

Sales and Logistics

While water consumption is not our most significant environmental impact, we are starting to measure it and find ways to reduce it. **In FY2008, we completed our evaluation of water consumption at all U.S. sales offices and logistics sites. (Target 8.2a)** We have a target to maintain our water consumption at 2008 levels, and to increase the use of recycled water.

By adjusting watering frequency and times, our sales and logistics sites in the U.S. have reduced water use by 13% over the previous year. (Target 8.2b) These improvements are largely due to the installation of high efficiency water fixtures, reducing the use of landscape irrigation, and using recycled water for toilets and landscaping at our sales headquarters campus in Torrance, California. Nonpotable water is also used for irrigation at other facilities, including the parts distribution center in Chicago, the Denver and Los Angeles regional offices, the parts center in Ontario, California, and the Inland Empire Service Training Center in Rancho Cucamonga, California.

Over the past year, we initiated a recycled water purchase program with the city for our parts center in Ontario, California. This location is one of the largest industrial/commercial water users in the city. We are actively searching for reclaimed/recycled water use programs at our other logistics sites.

To reduce our water consumption at our sales headquarters campus in Torrance, California, we installed high efficiency water fixtures, reduced the use of landscape irrigation, and used recycled water for toilets and landscaping.



Our Canadian facilities are on track for meeting our target to reduce water consumption by 10% by 2010 from a baseline of 2004. (Target 8.3) Irrigation of the grounds is the most significant contributor to water consumption. We installed new moisture sensors, reconfigured all of the watering zones, and replaced the sprinkler heads with more efficient units at our head office. As a result, we saw a reduction in water consumption in 2008. We continue to look for opportunities to improve our monitoring and further reduce our usage, so that we can maintain our current consumption level.

LOOKING AHEAD

Over the next two years, one of our biggest challenges to meeting our action plan targets is to find ways to manage our water consumption.

TOYOTA | substances of concern

A Senior Technician in the Materials Engineering Department at the Toyota Technical Center performs a water extraction smell test to predict smell of parts in the vehicle cabin.



“Through partnerships with our suppliers and collaboration with Toyota affiliates, we have virtually eliminated SOCs in our vehicles built in North America.”

– Shigeki Terashi, President
Toyota Technical Center



SUBSTANCES OF CONCERN EAP TARGETS

- 9.1 ● Reduce the use of mercury, lead, cadmium and hexavalent chrome to *de minimis* levels
- 9.2 ○ Identify and solve challenges toward effective management of additional SOCs
- 9.3 ○ Facilitate SOC tracking and verification and support the development of SOC alternatives
- 9.4 ○ Develop and implement alternative materials to reduce vehicle cabin VOC levels

TO MAKE MOBILITY SUSTAINABLE, we must minimize all aspects of the vehicle's environmental footprint. This includes reducing substances of concern (SOCs) in Toyota, Lexus and Scion parts and accessories.

In North America, our SOC work focuses on the phase out of four heavy metals — mercury, cadmium, lead and hexavalent chrome. In addition, Toyota is working to reduce volatile organic compounds (VOCs) in the automobile cabin that may have health effects.

▶ REDUCING SOCS

In 2004, Toyota made a voluntary commitment to minimize SOCs. **Through partnerships with our suppliers and collaboration with Toyota affiliates, we have successfully reduced SOCs in North America to *de minimis* levels as outlined in the European Union Directive on End-of-Life Vehicles. (Target 9.1)**

As part of our overall SOC strategy, we formed a Toyota cross-affiliate working group. **This group surveys emerging chemical legislation to identify where alternatives will be needed. (Target 9.2)** The group also engages related government bodies to provide insight on the most effective means of managing vehicle SOCs.

Tracking and verification of SOC content is accomplished via industry-wide and internal systems. These tools allow us to confirm that parts and accessories meet Toyota's global SOC standard. (Target 9.3) In Japan and North America, our researchers are investigating and developing alternatives for specific SOCs. Current efforts are focused on the development of an electronics solder that is lead free.

▶ REDUCING CABIN VOCS

Toyota has been researching methods to reduce VOCs in vehicle cabin interiors. VOCs such as aldehydes cause the “new car smell” and may have health effects, including nose and throat irritation.

In North America, we are working with other auto manufacturers toward one global standard to test VOC emissions in vehicle cabins and at the component level. Currently two standards are commonly used — voluntary standards set by the Japan Automobile Manufacturers Association (JAMA) and a European ISO standard which is under development. Toyota believes the industry should unify to one global standard and the JAMA standard is more representative of compounds readily found in vehicle cabins.

Our parent company in Japan has challenged Toyota in North America to be in compliance with the voluntary JAMA standards by 2011. **Our North American research and development staff is working on low VOC technologies that will ensure our compliance with these standards by 2011. (Target 9.4)**

Several interior parts use tape as a secondary attachment method for sealing and to reduce unusual interior noise. We developed new tape systems to reduce toluene emissions. Examples of these applications are ethylene propylene polymet seals used under the instrument panel and felt tape used for noise vibration and harshness (NVH) purposes. The new technology reduces the level of toluene emitted by more than 90%. This tape is now being used in certain North American models.

LOOKING AHEAD

Over the next two years, one of the biggest challenges we face in meeting our action plan targets is to identify and manage additional SOCs as updates are developed for the European Community's REACH legislation and other chemical regulations.

TOYOTA | air quality

The investment in a water-borne paint system at our plant in Princeton, Indiana, reinforces our goal to reduce emissions from our painting operations and our overall commitment to protecting the environment.



“Our commitment to improving air quality is reflected in our investments in technology innovations that reduce emissions from making and driving our vehicles.”

— Kevin Butt, General Manager, Chief Environmental Officer
Toyota Motor Engineering & Manufacturing North America, Inc.



AIR QUALITY EAP TARGETS

- 10.1 ● Meet all applicable vehicle emissions standards
- 10.2 ○ Maintain leading level in-use vehicle emissions compliance
- 10.3 ○ Promote the development of ultra low emissions technologies and introduce the lowest emitting vehicles
- 11.1 ● Reduce body painting VOCs to an average of 14.0 g/m²
- 11.2 ● Determine a VOC baseline and set plant targets for vehicle plastics in FY2007

AS A VEHICLE BURNS FUEL, the engine produces exhaust that contains particulate matter, nitrogen oxides and other pollutants. This contributes to smog, particularly in urban areas where traffic is heaviest. Our commitment to sustainable mobility requires that we do our part to address this air pollution. We work hard to make our vehicles run cleaner and more efficiently. We are dedicated to the development of ultra low emission technologies, not just for hybrids and alternative fuel vehicles, but for our gasoline fleet as well.

As part of our long-term vision, we aim for zero emissions from our vehicles and our production processes. In terms of our production processes, our painting operations generate volatile organic compounds (VOCs) that can photochemically react in the atmosphere to form ground level ozone, a primary component of smog.

As vehicles move through our plants, Toyota works to regularly implement and improve practices and technologies that reduce these VOC emissions. We made major investments in water-borne painting systems at two of our plants over the past couple of years, even as we tightened our belts overall. This is representative of our long-term commitment to operating sustainably in North America.

Our targets on vehicle tailpipe emissions and VOC emissions from manufacturing are listed above, and described in this chapter.

► TAILPIPE EMISSIONS

As the number of vehicles on the road increases, Toyota continues to pursue technology innovations that reduce tailpipe emissions. These technologies are applied to our full vehicle lineup. Our gasoline vehicles meet strict tailpipe emissions standards across North America.

Typically, manufacturers and government officials discuss vehicle emission levels in the context of certification levels. Both California and the U.S. and Canadian federal governments have vehicle emission programs, called LEV II and Tier 2, respectively. These programs are structured similarly, requiring manufacturers to average their entire vehicle fleet emissions to meet a prescribed set of emission standards for nonmethane organic gas (NMOG), carbon monoxide (CO), nitrogen oxides (NO_x), particulate matter (PM), and formaldehyde (HCHO).

