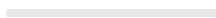


**TOYOTA**  
**2014** NORTH AMERICAN  
**ENVIRONMENTAL**  
**REPORT**



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> HOME PAGE

# Welcome to Toyota’s 2014 North American Environmental Report. This year’s report focuses on five priority issues: CARBON, WATER, MATERIALS, BIODIVERSITY and OUTREACH.



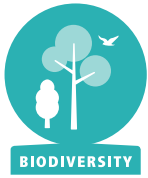
Toyota considers global warming to be a top priority. In 2015, Toyota’s [fuel cell vehicle](#) will hit the market, powered by hydrogen and emitting nothing but water vapor; our largest assembly plant will be partially powered by green electricity produced from [landfill gas](#); and [Yellowstone National Park](#), with our help, will generate sustainable power from used Camry Hybrid batteries. These projects all require time, dedication and collaboration to succeed. We are innovating for positive change and moving along our path to a low carbon future.



Water is a precious resource. Throughout the company, we are making changes to use less water. We saved over 90 million gallons last year by doing some pretty creative things, like [recycling phosphate rinse water](#). We’re helping others conserve water, too. Through programs like the [National Mayor’s Challenge for Water Conservation](#), individuals in the U.S. have pledged to save 1.4 billion gallons this year. In Toyota’s cycle of water stewardship, everyone has a role in making sure this precious resource is available for generations to come.



For Toyota, “Materials” refers to everything used to make a vehicle, whether it ends up in the final product or not. Some materials contain [substances of concern](#), which we try to reduce or eliminate. And in the process of making vehicles, some materials become waste. Last year, we reduced, reused or recycled 95 percent of our own solid waste. We also [collected household waste](#) and donation items from our neighbors. Together, we are helping to keep usable material out of landfills and helping others reuse and recycle.



Over 2,100 species of animals and plants are listed as endangered or threatened around the world. To keep these species from disappearing forever, collaboration is key. Toyota partners with the [Wildlife Habitat Council](#) to bring together employees, government agencies and conservation organizations to build healthy ecosystems and connected communities. From protecting [monarch butterflies](#) to supporting [National Public Lands Day](#), these efforts are all part of our mission to create positive environmental change.



Our outreach strategy seeks to make connections that scale up our activities in carbon, water, materials and biodiversity. Engaging stakeholders is central to the success of this strategy. We work with our network of Toyota and Lexus [dealerships](#) on green building initiatives, and through Toyota [TogetherGreen](#), we are inspiring more and more people to join the conservation movement. Through the power of collaboration, we hope to create lasting positive outcomes on a macro scale.

Also visit the [Performance](#) section, where we’ve combined all our data charts. Here you will also find information about Air Quality (VOC emissions and criteria pollutant tailpipe emissions), a list of our LEED®-certified facilities, information on the ISO 14001 certification status of our sites, and our environmental compliance record.

**This report covers activities in the United States, Canada and Mexico, as well as the Toyota, Lexus and Scion brands in North America. The period covered is fiscal year 2014 (April 1, 2013 through March 31, 2014) and product model year 2014. Data presented with different dates is clearly indicated.**

**We listened to your comments and suggestions about last year's report and used them to improve this report. We would appreciate your feedback. You may participate in a [survey found here](#).**

© November 2014

## **CONTACT**

Environmental Report Manager

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**Jim Lentz**  
Chief Executive Officer  
Toyota North America

## Dear Readers:

The automobile and the automotive industry are undergoing a technological transformation. Hybrid vehicles are now mainstream, while battery electric and plug-in vehicles are growing in numbers. In a matter of a few short months, fuel cell vehicles will join the mix.

This puts our society on the cusp of a new conversation about mobility. Mobility means people have the freedom to move, grow and explore. And we're creating the products to help them do just that, in a cleaner and more efficient way. Like the Toyota fuel cell vehicle (FCV) that will hit the road in 2015, which emits nothing but water vapor.



**Osamu Nagata**  
President and Chief Executive Officer  
Toyota Motor Engineering &  
Manufacturing North America, Inc.

Toyota's commitment to producing ever greener vehicles through more sustainable processes has never been more apparent. We will soon be manufacturing some of the greenest cars on the road – the Camry Hybrid and Avalon Hybrid – using a green energy source: landfill gas. And the progress we've made in reducing environmental impacts in other areas is just as impressive.

In North America, we have identified five priorities that drive our environmental strategy: carbon, water, materials, biodiversity and outreach. We set short-term targets through fiscal year 2016 in each of these areas that apply to more than 85 North American assembly and unit plants, logistics centers, offices and R&D centers.



**Kazuo Ohara**  
President and Chief Executive Officer  
Toyota Motor Sales, U.S.A., Inc.

So far, we are on track for achieving every target.

But sustainability also requires a long-term view. We have already begun the process of developing our next five-year environmental action plan to take us through 2021. We are working closely with our parent company Toyota Motor Corporation, and engaging with other Toyota regions – particularly in Europe and South America – to identify strategic priorities, global environmental trends, risks and opportunities.

We are even looking beyond 2021 to 2030 and even 2050, thinking about what we want our environmental story to be in the future.



**Kevin M. Butt**  
Regional Environmental Director  
Toyota North American Environmental

The innovations developed by team members and associates show that we're not just keeping pace – we are leading the future of mobility today and tomorrow. From hybrids to fuel cell vehicles, from energy efficiency to hybrid battery storage systems, Toyota is pushing what's possible. This is a world in motion, and our innovations are helping us shape a more sustainable future. Welcome to this year's North American Environmental Report. We hope you enjoy this chapter of our story.

## Highlights

Carbon	<ul style="list-style-type: none"> <li>• Toyota’s first-ever production fuel cell car uses hydrogen as fuel and emits only water vapor. The Toyota Mirai will be available for sale to customers in California in summer 2015.</li> <li>• We’ve sold over 2.4 million Toyota and Lexus hybrids in North America, which save approximately 500 million gallons of gasoline annually.</li> <li>• Beginning in 2015, Toyota’s Georgetown assembly plant will generate green power from local landfill gas, enough for the production of 10,000 vehicles per year.</li> <li>• We received our 10<sup>th</sup> consecutive ENERGY STAR Partner of the Year - Sustained Excellence Award from the U.S. EPA. Our 14 manufacturing plants have reduced energy use by almost 11 billion kilowatt hours in the last decade.</li> </ul>
Water	<ul style="list-style-type: none"> <li>• Team members at Toyota’s assembly plant in Cambridge, Ontario, found a way to capture, clean and recycle over 12 million gallons of water used to rinse vehicles during the painting process.</li> <li>• Since opening in 2007, Toyota’s Texas assembly plant has used about 1.9 billion gallons of recycled water instead of drawing fresh water from the Edwards Aquifer.</li> </ul>
Materials	<ul style="list-style-type: none"> <li>• Toyota Motor Sales won the 2013 WasteWise Large Business Partner of the Year award from the U.S. EPA. This marks the fourth consecutive year Toyota sales and logistics facilities have received a WasteWise award.</li> <li>• Toyota has 32 North American facilities that meet the U.S. Zero Waste Business Council’s definition of a “Zero Waste Business” – one with a 90 percent or greater diversion of all waste from landfill, incineration or the environment.</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>• Over 130,000 trees have been planted at Toyota’s Indiana assembly plant over the last six years. The area has become a thriving habitat for wildlife.</li> <li>• Toyota currently has over 1,000 acres across seven North American sites certified to the Wildlife Habitat Council’s <i>Wildlife at Work</i> program.</li> </ul>
Outreach	<ul style="list-style-type: none"> <li>• Now in its seventh year, the Toyota TogetherGreen™ program has engaged nearly half a million participants in conservation action in all 50 states.</li> <li>• Toyota is helping to develop a battery storage system for the Lamar Buffalo Ranch at Yellowstone National Park. Featuring 208 used Camry Hybrid battery packs, the system will provide a sustainable power source for one of the most remote and pristine places in the U.S.</li> <li>• More than 23,000 folks across the U.S. pledged to save over 1.4 billion gallons of water as part of the annual National Mayor’s Challenge for Water Conservation, supported by Toyota.</li> <li>• We have assisted 42 Toyota and Lexus dealers with LEED® certification. We have more LEED-certified dealers in the U.S. and Canada than any other auto manufacturer.</li> </ul>



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## STRATEGY

- > MISSION
- > MATERIALITY
- > ACTION PLAN 2014-16
- > GOVERNANCE



Toyota North America's Environmental Mission (see FG1) states our commitment to minimizing environmental impacts and promoting environmental change.

This mission is deeply rooted in Toyota's Global Vision, Guiding Principles, and Earth Charter (see FG2). Toyota's Global Vision is founded on a commitment to quality, constant innovation, and respect for the planet. The Global Vision articulates the kind of company we strive to be – a company that shows consideration to the environment and investigates and promotes sustainable systems and solutions.

Toyota's values are outlined in the Guiding Principles and Earth Charter. The Guiding Principles challenge the company to “be a good corporate citizen,” “dedicate ourselves to providing clean and safe products,” and “pursue growth in harmony with the global community through innovative management.” Environmental responsibility is key to each of these.

The Earth Charter was developed in 1992 (and revised in 2000) to exemplify our comprehensive approach to managing environmental issues. The Earth Charter instructs us to strive for “growth in harmony with nature,” “zero emissions,” and “building close and cooperative relationships” with a wide range of stakeholders interested in preserving the environment.

# MISSION

FG1

## Toyota North American Environmental Mission

**Respect for the planet.** This is the global vision followed by Toyota companies around the world. In North America, this vision means we minimize environmental impacts while also promoting positive environmental change. We strive to be an environmental role model through our actions in three areas:



### OUR BUSINESS

In **Our Products and Operations**, we will:

- Proactively assess our environmental impacts and develop challenging goals and targets to address core areas of focus.
- Pursue innovation and continuous improvement opportunities to maximize energy and fuel efficiency and optimize our environmental performance.
- Strive for zero emissions to air, land and water from our business activities and protect our natural world.

### OUR STAKEHOLDERS

With **Our Stakeholders**, we will:

- Promote awareness, both internally and externally, of our environmental strategy and initiatives to encourage action and participation
- Develop strategic partnerships with external organizations to help achieve and further environmental performance.
- Share our know-how and participate in philanthropic activities for the benefit of society and the environment.

### OUR BUSINESS PARTNERS

With **Our Business Partners**, we will:

- Strengthen relationships with business partners to better understand upstream and downstream environmental impacts.
- Share our know-how with suppliers and dealerships to help them continuously improve their environmental performance.
- Help our business partners strive for zero emissions to air, land and water from their activities and protect our natural world.

TOYOTA  
NORTH AMERICAN  
**Environmental**

## FG2 • Toyota’s Global Vision and Values

### TOYOTA’S GLOBAL VISION

Toyota will lead the way to the future of mobility, enriching lives around the world with the safest and most responsible ways of moving people.

Through our commitment to quality, constant innovation and respect for the planet, we aim to exceed expectations and be rewarded with a smile. We will meet challenging goals by engaging the talent and passion of people, who believe there is always a better way.

### TOYOTA’S GUIDING PRINCIPLES

Adopted January 1992, Revised April 1997

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

### 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.

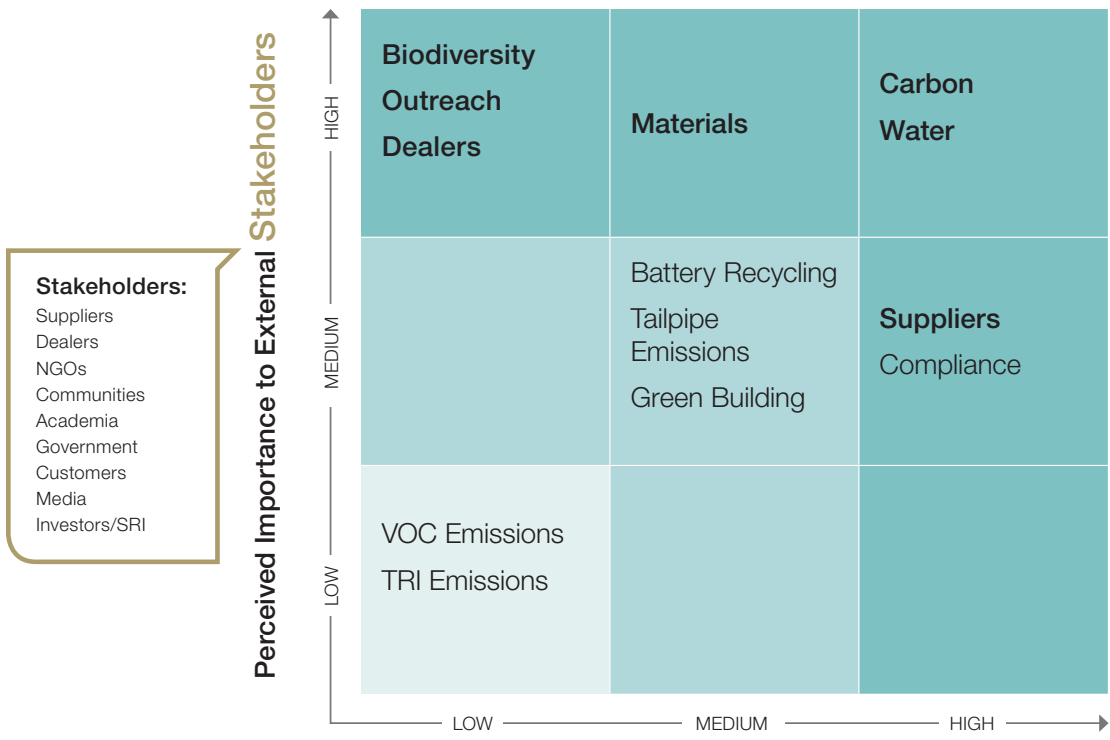
#### II. ACTION GUIDELINES

- 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.

# MATERIALITY

In 2012, we performed an environmental materiality assessment for North America. We evaluated the relative significance of the environmental topics facing us in the region. We also undertook to determine how important these topics are to our stakeholders. We considered both current and expected future conditions. This was the first time we performed this analysis as One Toyota: manufacturing, sales and logistics, and R&D all participated. The result of our assessment is shown in Figure 3.

FG3 • Environmental Materiality Assessment for North America



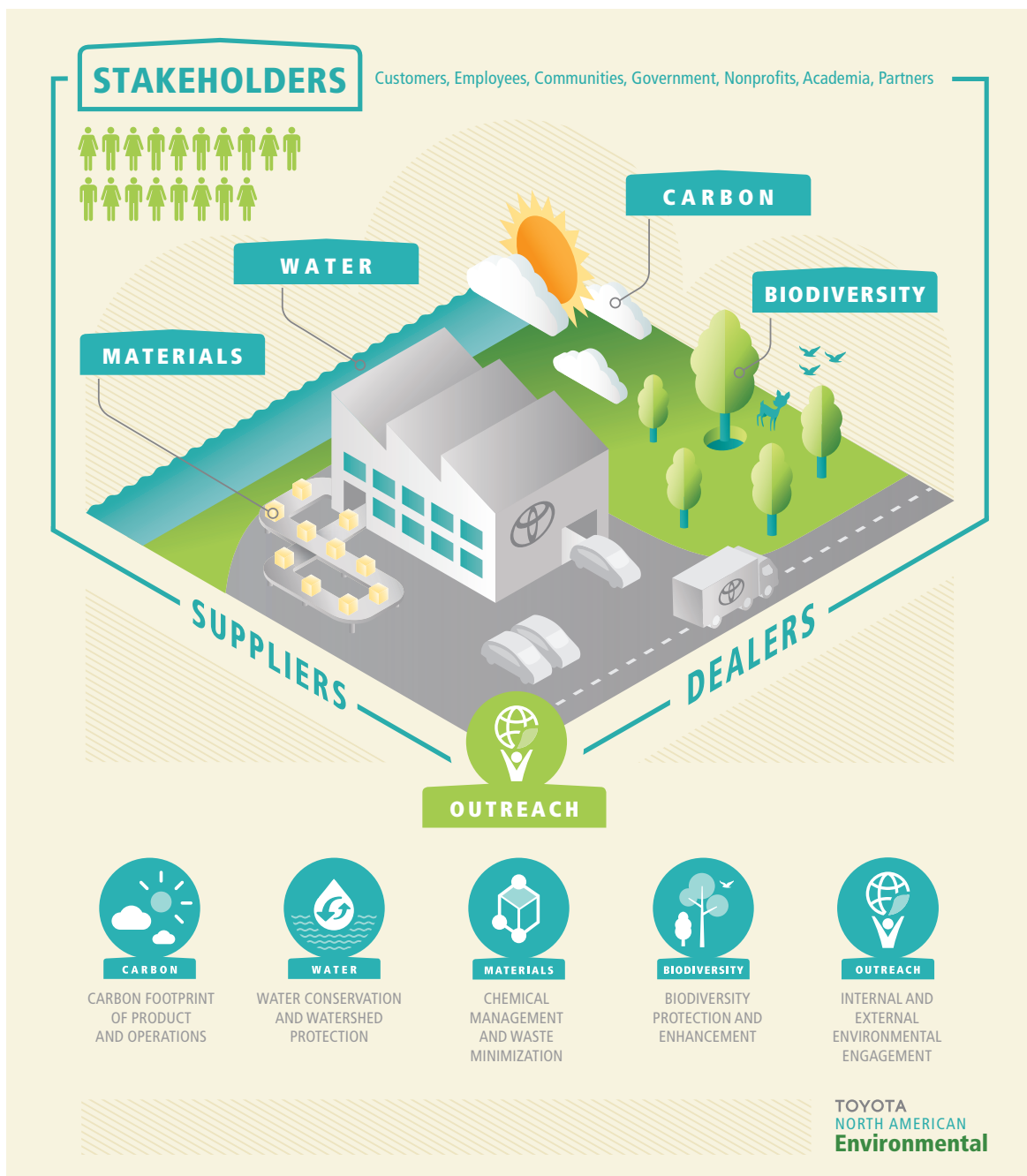
**Impact to Toyota/Environment (Current and Within 5 Years)**

Our environmental materiality assessment evaluates how relevant and significant environmental aspects and impacts are to Toyota and to our stakeholders. Our assessment identified 13 topics that we manage – and will continue to manage – on an ongoing basis. Of these, we identified the aspects in bold as having the most material impacts, meaning they are the most relevant and significant at this time. These are the aspects we have prioritized and are focusing on in our fiscal year 2014-2016 environmental action plan.

In 2014, we confirmed through a streamlined assessment that four core areas of focus remain our top priorities: **Carbon**, **Water**, **Materials**, and **Biodiversity**. Within each of these core focus areas, we conduct **Outreach** activities with **Suppliers** and **Dealers** as well as other **Stakeholders** to expand our positive impacts. We believe focusing our efforts on core issues will ultimately make the most difference.

Our next materiality assessment will be an in-depth review of current and future conditions in order to guide the development of the fiscal year 2017-2021 environmental action plan.

FG4 • Toyota North America’s Environmental Focus Areas



# ENVIRONMENTAL ACTION PLAN

FG5 • Toyota North American Environmental Action Plan, FY2014-16

	GOAL	FY2016 TARGET	FY2014 PROGRESS	STATUS	
CORE AREAS OF FOCUS	Carbon	Reduce carbon footprint of vehicles and operations	Expand Toyota's global hybrid lineup by successfully introducing new hybrid models in North America	Announced the 2015 Lexus NX 300h is coming to showrooms in the fall of 2014	△
			Reduce energy consumption 12% per vehicle produced, from a baseline of FY2010	Reduced energy use 10%	△
			Reduce GHG emissions from operations 12% per vehicle produced, from a baseline of FY2010	Reduced GHGs 9%	△
	Water	Conserve water and protect water sources	Reduce water withdrawal 6% per vehicle produced by FY2016, from a baseline of FY2010	Reduced water withdrawal 1%; plans in place to further reduce	△
	Materials	Eliminate waste and improve recycling and reuse opportunities	Develop and test new metric for waste	Defined the 3R Rate	△
			Implement IMDS data management systems enterprise wide	Completed data collection for all North American-produced vehicles	△
Biodiversity	Improve biodiversity on and near Toyota facilities	Achieve Wildlife Habitat Council certification at 9 sites	7 sites certified: TMMK, TMMC (Cambridge & Woodstock), TEMA, TMMI, TMMAL, TMMMS	△	
OUTREACH	Suppliers	Strengthen supplier relationships	Develop a new supplier environmental engagement process	Updated Toyota's Green Supplier Guidelines and agreed to industry guiding principles for supply chain sustainability	△
	Dealers	Promote and enhance dealer environmental initiatives	Maintain the leadership position in dealership green building and certify 53 dealerships to LEED®	42 certified dealers	△
	Stakeholders	Strengthen Toyota's position as an environmental role model	Create environmental ambassadors by educating and empowering employees	TMMC's employee environmental outreach efforts earned them a spot on Canada's Greenest Employers list	△
		Pursue philanthropic initiatives aligned with our environmental mission and goals	Support community projects that align with our core focus areas	All major projects align with 4 core areas of focus. See FG 29	△

⊙ Target Exceeded    ○ Target Achieved    △ On Track    X Target Missed

We are pleased with what this new consolidated environmental action plan represents. This is the first time the North American affiliates have come together and set targets as One Toyota. Instead of separate targets for manufacturing, R&D, and sales and logistics, our targets now cover over 85 assembly and unit plants, R&D sites, parts and vehicle distribution centers, and sales offices. The development of new metrics and new data tracking systems has been a huge accomplishment for us, and we are excited to share the first year of results with you.

## GOVERNANCE

In 2013, we formed the Toyota North American Environmental (TNAE) organization. TNAE reports to the North American Executive Committee and serves as the chief environmental body representing Toyota entities in North America. TNAE, in cooperation with the Toyota North American Environmental Committee (which is comprised of members from the Executive Committee), establishes activities and provides one voice for appropriate responses to environmental issues in North America. TNAE’s primary responsibilities include setting policy and direction for the region, developing consolidated environmental action plan goals and targets, and developing the annual North American Environmental Report.

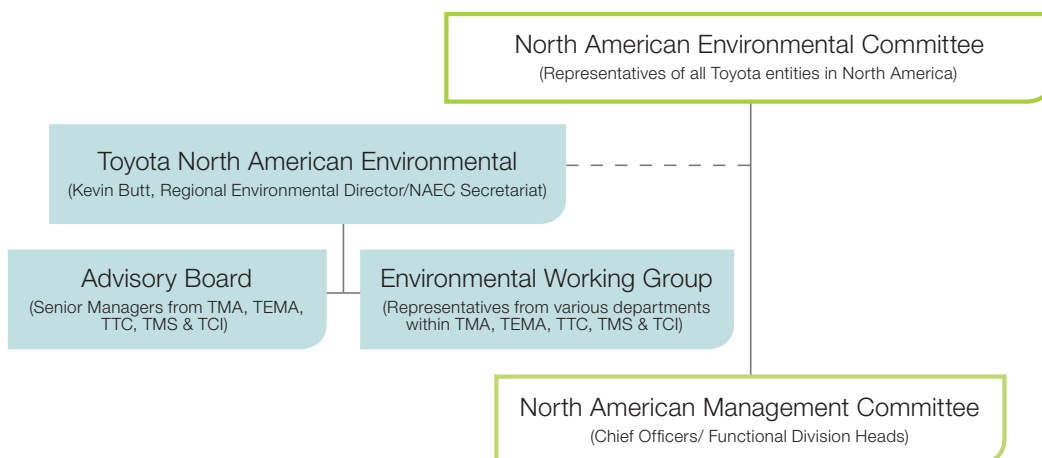
The TNAE organization includes an Advisory Board and an Environmental Working Group. Both are comprised of environmental experts and representatives from four of Toyota’s North American companies:

- Toyota Motor North America, Inc. (TMA)
- Toyota Motor Engineering & Manufacturing North America, Inc. (TEMA)\*
- Toyota Motor Sales, U.S.A., Inc. (TMS)
- Toyota Canada Inc. (TCI)

\* TEMA includes both manufacturing and the Toyota Technical Center (TTC), Toyota’s North American research and development division.

This report contains information from these four companies. Representatives from these companies also participate in focus groups that concentrate on a particular environmental issue (such as water or biodiversity). These focus groups report to the Environmental Working Group and help develop and implement environmental action plan targets, develop strategies for the region, perform benchmarking and data gathering activities, and raise awareness.

### FG6 • Environmental Governance in North America





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## CARBON

> VEHICLES

> OPERATIONS

> OUTREACH: TOWARDS A LOW CARBON FUTURE





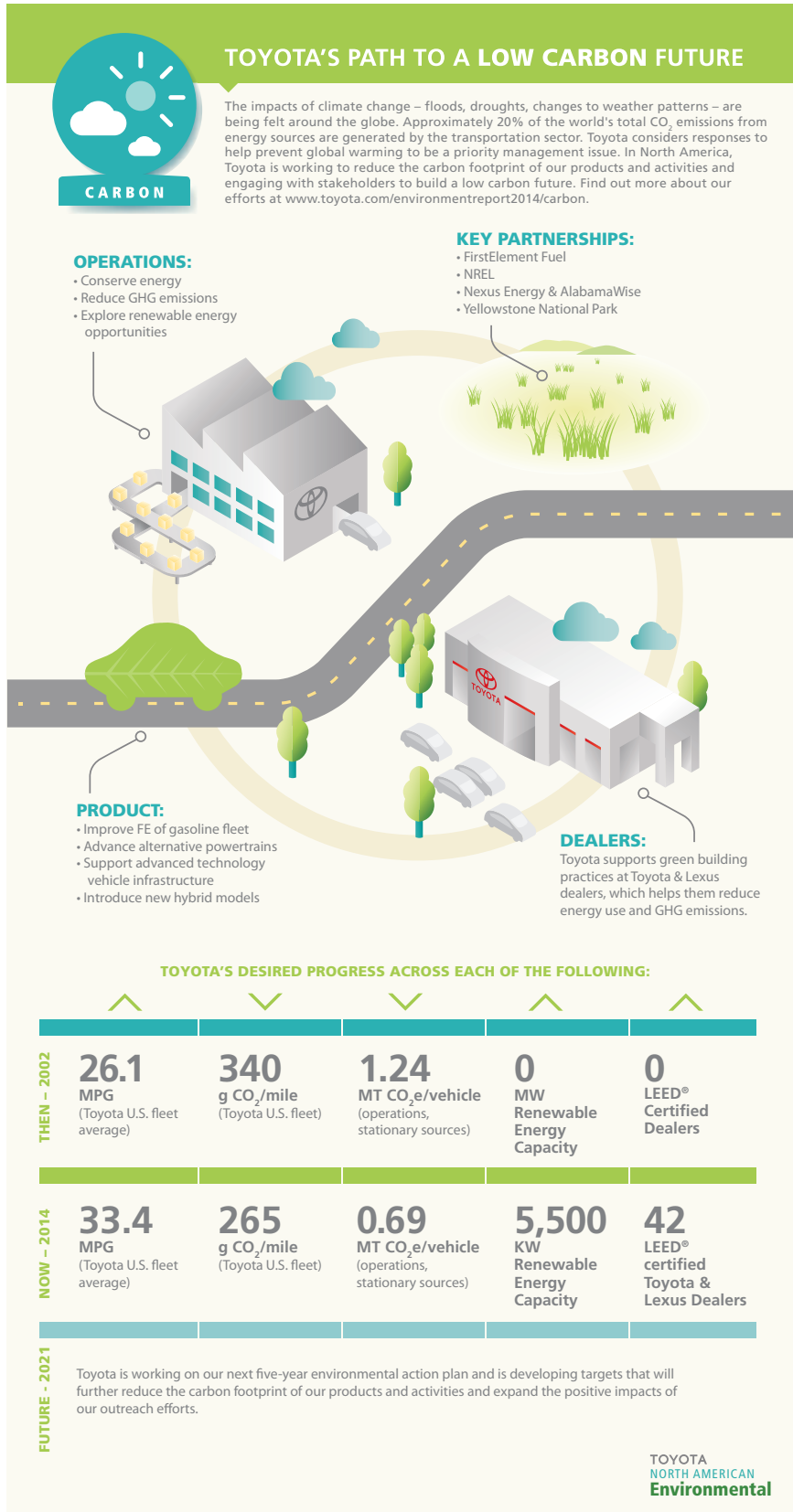
> CARBON

Toyota's strategy to reduce our carbon footprint in North America contains three main elements:

- 1) reducing the carbon footprint of our [vehicles](#),
- 2) reducing the carbon footprint of our [operations](#),
- and 3) helping our stakeholders reduce their carbon footprint through [outreach](#) activities.

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FG7



## VEHICLES

Toyota pursues multiple technology paths to reduce vehicle fuel consumption and greenhouse gas (GHG) emissions in our global markets. We try to match technologies to best meet customer needs in each specific region. This means evaluating vehicle powertrains, weight, aerodynamics and other design factors to boost vehicle efficiency while preserving the vehicle size, power, driving range and affordability that customers demand – without sacrificing world-class vehicle safety and performance.

Our efforts to improve fuel economy and reduce GHGs have become more aggressive with the adoption in the United States of new fuel economy and GHG emissions standards for passenger cars and light trucks through the 2025 model year. The new vehicle fleet must meet a GHG standard of 250 grams of CO<sub>2</sub> per mile by 2016, equivalent to a Corporate Average Fuel Economy (CAFE) standard of 35.5 miles per gallon; by 2025 cars and light trucks are required to yield a combined 54.5 mpg. While overall compliance is based on a fleet average, each vehicle has a fuel economy/GHG target based on its footprint.

One significant challenge to meeting these standards is having technology options available that consumers are able and willing to purchase in sufficient quantities. At this point, it is nearly impossible to predict such outcomes so far into the future, since preferences will largely be determined by factors such as fuel price, economic conditions and infrastructure development – most of which are beyond an auto manufacturer's control. The National Highway Transportation Safety Administration and the U.S. Environmental Protection Agency, in cooperation with Environment Canada, have begun to monitor these factors under the “mid-term review” process, which will re-evaluate the feasibility of the 2022-2025 model year standards. A determination on feasibility will be made by 2018.

Toyota believes any evaluation should treat vehicles and fuels as a system. For example, higher octane and/or reduced sulfur can enable additional GHG emissions reductions and fuel savings from several engine technologies, while biofuels have the potential to reduce the carbon intensity of the fuel.

In Canada, Toyota supports a harmonized approach with the United States to setting emissions standards. The Canadian federal government introduced a GHG emissions regulation under the Canadian Environmental Protection Act for the 2011 through 2016 model years, and in the fall of 2014 expects to issue proposed greenhouse gas emissions regulations for the 2017-2025 model years.

In Mexico, the government has proposed GHG standards modeled after the U.S. requirements. The standards require automakers to meet a single sales-weighted fleet average over the period 2014 through 2016, and allow credits generated in 2012 and 2013 to be used toward compliance. These standards have been appropriately tailored to the unique driving conditions and product mix associated with the Mexican market, and contain similar compliance flexibilities and lead time as those offered in the United States. We will begin reporting on Toyota's performance in this program next year.

Many of our hybrid products are already capable of meeting their respective future targets for fuel economy and GHG standards in all three countries. But there is still a sense of urgency as states like California seek to accelerate the number of zero emission vehicles on the road to meet its ZEV requirements.

To achieve compliance with these regulations and to minimize the carbon footprint of our vehicle fleet, Toyota's vehicle carbon strategy has four parts: 1) improving the fuel efficiency of our gasoline vehicles, 2) advancing the technology and mass acceptance of alternative powertrains, 3) supporting development of the infrastructure needed for full-scale commercialization of advanced technology vehicles that run on alternative fuels, and 4) complying with vehicle fuel economy and GHG regulations and meeting our own internal targets.

## Improving Gasoline Vehicle FE

Toyota will soon introduce vehicles globally with a series of newly-developed, highly efficient gasoline engines that achieve fuel efficiency improvements of at least 10 percent.

Two engines will form the base of the new series. The first is a 1.3-liter gasoline engine using the Atkinson cycle normally used in dedicated hybrid vehicles. The second is a 1.0-liter gasoline engine, jointly developed with Daihatsu Motor Co., Ltd.

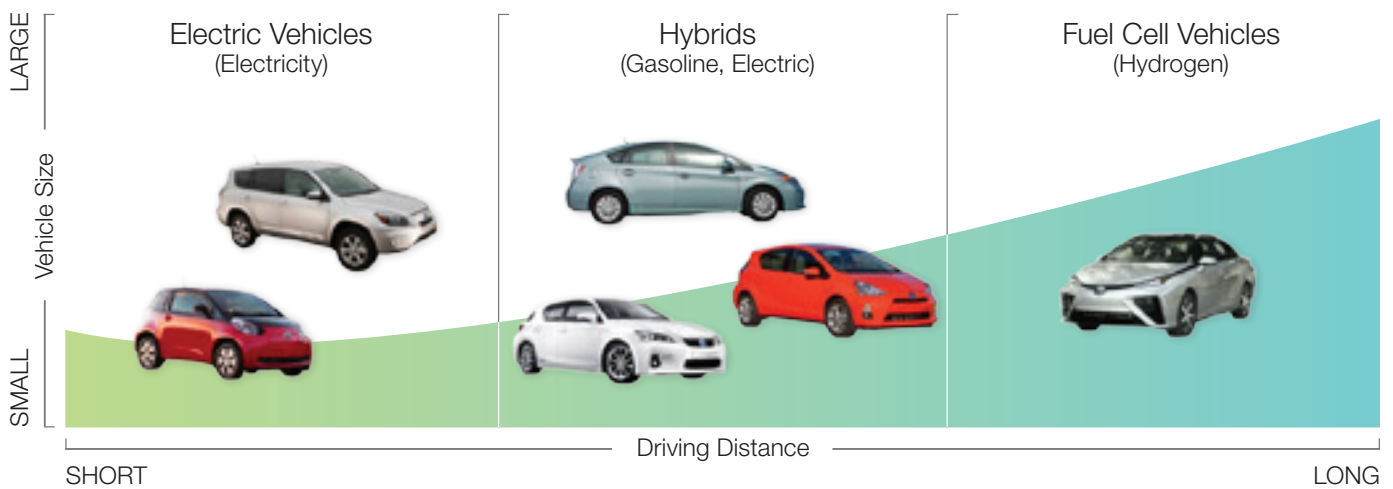
The new engines will be used in future models, and a total of 14 engine variations will be introduced globally by 2015. These engines will help Toyota achieve its future fuel economy and CO<sub>2</sub> vehicle targets.

## Advancing Alternative Powertrains

Improving fuel economy and reducing tailpipe emissions are major drivers for our investments in advanced technology. But it takes more than technology to design and build low or zero emission vehicles that the market will accept. We understand no one size fits all; that’s why we invest in researching driving trends, sociological behaviors, the changing energy and transportation landscape, and the evolution of cities. This research helps us understand which technology works in which circumstance so that we can build the vehicles that best suit the needs of the market.

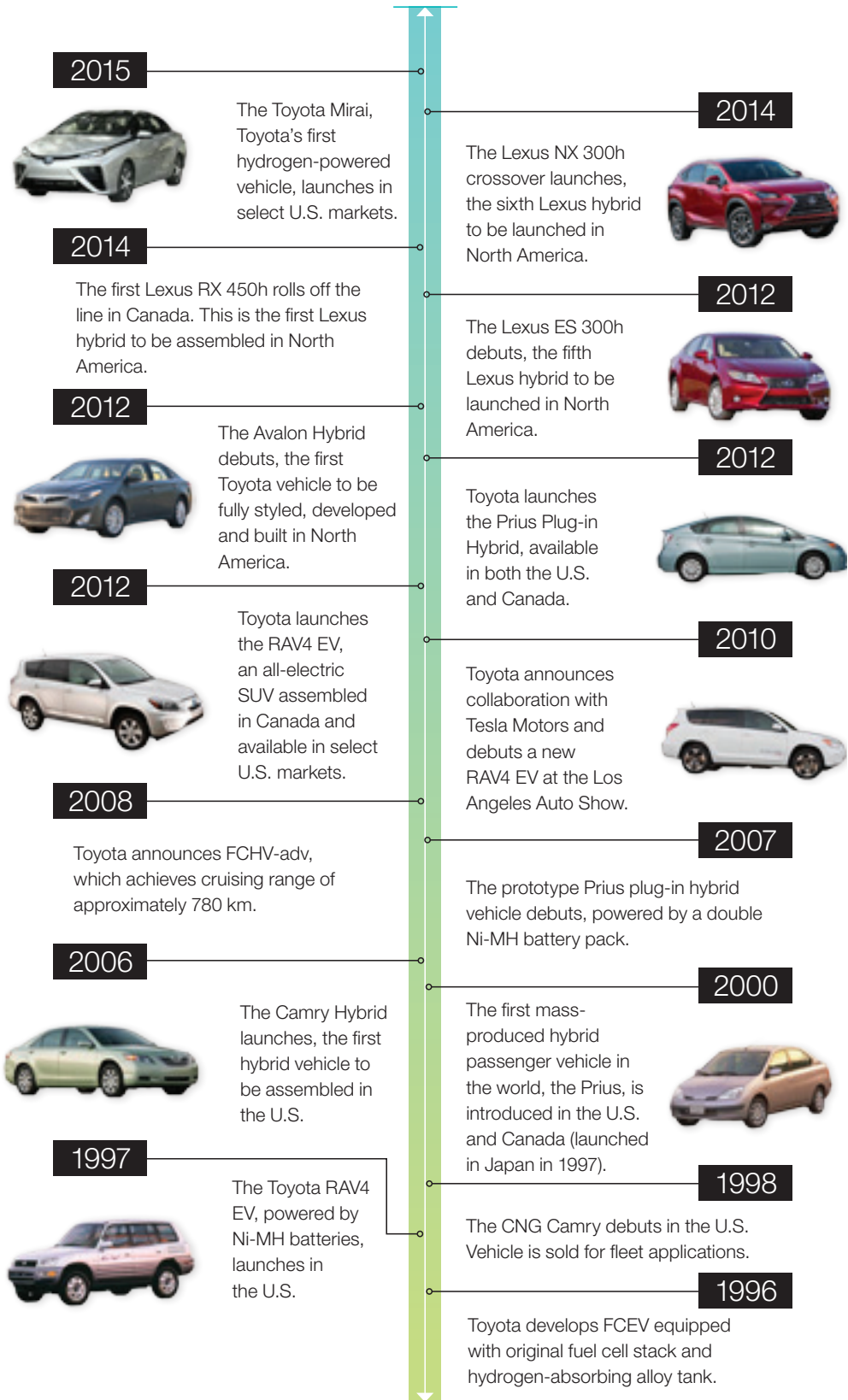
Our vision for small battery electric vehicles, for example, is based on short trips originating from home, while our Plug-in Hybrid and Fuel Cell Vehicle are meant for longer driving distances. We address customers’ needs for driving distance and vehicle size using different portfolio technologies. Across our portfolio, we continue to innovate for better fuel efficiency and lower emissions.

### FG8 • Toyota’s North American Advanced Technology Portfolio



\* The vehicles shown from left to right are: Scion iQ EV, RAV4 EV, Lexus CT 200h, Prius Plug-in, Prius c, and Mirai

FG9 • Advanced Technology Vehicle Milestones



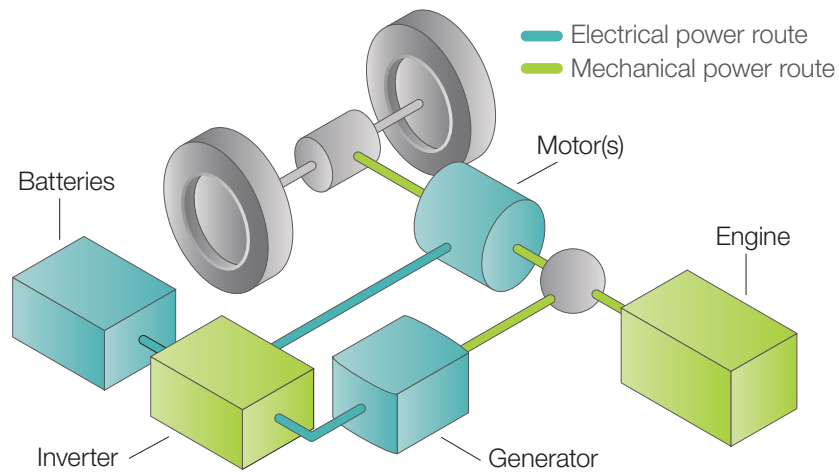
HYBRID VEHICLES

Toyota and Lexus have 13 hybrid vehicles currently on the market in North America, all using our unique series-parallel hybrid system. Hybrid technology is the foundation of Toyota’s approach to minimizing the environmental impacts of gasoline-powered vehicles. Knowledge gained from hybrid development and deployment is helping Toyota accelerate the introduction of future powertrains that can utilize a wide variety of energy sources and fuels, including hydrogen, biofuel and electricity.

FG10 • Toyota Hybrid System and Fleet

Depending on driving conditions, the engine and the electric motor(s) can work together, or the motor(s) alone can propel the vehicle.

Series Parallel Hybrid



Hybrid Fleet

The current fleet of Toyota and Lexus hybrids includes:

MODEL	YEAR LAUNCHED
Prius	2000
Highlander Hybrid	2005
Lexus RX 400h/RX 450h	2005
Camry Hybrid	2006
Lexus GS 450h	2006
Lexus LS 600h L	2006
Prius v	2011
Lexus CT 200h	2011
Prius c	2012
Prius Plug-in Hybrid	2012
Lexus ES 300h	2012
Avalon Hybrid	2012
Lexus NX 300h	2014

\* Launch dates refer to North American launches of the first generation of these vehicles.

## HYBRIDS BY THE NUMBERS

Global hybrid sales for Toyota and Lexus topped the six million mark in December 2013. The latest million-unit milestone was achieved in the fastest time yet, taking just nine months. Toyota calculates that as of the end of 2013, Toyota's global fleet of hybrid vehicles has resulted in an estimated 41 million fewer tons of CO<sub>2</sub> emissions than those emitted by gasoline-powered vehicles.

Between January 2014 and the end of 2015, Toyota plans to introduce 15 new hybrid models worldwide and expects global sales of its hybrids to be at least one million units a year. About one third of these will be sold in North America.

Over 2.4 million Toyota and Lexus hybrids spanning 13 models – including more than 1.7 million Prius Family vehicles and 273,000 Lexus hybrids – have been sold in North America (hybrid sales data YTD as of June 2014). On Earth Day 2014, Michigan Governor Rick Snyder recognized Toyota for being a pioneer in the sale of hybrid vehicles.

In the U.S., 85 percent of luxury hybrids sold are Lexus hybrids. In Canada, two of every three hybrids sold in 2013 were Toyota and Lexus vehicles.



The Lexus NX 300h is the brand's sixth hybrid. It's propelled by the Lexus Hybrid Drive system that incorporates a 2.5-liter Atkinson-cycle engine for a total system output of 194 horsepower. Though highly efficient, it's been tuned with an eye toward performance, with a new transmission that features a kick-down function that boosts acceleration. For balance, the engineers split the hybrid battery pack into two modules and located them on either side of the rear seat, further aiding driving dynamics. The 2015 Lexus NX appeared in U.S. showrooms in the fall of 2014.



To celebrate Earth Day 2014, Toyota displayed its advanced technology vehicles in front of the Michigan State Capitol building. Michigan Governor Rick Snyder recognized Toyota for being a pioneer in the sale of hybrid vehicles in the U.S., and “for its environmental stewardship and position as a leader in our state and nation in alternative fuel vehicle technologies.”



## FIRST-EVER GREEN BOND FINANCED THE PURCHASE OF 39,900 GREEN VEHICLES

In March 2014, Toyota Financial Services (TFS) issued the auto industry's first-ever Asset-Backed Green Bond in the amount of \$1.75 billion. The Green Bond was the newest component of TFS' broad-ranging funding program and brings new meaning to green innovation.

Proceeds of the TFS Green Bond were used to fund 39,900 new retail finance contracts and lease contracts for Toyota and Lexus vehicles. These vehicles met high green standards as established by three criteria:

- Gas-electric hybrid or alternative fuel powertrain
- Minimum EPA estimated MPG (or MPG equivalent for alternative fuel vehicles) of 35 city / 35 highway
- California Low Emission Vehicle II (LEV II) certification of super ultra-low emission vehicles (SULEVs) or higher, which would include partial zero emissions vehicles (PZEVs) and zero emissions vehicles (ZEVs)

Nine vehicles in the Toyota and Lexus portfolio of green vehicles qualified. Qualifying models from Toyota included: Prius, Prius *c*, Prius *v*, Prius Plug-in, Camry Hybrid, Avalon Hybrid, and RAV4 EV. From Lexus, qualifying vehicles were CT 200h and ES 300h.

“Investors have enthusiastically welcomed the industry's first Green Bond from Toyota Financial Services as a sign of our company's commitment to environmentally sensitive transportation,” said Mike Groff, TFS CEO. “The Green Bond itself represents the innovation that TFS brings to the financial marketplace in creating asset-backed investments that reflect the values of our company. This, in turn, enables us to provide Toyota customers with attractive financing options for their vehicles.”

To develop the Green Bond, TFS worked closely with Citi, which has a long-standing relationship with TFS and shares its commitment to green innovation. Citi served as the structuring lead manager of the bond, and Bank of America Merrill Lynch and Morgan Stanley acted as joint-lead managers.

FG11



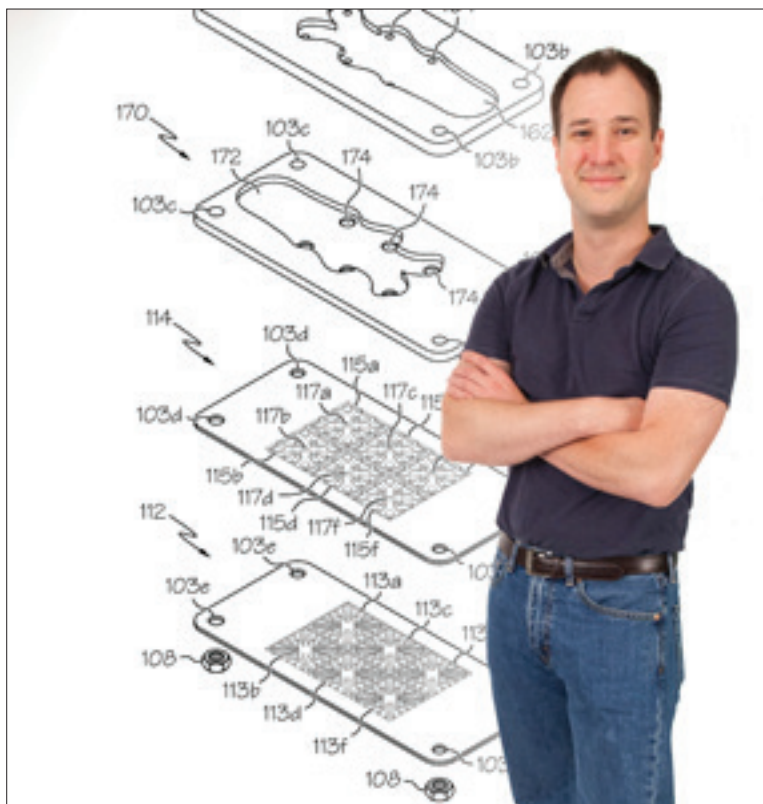
**SPOTLIGHT: If Your Hybrid is Even More Efficient in the Future, Thank This Guy**

Eric Dede has always been interested in the future. Futuristic concepts such as space and astronautics have consumed Eric’s attention for years. That’s how he ended up as a senior engineer for the University of Michigan’s Space Physics Research Laboratory. It’s also why he is now a Manager of the Electronics Research Department (ERD) at Toyota Technical Center (TTC), where his main responsibility is the development of elemental technologies for future hybrid vehicle power electronic systems. TTC is Toyota’s North American R&D division.