For 2009, California requires a manufacturer's fleet average to meet a NMOG standard of 0.038 grams per mile for cars, and 0.047 for trucks. The federal program requires a manufacturer's fleet average to meet a Tier 2 NO_x standard of 0.07 grams per mile. A certification level is then assigned to each vehicle, depending on its emission levels. The certification levels in California are referred to as LEV (Low Emissions Vehicle), ULEV (Ultra Low Emissions Vehicle), SULEV (Super Ultra Low Emissions Vehicle), ZEV (Zero Emissions Vehicle), and AT-PZEV (Advanced Technology Partial Zero Emissions Vehicle). The federal program refers to each incremental level as a "Bin" — numbering one through eight. A critical component of these programs is the reduced sulfur levels in gasoline that will be necessary to achieve further reductions in vehicle emissions over time.

Toyota annually complies with both the California and federal programs, and we once again met the standards for the 2009 model year in both the U.S. and Canada. (Target 10.1) We have consistently certified more vehicles than the respective programs require. All Toyota, Lexus and Scion passenger cars currently sold in North America, except for the Lexus SC 430, are rated ULEV or better. For vehicles offered in the 2009 model year, 21% of all Toyota, Lexus and Scion cars and 5% of trucks are certified to SULEV or better. Our SULEV vehicles include Toyota's Prius, Camry PZEV, Camry Hybrid and Highlander Hybrid, and Lexus' RX 450h, LS 600h, GS 450h and HS 250h. In addition, Toyota's Industrial Equipment Division 8-series forklift truck, sold in Canada, voluntarily meets the 2010 California Air Resources Board (ARB) standards for tailpipe emissions.

FIGURE O

ACEEE Greener Choices 2009



Toyota cars comprise 3 of the 12 vehicles in the "Greenest Vehicles of 2009" list compiled by the American Council for an Energy-Efficient Economy. The three vehicles are Prius, Yaris and Camry Hybrid. Vehicle rankings are based on tailpipe emissions, fuel economy ratings and emissions of gases that cause global warming. Please visit www.greencars.com for more information.

¹ A listing with two emission standards (e.g., Tier 2, Bin 3/SULEV II) denotes a single vehicle carrying both a federal and California emission certification. Green Scores for such listings reflect the cleaner of the two certifications. 2009 EPA Ratings. Actual mileage will vary. All vehicles are 2009 Model Year.

In-Use Compliance

Toyota has a proven track record of continuous in-use compliance. Toyota cars contribute to improving air quality by complying with emission requirements for up to 150,000 miles (241,000 kilometers). Both EPA and the California Air Resources Board staff have reviewed and approved the conduct of Toyota's government mandated in-use testing programs and have assessed them with very favorable comments. **With over 1,000 vehicles tested in these government programs since 2000, Toyota's emission compliance rate continues to be a leader among major industry manufacturers. (Target 10.2)**

Ultra Low Emission Technologies

By introducing the latest design technologies and leading edge electronic control technologies, Toyota has achieved high fuel efficiency and cleaner exhaust emissions. **(Target 10.3)** Toyota engine design shifted strategically with these twin aims as targets. Toyota continues to use the base strategies popularized in the late twentieth century: namely catalytic converters and electronic fuel injection, as well as oxygen and air/fuel sensors and dual-overhead cams. Several newer technologies are routinely used on Toyota vehicles today, often in parallel, to achieve cleaner vehicle emissions.

In the spirit of *kaizen*, Toyota has adopted and continues to adopt other technological strategies for cleaner vehicles. Variable valve timing (VVT) improvements continue. New engines also have reduced mechanical friction. In addition, Toyota employs direct fuel injection in some gasoline engines, a technique that provides both improved efficiency and cleaner exhaust emissions.

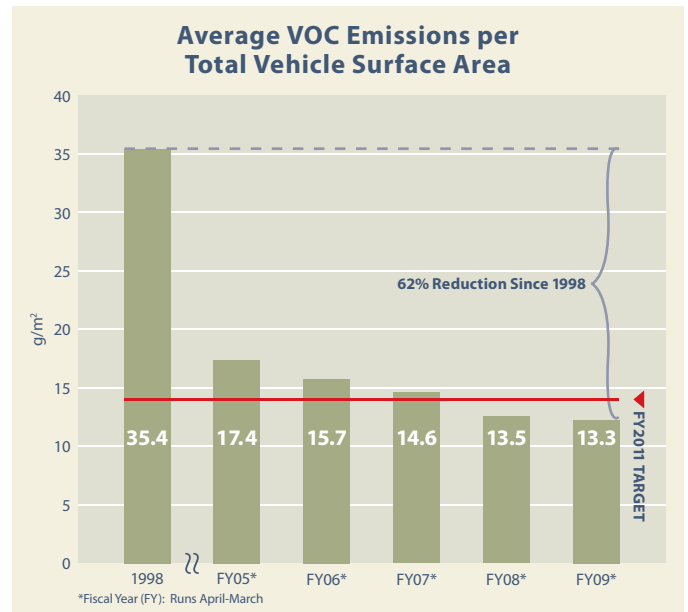
VOC EMISSIONS IN MANUFACTURING

Activities associated with automobile manufacturing result in VOCs and other emissions released to the atmosphere. Within our manufacturing facilities, the painting operations generate the majority of our VOC emissions.

VOCs From Painting Vehicles

We measure VOC emissions from vehicle painting operations in grams of VOCs emitted per square meter of total vehicle surface area. We continue to achieve our five-year target to reduce VOC emissions from our painting operations to a corporate average of 14.0 grams per square meter by FY2011. **(Target 11.1)** We are currently at 13.3 g/m² (please see Figure P below).

FIGURE P



Toyota in North America is participating in a VOC working group led by our parent company in Japan. This group benchmarked all Toyota paint shops worldwide to determine how the shops are operated. For example, the group looked at paint cleaning thinner recycling efficiencies. By comparing practices from our worldwide painting operations, Toyota has identified best practices that are then *yokotened*, or transferred, to other plants. Implementation improves performance throughout worldwide operations and results in reduced VOC emissions. We are currently developing a regional working group here in North America to improve management of VOC emissions and find reductions.

The following are examples of activities over the past year that have reduced VOC emissions from vehicle painting:

- Our joint venture plant in Fremont, California, introduced a hood lift assist in the paint shop. This change eliminated the need for a metal rod used to support the hood in an open position during painting. This process change also eliminated a solvent parts washer used to clean these rods. A second parts washer was eliminated as *muda* — factors or elements that increase costs but do not add value — from the mix room. The elimination of the parts washers reduces VOC emissions.
- At our plant in San Antonio, Texas, the paint shop has reduced the amount of solvent used to clean the robot lines at the end of a shift. Batch painting (grouping vehicles that are the same color during painting) has reduced the number of times the lines are flushed from every truck to an average of every 2.3 trucks. This results in approximately a 42% reduction in solvent usage in the automatic zones of the paint booth.

Water-Borne Paint Technology

Our assembly plant in Princeton, Indiana, made a major investment to convert a paint booth from a solvent-borne painting system to a water-borne system. When production was reduced last year, employees shut down one of the top coat paint booths. They converted that booth to a water-borne system and recently started running all current production through it. Now they are in the process of converting a second solvent-borne paint booth over to a water-borne system. When complete this conversion is projected to reduce VOC emissions by 27%.



Conversion of the paint booths at our plant in Princeton, Indiana, to water-borne systems is expected to reduce VOC emissions by 27%.

Our plant in Woodstock, Ontario, was constructed with a water-borne painting system, and began producing vehicles in 2008. The investment in this technology at both locations during an economic downturn reinforces Toyota's goal to reduce VOC emissions from our painting operations and our commitment to the environment.

VOCs From Painting Vehicle Plastics

Each of our plastics paint shops is tracking and reporting VOC performance on a monthly basis. While we do not have an overall North American plastics VOC target, the five plants with plastics shops have collected data for a year, and **all have a VOC target for exterior plastics fascia, which consist of mostly bumpers. (Target 11.2)** These plants are tracking their performance internally against these targets.