After spending considerable time working with the University of Michigan Space Physics Research Laboratory, Eric joined Toyota in 2008 to research and develop multi-physics simulation and thermal management technology for hybrid vehicle power electronic systems. While that may seem like a mouthful, it comes down to a pretty simple concept: Make Toyota’s hybrid vehicles even better.

Now six years after joining Toyota, Eric’s futuristic mindset has helped him invent something that has the potential to significantly improve the efficiency of hybrid vehicles: a new Micro-channel Cold Plate in electric vehicles and hybrids. It provides a 70 percent increase in heat transfer with a 50 percent reduction of pumping power. What that boils down to is the potential for a 10 percent increase in hybrid efficiency.

This invention has the potential to have such a major impact that it was recognized for an R&D 100 Award. The R&D 100 Awards, often called the “Oscars of Invention,” recognize and celebrate the top 100 technology products of the year. In a highly innovative and quickly evolving field, having one of the top 100 technology products is no small feat, but it’s not the first R&D 100 award Toyota engineers and scientists have won. It is, however, the first that resulted from research that was done entirely in-house at TTC. While the patent and resulting award bear Eric’s name, he’s certainly not one to take all the credit. “This was a great collaborative project that established useful methods for the advanced design and optimization of electromechanical systems,” Eric said.



Eric and his fellow TTC scientists and engineers were recognized at a special “Innovation Dinner” held June 19, 2014 near the TTC campus in Ann Arbor, Michigan. The United States Patent and Trademark Office issued 1,355 patents to Toyota engineers and scientists in 2013. Toyota commends the awardees for their efforts in furthering Toyota’s recognition not only as a leading automotive company, but also as a leading technology company.

Eric Dede stands in front of his patent composite. Eric invented a new Micro-channel Cold Plate that increases hybrid efficiency by 10 percent.

**PLUG-IN HYBRID VEHICLES**

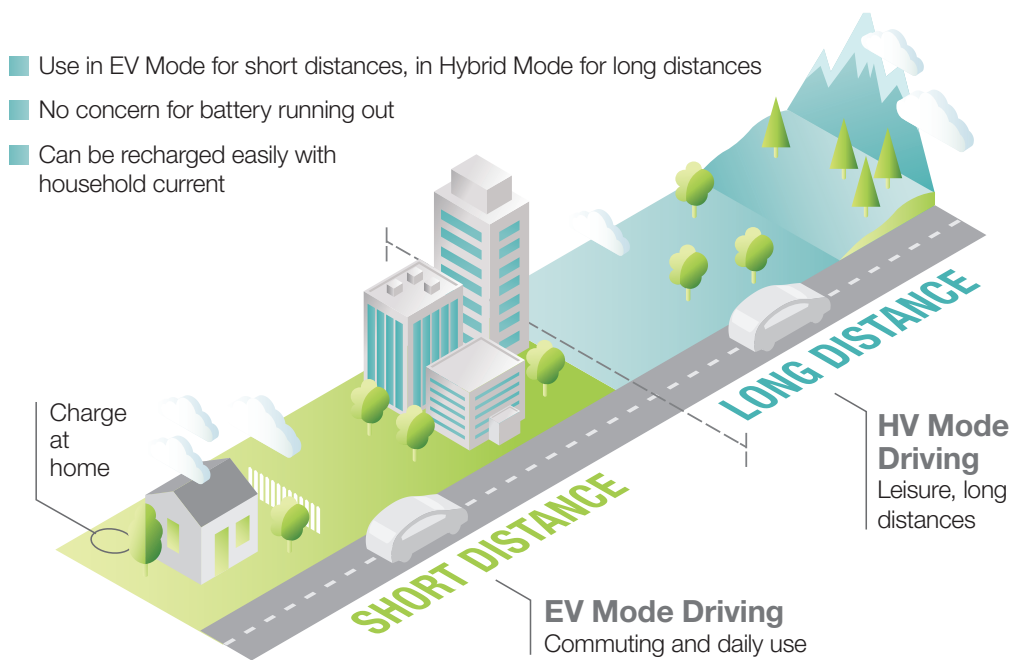
Plug-in hybrid vehicles use electricity from the power grid to partially offset the use of gasoline. As such, these vehicles typically release fewer emissions while in operation than a conventional vehicle. While the life cycle implications vary (based on the source of the electricity), Toyota views the plug-in hybrid vehicle as a way to reduce fuel consumption and tailpipe emissions (including CO<sub>2</sub>) beyond a standard gasoline-electric hybrid vehicle.

In 2012, Toyota launched the Prius Plug-in Hybrid in both the United States and Canada. Toyota’s Prius Plug-in offers all the advantages and utility of a conventional hybrid vehicle. Its 4.4 kWh lithium-ion battery can be charged using a 120V outlet in about three hours (with a dedicated 15 amp circuit).

The Prius Plug-in can operate on battery power alone at speeds up to 62 miles per hour and is rated by the U.S. EPA with an EV Mode range up to 11 miles. For longer distances and at speeds above 62 miles per hour, the Plug-in automatically switches to hybrid mode and operates like a regular Prius.

The EV mode fuel economy for the Prius Plug-in is EPA-rated at 95 MPGe (miles per gallon equivalent). In hybrid mode, the Prius Plug-in has a combined EPA rating of 50 MPG. The total EPA-rated driving range is 540 miles on a single charge and single tank of gasoline. Drivers who charge the vehicle regularly and use it for street driving on frequent short trips will realize the biggest reduction in gasoline usage.

**FG12 • Plug-in Hybrid Vehicle Characteristics**



**A Plug-in Hybrid Vehicle is the integration and innovation of HV and EV technologies**

**BATTERY ELECTRIC VEHICLES**

Battery electric vehicle (BEV) consumers embrace the technology for its smooth drive, excellent acceleration and zero tailpipe emissions, yet these vehicles represent a small percentage of the overall vehicle market. For most consumers, limited vehicle range and battery recharge time remain barriers to consideration. Toyota has active research in battery technology – both for today’s lithium-ion technology and for the future “beyond lithium” – that seeks to improve range and recharge time.

Toyota engineers have been studying electric vehicles for nearly 40 years. Alongside the company’s groundbreaking hybrid, plug-in hybrid and fuel cell vehicles, BEV technology represents another component of Toyota’s long-term vision for future mobility. While BEVs may not be the solution for every customer, they are one option in our portfolio of advanced technologies and we are working with partners like the [Department of Energy’s National Renewable Energy Lab](#) and others to determine where electric vehicles make sense and how to integrate the vehicle, the customer and the power grid.



In early 2013, we announced our first partner for the Scion iQ EV. The University of California Irvine has placed 30 iQ EVs, 10 for use in their ZEV NET car sharing program and 20 for a Smart Grid project. Toyota uses the iQ EV as part of a research project to validate smart charging system architecture.

**RAV4 EV**

Toyota’s second-generation RAV4 EV, developed in partnership with Tesla Motors, Inc., was the first all-electric SUV on the market in North America. It is produced at our assembly plant in Woodstock, Ontario.

The RAV4 EV has an EPA-rated driving range of 103 miles and a fuel economy of 76 combined miles per gallon equivalent (MPGe) rating.<sup>1</sup>

The vehicle has a 41.8 kWh lithium-ion battery pack. When plugged into a Level 2, 40-amp, 9.6-kW output charging unit, the RAV4 EV’s battery pack can be fully replenished in as little as five hours.<sup>2</sup> The vehicle comes equipped with a 120v charging cable for use when Level 2 charging is not available.

Our agreement with Tesla called for 2,500 battery-electric powertrains over a three-year period. We anticipate that volume will be achieved during fiscal year 2015. We have a good relationship with Tesla and will evaluate the feasibility of working together on future projects.

<sup>1</sup> EPA-rated driving range when vehicle is fully charged. Excludes driving conditions. Actual mileage will vary. MPGe based on 2013 EPA ratings. Actual MPGe will vary based on driving habits, charging practice, battery age, weather, temperature, and road/traffic conditions. Battery capacity will decrease with time and use. For more information on MPGe and range, please see [www.fueleconomy.gov](http://www.fueleconomy.gov).

<sup>2</sup> Charging times when vehicle is in Normal Mode and ambient temperature is at 77 degrees F. Charging times will vary with ambient temperature.

## FUEL CELL VEHICLES

From the same company that started a revolution with the Prius, Toyota launches its first fuel cell vehicle (FCV) in North America at the 2014 International Auto Show in Los Angeles.

Toyota's first-ever production fuel cell car – the Mirai – is a zero-emission, electric drive, four-door sedan that is expected to have a driving range of about 300 miles and is able to be refueled in three to five minutes.

The Mirai uses hydrogen instead of gasoline and emits only water vapor instead of the typical tailpipe exhaust emissions. Hydrogen can be manufactured using natural and renewable energy sources like solar, wind, landfill gas, and bio-gases.

Toyota has 10 years of real-world, on-road testing of the fuel cell technology to help ensure peace of mind for the consumer. Members of Toyota's fuel cell vehicle team have logged more than one million test miles from as far north as Yellowknife, Canada, to Death Valley, California, experiencing extreme hot and cold temperatures and varying altitudes along the way. The vehicle performed flawlessly. In fact, according to team leader Matt McClory, it was the rental car that broke down.

“We are excited to see the FCV go to market, and are very proud of the hard work our team is contributing to make the vehicle's success,” said Matt.

For more information about Toyota's fuel cell vehicle, please visit [www.toyota.com/fuelcell](http://www.toyota.com/fuelcell).



At Toyota's "Experience the Future of Mobility" exhibit at the 2014 Aspen Ideas Festival, Toyota staged the North American debut of its "Car of the Future." The zero-emission Mirai fuel cell vehicle will be available for sale to customers in California in late 2015.

## SPOTLIGHT: One Woman's Obsession With Changing the World

As an engineer at Toyota Technical Center in Ann Arbor, Michigan, Jackie Birdsall is obsessed with bringing fuel cell technology to the masses. But perhaps you need to be obsessed when you're trying to change the world. After all, revolutions don't blossom from complacency.

Leading an alternative fuel revolution is just what Birdsall and her partners on the fuel cell vehicle team are doing. Collectively, they're finding tangible ways to reduce fossil fuels in the automobile world and figuring out how hydrogen fuel cells can be useful and affordable. Individually, Birdsall's job is to test Toyota's fuel cell vehicle and ensure hydrogen stations fill tanks in a reasonable amount of time. She also represents Toyota on a variety of codes and standards committees.

In 2015, Birdsall's obsession will bear fruit when Toyota's FCV hits the markets in California, Japan and Europe.

Her passion for the auto industry started as a teen, and the California girl decided to go to Kettering University, formerly General Motors Institute, in Flint, Michigan. Flint was a major player in the auto industry's history. Some of America's greatest cars were manufactured there, and she could live on Chevrolet Avenue. What more did she need?

"They had great classes," Birdsall says. "You get to learn metallurgy and welding and the applied math and theory behind how an engine works. I got so excited about it. It blew my mind."

Kettering's unique split between classroom and work experience did its job. She stumbled upon Daimler-Chrysler's fuel cell prototype during that 2003 internship. That was a key moment in her life.

"So I can work on a car that has zero emissions, that uses fuel you can make from any domestic resource, fills up in a matter of minutes and can completely replace the internal combustion vehicle?" She says, "I became obsessed."

The path to Toyota fell into place: Move to Vancouver for a co-op with General Hydrogen, a fuel cell forklift company. Then graduate from Kettering and join the California Fuel Cell Partnership to help major car companies develop hydrogen-powered vehicles. Birdsall finally came to Toyota in 2012 because it was clear they would be one of the first companies to mass produce hydrogen fuel cell vehicles.

The highlight of her life so far? Maybe the time she saw Geoffrey Ballard at General Hydrogen. "He was a huge advocate for fuel cells," Birdsall says. "He was THE MAN!"

Turns out the late Dr. Ballard is the founder of General Hydrogen and is considered the father of the fuel cell industry. That explains Birdsall's excitement about meeting him. Imagine a movie buff seeing Walt Disney or Charlie Chaplin back in the day. That's the kind of importance we're talking about.

Ballard is part of the reason Birdsall is at Toyota. He's part of the reason Toyota is proud to be among the first to bring hydrogen-powered cars to market.

Even when that happens, Birdsall's fuel cell obsession won't stop. But it will be a pretty big moment for her and her teammates at Toyota. "Right now, I have the best job in the world for me," she says. "I'm going to lose my mind when the first vehicle rolls off the production line. To be talking about a full commercial launch, that's pretty much the biggest victory I can have in my life."



**The Unveiling** – When Toyota showed off the FCV to the world at the 2013 Consumer Electronics Show in Las Vegas, Birdsall (right) took it all in with Senior Engineer Jared Farnsworth (center) and Engineer Andrea Lubawy (left).

## Supporting Infrastructure for Advanced Technology Vehicles

Alternative transportation fuels such as ethanol, biodiesel, natural gas, hydrogen and electricity are already in the marketplace here in North America. The availability and diversity of these alternatives to gasoline and diesel play a key role in helping countries realize their energy security and greenhouse gas emissions reduction goals.

Our vehicle portfolio approach takes into account the diversity of alternative transportation fuels currently available, as well as those on the horizon. But there are several hurdles to overcome before advanced technology vehicles can realize full-scale commercialization. Infrastructure development is one of these hurdles.

Through the California Fuel Cell Partnership (CaFCP), the Fuel Cell and Hydrogen Energy Association (FCHEA), H2USA, and the California Plug-in Electric Vehicle Collaborative, Toyota is working with government agencies (including the U.S. Department of Energy), other auto manufacturers, utilities and other key stakeholders to support the development of necessary infrastructure for advanced technology vehicles.

### PLUG-IN EV CHARGING INFRASTRUCTURE

As states push for putting more zero emission vehicles on the road, the sale of battery electric and plug-in hybrid electric vehicles is expected to accelerate. The infrastructure for these vehicles needs to keep pace. But there is more to infrastructure than the availability of charging stations – the power grid must also be ready to handle the demand.

Toyota is supporting the development of this infrastructure by taking a two-pronged approach: We are partnering with the U.S. Department of Energy to research ways for grid operators to accommodate this new demand for power, and we are collaborating with a group of energy companies to help consumers manage the impacts of charging to their time, their wallets and the grid.



## HELPING THE GRID ACCOMMODATE A GROWING ELECTRIC VEHICLE FLEET

In September 2013, U.S. Energy Secretary Ernest Moniz dedicated the Energy Systems Integration Facility (ESIF) at the Department of Energy's National Renewable Energy Laboratory (NREL). This facility will be crucial to adding more renewable energy to the nation's energy system and building the reliable, clean energy infrastructure America vitally needs.

The Toyota Research Institute-North America is working with NREL and the Department of Energy to test real-world interactions between the electricity grid, plug-in vehicle charging, solar power and home electronics. A real residential electrical grid with vehicle charging infrastructure, solar power and energy storage is being constructed in a laboratory setting. Scientists and engineers at the ESIF and NREL's Vehicle Testing and Integration Facility will use 20 Prius Plug-in hybrid electric vehicles to develop and explore ways to help grid operators accommodate the fast-growing U.S. electric vehicle fleet, including how to use signals from the grid to curtail charging when the grid is at peak.

The ESIF will also allow industry decision makers to model what an increasing penetration of solar or wind energy onto the grid would look like in real time, at a level of accuracy and detail never seen before. Manufacturers can test new energy equipment at megawatt scale. Vendors can analyze the optimal equipment balance as the energy system adds storage and two-way data sharing. ESIF brings together pertinent tools to integrate technologies in ways that weren't possible before.

## HELPING CUSTOMERS MANAGE ELECTRIC VEHICLE CHARGING

When is the best time to charge your Prius Plug-in or RAV4 EV? Or any electric vehicle, for that matter? As more electric vehicles need charging, our power grids will experience an increase in demand. And the cost of using that electricity varies depending on the time of day.

To help consumers manage charging (and their wallet), Toyota participated in a pilot project in 2013 with Duke Energy, Leviton, Sumitomo Electric, and Energy Systems Network (ESN). Toyota is collaborating with these companies to validate smart charging system architecture. The pilot project tested emerging SAE standards for optimal charging from both a technical and customer point of view.

Five Duke Energy employees living near Indianapolis participated during the first half of 2013; five additional customers from the same region participated in the second half of the year.

The study was focused on ease of customer use. Customers want an easy and intuitive experience. Using an iPad app, customers could choose either the default charge settings, or could change parameters such as start time, completion time, battery state of charge, and the estimated price for the charge.

Both groups of participants had a high acceptance rate of default charge settings, demonstrating that the optimum charging system works effectively. Beyond the customer experience, benefits of charge control include delaying infrastructure upgrades, peak power management, and reduced losses from overworked transformers.

Now that the first part of the study is complete, the next step will focus on validating optimal charging control service with cloud assist to minimize power grid impact and charging cost, and to accommodate customer preferences for completion time. The University of California Irvine Smart Grid Demonstration is the perfect setup for the next step. The 20 Scion iQ EVs Toyota placed with the university are being used for this project.

## HYDROGEN INFRASTRUCTURE

With each step, a hydrogen-driven future comes closer and closer. The transition from gasoline to hydrogen as the predominant fuel that powers passenger vehicles has begun to ripple across the North American landscape. And, 50 years from now, industry historians might well look back and say that the epicenter of this seismic event was the Toyota U.S.A. Automobile Museum in Torrance, California.

That's where some 160 people—representing automakers, energy suppliers, academia, and state and local governments—gathered in April 2014 for a half-day summit. Their mission: to share insights and inspire action that will give rise to a viable network of stations where customers can refuel their hydrogen fuel cell vehicles safely, conveniently and affordably.

The California Governor's Office of Business and Economic Development (known more simply as GO-Biz) organized the event. Toyota provided the venue as well as its views on this emerging technology. Honda, Hyundai, General Motors and Mercedes also participated.

"When Honda and Toyota launched hybrids, there were a lot of naysayers," said Craig Scott, National Manager of the Advanced Technologies Group at Toyota Motor Sales (TMS). "Fuel cell is different. There are five or six brands bringing vehicles to market in a near simultaneous launch. I don't think there's ever been a time when something like this happened all at once."

But even though the vehicle technology is ready, fueling stations are not. Currently, just nine public hydrogen stations exist throughout the entire state of California, including one across the street from TMS headquarters. This station is unique, because it was the first station to be fed by an active industrial hydrogen pipeline. Danny Santana, Senior Planning Associate for the City of Torrance, shared his city's experiences getting this hydrogen station up and running, assuring his fellow officials that it can be done.

"When it was first proposed, there was a lot of concern," he said. "It was sited right next to several single family homes and we didn't have the codes to address it. Also, the residents were concerned about the word 'hydrogen.' We held a town hall meeting and were able to overcome the Hindenburg fears. Everyone came together and we were able to turn (the approval process) around in five weeks."

"We shouldn't fear this technology," said Jim Martin, Hydrogen Retail Advisor for Shell Oil Company. "The codes have been developed. When we put a station in West Los Angeles, we were required to make the tanks bullet proof. Everyone is much more aware of what's needed now."

Within three years, it's anticipated there will be 68 stations in California. And the total could top 100 a few years after that, helped along by \$200 million per year in state seed money. By comparison, gasoline-powered vehicles can now refuel at approximately 10,000 stations statewide.

Due in part to the high efficiency of this new technology, California won't need nearly that many hydrogen stations to make the fuel viable. But, as Hector De La Torre, a member of the California Air Resources Board (CARB), noted, "This is not pie in the sky. People will approach you to locate hydrogen stations in your towns. We need your help to make it happen. These cars are coming."

TMS and its affiliate Toyota Motor Credit Corporation (TMCC) are doing their part by entering into a group of financial agreements with FirstElement Fuel Inc. By supplementing grant money from the state, the partnership with FirstElement will support the long-term operation and maintenance expenses of new hydrogen refueling stations in California. FirstElement, as part of the agreement, will work to develop an integrated and reliable network of fueling stations across California in target market locations approved by Toyota and consistent with the California Fuel Cell Partnership Road Map.

“The first few years here in California will be a critical period for hydrogen fuel cell technology,” said Bob Carter, Toyota’s Senior Vice President of Automotive Operations. “We are showing the future owners of this amazing technology that Toyota is helping to ensure that hydrogen refueling will be available, no matter what car brand is on the hood.”

Industrial gas supplier Linde LLC also plans to build a hydrogen fueling station on TMS-owned property located in San Ramon, California, adjacent to Toyota’s San Francisco Regional Office and Parts Distribution Center. This location will serve local and regional customers, and will function as an important connector site between the Sacramento and San Joaquin Valleys and the San Francisco Bay Area.

“This is just a start, but it’s the first step in getting to the point in the near future where this technology will move into the mainstream,” said Carter.



**Creators of the Cars** – The summit led off with a panel representing five of the automakers who plan to bring a hydrogen fuel cell vehicle to market soon, including (left to right): Kevin Lee of Hyundai, Ronald Grassman of Mercedes, Stephen Ellis of Honda, Alex Keros of General Motors and Craig Scott of Toyota. Journalist Alan Ohnsman of Bloomberg moderated the discussion.

## Vehicle Target & Performance

**Target: Successfully introduce new hybrid models in North America through FY2016 to reduce Toyota's product carbon footprint (on track)**

While Toyota did not introduce any new hybrid models in North America during fiscal year 2014, sales of our existing Toyota and Lexus hybrids continued to do well ([see Hybrids by the Numbers](#)). We launched the 2015 Lexus NX 300h crossover in the fall of 2014. Toyota has plans to introduce additional hybrid models through fiscal year 2016.

### FUEL ECONOMY & CO<sub>2</sub> PERFORMANCE

Toyota offers several models that achieved best-in-class fuel economy ratings in 2014. Toyota Prius, the brand's first production gas-electric hybrid model, was named one of the "10 Best Green Cars" for 2014 by *Kelley Blue Book's* KBB.com. KBB.com editors compiled a list of the most efficient vehicles available and then picked 10 standouts featuring a variety of price ranges and powertrains. The list also takes into account production methods and recyclability, and the editors try to seek vehicles appropriate for varying lifestyles.