LOOKING AHEAD

Over the next two years, the biggest challenge we continue to face in meeting our action plan targets is to dedicate ample efforts into developing technologies that anticipate the market's expectation for lower tailpipe emissions.

TOYOTA

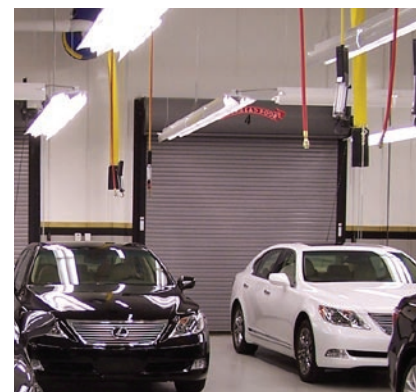
environmental management

We incorporated many sustainable features into our new engineering design and safety test facility in York Township, Michigan. We are registered with the U.S. Green Building Council and are awaiting LEED certification.



“*Kaizen* — or continuous improvement — is at the heart of everything we do at Toyota. Environmental management allows us to look for areas of improvement and measure progress.”

– Dian Ogilvie, Senior Vice President & Secretary
Toyota Motor North America, Inc.



ENVIRONMENTAL MANAGEMENT EAP TARGETS

- | | | |
|---|--|---|
| <p>12.1 <input type="checkbox"/> Introduce Eco-VAS on all new or redesigned vehicle models</p> <p>13.1 <input type="checkbox"/> Minimize environmental risks and achieve leading levels of environmental performance</p> <p>13.2 <input checked="" type="checkbox"/> Maintain ISO 14001 certification at U.S. logistics facilities</p> | <p>13.3 <input checked="" type="checkbox"/> Achieve ISO 14001 registration at two Canadian logistics facilities by the end of 2007</p> <p>13.4 <input type="checkbox"/> Zero annual notices of violations and complaints</p> <p>13.5 <input type="checkbox"/> Consider LEED® certification for new buildings/remodeling</p> <p>13.6 <input type="checkbox"/> Develop eco-plant plans for all new production facilities</p> | <p>14.1 <input checked="" type="checkbox"/> Update Toyota environmental requirements for U.S. plant suppliers</p> <p>14.2 <input checked="" type="checkbox"/> Implement U.S. Dealer Environmental Training Program</p> <p>14.3 <input type="checkbox"/> Achieve LEED certification at eight dealerships and a Certified Service Center by FY2010</p> |
|---|--|---|

ENVIRONMENTAL MANAGEMENT SYSTEMS (EMSs) in place at our facilities provide a framework for identifying areas for improvement and measuring progress toward performance targets. This framework helps us manage our environmental footprint and moves us closer toward our long-term vision of operating in harmony with the environment.

When we suspended production during the economic downturn, our EMSs enabled our employees to find and implement process improvements and low-cost *kaizen* opportunities. Our employees used their expertise and creativity to find ways to reduce our use of energy and water, increase recycling, and reduce air emissions. We described many of these in other chapters to demonstrate progress against our five-year Environmental Action Plan.

We could not have achieved all of this alone. We work with our business partners in order to attain the best results. Our suppliers and our dealers play a large role in the success of our environmental initiatives.

Our targets in the areas of vehicle life cycle assessment, environmental management systems, and environmental management with our business partners are described in this chapter.

▶ VEHICLE LIFE CYCLE ASSESSMENT

Eco-VAS is a comprehensive system that Toyota's parent company in Japan developed to measure and reduce the environmental impact of a vehicle across its entire life cycle — from parts and vehicle manufacturing to driving and maintenance to the ultimate recycling and disposal of the vehicle. Our parent company originally envisioned that the Eco-VAS system would be implemented globally, but other more specific environmental and regulatory requirements have consumed our attention. **As a result, although we employ life cycle thinking as part of future North American product planning and development, we have suspended our target to implement Eco-VAS on all new or redesigned vehicle models (Target 12.1)**

▶ ENVIRONMENTAL MANAGEMENT SYSTEMS

Toyota's EMSs help us check that our activities comply with all applicable federal, state, provincial, territorial and local requirements, as well as our own internal requirements. All of Toyota's plants and logistics sites, and even some of our office complexes, have an EMS.

The training our employees receive in EMS awareness and in functional topic areas such as hazardous waste disposal is critical to the continued success of the EMS, and to our ability to achieve leading levels of environmental performance. (Target 13.1) A number of our locations received awards last year in recognition of their environmental excellence. Our assembly plant in Princeton, Indiana, received its fifth Governor's Award and the Evansville Chamber of Commerce Award for Environmental Excellence. Our plant in Cambridge, Ontario, was named one of "Canada's Greenest Employers in 2009" by Mediacorp Canada Inc.

Eight of our logistics centers underwent ISO 14001 recertification audits for their EMSs last year; all were recertified with no findings of major nonconformities. Our plants in San Antonio, Texas, and Woodstock, Ontario, both achieved ISO 14001 certification of their EMSs in May 2008; **and we have maintained ISO 14001 certification/ registration at all other North American manufacturing plants and logistics sites. (Targets 13.2 and 13.3)**

Compliance

Our North American logistics sites achieved their eleventh consecutive year with no hazardous materials/dangerous goods violations.

Toyota received no complaints, but did receive notices of minor violations that did not result in adverse impacts to the environment. (Target 13.4) These included a wastewater issue at our Bodine location in St. Louis, Missouri, and a notice to comply related to a continuous emission monitoring system (CEMS) reporting requirement at our TABC plant in Long Beach, California.

Toyota and several other companies have been named as potentially responsible parties (PRPs) at a waste management site in Calvert City, Kentucky. Toyota is providing financial assistance to the cleanup.

Building Better Plants and Offices

We consider LEED® (Leadership in Energy and Environmental Design) during new construction and when remodeling our facilities. **(Target 13.5)** LEED is a point-based program administered by the U.S. Green Building Council that sets standards for “green” buildings. It promotes a whole-building approach to sustainability by recognizing performance in key areas of human and environmental health. We have a number of sites that have been LEED certified.

The Lexus Florida Training Center in Miramar, Florida, has been awarded Gold LEED Commercial Interiors (CI) certification, becoming the first LEED CI certified service training facility for Lexus and the first in Florida.

Through Toyota’s Process Green initiative, the Lexus Florida Training Center incorporated sustainable building design features and developed innovative environmental practices to achieve the Gold LEED certification. For example, the center uses Green Seal-certified products for housekeeping that do not contain harmful chemicals and are bought in bulk to reduce wasteful packaging. Other new practices include a comprehensive, site-specific waste reduction/recycling program to enable the facility to achieve zero waste to landfill, and a “Green Pest Control” system to care for the facility. The Center has also committed to purchasing 100% of the electricity needed for the first two years of operation from renewable sources.

The Lexus Florida Training Center in Miramar, Florida, is the first training facility for Lexus to receive LEED certification. The site was awarded Gold LEED for Commercial Interiors.



Our new engineering design and safety test facility in York Township, Michigan, opened in late summer 2008. The building site — a former Brownfield — was carefully chosen to minimize disruption to natural habitat. We retained 150 existing trees and planted more than 3,500 new trees and 8,800 native perennials. We protected natural streams and ponds with bioswales to manage silt and clean stormwater while excess parking lot and roadway stormwater runoff is used to

irrigate the grounds. We installed waterless urinals and variable flush toilets to save hundreds of gallons of water every day, and incorporated an under-floor air system that is 8% more energy efficient. The facility has registered with the U.S. Green Building Council, and we are awaiting LEED certification.

Eco-Plant Planning

We develop an eco-plant plan before beginning construction on a new plant or major expansion. These plans help us construct plants using best available technology to minimize the environmental footprint of our operations. The plan also includes performance targets for when the plant begins operating that address energy, VOCs, waste and water, and consider best practices and local conditions. We audit facilities during and after construction to check that the elements of the plan are implemented. **Over the past year, we have been conducting audits to ensure that the Woodstock plant is meeting its eco-plant plan, and are continuing to implement the plan at this location. (Target 13.6)**

Operating Sustainable Plants

“Sustainable Plant” activities make efficient use of resources and harmonize our operations with natural surroundings. Toyota aims to create and operate such production sites worldwide with the following three perspectives in mind:

- Achieving groundbreaking environmental performance by introducing innovative technology and *kaizen* activities.
- Reducing CO₂ by using renewable energy (such as biomass) and natural energy sources (such as solar power and wind power).
- Contributing to the local community by planting trees at plants and in local communities.