Natural Resources Canada (NRCan) named six Toyota vehicles as best-in-class for fuel efficiency for the 2014 model year. That's more than any other auto manufacturer. The vehicles awarded by NRCan for the lowest estimated annual fuel use in their respective classes were:

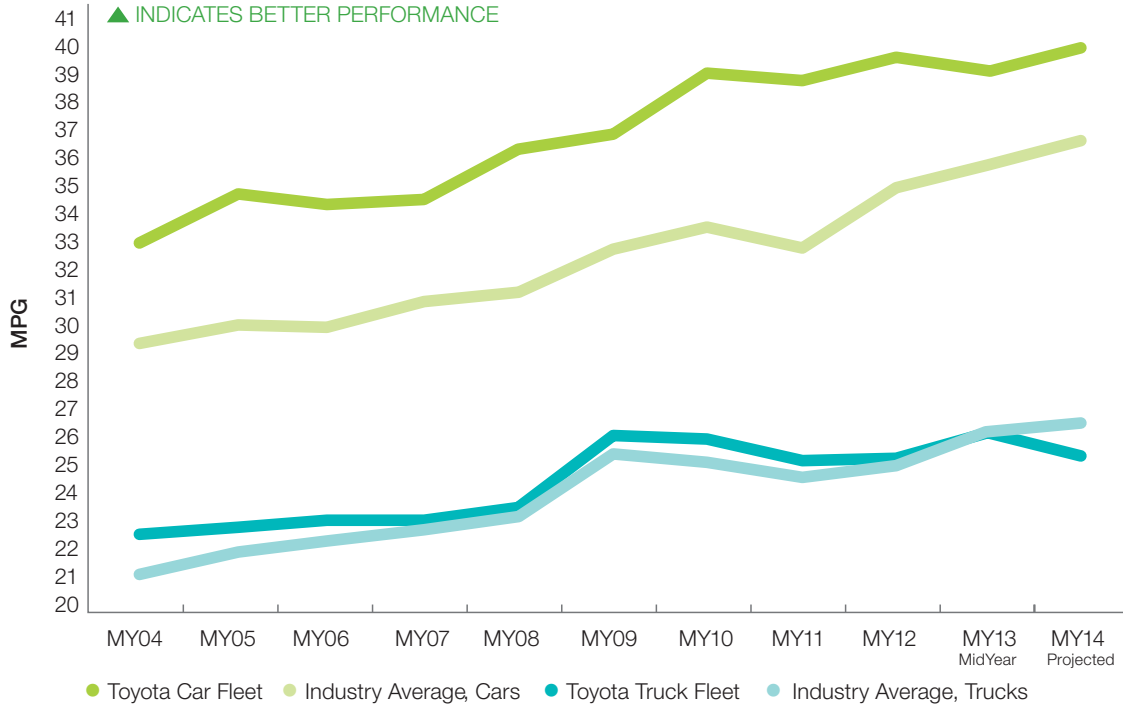
- Toyota Prius *c* (Compact car)
- Toyota Prius (Mid-size car)
- Toyota Prius *v* (Mid-size station wagon)
- Toyota Tacoma (Small pickup truck)
- Toyota Highlander Hybrid AWD LE Plus (Standard SUV)
- Scion iQ (Mini-compact car)

This marked the 14th year in a row that a vehicle from the Prius Family was named to the list, including the Prius *v* leading the way in each of the three years it has been on the market. In fact, this year every Prius hybrid model won its respective category. It was also the fourth consecutive year the Tacoma pickup received the accolade.

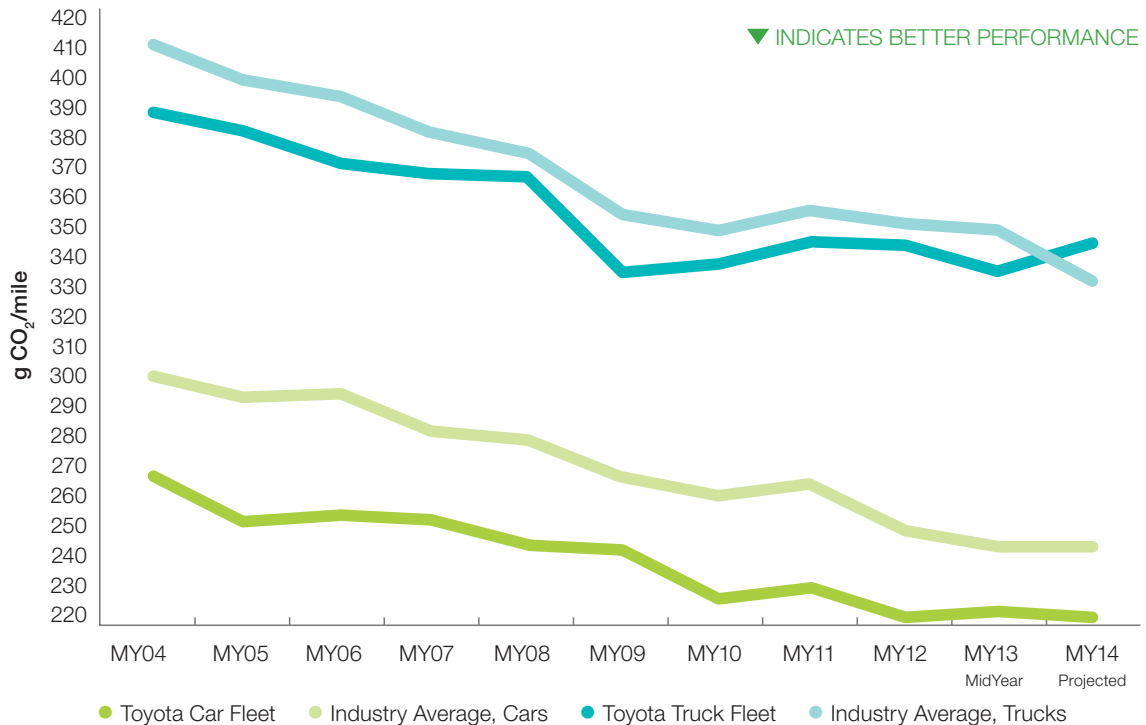
Toyota achieved the required U.S. Corporate Average Fuel Economy (CAFE) standards and met the required GHG standards in both the United States and Canada.

UNITED STATES

FG13 • U.S. Car Corporate Average Fuel Economy, or CAFE



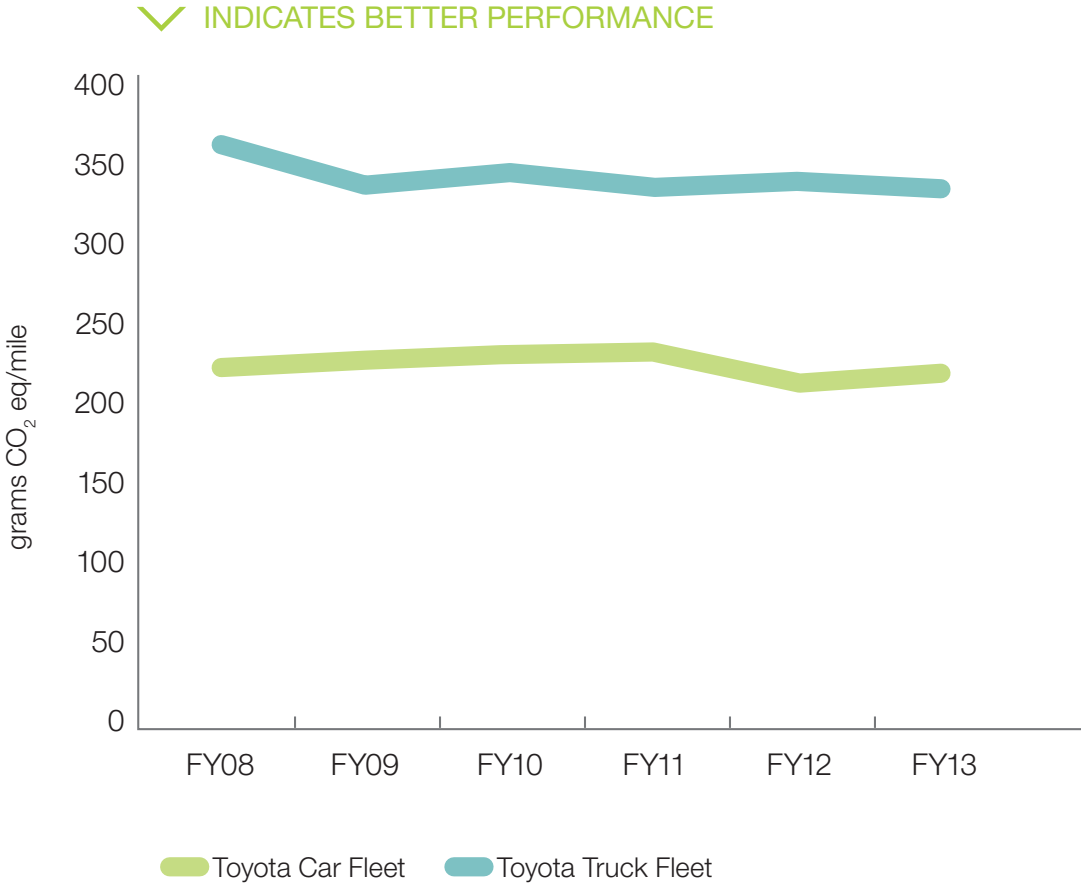
FG14 • Annual CO<sub>2</sub> per Mile\*, Toyota U.S. Fleet



\*This data represents CAFE fuel economy performance in terms of CO<sub>2</sub> (grams per mile) and does not reflect provisions in the U.S. EPA GHG program (starting 2012 model year) such as air conditioning credits.

CANADA

FG15 • Annual CO<sub>2</sub> per Mile\*, Toyota Canada Fleet



\*Based on CO<sub>2</sub> emissions data reported to Environment Canada

## OPERATIONS

Toyota pursues opportunities for reducing energy use and greenhouse gas (GHG) emissions in all areas of our operations: at manufacturing plants, office buildings and logistics centers, and during the transportation of vehicles and parts from our plants and distribution centers to the dealers. By investing in innovative technologies such as hybrid battery storage and LED lights, we strive to find efficiencies and opportunities for continuous improvement.

Toyota's approach to minimizing the carbon footprint of our activities in North America has three main parts: 1) reducing energy use, 2) increasing the use of renewable and alternative energy, and 3) meeting energy and GHG reduction targets.

### Reducing Energy Use

Toyota's North American operations use over one billion kilowatt-hours of electricity each year; this is in addition to the natural gas, diesel and gasoline consumed. While most of this energy is used at manufacturing plants to build powertrains and vehicles, all of our facilities, down to the smallest office, carefully manage energy use. From simple lighting retrofits to more complicated adiabatic humidification projects, team members and associates across Toyota continue to find *kaizens* – opportunities for continuous improvement – that make our processes more energy efficient.

#### ALABAMA'S INVESTMENTS IN EFFICIENCY

Toyota's engine plant in Alabama has switched to higher-efficiency motors and uses compressed air more efficiently. They also use LED lighting, solar lights and daylighting to reduce their purchased electricity. These projects – part of a \$1 million investment into making Toyota Motor Manufacturing, Alabama more environmentally sustainable – result in annual savings of more than 3.3 million kWh and more than 2,000 metric tons of CO<sub>2</sub>.

#### ALUMINUM MELTING KAIZEN

Canadian Auto Parts Toyota, Inc. (CAPTIN), our aluminum wheel manufacturer in Delta, British Columbia, has reduced annual natural gas usage by about 220,000 cubic feet, thanks to a creative improvement to the chip melting process. Last fiscal year, CAPTIN melted about 19,000 metric tons of aluminum to produce 1.4 million wheels. When the chip melting process was first installed, aluminum chips entered a melt furnace and were then poured off into a holding furnace, where the metal was cleaned. The molten metal was then distributed to the casting process. Now, molten metal is transferred directly from the melt furnace to the casting process through a trough, which doesn't require any energy to operate.

Team members have drained and shut down two holding furnaces. Removing these furnaces eliminates natural gas usage and reduces GHG emissions by 336 metric tons per year. The amount of dross (solid impurities within the molten metal) has also been reduced by 4,500 kilograms (9,920 pounds) per month. This project took team members less than one year to conceive and implement, and is reducing the plant's operating costs by over \$55,000 a year.

#### CAFETERIA KAIZEN

At our Canadian sales headquarters in Toronto, the salad bar in the cafeteria was identified as a high energy user. To reduce energy use, an electronic timer was installed that automatically turns the unit on at 6:30 a.m. and off at 1:30 p.m. on weekdays. This eliminates the need for someone to remember to turn it off before they leave. The return on investment was under 3.5 weeks and saves in excess of 3,400 kWh a year.

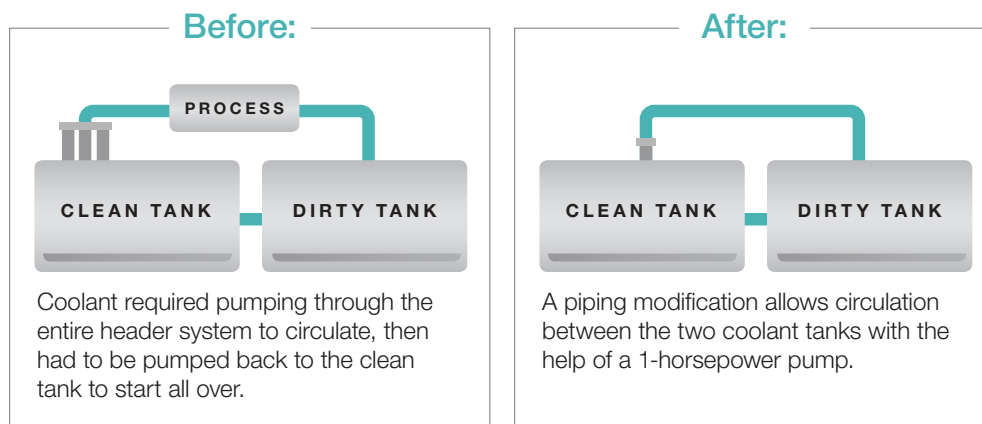
**COOLANT SYSTEM KAIZEN**

In the powertrain area of our assembly plant in Georgetown, Kentucky, the centralized coolant system for the V6 engine machining process requires constant circulation—even during non-production times—to prevent stagnation. Stagnation accelerates bacterial growth, which can ruin the coolant. This can lead to impacts to the life of the tools, unwanted odors, and potential impacts to part quality.

A high-efficiency, one-horsepower pump that can pump up to 4,000 gallons per hour replaced three 30-horsepower pumps. The small one-horsepower pump has a spray nozzle to aerate the coolant and prevent bacteria from growing.

Team members designed a piping modification that allows the smaller pump to circulate coolant between two side-by-side tanks. The modification means the coolant no longer has to be pumped through the entire header system to circulate. This *kaizen* has reduced annual energy use in the V6 coolant system by 670,000 kWh.

**FG16 • Coolant System Energy Reduction**



**ELIMINATING WELDING SPATTER**

Toyota plants all over the world have implemented numerous improvements to the spot weld process to try to reduce, or even eliminate, weld spatter. The Weld Integrity Team at Toyota Motor Manufacturing, Kentucky (TMMK) took a fresh look at their welding process and found a way to improve it even further. In doing so, they cut electricity use by 21 percent.

Resistance welding electromechanically fastens metal parts together. In the Body Weld shop at TMMK, a combination of team members and more than 700 robotic welders make more than 4,200 spot welds per vehicle, transforming the steel parts into the strong body shell that is the foundation of the finished vehicle.

Weld spatter is produced when small particles of metal are expelled during the spot weld process. The spatter can create a ragged edge, or burr, which can cause lacerations to customers or team members and create visual defects on the vehicle body shell.

By atomizing the oil spray used during spot welding and optimizing weld parameters (such as voltage and current), team members were able to reduce annual electricity use by more than 1.6 million kWh – a 21 percent improvement – and oil use by 97 percent. Just as significant is the reduction in visual defects. This is the first time an atomizer has been used in a Toyota plant for welding. Over 40 percent of the robotic welders at TMMK are now spatterless.



## LEED® PLATINUM OFFICE

The Lexus Eastern Area Office in Parsippany, New Jersey, was awarded Platinum LEED certification in 2014. This is Toyota's 12th facility to become LEED certified and is our first to be awarded Platinum, the highest level of certification granted by the U.S. Green Building Council.

The building was designed to maximize energy efficiency opportunities. Out of a minimum of 80 points needed to reach Platinum, Lexus Eastern earned 10 points for lighting and zoning controls. The HVAC system was designed with separate control zones for each solar exposure. All private offices and special occupancy spaces (such as conference rooms) have active controls capable of sensing space use and modulating the HVAC system in response to space demand. Each of the private offices and special occupancy spaces are provided with a separate thermostat control. The use of LED technology and occupancy sensors reduces lighting power by 35 percent.

Renewable energy certificates have been purchased to offset carbon emissions from 100 percent of the building's electricity.

In addition to these energy efficiency measures, Lexus Eastern also uses 40 percent less water (compared to a typical office space) by incorporating high-efficiency, low-flow plumbing fixtures. During construction and demolition, 83 percent of the waste was diverted from landfill. [Click here](#) for information on the site's recycling and compost program.

LEED (Leadership in Energy and Environmental Design) is a point-based system administered by the U.S. and Canadian Green Building Councils promoting a whole-building approach to sustainable construction and remodeling. LEED certification is based on meeting stringent evaluations in sustainable site development, energy efficiency, water savings, materials selection and indoor air quality.

For a full list of Toyota's LEED certified facilities, please see [Performance](#).

## LIGHTING UPGRADES

Over the last several years, lighting upgrades have been completed in many Toyota facilities, including the Toronto head office just this past year. As a result of energy-efficient lighting and sound energy management, Toyota's Boston Parts Distribution Center and Regional Office was recognized as a 2014 ENERGY STAR Certified Building. The ENERGY STAR label is widely recognized as the symbol for superior energy performance. ENERGY STAR certified buildings and plants meet strict energy performance standards set by the U.S. Environmental Protection Agency. They use less energy, are less expensive to operate, and cause fewer greenhouse gas emissions than their peers.

Our sales offices recently evaluated ultra-efficient LED lights, which were installed along with integrated motion control sensors as part of a pilot project on one floor at Gramercy Plaza in southern California. The pilot project was successful: Electricity demand decreased by over 70 percent.



## LOGISTICS KAIZENS

In 2014, Toyota Transport, our in-house trucking carrier for completed vehicles, renewed its membership as a carrier in U.S. EPA's SmartWay® Transport Partnership, a market-driven partnership aimed at helping businesses move goods in the cleanest, most efficient way possible. According to EPA, SmartWay partners have eliminated 51.6 million metric tons of

CO<sub>2</sub> in the 10 years since the program began, resulting in savings of 120.7 million barrels of oil and \$16.8 billion in fuel costs.

One of the main purposes of SmartWay is to improve fuel efficiency and reduce GHG emissions from the movement of goods. Between November 2012 and June 2013, Toyota Transport implemented *kaizens* that resulted in a 6.5 percent improvement in fuel efficiency for their truck fleet. That may not sound like much, but when you consider these trucks drive over 95,000 miles each year, it adds up: The 10 percent reduction in diesel consumption equates to annually eliminating 2,000 metric tons of CO<sub>2</sub> emissions.

To achieve this improvement in fuel efficiency, Toyota Transport upgraded all 91 trucks in its fleet with selective catalytic reduction technology and equipped 84 trailers with battery-powered trailer adjustment motors. The older trailers had to idle during loading and unloading, in order to move the trailer tables up and down. The new equipment is hydraulic, and we no longer have to idle during loading and unloading. This eliminates 2.5 hours of engine idling per haul. With over 42,000 hauls last year, that's 105,000 hours of no idling.

In the beginning of 2014, we also began using a delivery specialist scorecard to track how our drivers were performing. We track their miles per gallon, as well as their attention to safety and other criteria. If a driver achieves better than 6 MPG, they receive a monetary reward. Since implementing the program, we have already had 25 drivers (20 percent of the driver population) achieve this milestone. This program will help us drive further improvements in our fuel efficiency.

## PAINT BOOTH KAIZEN

Toyota's assembly plant in Princeton, Indiana, reduced the volume of air that has to be conditioned in the paint booths. Adequately conditioning the air is necessary for the paint to adhere to the vehicle. By reducing the air velocity in the booths and the downdraft in the spray zones, less air has to be conditioned for proper temperature and humidity.

This project reduced energy use by 125,000 MMBtus and GHG emissions by 8,900 metric tons. In addition to the energy and GHG savings, the improved paint transfer efficiency also led to reductions in paint usage and VOC emissions.

This *kaizen* received the 2013 Region III Project of the Year Award from the Association of Energy Engineers (AEE).



Toyota's plant in Indiana (TMMI) received the 2013 Region III Project of the Year Award from the Association of Energy Engineers for their efforts to reduce energy use and GHG emissions in their paint booth. Shown from top left to right: Jeneen Horton, TMMAL; Robin Haugen, TEMA General Manager; Dee Greene, TMMK; Brian Myers, TEMA; Kris Longenette, TMMI; Kevin Bell, TEMA; Brad Reed, TEMA; Albert Thumann, AEE Executive Director; Paul Houchins, TMMI; Steve Welp, TMMI; Jim Bolte, TMMAL President. The award was presented during the 2013 World Energy Engineering Congress.

**SPOTLIGHT: A Decade of Energy Excellence With Energy Star**

The city of Oakland, California, could be powered for an entire year based on the amount of energy *reduced* by Toyota’s 14 North American manufacturing plants during the past decade. That’s equal to almost 11 billion kilowatt hours of energy, enough to power nearly 400,000 average U.S. households for an entire year.

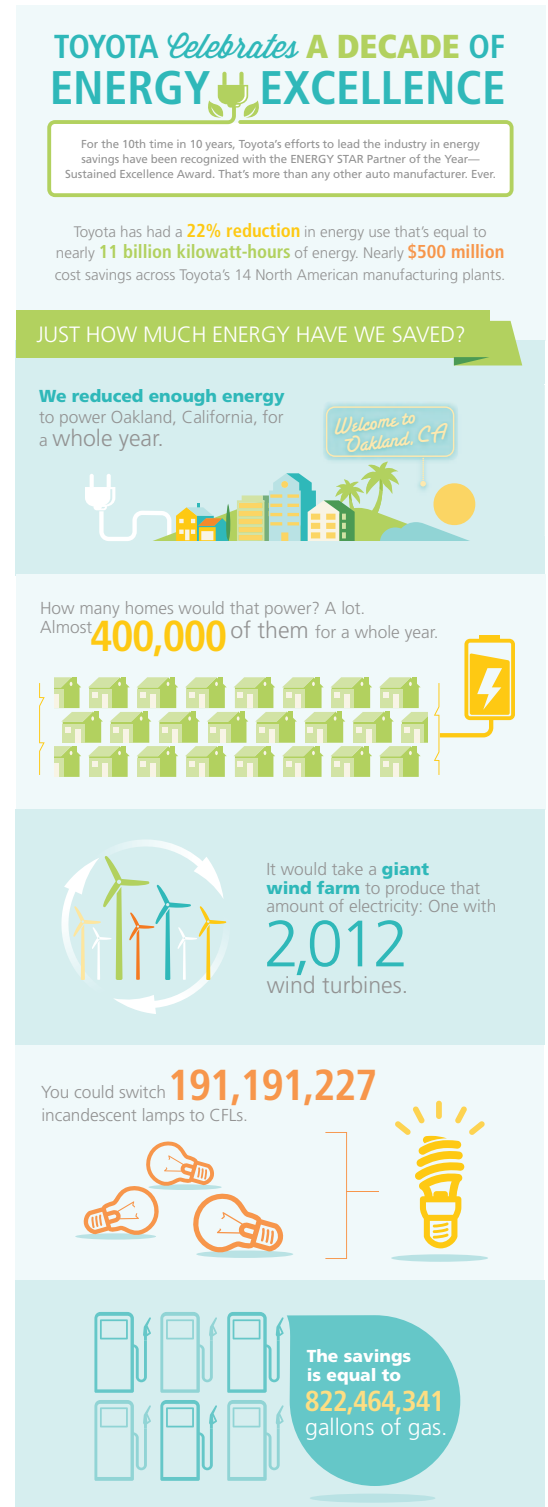
The continuous efforts of Toyota’s 41,000 team members to reduce energy use in manufacturing have resulted in Toyota’s 10th consecutive ENERGY STAR Partner of the Year – Sustained Excellence Award from the U.S. EPA for continued leadership in protecting the environment through superior energy efficiency. This is the most by any automaker.

During the 10-year period (2003-2013)<sup>3</sup>, total energy use was reduced by 22 percent per vehicle produced and total CO<sub>2</sub> emissions were reduced by 19 percent per vehicle produced. Total cost savings during the decade are nearly \$500 million.

“Through continuous improvement, good collaboration and sharing best practices, we continue to stay highly motivated to identify ways to minimize our impact to the environment,” said Robin Haugen, General Manager of Toyota’s plant and environmental engineering group. “Our team members demonstrate that when good ideas are shared, great things can happen, and we are grateful to receive our 10th consecutive ENERGY STAR Partner of the Year – Sustained Excellence Award from the U.S. Environmental Protection Agency.”