Our plant in Huntsville, Alabama, was identified as a model sustainable plant. Its sustainable plant activities included planting over 2,000 trees as part of a reforestation project in a washed out area of the property, and enhancing environmental awareness in Huntsville through the construction of the Community Pavilion for Environmental Education at the Wade Mountain Greenway.

► ENVIRONMENTAL MANAGEMENT WITH OUR BUSINESS PARTNERS

Toyota works closely with our business partners, including suppliers and dealers.

Suppliers

Toyota’s Green Supplier Guidelines were originally created in 2000, and updated in January 2007. (Target 14.1) The Guidelines emphasize that Toyota expects its suppliers to be in compliance with applicable laws, regulations and social norms. Suppliers are also asked to go beyond legal and social requirements and to undertake activities that support Toyota’s environmental goals.

Toyota works with its suppliers to help them improve their environmental performance. For example, in FY2009 a supplier came to our North American manufacturing headquarters in Erlanger, Kentucky, to benchmark our EMS and best practices. The supplier was especially interested in learning more about how we map our waste streams, how we manage universal waste, and how we conduct treasure hunts to look for *kaizen* opportunities. They also learned about our five-year environmental action plan process and our annual North America Environmental Report process.

Dealer Training

There are over 1,800 Toyota, Lexus and Scion dealerships in the U.S., Canada and Mexico. As key business partners, we provide them with resources to help them manage service-related waste streams and comply with environmental and safety regulatory requirements. **We use a number of resources to provide environmental training programs to our dealers. (Target 14.2)**

For example, we revamped our Web-based Environmental Assistance Network and launched the C.L.E.A.N. Dealer Web site (Community Leadership Environmental Assistance Network) at www.cleanddealer.com. We expanded the scope of the Web site to include environmental, health and safety resources as well as transportation-related information. Since the launch of C.L.E.A.N. Dealer, activity on the Web site has increased by nearly 50%. We also launched a dealer training program called HazMat U (www.hazmatu.org/tms). This program, now required for all Toyota and Lexus dealers, was developed by compliance specialists from major automotive manufacturers under the direction of the North American Automotive HAZMAT Action Committee (NAAHAC).

We also launched the Toyota Recycling and Environmental Awareness (TREA) program, a Web-based, voluntary nonhazardous recycling program for dealers. This program includes a partnership with a national waste management firm that can provide recycling services to dealers, as well as “right sizing” audits to ensure the proper size waste bins are being used.

Building Green Dealerships

We work with Toyota and Lexus dealerships to promote green building practices. Toyota’s Image USA II program has developed a dealer model lab with architectural standards that include many green design elements.

We are working toward achieving LEED certification at eight dealerships and a certified service center by FY2010. **So far, four dealerships are completed and LEED certified. Two dealerships are finishing construction and will be submitting to the U.S. Green Building Council (U.S.G.B.C) for final review. Two additional dealerships are complete and awaiting certification from the U.S.G.B.C. (Target 14.3)**



The Mark Miller Toyota/Scion dealership in Salt Lake City, Utah, achieved Gold LEED certification. The dealership has a café on site so that employees do not have to drive to buy something to eat.

The Mark Miller Toyota/Scion dealer in Salt Lake City, Utah, achieved Gold LEED certification for its building renovation. Some of the green elements incorporated into the facility include:

- A cistern system to collect and store rainwater and air conditioning condensation for irrigation and for washing cars.
- High-speed glass service bay doors to reduce heat and cold loss from service areas while providing additional light to the interior.
- Recycled materials used in tile, carpeting, wood paneling and cubicles including the use of recycled windshield glass used as carpet backing.
- A full-service café as well as a fuel farm on-site so employees do not have to drive to get something to eat or to fuel their cars.

The Lexus Las Vegas dealership in Nevada has applied for LEED certification, and is expecting a Gold award. Lexus of Las Vegas went from recycling less than 5% by volume of their waste stream to recycling well over 75% of their waste stream. The dealership recycles oil, car batteries, tires, scrap metal, cardboard, office paper, miscellaneous paper, glass, plastics, aluminum cans, landscape waste, pallets, and fluorescent bulbs. They achieved a 97% reduction in the volume of waste sent to landfill, largely because prior to the implementation of recycling, cardboard boxes were not flattened and consequently took up a large volume in each dumpster.

Dealership employees volunteered more than 4,000 hours to restore over four acres of land at the Springs Preserve in Las Vegas. The Springs Preserve is a 180-acre cultural and historical attraction consisting of wetlands, restored desert habitat, desert gardens, the Nevada State Museum, educational trails, and building centers dedicated to environmental and historical education specific to the Las Vegas valley.

LOOKING AHEAD

Over the next two years, we will be developing our next five-year environmental action plan and setting more challenging targets to achieve our long-term vision of becoming number one in the world, and number one in the region in environmental performance.

TOYOTA

cooperation with society

Volunteers, including many from Toyota's New York office, planted trees at Gateway National Park in the Jamaica Bay area of Brooklyn during a *TogetherGreen* Volunteer Day in the spring of 2009.



“Toyota supports environmental programs that educate and mobilize people to reduce the collective footprint of individuals and corporations.”

– Yoichi Tomihara, President & Chief Executive Officer
Toyota Canada Inc.



COOPERATION WITH SOCIETY EAP TARGETS

- | | |
|---|--|
| <p>15.1 ○ Strengthen Toyota's North American philanthropy efforts that contribute to development of education and preservation of biodiversity</p> <p>15.2 ● Toyota Canada to maintain 25% of total philanthropic contributions toward environmentally focused programs</p> <p>15.3 ○ Promote environmental research aimed at CO₂ emissions reductions</p> <p>16.1 ○ Increase the transparency of Toyota's environmental plans, activities and performance</p> | <p>17.1 × Launch at least 100 additional remanufactured parts applications per year</p> <p>17.2 ● Expand the availability of environmentally preferable paper in U.S. sales and marketing operations</p> <p>17.3 ○ Encourage the safe and environmentally appropriate disposal of tires by dealers</p> |
|---|--|

TOYOTA'S GUIDING PRINCIPLES put people and the environment at the heart of what we do. We strive for harmony with the environment through our interactions with the communities in which we live and work. We strive to build close and cooperative relationships with a wide spectrum of individuals and organizations involved in environmental education and stewardship.

We also recognize that the technical skills and motivation of our employees are invaluable to our success, not just in terms of vehicle sales, but also in terms of being a company that is admired as a good corporate citizen. True harmony with the environment means that we share our knowledge, our skills and our time.

Our employees proved valuable assets while our assembly lines were inactive. They conducted community service activities such as cleaning up public spaces, conducting energy audits, and renovating community centers. An example is the city-wide cleanup of San Antonio, Texas, that involved 340 employees from our plant, vehicle distribution center, and seven of our on-site suppliers. Over 17,000 hours of labor went toward cleaning 17 parks and city facilities over a two-week period. In recognition of these efforts, the United Way awarded Toyota's San Antonio plant a Community Spirit Award.

This chapter describes our environmental philanthropy and research support, how we communicate our environmental plans and activities to our stakeholders, and our support for efforts that contribute to a recycling-based society. Our targets in these areas are listed above, and described in this chapter.

▶ CONTRIBUTIONS TO SUSTAINABLE DEVELOPMENT EFFORTS

Our corporate philanthropy focuses our environmental commitment in three principal areas: environmental stewardship, environmental education and environmental research partnerships. **We partner with nonprofit and community organizations, schools, universities and other businesses to support programs that help make our world a better place. (Target 15.1)** We believe in supporting programs with long-term sustainable results. Our contributions take many forms, including vehicle donations, funding, consulting and volunteer time.