In addition to the sustained excellence award, Toyota’s North American plants also earned five ENERGY STAR Automotive Assembly Plant Awards and eight ENERGY STAR Challenge for Industry Awards.

FG17



<sup>3</sup> The award was received April 29, 2014, and is based on performance during the previous year.

## Using Renewable Energy

Renewable energy comes from naturally occurring sources that are not depleted as a result of consumption. Sunlight, wind, biomass and geothermal are common examples. Renewable energy can replace conventional fuels used for electricity generation and transportation.

There is strong public support for promoting renewable sources such as solar power and wind power. Climate change concerns, coupled with rising oil prices and government support are driving renewable energy legislation, incentives and commercialization.

Toyota has been expanding the use of renewable energy as a means of reducing our carbon footprint and our reliance on non-renewable energy sources. We are evaluating applications of solar, geothermal and stationary hydrogen fuel cells, as well as the purchase of green power either directly from a utility company or through renewable energy credits.

Toyota currently has 5,478 kilowatts of renewable energy capacity across North America. We began investing in renewable distributed generation in 2002, when we installed a photovoltaic (PV) system at our South Campus sales headquarters building in Torrance, California. Since then, we have installed several more PV systems at logistics sites and manufacturing plants.

Our California sales headquarters also has a 1.11 megawatt stationary fuel cell, which has about twice the capacity of the PV array installed in 2002. The fuel cell uses Proton Exchange Membrane (PEM) technology, the same technology used in Toyota's fuel cell vehicle. It is the first application of its kind and is the largest PEM fuel cell in the world.

The fuel cell performed very well during its first operating season (June to September 2013): over 481,000 kWh of electricity generated during 504 hours of operation, avoiding about 1,500 metric tons of CO<sub>2</sub> emissions and delivering more than \$55,000 in cost savings. The fuel cell uses hydrogen produced offsite from natural gas reformation. To offset GHG emissions from the reformation process, Toyota purchases landfill-generated renewable bio-gas.

### SAVING ENERGY, POWERING A GREENHOUSE

Toyota Motor Manufacturing Canada Inc. (TMMC) has launched a \$27 million Combined Heat and Power (CHP) initiative at their Cambridge plant that will help reduce demand on the local and provincial power grids. TMMC is also attaching a unique community service component to the development: A greenhouse will be constructed to tap the heat produced by the cogeneration project to produce vegetables for local nonprofit organizations. "This is a natural extension of the [Giving Garden](#) initiative our team members started several years ago" explained TMMC President Brian Krinock. "Now we'll be able to support them on a year-round basis."

When completed in 2015, the project will result in benefits to the environment and the community, as well as competitive cost savings for Toyota. Combined Heat and Power, or cogeneration, is the process in which a single fuel source, such as natural gas, is used to produce both electrical and thermal energy. The basic principle of cogeneration is that generating electricity produces heat; cogeneration equipment captures that heat and uses it to supply hot water, steam, space heating – even cooling. This makes the process highly efficient.

Mr. Krinock said, "This project offers significant benefits to many stakeholders. For the community and the environment, it will save enough energy each year to power more than 7,400 homes. For Toyota, the increased efficiency is substantial and will result in a major cost savings for our company, helping us stay competitive in the global manufacturing landscape."

TMMC worked closely with Cambridge and North Dumfries Hydro (CND), when planning this initiative. CND President and CEO Ian Miles said, “This is one of the largest energy-saving initiatives in Ontario, and we are very pleased to work with Toyota. Through this collaboration, our community will benefit from improved system reliability and avoided power generation costs. Toyota’s leadership has been pivotal to the success of working towards meeting our mandated energy and demand reduction targets.”

## TOYOTA MISSISSIPPI IS AWARDED LEADER STATUS

Toyota Motor Manufacturing, Mississippi (TMMMS), our assembly plant in Blue Springs, was accepted by the state’s Department of Environmental Quality into the “enHance” program for the 2014 class as a Leader. This is a voluntary stewardship program that recognizes committed environmental leaders who accomplish goals beyond their legal requirements. Membership in the program is valid for three years, through 2016.

To achieve Leader status, TMMMS was required to implement two environmental improvement projects and a [community service project](#). Both environmental improvement projects involved renewable energy:

- A geothermal heat exchanger project supplies chilled water to a compressed air dryer to eliminate the chiller load in the winter months when the plant HVAC systems are not utilizing chilled water. The project is expected to reduce electricity usage by 1.5 million kWh per year.
- A single axis solar cell array, installed at TMMMS in 2013, has a maximum output of 50 kilowatts. The power generated by the array is redirected back to New Albany Light, Gas & Water and is ultimately transferred back onto the grid for public use.



The sixth annual enHance awards luncheon and training workshop was held April 9, 2014 in Jackson, Mississippi. During the workshop, Toyota’s Rosario Martinez (pictured) and Sean McCarthy discussed the topic of “Optimizing Your Environmental Management System.”

### SPOTLIGHT: Landfill Gas Powers Kentucky Assembly Plant

The Kentucky plant that manufactures some of the greenest cars on the road, including Camry Hybrid and Avalon Hybrid, will soon be powered in part by green electricity.

Toyota Motor Manufacturing, Kentucky has teamed up with Waste Services of the Bluegrass to generate power from local landfill waste, marking the region's first business-to-business landfill gas to energy initiative. Toyota estimates the locally generated landfill gas will supply enough power each year for the production of 10,000 vehicles.

As solid waste naturally breaks down in a landfill, it creates methane gas. A network of wells at the landfill will collect this gas, which will be used to fuel generators for electricity. Underground transmission lines will then carry the electricity to Toyota's assembly plant, located a few miles south of the landfill.

The project is expected to be complete by early 2015. Once up and running, the system will generate one megawatt of electricity each hour the system is operating, or about what it takes to power approximately 800 homes, based on average consumption in the U.S.

Additionally, landfill greenhouse gas emissions will be cut by as much as 90 percent, which adds up to better air quality for the local community.

"At Toyota, we believe earth-friendly cars are just the beginning," said Jeff Klocke, Facilities and Environmental Manager. "Together with our community, we think we can contribute to a greener world."

Toyota's largest vehicle manufacturing plant in North America is Toyota Motor Manufacturing, Kentucky (TMMK). Over 10 million vehicles have rolled off Toyota's assembly line in Georgetown, where full-time employment is around 7,000 people and investment tops \$5.9 billion. In addition to the Camry, America's best-selling car, TMMK assembles the Camry Hybrid, Avalon, Avalon Hybrid and Venza, and 4- and 6-cylinder engines. Beginning late 2015, the plant will begin production of the first U.S.-assembled Lexus, adding 50,000 vehicles to its current annual capacity of 500,000 (engine production capacity: 600,000).

FG18

## A VEHICLE FOR CHANGE

**Step 1:** Municipal Solid Waste breaks down naturally in landfills, creating landfill gas, which is comprised of about 50% methane.

**Step 2:** A network of wells collects and prepares the landfill gas.

**Step 3:** Landfill gas is used to fuel generators, producing renewable electricity.

**Step 4:** Electricity is transmitted through underground lines to Toyota's manufacturing plant in Georgetown, KY.

**Step 5:** Renewable electricity created from the landfill will be used to power the production of 10,000 vehicles per year.

**Landfill greenhouse gas emissions will be cut by as much as 90 percent, which adds up to better air quality for the local community.**



**TOYOTA**



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It's just one more way we're driving Kentucky's future.

## Operations Targets & Performance

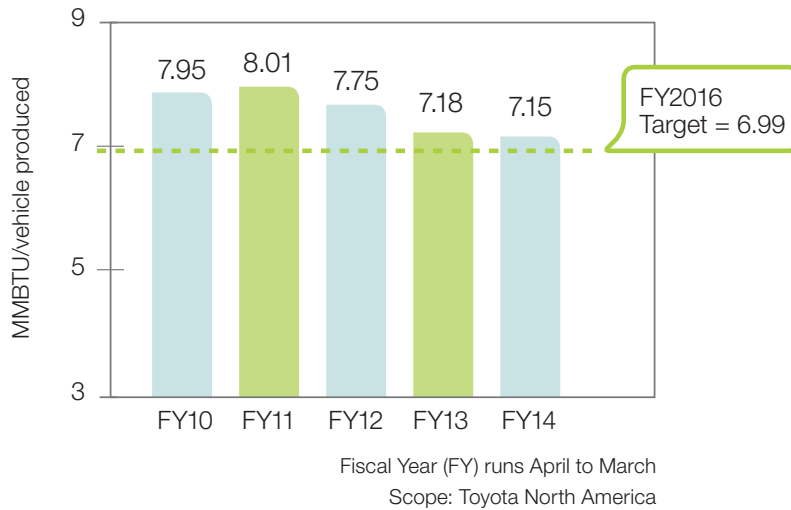
### Energy Target: Reduce energy use 12% per vehicle by FY2016 (on track)

For the first time, we set a consolidated energy target that covers more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers, and offices. Our new target is to reduce energy use from stationary sources by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline.

We are on track for meeting this target and have achieved a 10 percent reduction thus far.

Our target covers the purchase and use of electricity and natural gas. We convert all energy measurements to MMBtus for this target as a way to combine these energy sources into a single metric.

FG19 • Energy Use Per Vehicle (from Stationary Sources)





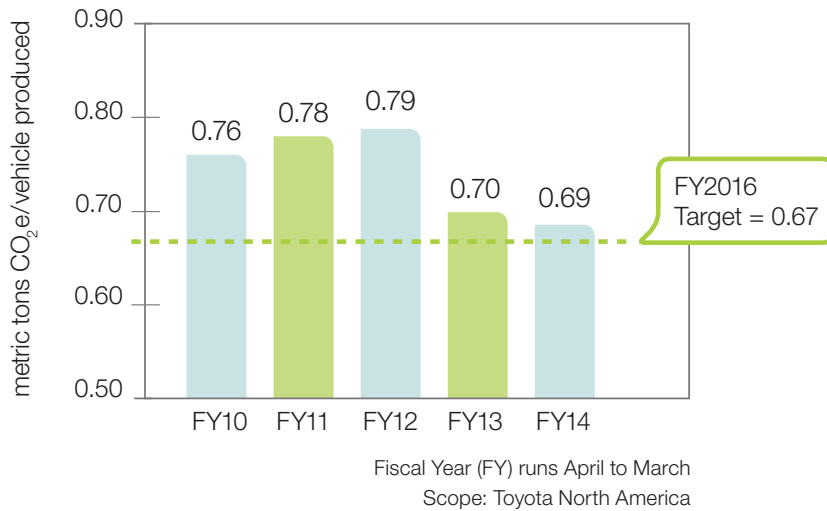
**GHG Target: Reduce GHG emissions from stationary sources 12% per vehicle by FY2016 (on track)**

For the first time, we set a consolidated GHG emissions target that covers more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers, and offices. Our new target is to reduce GHG emissions from stationary sources by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline.

We are on track for meeting this target and have achieved a 9 percent reduction thus far.

Our target covers emissions from our use of electricity and natural gas. Our methodology for calculating GHG emissions from these sources is based on The GHG Protocol® developed by the World Resources Institute and World Business Council for Sustainable Development.

FG20 • GHG Emissions Per Vehicle (from Stationary Sources)



### GHG EMISSIONS INVENTORY

Each year we prepare an inventory of GHG emissions from Toyota’s North American companies. This inventory measures GHG emissions from the consumption of electricity and natural gas at plants, logistics sites and owned and leased office space, as well as from fuel consumption by in-house trucking operations and third-party carriers, employee commuting and business travel. The methodology used to calculate emissions is based on The GHG Protocol® developed by the World Resources Institute and the World Business Council for Sustainable Development. The process of preparing this consolidated inventory has helped us better understand where GHG emissions occur and has facilitated information sharing across Toyota’s North American companies.

Our Scope 3 emissions do not include emissions from the use of our sold vehicles. For information on our vehicle carbon footprint please see [Fuel Economy & CO<sub>2</sub> Performance](#).

#### FG21 • North American GHG Inventory

	SCOPE 1 (Direct)	SCOPE 2 (Indirect - Purchased Electricity)	SCOPE 3 (Other Indirect)
FY2008	437,000	950,000	872,000
FY2009	382,000	767,000	711,000
FY2010	405,000	742,000	710,000
FY2011	395,000	776,000	720,000
FY2012	354,000	710,000	712,000
FY2013	431,000	861,000	789,000
FY2014	479,000	878,000	860,000

metric tons CO<sub>2</sub>e

\*Scope 3 emissions include indirect emissions from employee commuting, third-party logistics, and business travel. These are emissions which Toyota has influence over but does not directly control.

Three of Toyota’s North American manufacturing plants were required to report GHG emissions data under EPA’s Greenhouse Gas Reporting Program. Individual plant data for our plants in Kentucky, Texas and Indiana are available on the U.S. Environmental Protection Agency’s website through its online data publication tool.

## OUTREACH: TOWARDS A LOW CARBON FUTURE

We know that reducing our own carbon footprint isn't enough. Achieving a low carbon future requires collaboration with a wide range of stakeholders. That's why our outreach takes many forms. We provide funding, donate vehicles, and share our experience and know-how. We work with stakeholders ranging from government agencies to other companies and even individual communities.

Last year, we donated two Prius Plug-in Hybrids to the state of Vermont for use in their fleet. Other examples of how outreach helps us extend our commitment to a low carbon future include:

- Working with [First Element Fuel](#) to develop hydrogen infrastructure for fuel cell vehicles.
- Partnering with the [National Renewable Energy Lab](#) to test real-world interactions between the electricity grid, plug-in vehicle charging, solar power and home electronics.
- Partnering with [Nexus Energy](#) to help Alabama residents lower their monthly utility bills while raising energy savings.
- Helping [Yellowstone National Park](#) create a sustainable power source for the Lamar Buffalo Ranch.



Toyota donated a RAV4 to Yellowstone National Park for use at the Lamar Buffalo Ranch. This is the 12th Toyota vehicle donated to Yellowstone National Park in the last decade.



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## WATER

- > WATER CONSERVATION
- > WATERSHED PROTECTION



#### > WATER

All over North America, water is in the news. In the United States, 36 states presently face water shortages. The entire state of California is in a state of drought for the first time in 15 years, while the San Antonio area in Texas has been in a state of drought since the 1990's.

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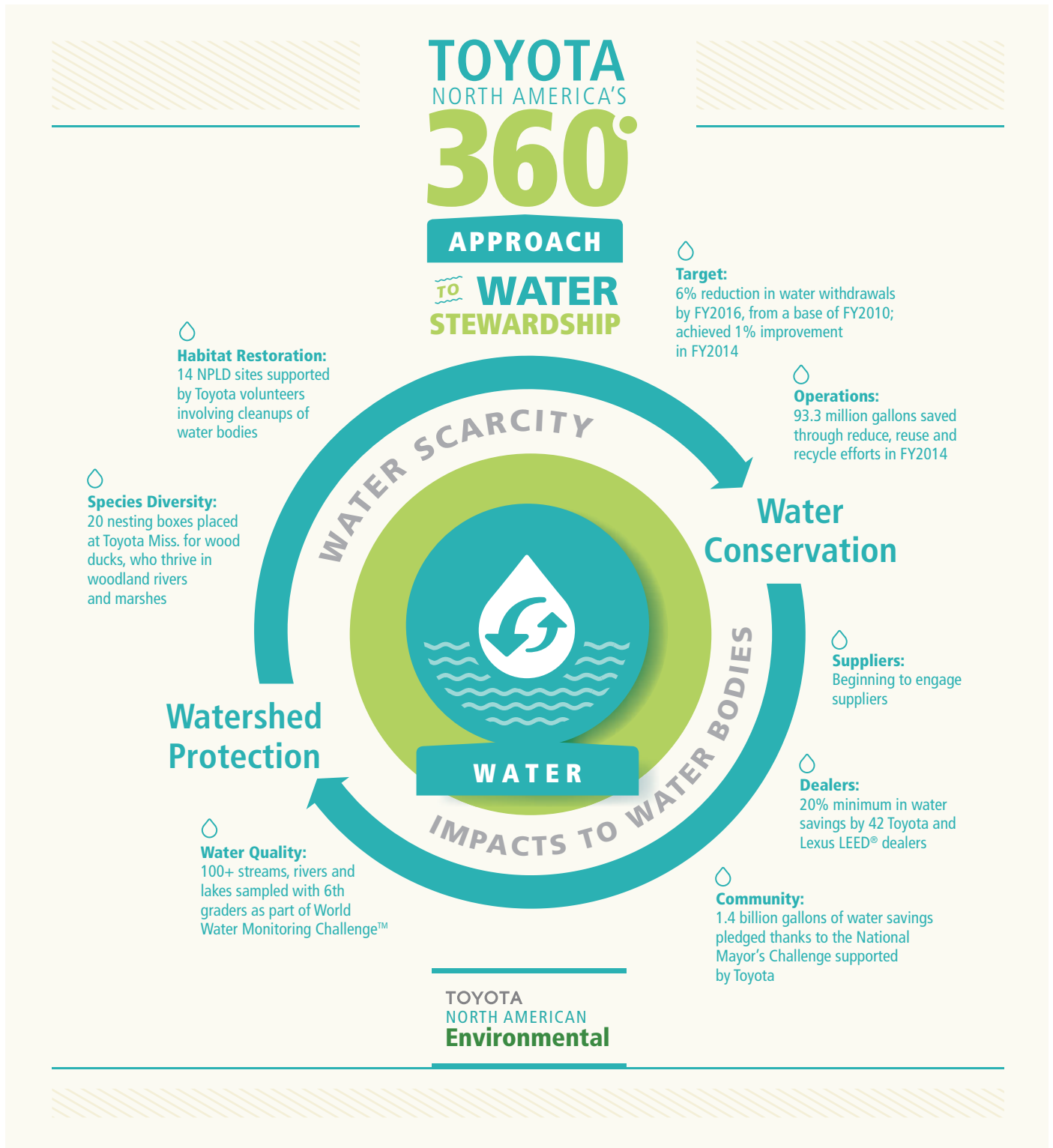
Even areas of western Canada – a nation with a relatively abundant supply of fresh water – are experiencing water shortages. Water scarcity in Mexico is by far the most severe in North America, where increasing demand is met with an increasingly limited supply.

Research by the 2030 Water Resources Group suggests that by 2030, global water demand will be 40 percent greater than today's reliable, accessible supply. That demand relies on the small fraction of water on the planet that's fresh water and actually available for people to use.

What can we do to prevent this unwelcome scenario? One fact is clear: If we want to have any hope of reversing the current course, we need all hands on deck. Elected officials, companies, communities and individuals must work together to protect and conserve the limited supply of fresh water we have – or we risk permanent damage to the health of our economy and the environment.

Across Toyota, team members and associates have all hands on deck. Our 360 degree approach to water stewardship (see Figure 22 next page) is founded on two pillars: **water conservation and watershed protection**. Our efforts to conserve water encompass our entire value chain, from our own operations to those of our suppliers, dealers and communities. We supplement these conservation efforts with outreach activities that protect water bodies and the species that rely on them. This is Toyota's cycle of water stewardship, where everyone has a role in making sure our most precious resource is available for generations to come.

FG22



## WATER CONSERVATION

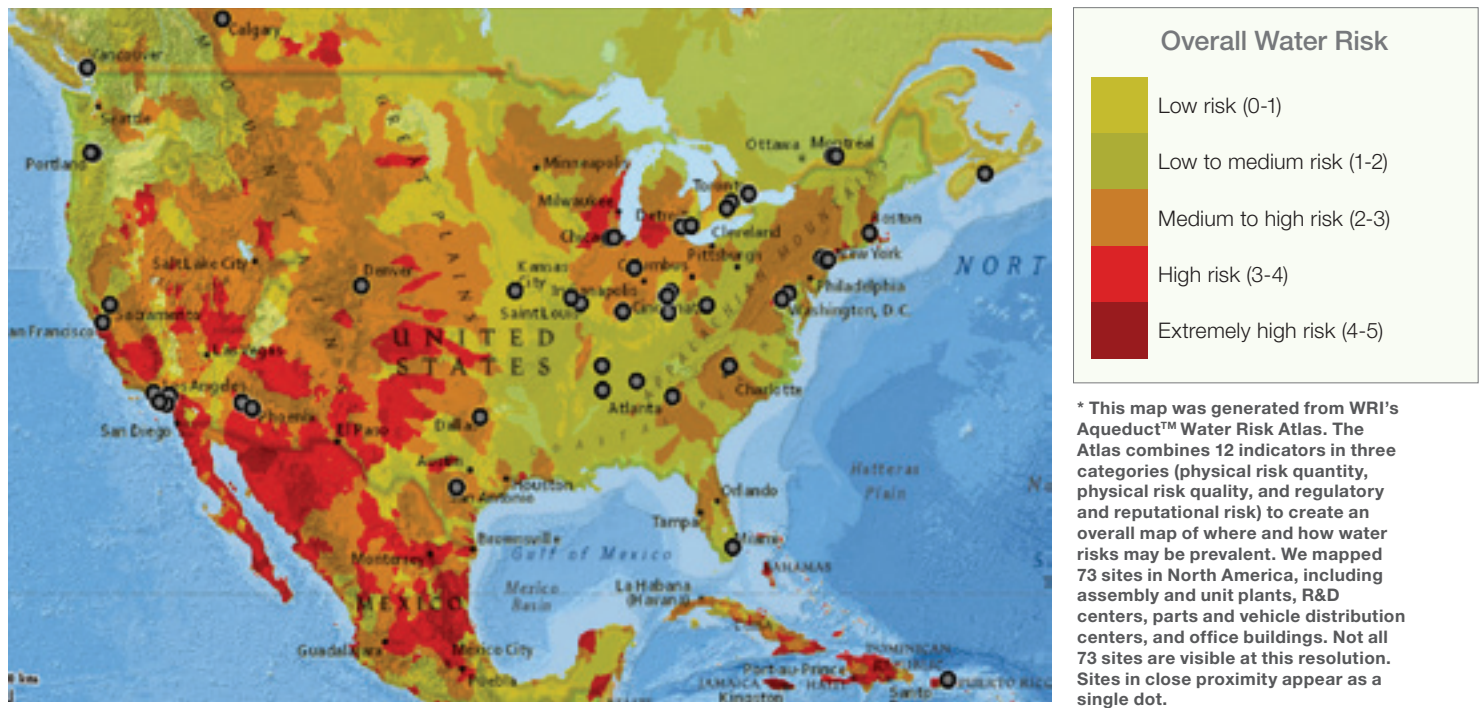
When it comes to using less water, Toyota’s team members and associates have found creative ways to conserve water. We also engage in conservation initiatives with suppliers, dealers and our communities. There is only so much water for all of us to share, so we must work together to ensure there is enough to meet the needs of people, industry and nature.

During fiscal year 2014, we conducted an analysis of our North American locations and mapped them using Aqueduct™. This tool was developed by the World Resources Institute to help companies, investors, governments and communities better understand where and how water risks are emerging around the world. The centerpiece of Aqueduct is the Water Risk Atlas, which creates customizable global maps of water risk.

The Atlas combines 12 indicators in three categories (physical risk quantity, physical risk quality, and regulatory and reputational risk) to create an overall map of where and how water risks may be prevalent. The Atlas shows that a total of 19 of Toyota’s North American locations, including three manufacturing plants – in Long Beach, California; San Antonio, Texas; and Tecate, Baja California – are located in areas of high overall water risk. Currently, we do not have any sites in areas of extremely high risk.

The Water Risk Atlas is helping us further focus water conservation efforts on sites in water-stressed regions, and on sites with concerns about future water availability. The Aqueduct tool is also helping us incorporate all water risk factors into our analysis, which will enable us to develop tailored strategies for certain sites and/or regions within North America.