In Canada, more than 25% of our philanthropy in 2008 was focused on environmental programs. (Target 15.2)

Environmental Stewardship

We aim to protect, preserve and improve the natural environment, and to establish systems by which people in the community will carry this work forward to coming generations. We partner with the following organizations to contribute to the preservation of biodiversity through funding and volunteering our time.

National Audubon Society and TogetherGreen

As we reported last year, Toyota pledged \$20 million in 2008 to the National Audubon Society to fund the *TogetherGreen*[™] project in the U.S. for the next five years.

TogetherGreen includes three program components: Innovation Grants, Conservation Fellowships and Volunteer Days. In October 2008, the program awarded \$1.4 million in Innovation Grants, collaborative projects that contribute to habitat, water and energy conservation.

In November 2008, Toyota announced the first recipients of the *TogetherGreen* Fellowships. The 40 recipients include professors, Ph.D. candidates, ecologists, an artist, professional conservation practitioners, and community organization members from across the U.S. This diverse group of leaders receive specialized training in conservation planning and execution. Recipients will serve as guides to educate communities on the environment, reaching diverse populations that have not traditionally been engaged in conservation activities.

During Volunteer Days held over the past year, thousands of staff, volunteers and participants donated tens of thousands of hours of volunteer time. Hands-on opportunities available for participants in states across the country included removing invasive plant species, planting trees, and species monitoring and inventorying. To date, 9,000 volunteers have logged almost 43,000 hours of volunteer time.

A spring 2009 *TogetherGreen* Volunteer Day was held at Gateway National Park in the Jamaica Bay area of Brooklyn. During the day, volunteers, including many from Toyota's New York office, planted 1,000 trees at 12 planting sites. This one-day event brought together two of Toyota's environmental partners: our signature program with Audubon, *TogetherGreen*, and MillionTreesNYC, which is managed by the New York Restoration Project (NYRP) and the city of New York.

In December, a new component of Toyota's *TogetherGreen* alliance with Audubon, *Pennies for the Planet*, was launched to inspire children nationwide to support critical conservation projects. Children learned about and collected over \$26,000 for three *Pennies for the Planet* projects: *Save Puffins* brings colorful seabirds back to an island off coastal Maine; *Protect an Ancient Swamp Forest* preserves a swamp in South Carolina; and *Save Sagebrush Habitat* protects a vast sagebrush habitat in Wyoming.

For more information please visit the Web site at www.togethergreen.org.

MillionTreesNYC

MillionTreesNYC is a partnership between Mayor Michael Bloomberg's PlaNYC initiative, the New York City Department of Parks and Recreation (Parks Department), and the New York Restoration Project (NYRP), founded by Bette Midler. NYRP works with private homeowners, landowners and managers, and community partners to assess planting opportunities.

Environmental benefits for expanding New York City's urban forest include reduced stormwater runoff, flooding, and erosion, resulting in cleaner water; lower summer air temperatures and, therefore, lower energy costs; reduced smog levels; and combating global warming. An added benefit is that the trees' aesthetic beauty increases property values.

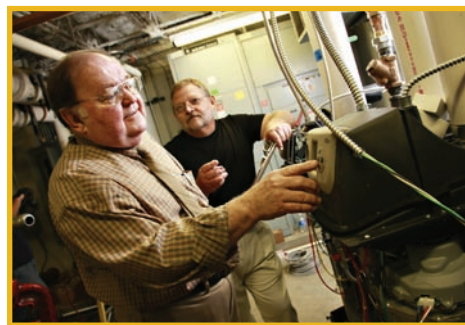
MillionTreesNYC has set the ambitious goal of planting and caring for one million trees by 2017 to increase the city's canopy cover from 24% to 30%. In addition to parks and other public, institutional and private lands, six target Trees for Public Health neighborhoods — Hunts Point and Morrisania, Bronx; East Harlem, Manhattan; Far Rockaway, Queens; East New York, Brooklyn; and Stapleton, Staten Island — were selected for planting based on fewer than average number of trees and higher rates of asthma and childhood obesity.

Since the launch of MillionTreesNYC in October 2007, almost 250,000 trees have been planted.

Energy Conservation Partnership With Local Government

Our plant in Georgetown, Kentucky, created an Energy Conservation Partnership with the Scott County government and the City of Georgetown. The goal of the program is to create a sustainable energy management system with cost and environmental benefits, using donated employees' hours. Steps in the program include conducting an assessment, identifying reduction activities, implementing reduction methods, and developing a sustainability plan.

The initial focus has been on the Scott County Courthouse and the City of Georgetown's City Hall. Energy leakage, insulation, utilities, lighting, hot water systems efficiency, system timers, and after hours energy usage were some of the items assessed. Recommendations began with low or no cost options, followed by "quick return" options in which costs are recaptured within a 12-18 month period. The Courthouse and City Hall are implementing the recommendations, and are already realizing energy savings.



Employees from our Georgetown, Kentucky, plant partnered with the Scott County Courthouse to identify energy savings opportunities and implement reductions.

"This activity exemplifies our belief in the importance of community service," said Tetsuo Agata, President and Chief Operating Officer of Toyota Motor Engineering & Manufacturing North America, Inc. "Partnerships like the one with Scott County put our 2020 Vision into action. And as members of local communities across the country, sharing our knowledge whenever possible is something we embrace."

Arbor Day

The *Tree Campus USA* program, launched in 2008 by the Arbor Day Foundation and Toyota, is a national program that awards an official Tree Campus USA designation to colleges and universities that commit to five standards in tree care and sustainability practices on their campuses. To date, 29 distinguished universities have received the official designation, including the University of Michigan, Virginia Tech and The University of Texas, Austin. In addition, tree planting events were held in the fall of 2008 at nine campuses across the country to promote the program and engage the campuses, students and local communities.

Arbor Day and Toyota also launched Tree Planter, a Facebook application that allows users to send “virtual” trees to friends for \$1. For every virtual tree sent, the Arbor Day Foundation plants a real tree in one of eleven needy forests around the U.S.

In April 2009, the Arbor Day Foundation presented our assembly plant in Princeton, Indiana, with a Project Award that recognizes leadership in tree planting, conservation and environmental stewardship. The plant developed an outdoor classroom and nature trail on a pre-existing wooded area with over 100 plant and tree identification tags for local school children and the general public to explore. They also partnered with the U.S. Department of Agriculture and the Indiana Department of Natural Resources Forestry Division to identify appropriate indigenous trees as part of an afforestation project. After the first phase of planting was completed in May 2008, over 22,000 tree saplings had been planted on more than 40.5 acres of land near the plant’s childcare and nature center.

Partnership With World Wildlife Fund in the Galápagos

Toyota has been working with the World Wildlife Fund (WWF) for over six years to help preserve the Galápagos Islands. The islands, a United Nations World Heritage site, have long been considered to be one of the most fragile and biodiverse places on the planet. Investing nearly \$2 million to date, Toyota has provided funding, technical expertise and human resources to many projects that aim to conserve the unique natural resources of the islands. The projects range from renewable energy generation and education, to recycling and waste management systems and education, to the overhaul of the islands’ main fuel-handling system. December 2008 marked a significant environmental milestone — the ISO 14001 certification of the fueling facility at Baltra. The complete renovation of the facility was the first collaborative project on which Toyota partnered with WWF, and a monumental engineering and environmental achievement.

Toyota Evergreen Learning Grounds Program

In 2000, Toyota partnered with Evergreen Canada, an organization with a mission to bring both nature and communities together, to create the Toyota Evergreen Learning Grounds program. Now in its ninth year, this program is designed to transform Canadian school grounds into inviting play spaces and natural learning environments. Toyota and its dealerships across Canada have contributed approximately CAN\$6 million to help support Evergreen in this mission.

In 2008, the program awarded over CAN\$225,000 in grants to 110 schools and daycare centers and to date has engaged over 1.2 million children across Canada. The funds provide access to an online native plant database and project registry; grants ranging from CAN\$500 to \$2,000 to assist in acquiring native plants, heritage vegetables and berries; and expert assistance through Evergreen and its Learning Ground Associates.