### FG23 • Toyota’s Overall Water Risk in North America





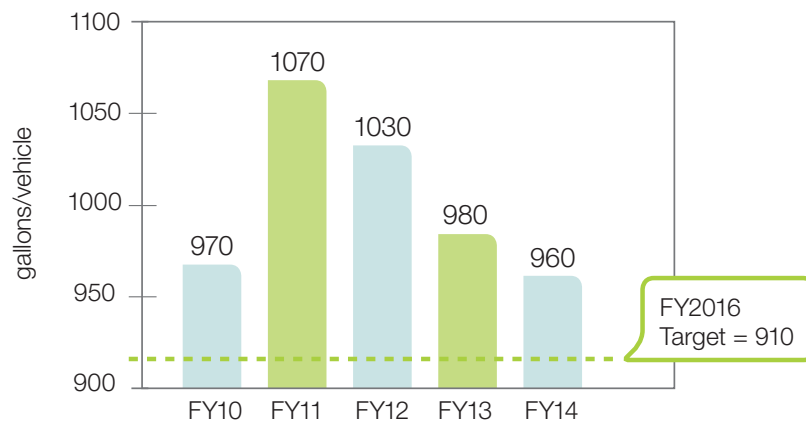
**Water Target: Reduce water withdrawals 6% per vehicle by FY2016**

For the first time, we set a consolidated water target that covers more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers, and offices. Our new target is to reduce water withdrawals by 6 percent per vehicle produced by fiscal year 2016, from a baseline of fiscal year 2010.

Our metric counts water withdrawals, such as from a public utility or groundwater well. We are developing an internal water inventory management plan – similar to a greenhouse gas inventory management plan – to document accounting practices related to our water metric and target.

In fiscal year 2014, we achieved a 1 percent reduction, and expect further reductions over the next two years.

FG24 • Water Withdrawal per Vehicle



\* Includes Toyota North America's water withdrawals, such as from a public utility or groundwater well. There are a handful of water sources currently not included in our metric. We are evaluating these and will include them going forward, as appropriate.

## Operations: Reduce, Reuse, Recycle

To conserve water, we look for ways to **reduce** (use less), **reuse** (use what we have already used again, without further processing), and **recycle** (use what we have already used, after some level of treatment). By practicing the three R's, Toyota saved 93.3 million gallons of water in North America during fiscal year 2014.

### SPOTLIGHT: Turning Water Into Gold

Turning water into gold isn't as hard as it sounds. The Lexus South Paint shop at Toyota Motor Manufacturing Canada (TMMC) has cut water use in one process by 35 percent in the last year. That's good for the environment, good for the bottom line, and good for a gold. TMMC's efforts won them a Gold ECO Award from our parent company in 2013. This was their second Gold Award, making TMMC the only Toyota facility worldwide to receive two Gold ECO Awards.

During the painting process, each vehicle is rinsed a number of times. In one rinse cycle at TMMC's South Paint shop, 123 gallons (465 liters) of water are sprayed onto a vehicle. In the past, this water was sent directly to the drain and discharged. Now, changes to the process allow it to be captured, cleaned of metals and phosphate, and used for rinsing at a different stage.

Not only is the South Paint shop recycling 123 gallons per vehicle, they avoid using 43 gallons (165 liters) per vehicle of fresh water altogether. This adds up to a lot of water: 12.3 million gallons (46.5 million liters) of water per year are being recycled and the use of over 4.3 million gallons (16.5 million liters) has been eliminated completely.

"Water is a precious resource," said Frank Voss, General Manager - Lexus Plant. "We do our part to conserve, and every little bit counts. What's exciting about this project is the bigger picture. If it were adopted by more of Toyota's North American manufacturing plants, think of the amount of water we could save."

Frank is not alone in thinking about the bigger picture. Four of Toyota's North American plants are already planning to implement this *kaizen*.

The financial payback on the project has been less than a year. Plus, the higher volume of recycled water has an added benefit: an increase in quality. More water means faster dirt removal, which leads to a cleaner tank and fewer dirt defects on the more than 100,000 Lexus RX 350 and RX 450h SUVs annually moving through the paint shop.

TMMC, which operates plants in Cambridge and Woodstock, Ontario, also won a Silver ECO Award for coming up with a better way to separate oil and water in the North Paint shop. Surfactant is used to remove oil in the degrease bath, where it binds to oil particles. A recycling tower designed by North Paint team members separates oil from the surfactant, and the surfactant can now be recycled back into the process. This saves more than 3,100 gallons (12,000 liters) of surfactant and more than 105,000 gallons (400,000 liters) of water annually.

"TMMC's North Paint shop was the first shop in North America to recycle surfactant," said Jeff Small, Assistant Manager - Corolla Plant. "Every little bit we do to reduce, reuse and recycle is good for the environment. This just goes to show that green innovation can be seen not just in the amazing technology we develop for our vehicles, but throughout our entire company."

**ABOUT THE TMC GLOBAL ECO AWARDS**

Toyota Motor Corporation (TMC) established the Global ECO Awards in 2012 to recognize the environmental achievements of Toyota manufacturing centers around the world. Each year, North American manufacturing plants select *kaizens* and submit these to the North American manufacturing headquarters (TEMA) for review. TEMA then selects three *kaizens* to represent North America and compete against *kaizens* from other regions around the world. In the end, up to eight *kaizens* from the global pool are selected by TMC to receive a Gold Award. Platinum, Silver and Bronze awards are also granted.

Winners of Platinum and Gold awards travel to Japan to present their projects at the Global Environmental Meeting, held annually in November.



*Top:* South Paint’s Andrew Perkins and Chris Redford accepted the Gold ECO Award with their manager Michael Horn (far right) and General Manager Frank Voss (far left). The team that worked on this project consisted of people from a number of different departments, including TMMC Lexus Paint Engineering, Maintenance and Production; TMMC Facilities; TMMC Environmental; the Plant Engineering department at our North American manufacturing headquarters; and representatives from our paint vendors.  
*Below:* The TMMC South Paint Kaizen Team.





TMMC's efforts to reduce the environmental impacts of their operations have won them three Global ECO Awards from our parent company, Toyota Motor Corporation. ECO Awards recognize the environmental achievements of Toyota manufacturing centers around the world. TMMC won their first award, a Gold, in 2012 for a waste reduction project. In 2013, they won a Gold and a Silver, both for water reduction projects. TMMC is the only Toyota facility worldwide to receive two Gold ECO Awards.

**RO CONCENTRATE RECOVERY**

At Toyota, we are saving 73 million gallons of water each year by operating reverse osmosis (RO) concentrate recovery systems. That's the equivalent of about 110 Olympic-size swimming pools, 73 million gallons that we don't have to withdraw from an aquifer or buy from a utility.

Water needs to be clean and free of impurities before it can be used in our manufacturing processes. The RO recovery systems filter and purify water that previously was discharged from our plants to a local water treatment facility. The RO concentrate recovery systems have improved RO efficiency by 12 percent: With these systems, we now reject only 10 percent of the water we withdraw, down from 22 percent.

RO concentrate recovery systems are in place at Toyota's assembly plants in Princeton, Indiana; Georgetown, Kentucky; Cambridge and Woodstock, Ontario; and Tecate, Mexico. Our Woodstock plant is the latest plant to install an RO concentrate recovery system. The system went online in April 2014, and is expected to save 12 million gallons of water per year. Implementation of RO systems is planned for another two plants in the near future.



Our Woodstock plant in Ontario, Canada, is Toyota's fifth North American manufacturing plant to install a reverse osmosis concentrate recovery system. These systems filter and purify water coming into the plants and help reduce water withdrawals. Woodstock's system went online in April 2014 and is expected to save 12 million gallons of water per year.

## SPOT-FREE CAR WASHES

Sometimes just taking a step back is all our associates need to do to come up with simple solutions for using less water. Toyota's vehicle distribution center in Portland, Oregon, realized that water did not need to be deionized to get a spot-free wash. It takes several gallons of water to produce a single deionized gallon, and the process generates several gallons of wastewater. Once associates realized they were over-processing the water and didn't need to deionize it, they started washing vehicles with unprocessed city water with no impact on quality. They reduced annual water use by over 327,000 gallons.

## COMPRESSOR CONDENSATE REUSE

Toyota's engine plant in Alabama is saving 300,000 gallons of water a year by reusing compressor condensate water in the cooling tower. The cooling tower accounts for 49 percent of the site's water use, making it the plant's largest water user. So it was natural for team members to focus on the cooling tower for water reductions.

Compressed air is generated and dried at the plant seven days a week. As the air is processed, condensate forms. Instead of discharging the condensate as wastewater, it is now redirected to the cooling tower for reuse.

## CARWASH WATER RECYCLING

Toyota Arizona Proving Ground (TAPG) is situated on 12,000 acres northwest of Phoenix. Thirty-five miles of paved test track and more than twice as many miles of unpaved surfaces wind their way through this desert landscape. TAPG is home to about 110 team members and contractors who support various testing for Toyota vehicles destined for the North American market.

An underground aquifer is the primary source of water for the site, and there is very little rainfall. "We've had less than 1.5 inches of rain in the past six months, which makes any rainfall we do get very important," said Daryl Petry, Senior Specialist at TAPG. "It was past time to rethink how we manage our water."

The major water user is the car wash, which cleans about 100 vehicles per week. A water recycling system was installed at the car wash to clean and reuse the water instead of discharging it into retention ponds. Once the water is cleaned, it's just as good for washing cars as water directly from the aquifer.

"Once this recycling system was operational, the need for the retention ponds went away," said Daryl. So the garage floor drains were capped, and wastewater is dumped by the floor scrubber into the car wash recycling system. The result: TAPG completely eliminated the discharge of all wastewater to these ponds.

The retention ponds, each about the size of a football field, once had the capacity to hold about 3 million gallons of water. The pond liners were disposed of properly, and the area was tested and determined to have no contamination.

"We no longer need a state wastewater permit for these ponds – a permit we had for many years – and we are using a lot less groundwater from our well," said Daryl. "In a few years, you won't even be able to tell the ponds were ever here." The area is being allowed to return to its natural state.

"This is a great example of teamwork between the Environmental and Facilities departments here at TAPG and state and local government," said Daryl. "We didn't keep doing something just because it's the way we had always done it. We changed course to find a way to save water, the most precious resource we have here in the desert."

**SPOTLIGHT: Paint the Pipes Purple and Use Recycled Water**

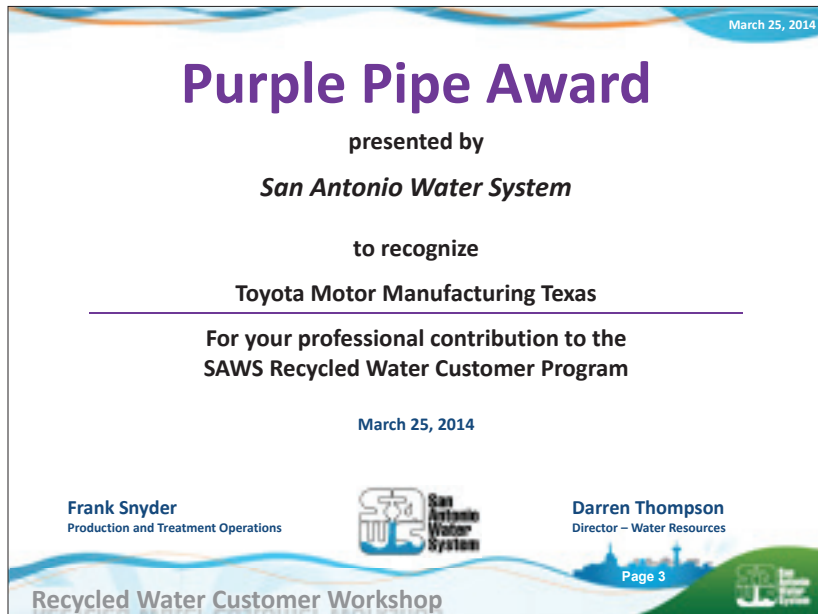
The San Antonio area relies heavily on water from the Edwards Aquifer, which has had limits on pumping since the early 1990’s. Prolonged periods of drought are a way of life in this part of Texas.

“When Toyota chose San Antonio as the site for its 12th North American manufacturing plant, we knew water conservation would be a top priority,” said Jorge Garcia, Manager for Plant Engineering & Environmental. “That’s why we designed and built the plant to use recycled water for our production processes, cooling towers and irrigation.”

Last year, the plant used about 1 million gallons of recycled water per production day, or about 250 million gallons. Recycled water makes its way into the plant in pipes painted purple, a color easily seen by team members. “We have large signs at every entrance and along our frontage road clearly stating our use of recycled water,” said Jorge. “Our team members see these purple signs, which helps to keep water conservation top of mind.”

In order to use recycled water in vehicle rinsing processes, the water must go through several treatment and filtration processes first. After the water is used, it is treated again to remove metals and meet all regulatory limits before it is sent back to the public utility. “Because of our treatment process, the water we discharge is actually cleaner than when we receive it,” said Jorge.

In March 2014, Toyota’s Texas plant received a Purple Pipe Award from the San Antonio Water System (SAWS) for their contribution to the SAWS Recycled Water Customer Program. SAWS is the public utility owned by the city whose mission is to provide sustainable, affordable water services to the growing San Antonio area. SAWS maintains the largest direct recycled water system in the country.



SAWS recycled water starts at the Dos Rios and Leon Creek wastewater treatment plants, which together have the capacity to treat up to 171 million gallons per day. After an extensive settling, filtering and treatment process, most of the recycled water is released back into the San Antonio River for environmental flows. The rest is pumped into the SAWS purple pipe system for reuse by San Antonio businesses, including Toyota.

Since opening in 2007, the plant has used about 1.9 billion gallons of recycled water. That’s 1.9 billion gallons that weren’t drawn from Edwards Aquifer.

“We’re proud to be part of the Recycled Water Program,” said Jorge. “By using recycled water, we are part of a proactive system that ensures water will be available for people, nature and business for years to come.”

## Business Partners

Our business partners are our suppliers and dealerships. We are developing a new process to begin tracking water usage in our supply chain. The goal is to find ways to work together to conserve. We'll have more on that in next year's report.

The 42 Toyota and Lexus dealers that have achieved LEED® certification to date have all implemented water savings projects. These dealers applied for certification under the LEED NC (new construction) 3.0 standard, which required them to have a plan to achieve a minimum of 20 percent water savings. There was also extra credit for getting to 30 percent savings, which several of our dealers accomplished (including Mark Miller, Kendall-Eugene, and Rockwall, all Toyota dealerships). (Click [here](#) for a full list of LEED-certified Toyota and Lexus dealers.)

We encourage our dealers to pursue LEED certification with the U.S. and Canadian Green Building Councils, and assist them through the process. We track utility cost and usage information from all of our dealers, which allows us to identify opportunities for improvement. By analyzing monthly changes in water use, we've been able to help dealerships identify water leaks. Dealerships have vast amounts of piping, so finding and repairing these leaks is crucial to their water efficiency efforts.

Pat Lobb Toyota of McKinney, in the Dallas metro area, was the first Toyota dealership to become LEED certified. Pat Lobb has a 20,000-gallon water cistern that collects condensate from air conditioners and runoff from the roof, which covers a 50,000 square-foot building. The cistern collects about 5,000 gallons a day, and it is never empty. The water is used to irrigate the landscaped areas around the dealership, and is also provided to the local fire department for putting out fires that start along the state highway in McKinney.

## Community Action

Companies can be active stewards of a healthy environment by supporting community efforts. That's why Toyota partners with the Wyland Foundation in support of the National Mayor's Challenge for Water Conservation. Mayors across the country once again asked residents to make a commitment to conserve water and cut pollution by taking part in a national contest aimed at drastically slashing water and energy use across the nation.

During April 2014, more than 100 U.S. mayors participated in the National Mayor's Challenge for Water Conservation and encouraged their residents to make pledges online to reduce water and energy usage. Overall, over 23,000 residents from 3,600 cities in 50 states pledged 277,742 specific actions over the next year to change the way they use water in their homes, yards and communities.

By sticking to their commitments, the collective efforts of these residents will reduce national water waste by more than 1.4 billion gallons.

The challenge comes at a time when population growth, extreme weather patterns, water shortages, and poor infrastructure threaten access to a steady, sustainable supply of water in the United States. The National Mayor's Challenge for Water Conservation provides a positive way to reward residents across the country for using water wisely and controlling what goes down the drain and into their local watershed.

[Click here](#) for the full story.

## WATERSHED PROTECTION

Water is a finite resource, and Toyota's efforts to use less are only part of our approach to water stewardship. Healthy watersheds need more than adequate flow; they also need clean water and the right balance of animals and plants. To promote healthy watersheds, Toyota participates in a number of educational and biodiversity efforts.

### Water Quality

We know the importance of water quality monitoring. Some of our sites discharge wastewater, and we monitor that wastewater to meet state and federal regulations and to ensure we don't negatively impact water bodies. In fact, Toyota requires all manufacturing sites to operate below discharge permit limits by 20 percent.

Toyota's Texas assembly plant makes an annual donation to support the San Antonio River Authority's monitoring system. The River Authority was established in 1937 to protect the San Antonio River Basin, an area covering over 3,600 square miles.

We also know the importance of teaching youngsters about water quality. Each year, team members from our Indiana assembly plant work with sixth-grade students to sample about 100 different lakes, rivers and streams across southwestern Indiana. Monitoring data is uploaded into the World Water Monitoring Challenge™ database. Click [here](#) to see the full story.

### Species Diversity

Team members and associates have come up with a number of ways to support the diversity of species on and near our properties. In Mississippi, team members at the manufacturing plant placed 20 wood duck nesting boxes around the site. Wood ducks are found in slow-moving woodland rivers, shallow ponds and marshes, often in areas where large shade trees overhang the water. They also occur in open marshes adjacent to forested areas. The boxes are monitored for activity during the wood duck nesting season. After only one year, team members discovered three of the boxes had eggs.

[Click here](#) for more information on our efforts to enhance biodiversity at our Mississippi plant.

### Habitat Restoration

Many species live on or near water bodies. Team members and associates participate in a variety of events to keep waterways free of debris. For example, team members from our manufacturing headquarters in Erlanger, Kentucky, participate in an annual River Sweep of the Ohio River. In 2014, they helped remove trash from the river banks in Belleview and Covington.

We also continue to sponsor National Public Lands Day (NPLD). Toyota supported 36 NPLD sites in 2013, helping to clean up parks, streams and recreation sites across the U.S.; 14 of these were parks with notable water bodies:

- Dauphin Island Beach, Alabama
- Audubon Least Tern Colony, California
- Lytle Creek, California
- Newport Bay Nature Preserve, California
- Santa Fe Dam Recreational Area, California
- Deerfield Beach, Florida
- Pumpkin Hill Creek Preserve State Park, Florida



- West Hill Dam, Massachusetts
- Belle Isle, Michigan
- Cuivre River State Park, Missouri
- Smithville Lake, Missouri
- Cathedral Park, Portland Harbor, Oregon
- Woodlawn Lake, Texas
- Valley Falls State Park, West Virginia

Keeping these habitats clean and free of trash and debris protects the quality of the water. In 2013, over 180,000 individuals came out to support NPLD, showing the power of collective action. [Click here](#) to read the full story.



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## **MATERIALS**

> CHEMICAL MANAGEMENT

> WASTE MINIMIZATION



#### > MATERIALS

For Toyota, “Materials” refers to everything used to make a vehicle, whether it ends up in the final product or not.

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Some materials, such as steel and seat cushions, become part of the vehicle; others such as cedar draw oil are only used to make a process work; still others end up as waste. Within Toyota’s core area of focus known as “Materials,” activities during fiscal year 2014 through 2016 are focused on chemical management and waste minimization.

## CHEMICAL MANAGEMENT

Chemical management addresses Toyota's use of certain chemicals of concern in our products and manufacturing processes, as well as the shipment of items (such as used hybrid batteries) that contain chemicals of concern. Every part used to produce vehicles, from seat cushions to the dashboard to exterior paint, is made up of chemicals. Toyota's engineers manage chemical content at the vehicle design stage, where we have the most influence over the composition of our products. As a result, we are able to minimize the impacts to the environment from the use of chemicals both in operations and at the end of a vehicle's life.

Around the world there are a number of regulations and voluntary agreements concerning the use of chemicals in vehicles. These regulations either restrict or prohibit the use of certain chemicals, or require their use to be reported to a government agency. Toyota fully complies with these global regulations and voluntary agreements, with the intent of reducing the potential risks from chemical use in our vehicles and in all aspects of our business.

### **Chemical Management Target: Implement IMDS data management system enterprise wide (on track)**

Toyota uses the International Material Data System (IMDS) as the primary tool for tracking the chemical composition of parts and accessories. Suppliers are required to enter into IMDS detailed information about the chemical composition of parts and accessories. Through this system, Toyota tracks the use of chemicals on the Global Automotive Declarable Substance List (GADSL), a list developed and maintained by a global automotive stakeholder committee, which Toyota is chairing this year.

Use of IMDS is particularly crucial for ensuring compliance with international recyclability and chemical management laws (such as those in China, Korea, Europe and Japan). Therefore, we adopted IMDS in North America to facilitate tracking and verification of compliance with these laws for vehicles assembled here and exported to international markets. For example, Toyota is exporting the Avalon, Camry, Sienna and Venza from North America to South Korea. Data collected with IMDS is used to verify compliance with South Korea's recyclability laws.

We have collected IMDS data for all vehicles we produce in North America. Our recent experience with using IMDS in North America is helping us better understand its benefit for overall chemical management. Beginning in July 2014, suppliers must report IMDS data for all new production parts following drawing release.

## Substances of Concern

### **HEAVY METALS**

Our strategy for managing substances of concern (SOCs) initially focused on four heavy metals known to cause environmental and health effects: hexavalent chromium, mercury, lead and cadmium. In 2004, Toyota made a voluntary commitment in North America to minimize these four heavy metals found in parts and accessories to the *de minimis* levels specified in the European Union's "Directive on End-of-Life Vehicles" – even though vehicles were not being exported to Europe. After working closely with suppliers, parts and accessories in North America have not contained hexavalent chromium, mercury, lead or cadmium above levels outlined in the European Union's Directive since 2007.

## CABIN VOCS

Materials in the vehicle interior, such as plastics, leather, textiles, glues, sealants and additives, can emit volatile organic compounds (VOCs) even after manufacturing. This is commonly recognized as the “new car smell.” We work with suppliers to develop alternatives that emit lower levels of VOCs in the vehicle cabin. For example, we developed new tape systems to reduce toluene emissions. More recently, we have been working with suppliers on reducing formaldehyde and acetaldehyde, which form during leather retanning and finishing.

The Prius, Prius Plug-in Hybrid, Prius *c*, Prius *v* and Camry Hybrid offer available SofTex-trimmed heated front seats. SofTex material weighs about half as much as genuine leather, and its manufacturing process generates 99 percent fewer VOCs than that of conventional synthetic leather.

Toyota’s Materials Engineering Department has been studying low VOC paints in the cured form for interior components. We generally use waterborne paints due to their lower VOC content, but studies have shown some waterborne paints contain residual amounts of VOCs, such as aldehydes, in the cured form. We identified several paints with a negligible contribution to the overall VOCs of plastic parts. Those paints are already in use by Toyota for interior parts, and we plan to increase their use in the future.

Auto manufacturers are working toward one global standard to test emissions of VOCs in vehicle cabins at the component level. In the meantime, a voluntary standard for the full vehicle cabin exists from the Japan Automobile Manufacturers Association (JAMA). All 2014 model year North American-produced vehicles conform to this standard.

South Korea and China recently established VOC requirements for passenger vehicles. Toyota has taken steps to ensure the vehicles being exported to those countries, including Venza, Camry, Sienna and Avalon, meet their requirements.