For more information please visit the Web site at www.evergreen.ca/en/lg/lg.html.

Other Conservation Efforts

Toyota employees participated in a number of local events that promote conservation of our public lands. In the fall of 2008, Toyota sponsored National Public Lands Day (NPLD) for the tenth consecutive year. More than 2,400 Toyota employees volunteered their time and energy at 31 NPLD sites. Across the U.S., more than 120,000 people volunteered to improve trails, remove invasive species, plant trees and remove trash in natural areas and parks. Over 200 employees from our San Antonio, Texas, plant, along with their family and friends, volunteered for *TogetherGreen* and National Public Lands Day at San Antonio’s Mitchell Lake Audubon Center. Their group effort resulted in clearing brush, breaking ground and preparing the soil for a native plant garden, planting trees, and installing a new roof.

For the annual NPLD Toyota Tours program, NPLD Director Robb Hampton traveled across America in a hybrid Prius donated by Toyota to present public land managers and friends groups with grants to assist their volunteer work projects. The 2008 tour showcased NPLD’s One Million Tree Planting Initiative that commemorated the 75th anniversary of the Civilian Conservation Corps.

In November 2008, employees from our Bodine plant in Missouri participated in the Annual Honeysuckle Removal event at Forest Park in St. Louis. Each year, Forest Park Forever and the Kennedy Woods Advisory Group hold a volunteer event to remove invasive honeysuckle from the park.

For the ninth year, Toyota sponsored the Friends of the Rouge Watershed, a community-based conservation group in Ontario, Canada, which serves to rehabilitate the environmentally sensitive Rouge Valley. Activities included planting trees, shrubs and wildflowers.

Volunteers planted trees, shrubs and wildflowers as part of the annual Friends of the Rouge Watershed event. Toyota sponsored this Ontario, Canada-based conservation group for the ninth consecutive year.



Environmental Education

We aim to provide greater opportunity for students and teachers at all levels, as well as to further the development of environmental literacy. A number of our environmental education programs are described here.

Toyota TAPESTRY

Toyota supports the nation's largest science teacher grant program for K-12th grade teachers through TAPESTRY grants. In 2008, Toyota TAPESTRY granted more than \$550,000 for enhancing creative science education. Seventy-eight projects were selected from over 500 submitted proposals. Fifty teachers were awarded \$10,000 grants and an additional 28 teachers received grants of up to \$2,500 each. In its 19-year history, Toyota TAPESTRY has awarded more than \$8.5 million in grants to 1,068 teams of U.S. teachers to develop and implement creative ways of presenting science to students.

Students at the Pasadena Memorial High School in Texas were the winners of a TAPESTRY grant. They designed and built a three-keyboard organ powered by wind- and solar-charged deep-cycle batteries.



As recipients of the Toyota TAPESTRY grant, students at Pasadena Memorial High School in Texas successfully built an alternative energy-powered organ. Science teacher Alexander Graham and his students designed, engineered, and built a three-keyboard organ powered entirely by wind- and solar-charged deep-cycle batteries. The instrument, made largely of recycled materials and encased in clear Lexan® for viewing purposes, uses a computer processor that operates MIDI (Musical Instrument Digital Interface) circuitry like that used in drum machines and digital keyboards. The functionality and quality of the organ were demonstrated at a school concert and even attracted the attention of Paul Jacobs, Dean of the Organ Department at The Juilliard School, who performed on the instrument during a visit to the high school.

Lexus Eco Challenge

The Lexus Eco Challenge, an educational program and contest in partnership with Scholastic, has awarded more than \$2 million in grants and scholarships in the last two years to inspire middle and high school students to learn about the environment and take action to improve it. This year's winners emerged from 775 registered teams representing 5,100 middle and high school students nationwide. Initial challenges addressing land, water, and air/climate issues on a local level resulted in 48 teams qualifying for the Final Challenge, where teams were required to inspire environmental action globally.

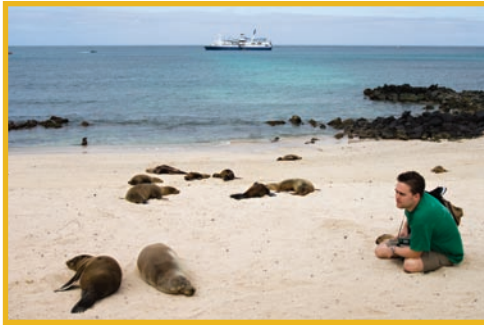
The "Eco-Geeks" team from Plantation, Florida, assisted with hurricane-relief efforts in Haiti by sending refugees solar ovens (reducing the need to burn firewood), seedlings, and low-impact "green cuisine" recipes focusing on locally-grown organic foods. The "Thornridge Biodiesel" team from Dolton, Illinois, built a biodiesel processor, converting more than 100 gallons of used vegetable oil donated by local restaurants, into usable biodiesel. A solar panel was recently added to generate some of the needed electricity.

The Lexus Eco Challenge enters its third year in the fall of 2009. Winning entries and information on how to participate can be found at www.scholastic.com/lexus.

Toyota International Teachers Program (TITP)

TITP, a study tour for secondary education teachers focused on promoting environmental conservation and global understanding, was established in 1998. The program has sent more than 600 U.S. teachers abroad to locations such as Japan, Costa Rica, and the Galápagos. In December 2008, 30 U.S. teachers, selected from nearly 1,000 applications, traveled to the Galápagos Islands and the Florida Everglades.

In December 2008, teachers traveled to the Galápagos Islands as part of the Toyota International Teachers Program.



New to the program in 2008 was the addition of a Professor in Residence from the Bren School of Environmental Science & Management, University of California, Santa Barbara, who traveled with the teachers as a science facilitator. Professor Arturo Keller served as the first study leader, helping the diverse group of educators examine the serious conservation issues in Galápagos, put these issues in a global context, and make them relevant to U.S. classrooms. This is a unique professional development opportunity for teachers, fully funded by Toyota and administered by the Institute of International Education in Washington, D.C.

For more information on this program, please visit www.toyota4education.com.

Toyota Earth Day Scholarship Program

On Earth Day 2009, 15 Canadian high school and *Cégep (Collège d'enseignement général et professionnel)* students were recognized for their dedication to environmental stewardship, as well as academic excellence. Jed Goldberg, President of Earth Day Canada, said these students were “stepping forward as the environmental leaders of tomorrow.” Yoichi Tomihara, President of Toyota Canada Inc., said “Over the last seven years, the Toyota Earth Day Scholarship has celebrated 100 inspirational students...committed to improving our environment” and that the students “will help show all Canadians how they can live Earth Day, every day.” Established to reward and encourage environmental commitment and action, CAN \$500,000 in total have been awarded to 100 exceptional students in Canada.

The 2009 Toyota Earth Day Scholarship National Winner, Adil Adatia, accepted his award with Yoichi Tomihara, President of Toyota Canada Inc., and Jed Goldberg, President of Earth Day Canada, looking on.



In June, Adil Adatia of Lethbridge, Alberta, was named the 2009 Toyota Earth Day Scholarship National Winner, selected from the 15 regional finalists announced on Earth Day. Adil's accomplishments included original research on biopesticides in which he demonstrated that fungi can be a viable alternative to chemical pesticides, and the creation of a drought-tolerant garden at his high school, with public information sessions on how to create similar landscapes in the community. Adil is the Youth Coordinator of the Southern Alberta Community for Environmental Education, the founder of the Environmental Club at his school, and an Executive Member of the Student Membership Association Regarding Technology and Science (SMARTS). For his accomplishments, Adil was presented with a Panasonic Notebook computer, a pass to attend the World Changing Careers Symposium, and the \$5,000 award received as a regional finalist.

Earth Day Canada, founded in 1990, supplies Canadians with the tools and practical knowledge needed to lessen their impact on the environment. The program was selected as Canada's “Outstanding Nonprofit Organization” by the Canadian Network for Environmental Education and Communication in 2008.

More information on the Toyota Earth Day Scholarship Program can be found at www.earthday.ca/scholarship.

Wildlife Habitat Council

The Wildlife Habitat Council (WHC) is a nonprofit group of corporations, conservation organizations and individuals dedicated to restoring and enhancing wildlife habitat. Created in 1988, the WHC helps large landowners, particularly corporations, manage their unused lands in an ecologically sensitive manner for the benefit of wildlife. The WHC's evaluation criteria are stringent and require that programs are in place for one year with documented activity before an organization can apply for certification.

In 2008, our plant in Georgetown, Kentucky, was the first Toyota plant to obtain certification to the Wildlife Habitat Council's “Wildlife at Work” and “Corporate Lands for Learning” programs. The plant's programs began in 2006, when we set aside 50 acres within the 1,300-acre site for an Environmental Education Center and Nature Trail. The one-mile trail traverses old and second growth forest and provides educational kiosks as well as tree identification posts. Kiosks and posts explore a variety of topics including the prairie habitat, wildflowers, birds, aquatic life, and composting.

Since then we have added bridges, decks and benches built from sustainable materials to the trail, and have partnered with the U.S. Fish and Wildlife Service to restore native habitat. We have planted eight Short's goldenrod plants, a federally endangered species, and recently transplanted Kentucky switch cane. It will take several years for the switch cane to establish, but will eventually provide a healthy home for migratory birds and small mammals. Our plant has also partnered with Bluegrass Personal Responsibility In a Desirable Environment (PRIDE) and teachers from local high schools to create a Web-based curriculum for fourth through 12th grades. These activities focus on the same environmental issues students learn about while visiting the nature trail: water quality and conservation, solid waste, energy, and air quality. Between the tours of the plant and the use of the environmental education center, students, scout groups, and the community are shown Toyota's vision of how industry and the environment can co-exist.

Environmental Field Trip Grants

Our plant in Georgetown, Kentucky, has been a popular place for field trips for more than a decade. The plant hosts an average of 40,000 visitors each year, more than a quarter of which are students. Since 2007, students can also visit the environmental education center and nature trail where they learn about environmental stewardship, responsibility, and science outdoors. Interactive kiosks along the trail and a nearby pavilion teach students about waste segregation or “think before you throw” — a process Toyota employees utilize daily.

In the fall of 2008, a transportation reimbursement fund was created so that schools across Kentucky could afford to make the trip to our Georgetown plant. Schools are awarded “mini-grants” of up to \$300, funded exclusively from the Visitor Center gift shop profits. Awards are based on financial need and a school's interest in implementing an environmental education program. Nineteen schools have received grants to date, meaning that more than 3,000 students have benefited from the plant's environmental education program.

Environmental Research Partnerships

In addition to our philanthropy efforts, Toyota collaborates on and/or supports research projects that promote sustainable development. **In particular, we work with academia and other companies on technologies that reduce greenhouse gas emissions. (Target 15.3)** This research expands beyond automobiles because the car of the future requires a safe and reliable global energy system that supports mobility-friendly roads and cities.

Research Grant to Pew Center on Global Climate Change

Toyota donated \$1.4 million to the Pew Center on Global Climate Change to support a research project that seeks to capture and communicate the best practices of major leadership companies related to energy efficiency in the areas of company operations, products and services, and supply chain. A survey of Pew's Business Environmental Leadership Council (BELC) members, including Toyota, was distributed in January 2009. Once the best practice information is compiled, a report will be published and shared. The project will provide corporations with the analysis needed to build clear business cases for a range of energy conservation strategies, stressing financial and climate change mitigation benefits.

Southern Forests for the Future

In March 2009, Toyota and the World Resources Institute (WRI) announced the “Southern Forests for the Future” project. Funded with a \$1.49 million grant from Toyota over three years, the project aims to increase awareness about the value of forests in the southern United States and the threats facing them. The project also will identify and develop options that align economic incentives with forest stewardship, as well as fund a pilot test and implementation of the options. Southern forests cover more than 200 million acres of land and are the most biologically diverse temperate forests in the world, providing timber, paper, watershed protection, carbon storage, and recreation. Approximately one million acres of forest are lost per year.

► COMMUNICATION WITH STAKEHOLDERS

Toyota communicates its environmental plans, activities and performance through this annual environmental report. (Target 16.1) This report is available as an interactive publication on the Web at www.toyota.com/environmentreport.

This past year, we set up an internal environmental library to house environmental information in a searchable format. This has facilitated the sharing of information across our company. We also use a number of social media outlets, such as Twitter™, Facebook, and YouTube, to communicate with the public about our products, environmental activities, and grant programs. We also launched a Wiki site for TITP and TAPESTRY (please visit toyota4education.com), and will expand this to some of our other grant programs in the future.

Our communication with regulatory agencies goes beyond environmental permit limits and the details of how we operate. We also participate in educational seminars, including a presentation in 2008 to the West Virginia Department of Environmental Protection on environmental management systems (EMSs). We discussed the benefits of having an EMS, and gave tips on how we set up a system. This was an opportunity for us to share what we've learned over the past 20 years developing, implementing and improving these systems.

▶ CONTRIBUTIONS TO A RECYCLING-BASED SOCIETY

Participating in the creation of a recycling-based society is one of the action guidelines in the Toyota Earth Charter. In North America, we see this participation as a key to being a good neighbor in the communities where we live and work. We use the knowledge we have gained from best practices implemented at our own facilities to teach others how and what to recycle, how to make raw material choices and how to set up recycling programs in their own organizations. To further encourage recycling in our society, we continue to expand our lineup of remanufactured parts, increase our use of environmentally preferable paper, and encourage the appropriate disposal of tires.

Remanufactured Parts

Toyota continues to support customer needs by expanding our lineup of remanufactured service parts. Remanufactured parts require fewer resources than new parts, decreasing the overall impact on the environment. The number of remanufactured parts launched each year may fluctuate, based on which vehicle applications are still outstanding. In several product lines, we are very close to covering all targeted parts. **In FY2009, we launched 60 remanufactured parts applications. (Target 17.1)** This is less than the targeted 100 parts applications due to a lower number of model launches and a decrease in market demand.

Remanufactured parts are highlighted on the Toyota Wholesale Parts Web site at www.toyotapartsandservice.com. Part of this Web site is dedicated to remanufactured products — specifically to ordering, benefits and features, core return policies, program launches, promotions, technical information, and available resources.

Environmentally Preferable Paper

Our U.S. sales headquarters campus, which includes sales, marketing and financial services functions, uses fine paper with a minimum postconsumer waste (PCW) content of 10%, and office paper with a minimum of 30%. (Target 17.2) Most of the fine paper, used in our vehicle brochures, has 30% PCW content. In addition, we reduced the quantity of brochures printed by 10% to decrease the overrun at the end of the year and to better align with the actual number of brochures needed. We have maintained our environmentally preferable paper purchasing program despite the slightly higher cost of the preferable paper, even during the economic downturn over the past fiscal year.

Dealers and Tires

In the U.S., Toyota encourages its dealers to dispose of tires in a safe and environmentally appropriate way through the Tire Shark® tire disposal program. (Target 17.3) The program seeks to improve scrap tire collection service, and promotes the use of only authorized and licensed scrap tire haulers to help ensure compliance with environmental requirements.

A Tire Shark machine from Oakleaf Waste Management compresses a tire and punctures it so that it is transported more efficiently. “Sharked” tires are then recycled and converted to crumbs for playgrounds and playing fields, as well as tire-derived aggregate and energy sources. The service was extended to an additional eight dealers in FY2009.

LOOKING AHEAD

Over the next two years, one of the biggest challenges we face in meeting our action plan targets is to improve coordination of our efforts and communication with our stakeholders, so that our contributions to society are most effective.

TOYOTA |

north american presence

In the fall of 2008, our new assembly plant in Woodstock, Ontario, opened. The plant was built with the latest environmental technology, including a water-borne paint system. This plant produces the RAV4 sport utility vehicle.