## COPPER IN BRAKE PADS

Copper in brake pads is to be reduced by 2021 to the required *de minimis* levels, in alignment with recent legislation in Washington State. The legislation was created to address concerns about copper found in runoff water. We are working with suppliers on finding a suitable alternative.

## FLAME RETARDANT

Decabromodiphenyl ether (decaBDE) is a flame retardant used in many products, including vehicles. The U.S. Environmental Protection Agency and chemical suppliers reached a voluntary agreement to phase out production of decaBDE by December 31, 2013. We worked with suppliers to develop a replacement for decaBDE that meets the federal motor vehicle safety standard FMVSS302 on flammability of interior materials. DecaBDE was successfully phased out January 1, 2013.

## Renewable / Recycled / Recyclable Materials

The substitution of vehicle parts containing chemicals of concern with those made from renewable, recycled and recyclable materials reduces risks from the use of chemicals of concern. Plus, over the course of a vehicle’s life cycle, renewable, recycled and recyclable materials have a smaller greenhouse gas footprint and generate less waste than their alternatives. Toyota uses these materials where practical.

Over the last several years, Toyota has evaluated numerous materials made from renewable resources to assess their performance, appearance, safety and mass production capability. In addition, the automotive industry is working on finding recyclable and renewable alternatives to petroleum-derived plastics, which would reduce reliance on fossil fuels.

Toyota is working with SAE’s International Green Technology Systems Group on characterizing bio-based materials. This is part of a larger effort by SAE to serve as a guiding body for consensus standards development for environmental sustainability issues in the automotive sector. We have been using bio-based plastics – plastics derived either wholly or in part from plant materials – in numerous parts and components for over a decade. For example, we use bio-based plastics in the seat cushions in the Toyota Prius, Corolla, Matrix and RAV4, and in the Lexus RX 350 and CT 200h. We will continue to use these materials where appropriate.

## WASTE MINIMIZATION

Minimizing waste and conserving natural resources are fundamental to Toyota’s goal of producing vehicles efficiently. Toyota team members and associates focus on reducing all kinds of waste – from office trash to cafeteria scraps and industrial waste – using the practices we all know: reduce, reuse and recycle.

### Waste Target: Develop and test a new waste metric (on track)

As part of Toyota’s fiscal year 2014-2016 environmental action plan, we set a target to develop and test a new key performance indicator (KPI) for waste. During 2014, we defined and agreed to “the 3R Rate” as our new KPI. Toyota’s 3R Rate is defined as:

$$\text{(Reduce + Reuse + Recycle) / (Reduce + Reuse + Recycle + Recover + Landfill)}$$

This new KPI reflects the evolution of Toyota’s waste management metrics, which focused initially on reduction in waste to landfill, then on reduction in non-saleable waste. Toyota’s use of the 3R Rate encourages focus on all three R’s – reduce, reuse, recycle. Simply measuring waste generation would ignore end-of-life management and does not adequately account for reuse.

“Our new 3R Rate uses the same waste hierarchy promoted by the U.S. Zero Waste Business Council: Reduce > Reuse > Recycle > Recover Clean > Disposal,” said Ryan McMullan, Environmental and Safety Manager at Toyota Motor Sales and head of Toyota’s North American Waste Focus Group. “We see this organization as the leading industry group for waste reduction thinking.” Toyota became a founding member of the U.S. Zero Waste Business Council (USZWBC) in December 2013.



In the USZWBC hierarchy, disposal includes landfilling as well as “dirty” forms of recovery such as burning waste to recover energy. “Toyota’s 3R Rate is unique in that it shifts the focus from the end of the hierarchy on landfill to the top of the hierarchy to reduce/reuse/recycle,” explained Ryan. “It also doesn’t say that incineration, or even burning waste to recover energy, is equal to recycling.”

USZWBC defines a “Zero Waste Business” as one with a 90 percent or greater diversion of all waste from landfill, incineration or the environment. Toyota has 32 North American facilities that meet this definition, including eight manufacturing plants.

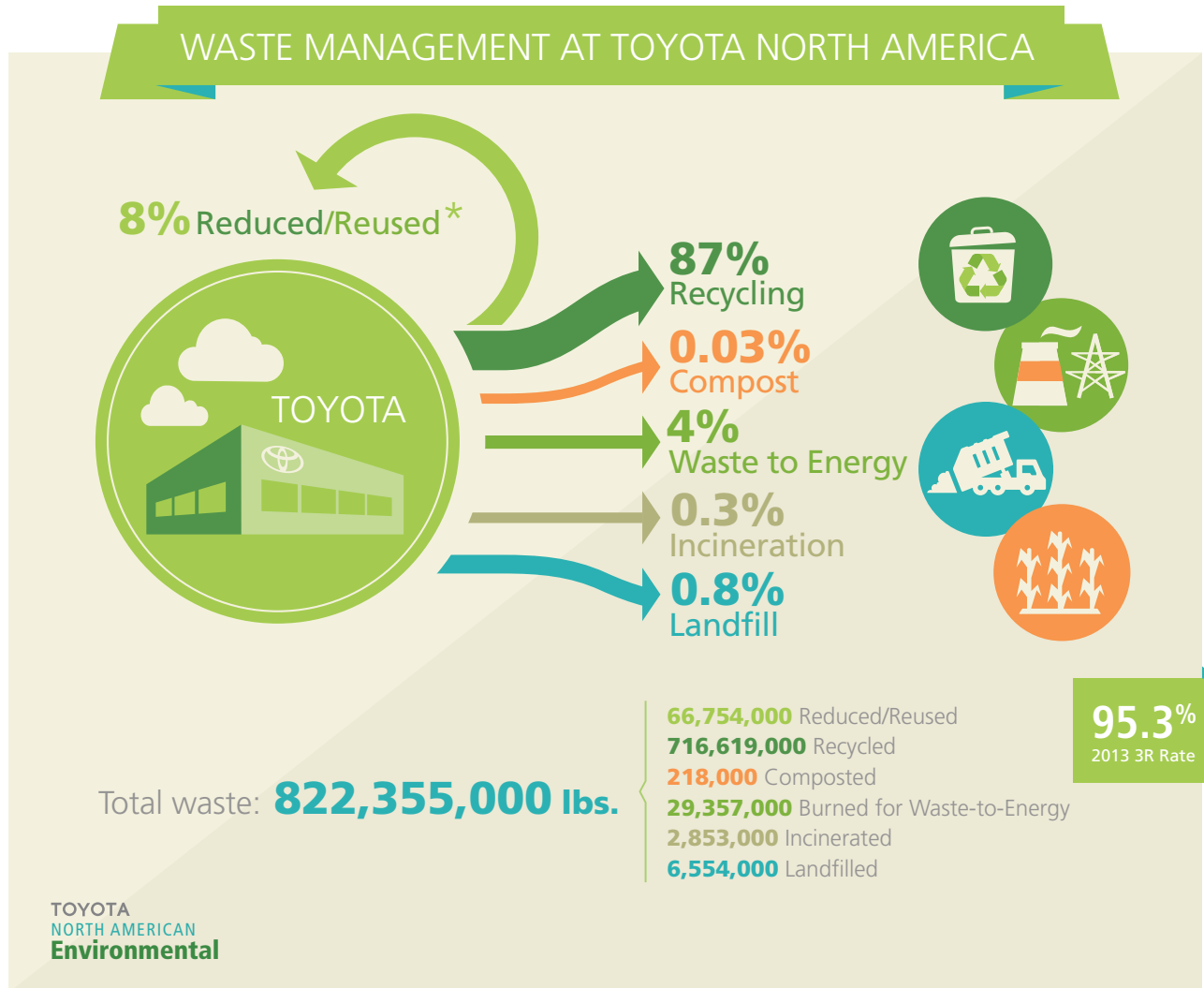
As part of developing the 3R Rate, Ryan and his Waste Focus Group established a standard process to measure waste reduction and reuse, both on a project and process basis. “Across North America, reduction and reuse projects are being implemented, and we’ve already measured service parts packaging reductions,” said Ryan. “But we haven’t been able to capture reductions elsewhere. This process will allow us to better quantify all reduction and reuse activities.”

Ryan presented Toyota’s reduce/reuse calculation methodology at the USZWBC annual meeting last year. This methodology is now being adopted by the American National Standards Institute (ANSI). ANSI oversees the creation, promulgation and use of thousands of norms and guidelines that directly impact businesses in nearly every sector. Toyota’s methodology will become part of ANSI’s landfill free/zero waste standard, which is due to be finalized in 2015.

Toyota’s 3R Rate was 95.3 percent using calendar year 2013 data. (We are using calendar year data instead of fiscal year data to align with EPA’s WasteWise program.) This data covers all North American assembly and unit plants, plus U.S. parts and vehicle distribution centers and sales offices. Going forward, Toyota will roll in the remaining North American sites. We will also expand our capture of reduction and reuse activities.

Ultimately, our work on developing and testing this new KPI will prepare us for setting a 3R Rate target in our next five-year environmental action plan.

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\* Additional reduce/reuse activities have occurred but have not yet been calculated using our new methodology.

Based on calendar year 2013 data to align with EPA's WasteWise program. Scope includes all North American assembly and unit plants, plus U.S. parts and vehicle distribution centers and sales offices. Data includes non-regulated waste, except for incineration, where regulated waste is included. Certain types of hazardous waste are incinerated as a form of treatment, in accordance with law.



## Reduce / Reuse / Recycling Initiatives

The U.S. EPA's WasteWise program helps organizations and businesses apply sustainable materials management practices to reduce municipal and select industrial wastes. Toyota joined the program in 2009.



The U.S. EPA recognized Toyota Motor Sales, U.S.A., Inc. (TMS) with the 2013 WasteWise Large Business Partner of the Year award. This title marks the second time TMS has received the Large Business Partner of the Year designation and the fourth consecutive year Toyota sales and logistics facilities have received a WasteWise award. The WasteWise awards program recognizes organizations' efforts to reduce refuse, increase recycling and purchase environmentally preferable products.

Imagine lugging more than 1.9 million trash cans to the curb on trash day. That's what TMS has avoided doing over the last four years. Since 2009, Toyota has reduced or avoided 1.9 million trash cans worth of waste at its sales and logistics facilities across the U.S.

"Toyota focuses on continually improving how we do business," says Chris Reynolds, Group Vice President and General Counsel at TMS. "By reducing waste and increasing efficiency, we save environmental resources and lower costs for both Toyota and our customers."

Collectively over the past four years, TMS facilities recycled or avoided production of more than 304 million pounds of trash and consistently diverted 98 percent of their annual waste stream from landfill and incineration. How much trash is that? That's equal to the weight of 1,843 Endeavor space shuttles.

To accomplish this feat, Toyota has to think outside the box. For example, when North American Parts Center, Kentucky (NAPCK) delivery trucks drop off parts to the regional parts distributions centers, they're loaded with plastic bags and plastic stretch wrap for the return trip to NAPCK. These types of plastics are often difficult to recycle, but the parts center sells the bulk plastic to a nearby manufacturer that uses recycled wood and plastic to make composite patio materials.

### CEDARDRAW OIL RECYCLING

Instead of disposing of used oil from the stamping machines at Toyota's Indiana assembly plant, the oil is reused in the blanking presses. Blanking presses are used to cut coils of steel into flat sheets used by the forming lines. The steel is washed with cedardraw oil, then cut into smaller flat sheets known as blanks. The blanks are stacked on a pallet, where a forklift picks them up and delivers them to the stamping machines for forming into vehicle components.

Recycling the oil is expected to reduce the purchase of new cedardraw oil for the blanking presses by about 80 percent, or 7,000 gallons per year.

### COMPOST COLLECTION

Recycling programs for paper, aluminum cans, and glass and plastic bottles are almost universal in our offices. But composting has presented a bit more of a challenge. Part of the reason is space – many of our offices don't have the room to set up their own composting facility. The other part of the reason is availability – there just aren't that many compost vendors within a reasonable distance of many of our sites that make composting a viable option.

That's why we're particularly excited to have brought two new composting programs online over the past year. In March 2014, Toyota's sales headquarters campus in southern California started a compost collection program, and in the first month, just over 5 tons of compost were collected from the two kitchens on campus. Over the course of a full year, the program has the potential to increase the headquarters campus recycling rate by 5 percent. Compost was given away to associates on Earth Day to raise awareness of this new initiative.

When our Lexus Eastern Area Office relocated to Parsippany, New Jersey, a centralized waste, recyclables and compost program was implemented. This is our first sales office to have centralized collection of waste and recyclables. All organics are sent to the nearest compost vendor, a facility in Delaware that's less than 150 miles away. Thanks to efforts to recycle, conserve energy and water, and use sustainable building practices, Toyota's Lexus Eastern Area Office achieved Platinum LEED® certification in 2014 from the U.S. Green Building Council.

[Click here](#) for more information on the site's energy efficiency initiatives.

## COPPER RECYCLING

Roughly 40 years' worth of mineable copper resources remain worldwide. Global consumption is growing, driven particularly by infrastructure-related demand for wiring in emerging markets. In addition, large amounts of copper are used in the motors of hybrid vehicles, which are increasingly popular, especially here in North America.

Amid fears that the global supply of copper will eventually run out, Toyota Motor Corporation (TMC) developed a pioneering technology to recycle this resource from vehicles.

The process involves crushing a vehicle's wiring assembly, then sorting the copper by examining differences in buoyancy and using magnets. This method produces copper with a purity of 99.96 percent, pure enough to be reused in vehicles.

Toyota began using this method last year and has already used recycled copper for about 200,000 vehicles. The plan is to increase annual production of recycled copper to 1,000 tons, enough for about two million cars by 2016.

TMC developed this world-first technology in collaboration with Yazaki Corporation, Toyota Tsusho Corporation, and eight other companies.

## GRINDING SWARF RECYCLING

Metal shavings, known as grinding swarf, are generated by part grinders in the machining department at Toyota's engine plant in Alabama. This accounts for 41 percent of the plant's non-saleable waste, making it their largest waste stream. The swarf was once recycled with other scrap metal, but in 2010 the recycler stopped taking this material. The plant then had to properly dispose of it. Team members immediately started looking for an alternative. After evaluating several options, they finally found a cement manufacturer that could use the swarf as an ingredient to make cement. More than 1.1 million pounds of this material are now reused each year instead of being disposed.



## OFFICE CHAIR DONATIONS

When it was time to replace office chairs at Toyota Canada locations, associates looked for an alternative to simply throwing them away. They kept 758 chairs from ending up in landfills. The old chairs were given to local charities, or, if they weren't in good enough condition for reuse, sent for proper dismantling and recycling. Toyota's donation of 449 chairs to the Salvation Army created funds to help maintain the nonprofit's many programs and social services.

## SPOTLIGHT: Training Reimagined – The Environmental Dojo at TABC

Environmental compliance is not the most exciting subject, but it is still crucial to train team members on environmental regulations. Keeping training material fresh and interesting is always a challenge, especially for compliance topics such as proper handling, storage and disposal of hazardous and non-hazardous waste, spill response, chemical management, and product VOC limits. Understanding these topics and adhering to federal, state and local regulations are an important part of Toyota's efforts to minimize waste and reduce the environmental impacts of manufacturing.

TABC, our plant in Long Beach, California, supplies components for the Toyota Tacoma, which is manufactured at Toyota's assembly plants in Texas and Mexico. Their traditional training method of using PowerPoint slides was not working. Employees were not responding well to the training and were not retaining the information.

A countermeasure was needed. So TABC's Environmental team – David Cooper, Thomas Lui and Michael Fourcand – decided to try a different approach.

They created an "Environmental Dojo" (a dojo is a training facility), a room dedicated to environmental training. Now, instead of sitting in a conference room listening to a lecture, students are on their feet participating in the training. The students interact in a bright room with colorful exhibits. Eight interactive lab exhibits focus on chemical storage, VOC limits in paint, waste disposal, universal waste, aerosol waste, hazardous waste and spill response.

The original hour-long lecture has been shortened to a 10-minute introductory presentation, and then the class members participate in labs that allow them to demonstrate their knowledge. For some exhibits, students have only 60 seconds to demonstrate their knowledge. At the waste disposal exhibit, for example, seven pictures of waste streams must be matched with the correct disposal drum. At the aerosol exhibit, team members must identify at least six instances of hazardous waste management noncompliance.

The timed competition motivates the team members as they move through the exhibits, and they are ....learning!

TABC's goal is to have every team member train in the environmental dojo. With a class size of only eight, this means they need to host 60 training sessions. Their first class was held in March 2014. In less than one month, they trained 170 team members by holding five to six classes per day.

This course is a total departure from the traditional method of environmental training. It shows that innovation at Toyota goes beyond technology and reaches every aspect of our business.

And the best news is, the dojo works. Team members are applying what they learn, and the number of waste management issues has already decreased. TABC's environmental department has received very positive feedback from those who have gone through the dojo. The experience is engaging, interactive and effective.

The dojo has been so successful that some of Toyota's other North American plants, including those in Mexico and Canada, have visited to learn more about the dojo and TABC's approach. It's only a matter of time before the dojo is replicated at other North American sites. What started as a small idea affecting less than 500 people is poised to become a new way of training for thousands of employees across the entire region.



At Toyota's plant in Long Beach, California, Michael Fourcand (left), David Cooper (center) and Thomas Lui (right) decided to take a fresh approach to environmental training. They created an "Environmental Dojo," a training room with interactive exhibits where team members learn about universal waste, chemical storage, and other environmental compliance topics. The dojo has been very successful: Within a short time, the plant was already seeing a decrease in waste management issues.



Paul Combs and Audel Quiroz participated in training at TABC's new "Environmental Dojo." The dojo is a room dedicated to training team members about various environmental compliance topics. The dojo contains eight exhibits, or labs, that teach a different element of environmental compliance. Here, Paul and Audel have made it to the eighth and final exhibit, where they need to apply everything they learned. Trainees have been very positive in their feedback about this new training method, saying it is engaging and a more effective way to learn.

## Outreach

A core part of our environmental strategy involves outreach. When it comes to waste minimization, this means we encourage team members and associates to find ways to broadcast Toyota's commitment to Reduce, Reuse and Recycle at home, in their communities, and to our customers.

Over the last 20 years, Toyota has helped associates, team members and surrounding communities recycle and properly dispose of household waste. During designated collection days, we collect electronic waste, appliances, paint, and other household items that are difficult to recycle or dispose. At the same time, we also collect items such as clothing and eye glasses that can be donated to those in need.

Since 1994, Toyota has collected over 1.6 million pounds or 805 short tons. That's equal to 529 Prius vehicles or 132 elephants or 10 space shuttles. All reusable items were donated and the rest recycled or, in the case of hazardous waste, disposed of properly. [Click here](#) for the full story.

Additionally, associates from Toyota Canada Inc. (TCI) participate in an annual "lunchtime make-over" of the outdoor area near the organization's Head Office. During Earth Week 2014, they stuffed a record number of 104 bags full of garbage. They separated out recyclables, keeping a significant portion of what was collected from ending up in a landfill. [Click here](#) for the full story.

These efforts ensure waste is properly disposed, help others recycle and keep usable materials out of landfills, and remove trash from the environment.

## CUSTOMERS GO PAPERLESS

Toyota and Lexus Financial Services kicked off their third annual "GoGreen" campaign, encouraging customers to sign up for paperless billing statements. Between January 15th and March 31st of 2014, for every customer signed up to "GoGreen," Toyota Financial Services donated \$5 (up to \$200,000) to the Boys and Girls Clubs of America.

It didn't take long to reach the \$200,000 mark. Over 857,000 customers have signed up for paperless billing since the program began, saving over 319,000 pounds of paper annually.

"Our 'GoGreen' campaign has been a great success," says Karen Ideno, Vice President of Product and Marketing. "We started this program less than a year after launching paperless billing, and a record number of customers have signed up."



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## BIODIVERSITY

- > POLLINATORS
- > NATIVE SPECIES
- > PARTNER: WILDLIFE HABITAT COUNCIL
- > OUTREACH



#### > BIODIVERSITY

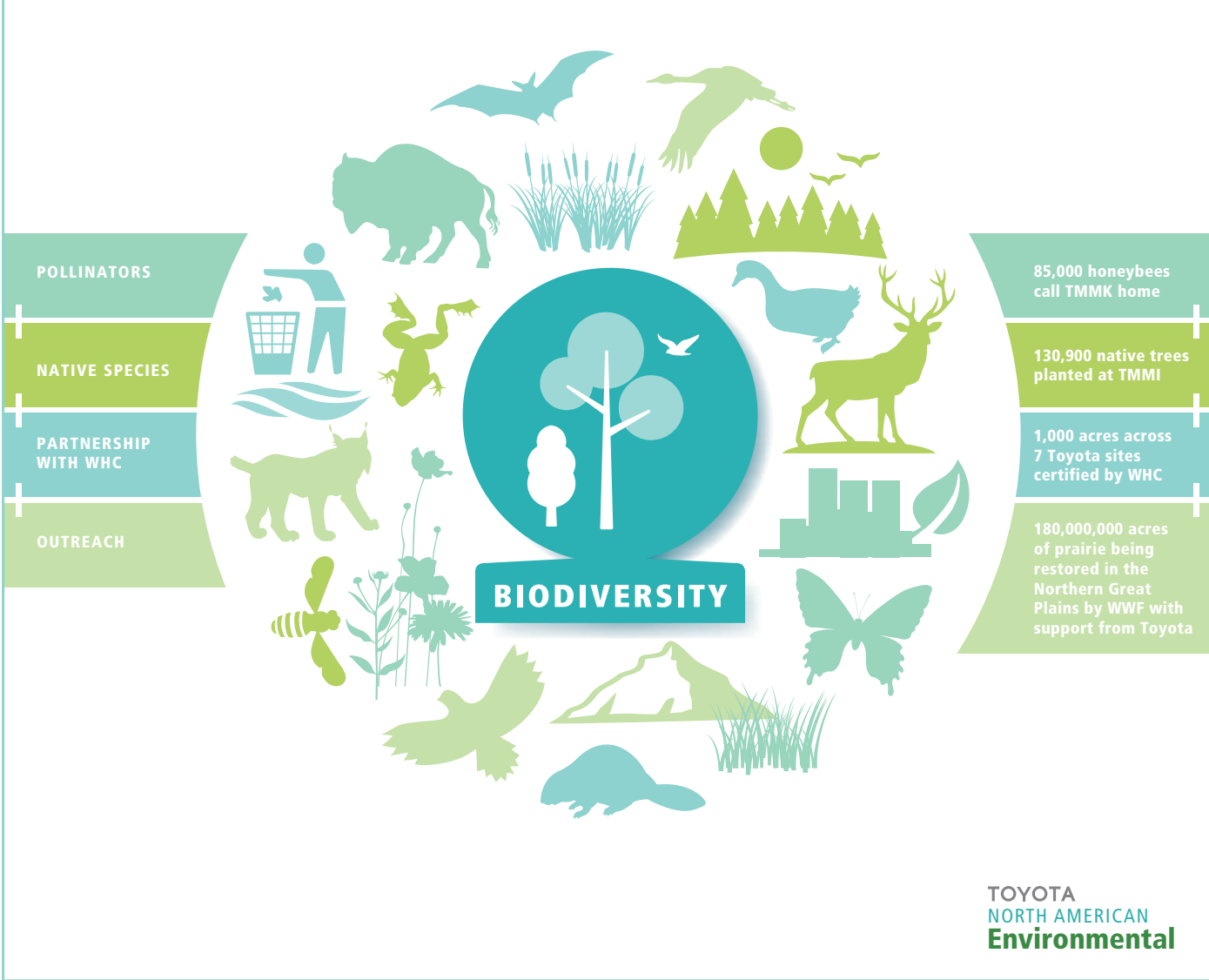
Biodiversity refers to the variety of animal and plant life on Earth. The diversity of living organisms, and the habitats in which they live, are crucial for the functioning of ecosystems and the resources and benefits they provide, such as fresh water, fertile soils, food, medicines, shelter and recreation.