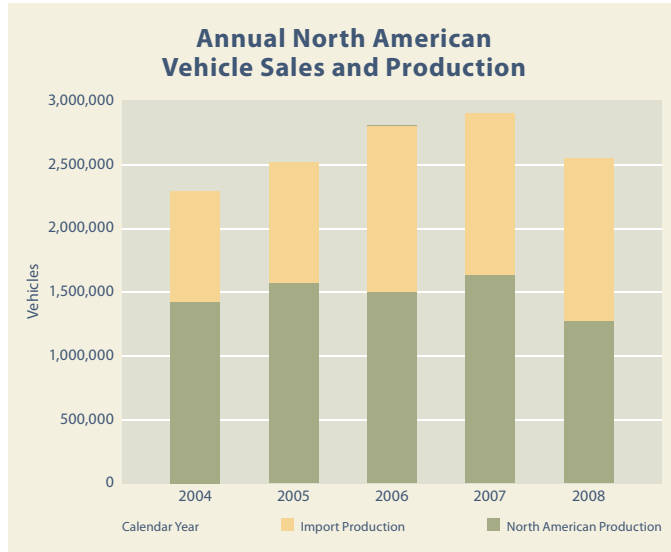


“Despite the challenging conditions the industry faces, we remain committed to the North American market and our long-term growth here in R&D, manufacturing, and sales.”
– Yoshimi Inaba, President & Chief Operating Officer
Toyota Motor North America, Inc.



TOYOTA OPERATES 14 PLANTS in the U.S., Canada and Mexico that produced over 1.4 million vehicles in 2008. There are more than 1,800 Toyota, Lexus and Scion dealerships in North America that sold more than 2.4 million vehicles in 2008 (please see Figure Q).

FIGURE Q



Our investment in North America is over \$21 billion and includes 30 manufacturing, design and logistics facilities that employ more than 40,000 people (please see Figures R, S and T). Toyota’s annual purchasing of parts, materials, goods and services from North American suppliers totals nearly \$25 billion.

FIGURE R

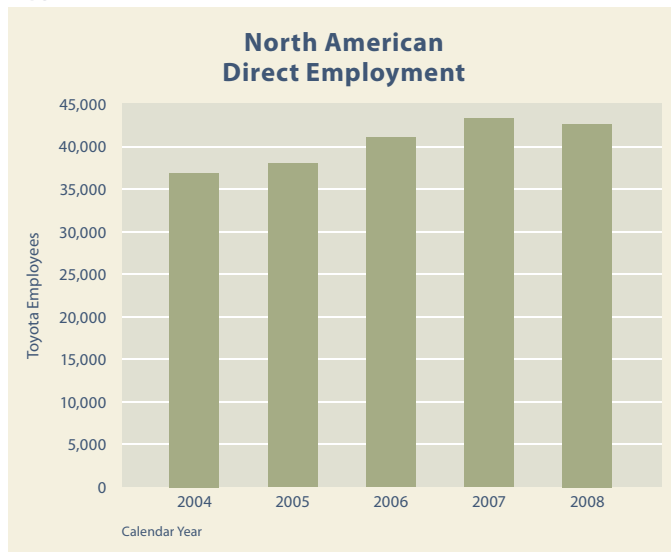


FIGURE S

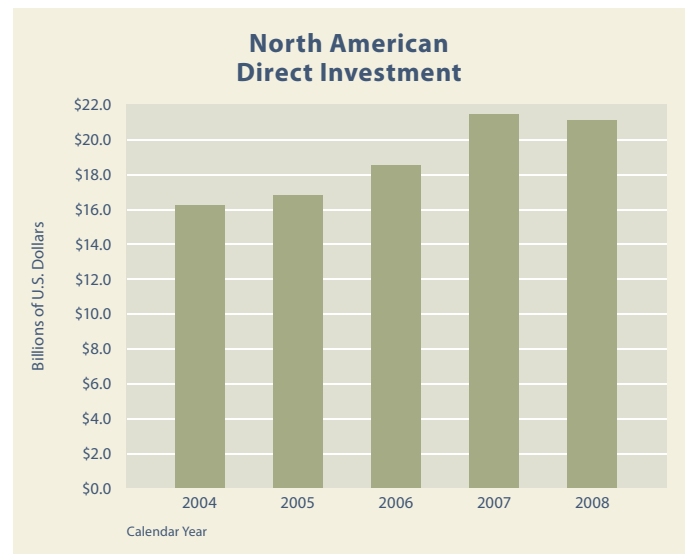


FIGURE T



In the fall of 2008, Toyota opened a new assembly plant in Woodstock, Ontario. The plant is 1.8 million square feet (167,200 square meters) and sits on 1,000 acres. This plant produces the RAV4 sport utility vehicle (SUV), one of the most fuel-efficient SUVs in our lineup. The plant was built with best practices and the latest technology, including water-borne painting technologies that significantly reduce our VOC emissions.

As part of the agreement for the Woodstock plant, Toyota donated a large mansion and the surrounding land in Oxford County to the Victorian Order of Nurses for use as a hospice. In addition, we have begun the process of enlarging the existing woodland area.

Our capital investment in this location over the last several years and our continued efforts in the area of environmental stewardship are examples of how we strive to operate in harmony with the environment.

Over the past year, we have had to make some difficult decisions regarding several North America production facilities. Due to the economic downturn, we suspended construction of our new plant in Blue Springs, Mississippi. However, we will resume construction when conditions warrant.

After General Motors decided to withdraw from New United Motor Manufacturing, Inc. (NUMMI), a joint venture between General Motors and Toyota in Fremont, California, Toyota conducted an extensive review of its capacity and production needs. In light of current and anticipated market conditions, Toyota concluded that continuing contract manufacturing with NUMMI is not economically feasible.

Though we regret having to take both of these actions, Toyota remains dedicated to maintaining a substantial production presence in North America, nurturing our employees, and strengthening our relationships with suppliers and the communities where our plants are located. Our plants, employees, suppliers, and local communities are key stakeholders in helping us meet our commitment to operate in harmony with the environment and achieve our long-term vision of sustainable mobility.

▶ TOYOTA'S NORTH AMERICAN AFFILIATES

Toyota in North America consists of a number of affiliates.

Toyota Motor North America, Inc. is the holding company for Toyota's U.S. sales and manufacturing operating units, with offices in Washington, D.C., New York City and Miami. Functions include government and regulatory affairs, energy, environment, economic research, philanthropy and corporate communications.

Toyota Motor Engineering & Manufacturing North America, Inc. is headquartered in Erlanger, Kentucky. The company is responsible for Toyota's North American engineering design and development, R & D, and manufacturing activities in the U.S., Canada and Mexico.

Our plants are located in:

- Huntsville, Alabama
- Fremont* and Long Beach, California
- Princeton, Indiana
- Georgetown, Kentucky
- Blue Springs, Mississippi (under construction)
- St. Louis and Troy, Missouri
- Jackson, Tennessee
- San Antonio, Texas
- Buffalo, West Virginia
- Delta, British Columbia
- Cambridge and Woodstock, Ontario
- Tijuana, Baja California, Mexico

*The Fremont location is a joint venture with General Motors.

Toyota Motor Sales, U.S.A., Inc., headquartered in Torrance, California, is the marketing, sales, distribution and customer service arm of Toyota, Lexus and Scion in the United States. Through a network of parts and vehicle distribution centers, regional sales offices, and affiliates, the company markets products and services to more than 1,450 Toyota, Lexus and Scion dealers.

Toyota Canada Inc., headquartered in Toronto, Ontario, is responsible for all sales, marketing, distribution, parts and service activities for Toyota and Lexus and Toyota's Industrial Equipment Division operations in Canada.

NORTH AMERICAN OPERATIONS

-  Toyota Sales or Service Office*
 -  Lexus Sales or Service Office*
 -  Financial Services Office*
 -  Manufacturing Facility
 -  Joint Venture Facility
 -  Supplier State/Province
 -  Holding Company
 -  Research & Development Center
 -  Design Center
 -  Hino Operation or Manufacturing Facility
- Dealerships throughout North America

*May represent more than one location.
Data as of 12/08. ©2009