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**Human activities can have great influence – both positive and negative – on biodiversity. That’s why Toyota strives to minimize negative environmental impacts (for example, by generating less waste) and maximize positive ones. Our biodiversity efforts are currently centered on activities that maximize species protection, habitat restoration and employee engagement.**

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# TOYOTA NORTH AMERICA'S BIODIVERSITY HIGHLIGHTS





## POLLINATORS

Pollinators move pollen from the male to the female part of a flower to fertilize the plant. There are a variety of pollinators, ranging from bees to birds to butterflies.

These industrious creatures pollinate more than flowers. A number of food crops, like apples, pumpkins and alfalfa, rely on honeybees for pollination. Bees are the most recognized pollinator, and the most effective. But hard times have befallen the honeybee. Over the past decade, colony numbers in the U.S. have dropped to their lowest in 50 years.

That's why efforts to protect these species are so important. With 21,000 acres of land in North America, we decided we could put this acreage to good use by planting pollinator gardens. A number of sites, including those certified or applying for certification with the Wildlife Habitat Council, are already maintaining pollinator gardens, and more are on the way.



Team members at our Cambridge and Woodstock plants in Ontario, Canada, cultivate wildflowers and native grasses, which provide food and shelter for pollinators.

## The Buzz About Bees

As the weather warms, honeybees wander down Cherry Blossom Way to the walls of a building at Toyota’s plant in Georgetown, Kentucky. Swarms of these precious pollinators are a potential safety issue. But Toyota eliminates concerns by establishing onsite hives each spring. The plant has successfully established 10 hives since 2010, resulting in more than 85,000 happy honeybees. The honeybees get a new home and the facility’s garden yields go up. A nice byproduct: The plant also gifts more than 100 pounds of Cherry Blossom Honey to visitors.

Toyota’s parts distribution center (PDC) in New Jersey is also abuzz about helping bees. Thanks to the PDC’s recent donation, the Montclair Historical Society has two new honeybee hives to pollinate its working farm and gardens. The hard-working bees in each hive collect around 66 pounds of pollen per year, according to Bee Bold Apiaries, the organization that maintains the Montclair hives. That pollen helps ensure the farm yields a healthy crop for those in need; all food grown there goes to feed low income families in the area.



**Bee Bold Apiaries co-founders Eric Hanan and Joseph G. Lelinho install a hive on the Montclair Historical Society’s working farm, thanks to a donation from Toyota’s parts distribution center in New Jersey.**

## All Aflutter About Butterflies

Millions of monarch butterflies fly south every winter from Canada through the United States all the way to Mexico. Along the way, butterflies lay their eggs on milkweed plants. Monarch larvae eat the leaves as their first meal and use the plant for shelter as they grow.

They also pollinate. But monarch numbers have been declining over the past several years. To help reverse this trend, several Toyota locations, including the plants in Kentucky, Alabama, Mississippi and Indiana, committed during National Pollinator Week (June 16-22, 2014) to certifying Monarch Waystation Habitats. Waystation habitats are places that provide the necessary resources for monarchs to produce successive generations and sustain their migration. These waystations provide milkweed for larvae and energy sources from wildflower nectar for adult butterflies.

Toyota's Georgetown, Kentucky, plant has two waystations onsite, one at the Childcare Development Center and another along the Environmental Education Center | Nature Trail. Team members are also taking their pledge to protect pollinators out into the community. The plant is supporting four monarch waystation habitats at Liberty, Breckenridge and Yates Elementary Schools in Lexington and at the Yuko-en Park in Georgetown. Toyota provided the seed packets and signage for each site to show it has been registered with MonarchWatch.org. Toyota also provided the Child Development Center with books and posters during Kentucky's Pollinator Week in June.

With support from Toyota Motor Manufacturing, Mississippi, a garden of wildflowers was planted at a new park in Blue Springs to support the natural migration path of the monarch butterfly. [Click here](#) for more information about the Toyota-Blue Springs Water Garden and Education Park.

We expect to see monarchs at these stations in the fall, and plan to provide an update to our efforts in next year's report.



Toyota's Georgetown, Kentucky, plant has two monarch waystations onsite. Monarch butterflies are pollinators, and waystations provide them with food and shelter. The plant is located along the monarch's migration path.

## NATIVE SPECIES

A core part of our biodiversity strategy focuses on restoring native species. Restoration activities are often conducted with input from wildlife specialists and other interested third parties, who help us assess the needs of the area, such as the health of a watershed or whether endangered species are present. A number of these efforts are conducted as part of [Wildlife Habitat Council certification](#) activities. Some of our larger sites are also reforesting some of their open spaces with native trees, which also provide habitat for other indigenous species.

## Seeing Indiana's Forest for the Trees

Aside from being a great place to work and producing world-class vehicles, Toyota Motor Manufacturing, Indiana (TMMI) strives to be an environmental role model. The plant has shown 130,000 reasons why its environmental efforts are gaining traction.

In May 2008, TMMI's Environmental Affairs team began a project that called for planting native species of trees on many of the 1,160 acres of land the automaker calls home. TMMI does in fact see a forest in its trees: 130,900 trees have been planted in the last six years, bringing the project to completion. That number equates to more than 25 trees planted for each of the plant's 4,700 team members.

The area has become a thriving habitat for wildlife, including white-tailed deer, red-tailed hawks and even bobcats. Neal Bogan, a naturalist with the Wesselman Nature Society, helped perform a species survey of the reforested area. "Toyota's reforesting efforts are helping wildlife," said Neal. "I saw several locally rare species of migratory birds on the property, some I believe to be nesting there. These include Bell's vireo, woodcock, common yellowthroat, and bobwhite. The species found here could use the area as a starting point to move out into the surrounding properties and possibly repopulate some of the surrounding area."

"It's amazing to think we could be the reason hawks and bobcats call more of Indiana home," said Norm Bafunno, TMMI President. "Our biodiversity efforts mean a lot to the community, but they also are very important to our team members. TMMI is very proud of the support and dedication from the team members that made this forest a reality."



TMMI President Norm Bafunno gathers with kids from the plant's onsite daycare center to celebrate the planting of the 100,000th tree on the facility's grounds. A commemorative tree was planted along the pathway to the Nature Trail behind the Toyota Children's Center. Each child received a tree sapling to take home and plant.

## PARTNER: WILDLIFE HABITAT COUNCIL

Our partnership with the Wildlife Habitat Council (WHC) began at our Georgetown, Kentucky, plant in 2008, when it became the first Toyota plant to obtain certification to WHC's "Wildlife at Work" and "Corporate Lands for Learning" programs. Since then, six more Toyota facilities have been certified as Wildlife at Work sites.

Three additional sites, including the R&D centers in Ann Arbor and York, Michigan, are planning to submit applications for certification; certification is expected in 2015.

Toyota Motor Manufacturing de Baja California (TMMBC), our plant in Tecate, is considering certification. TMMBC has a 133-acre parcel of land on their property certified by the local government as a wildlife preserve. TMMBC is now working with a university to develop a wildlife management plan for this area. The wildlife management plan would meet one of the prerequisites for WHC certification.

The Wildlife Habitat Council is a nonprofit group of corporations, conservation organizations and individuals dedicated to restoring and enhancing wildlife habitat. WHC works with corporations and other landowners to create tailored voluntary wildlife habitat enhancement and conservation education programs on corporate facilities and in the communities where they operate.

The Wildlife Habitat Council's Corporate Wildlife Habitat Certification/International Accreditation Program recognizes commendable wildlife habitat management and environmental education programs at individual sites. Certification criteria are stringent. Sites must demonstrate programs have been active for at least one year and have a management plan listing goals, objectives and prescriptions as well as complete documentation of all programs. The Certification Review Committee, a panel of WHC wildlife biologists and staff, reviews the materials for certification eligibility and recognizes deserving projects under an appropriate category.

## Wildlife at Work in Mississippi

Toyota Motor Manufacturing, Mississippi (TMMMS), where we assemble Toyota Corollas, is built on 1,500 acres in Blue Springs. According to a recent species count, 74 species call TMMMS home, including 20 species of mammals and 28 species of trees. TMMMS is committed to protecting these species and their habitats and to showing how industry can live in harmony with nature, as instructed by our global Earth Charter.

In June 2014, TMMMS submitted an application to the Wildlife Habitat Council for certification as a Wildlife at Work site. Three major projects supported this application, which was approved in November 2014:

### POLLINATOR GARDENS

Team members have turned parking lots into pollinator gardens. When the plant was first starting up, five acres on the north side of the plant were used for parking. These lots are no longer needed, so team members removed gravel, added top soil, and planted wildflower seeds. Now flowers bloom every summer, and with the help of biologists at Mississippi State University, TMMMS is developing a plan to further improve the pollinator gardens and bring in more native species.



**BEAVER HABITAT**

During construction of the plant, retention ponds were built to manage the runoff of storm water. Beavers began building dams at the discharge points at several of the ponds, causing water to back up. Team members eventually stopped fighting nature’s most famous builders. Allowing the water to back up ended up creating a huge lake where 50 ducks, as well as fish and other species, now call home.

**DUCK NESTING BOXES**

Wood ducks have long been a favorite bird among hunters, birders and the general

public. However, the combination of heavy hunting and habitat destruction almost resulted in their extinction in the late 19th and early 20th centuries. Fortunately, hunters and conservationists noticed the plight of this species in time. The wood duck was given legal protection from hunting and a major campaign began to provide nest boxes for this species. The current flourishing population attests to the success of this effort. Wood ducks are now being hunted again with careful regulation. Most important, they can be enjoyed by more and more people as their range expands to the north and west.

Wood ducks are found in slow-moving woodland rivers, shallow ponds and marshes, often in areas where large shade trees overhang the water. They also occur in open marshes adjacent to forested areas. The TMMMS site provides wood ducks with the opportunity to nest in several of these types of habitats.

As a part of the 2013 Earth Day Celebration, the plant’s environmental staff worked with the Boy Scouts of America to identify 10 local scouts to come on site, and with the assistance of 10 Toyota volunteer team members, build 20 wood duck nesting boxes. After researching wood duck habitat, the team members identified 20 locations for the nesting boxes. The

boxes are monitored for activity during the wood duck nesting season.

Only one year later, in 2014, team members discovered three of the boxes had eggs.

TMMMS has been designated a “Model Sustainable Plant” by our parent company in Japan. A model sustainable plant is a leader in the efficient use of energy and resources, uses the latest innovative technology, protects biodiversity, and supports the local community.

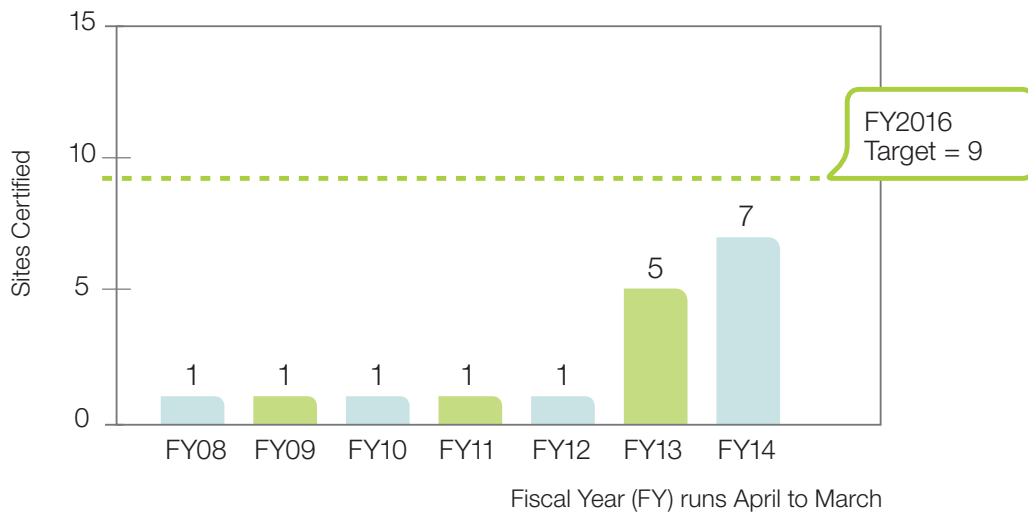


**Biodiversity Target: Certify 9 sites with the Wildlife Habitat Council by the end of FY2016 (on track)**

Toyota currently has seven sites certified with the Wildlife Habitat Council:

- Toyota Motor Manufacturing, Kentucky – certified in 2008 and recertified in 2013 for Wildlife at Work and Corporate Lands for Learning
- Toyota Motor Manufacturing Canada, Cambridge plant – certified in 2013 for Wildlife at Work
- Toyota Motor Manufacturing Canada, Woodstock plant – certified in 2013 for Wildlife at Work
- Toyota Motor Manufacturing, Indiana – certified in 2013 for Wildlife at Work
- Toyota Motor Engineering & Manufacturing North America – certified in 2013 for Wildlife at Work
- Toyota Motor Manufacturing, Alabama – certified in 2014 for Wildlife at Work
- Toyota Motor Manufacturing, Mississippi – certified in 2014 for Wildlife at Work

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\* Toyota’s Kentucky plant was the first site to be certified, and maintains both *Wildlife at Work* and *Corporate Lands for Learning* certifications. All other sites are certified for *Wildlife at Work*. Our Cambridge and Woodstock, Ontario, sites are covered by a single certification.

## OUTREACH

Our biodiversity efforts extend beyond our facilities into our communities. We participate in a number of initiatives to help protect pollinators and other species, plant trees, restore habitats, spruce up state and national parks, clean up waterways, and educate children about the importance of biodiversity. Examples include:

- [100 Cars for Good](#)
- [Lexus Eco Challenge](#)
- [National Public Lands Day](#)
- [Northern Great Plains Program](#)
- [Toyota TogetherGreen](#)
- [Youth Environmental Program](#)



Team members from Toyota Technical Center participated in a Greening of Detroit community planting volunteer event in celebration of Earth Day. The Greening of Detroit is a nonprofit resource agency that partners with federal, state and local agencies, corporations and foundations to assist neighborhood groups, churches and schools in their efforts to improve the ecosystem in Detroit. Through tree planting projects, environmental education, urban agriculture, open space reclamation, vacant land management, and workforce development programs, they are transforming the city of Detroit into a healthier, safer and greener environment.





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## OUTREACH

- > SUPPLIERS
- > DEALERS
- > STAKEHOLDERS



#### > OUTREACH

Here in North America, Toyota has identified four interrelated environmental issues as our core areas of focus: carbon, water, materials and biodiversity. This report provides a wealth of information on our efforts to minimize negative impacts and maximize positive outcomes in each of these areas.

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**But if we really want to make a difference – and we do – we can't act alone. We must engage with our business partners and stakeholders to work towards common objectives.**

**That's why outreach is such a crucial component of our environmental strategy. Through outreach we can create mechanisms for scaling up the positive outcomes of our environmental programs. We can act locally and create value globally.**

We start by communicating. By sharing our story in this report, on our [website](#) and through social media, not only will we inspire others, but we will also motivate ourselves to continue to do more. We connect with consumers and the general public, government agencies and organizations that communicate environmental messages in creative and effective ways. Together, we are spreading the word and encouraging a greener, more sustainable future.

The next step is engaging business partners. We work with our network of Toyota and Lexus dealers to encourage green building practices, and with suppliers to reduce waste and consumption of energy and water.

We can't stop there. The dedication and creativity of Toyota's employees is a big part of our success story when it comes to our own environmental performance, but we want them to be ambassadors for us beyond the workplace. We create opportunities for team members and associates to get involved at home and in their communities to educate and promote conservation.

And of course, we reach out to individuals and communities locally, nationally and regionally. Through the power of collaboration, we hope to create lasting positive outcomes on a macro scale that will lead us to a more sustainable future.

## SUPPLIERS

Toyota recognizes that environmental impacts extend into our supply chain. We have a vast network of suppliers providing us with everything from parts and accessories, to waste management and cafeteria services and office supplies. We work closely with suppliers to share our knowledge and experience, which helps them improve their environmental performance.

### **Supplier Target: Develop a new supplier environmental engagement process (on track)**

During fiscal year 2014, we updated Toyota's Green Supplier Guidelines to include seven additional chemicals of concern. These guidelines help us communicate with suppliers about Toyota's environmental expectations, especially with regards to chemical management.

Through our membership in the Automotive Industry Action Group (AIAG), Toyota and 13 other automakers have agreed on a set of expectations for suppliers relating to the environment, working conditions, human rights and business ethics. The "Automotive Industry Guiding Principles to Enhance Sustainability Performance in the Supply Chain" contains a set of broad principles. For the environment, the principles are:

*Companies are expected to pursue effective environmental protection throughout the supply chain in order to reduce the environmental footprint of our products throughout their life cycle.*

*All products manufactured within the supply chain, and the applied materials and substances used in the process are expected to meet environmental standards for design, development, distribution, use, disposal or recycling. Such a comprehensive approach includes but is not limited to:*

- *Reducing energy and water consumption*
- *Reducing greenhouse gas emissions*
- *Increasing use of renewable energies*
- *Enhancing appropriate waste management*
- *Training of employees*

Businesses are expected to support a proactive approach to environmental challenges and encourage the development and diffusion of environmentally preferable technologies.

The guidelines apply to first-tier suppliers as well as their subcontractors and suppliers.

AIAG first developed the basis for these guidelines in 2009, in collaboration with Toyota, Ford, GM, Chrysler and Honda. The same year, automotive companies in Europe created a working group to enhance collaboration on supply chain sustainability. CSR Europe has facilitated this working group since 2012. To establish the latest Guiding Principles, AIAG and CSR Europe, together with the 14 automakers, built on the AIAG guidelines and worked to find common points of agreement.

During fiscal year 2015, we will continue to evaluate ways to share opportunities to reduce GHG emissions and energy and water use. We have already shared Toyota's energy treasure hunt process with 180 Tier 1 (direct) suppliers and participated in treasure hunts with 41 suppliers. Between 2008 and 2013, we helped suppliers identify annual energy savings of over 43.5 million kilowatt-hours – equivalent to 15,200 metric tons of CO<sub>2</sub> per year. We will build on these efforts to help us develop a future strategy for further addressing environmental impacts from our supply chain.

## DEALERS

There are approximately 1,850 Toyota and Lexus dealerships in the United States, Canada and Mexico. These dealerships are all independently owned franchises. In keeping with our overall philosophy, it is important we share our environmental values and know-how with the dealership population and support their efforts to be environmentally responsible.

We work closely with dealers to promote green building practices, since buildings – both residential and commercial – have a large environmental footprint. Buildings are responsible for about one-third of the energy consumed in the United States and Canada. Green buildings can reduce energy use and associated greenhouse gas emissions by 25-60 percent, water use by 30-95 percent, and solid waste by 50-95 percent, and they have been shown to improve employee health and productivity.

Both our Toyota and Lexus divisions work with dealers on new construction and remodeling projects through programs that encourage sustainable building practices and the use of the Leadership in Energy and Environmental Design (LEED®) rating system. LEED is a point-based system administered by the U.S. and Canadian Green Building Councils promoting a whole-building approach to sustainable construction and remodeling. LEED certification is based on meeting stringent evaluations in sustainable site development, water savings, energy efficiency, materials selection and indoor air quality.

We emphasize three areas to dealers to get the best return on investment from green building practices: using high-quality materials on the building envelope (particularly the insulation and the roof), using LED lighting in both interior and exterior areas, and right-sizing the heating, ventilation and air-conditioning systems. A study performed on LEED-certified Toyota dealerships shows the average dealer who completes the LEED process can save up to 69 percent on their energy costs per square foot per year (based on a 52,000 square-foot building). The often rapid return on investment for environmentally sustainable materials, energy-efficient lighting fixtures and other LEED elements confirms the economic benefit of building green.

While not all dealers choose to pursue LEED certification, they still incorporate green building practices into design and construction. Lexus of Omaha in Nebraska incorporated some innovative features into their new facility, which opened in early 2014. A green roof on the south side of the building provides increased insulation and reduces energy use, and an interior green wall – a vertical garden – helps reduce toxins and provide clean air.

### **Dealer Target: Maintain the leadership position in dealership green building and certify 53 dealerships to LEED by 2016 (on track)**

We have been working on LEED projects with our dealers since 2005, and we are leading the industry with the number of dealerships certified to LEED. So far, we have assisted 42 Toyota and Lexus dealerships – 37 in the United States and 5 in Canada – with LEED certification:

- United States: 33 Toyota and 4 Lexus dealerships
- Canada: 4 Toyota and 1 Lexus dealerships

Toyota and Lexus have more LEED-certified dealers in both the U.S. and Canada than any other auto manufacturer. Several more dealerships have completed construction and are waiting for their ratings to be decided. Many more are under construction or in the design and permitting phase and have registered their intent to pursue LEED with the U.S. or Canadian Green Building Councils. In North America, Toyota and Lexus dealerships combined have over 2.3 million square feet of LEED-certified building space.

“Toyota is a proponent of LEED-certified dealerships for many reasons,” said Ernest Bastien, Vice President of Retail Market Development at Toyota Motor Sales, U.S.A., Inc. “When a Toyota or Lexus dealer facility team meets green building standards developed by the U.S. Green Building Council, they receive attention not only for the energy cost savings, but also for being responsible members of the community. Toyota and Lexus have more LEED-certified dealers than the rest of the auto industry collectively.”

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DEALER NAME	LOCATION	YEAR CERTIFIED	CERTIFICATION LEVEL
Victory Toyota	Seaside, California	2014	Silver
Toyota Vandermeer	Cobourg, Ontario, Canada	2014	Gold
Dunning Toyota Ann Arbor	Ann Arbor, Michigan	2014	Silver
R&H Toyota	Owings Mills, Maryland	2014	Gold
Transky Sawmill Toyota	Dublin, Ohio	2014	Gold
Lost Pines Toyota	Bastrop, Texas	2013	Gold
OpenRoad Lexus	Richmond, British Ontario, Canada	2013	Silver
DCH Toyota of Torrance	Torrance, California	2013	Gold
Westbrook Toyota	Westbrook, Connecticut	2013	Certified
Toyota of Lakewood	Bradenton, Florida	2013	Certified
Tustin Toyota	Tustin, California	2013	Silver
Kenny Ross Toyota	Coraopolis, Pennsylvania	2013	Certified
Welland Toyota	Welland, Ontario, Canada	2012	Gold
Beaverton Toyota (TCSC)	Beaverton, Oregon	2012	Gold
Grappone Toyota	Concord, New Hampshire	2012	Certified
San Francisco Toyota	San Francisco, California	2012	Platinum
Alamo Toyota	San Antonio, Texas	2012	Silver
Sun Toyota	Holiday, Florida	2012	Gold
Vancouver Toyota	Vancouver, Washington	2012	Silver
Bennett Toyota	Allentown, Pennsylvania	2012	Gold
Toyota of the Black Hills	Rapid City, South Dakota	2012	Silver
Maguire Toyota	Ithaca, New York	2012	Platinum
Toyota Scion of Bend	Bend, Oregon	2011	Gold
Beaman Toyota	Nashville, Tennessee	2011	Certified
Legends Toyota	Kansas City, Kansas	2011	Gold
Lexus of Henderson	Henderson, Nevada	2011	Gold
Stouffville Toyota	Stouffville, Ontario, Canada	2011	Gold
Dave Mungenast Lexus of St. Louis	St. Louis, Missouri	2010	Silver
Grossinger City Toyota	Chicago, Illinois	2010	Silver
Fred Bean's Toyota of Flemington	Flemington, New Jersey	2010	Silver
Jerry Durant Toyota	Granbury, Texas	2010	Silver
Kendall Toyota	Eugene, Oregon	2010	Platinum
Stratford Toyota	Stratford, Ontario, Canada	2010	Gold
Toyota of El Cajon Certified Center	Santee, California	2010	Gold
Toyota of El Cajon	El Cajon, California	2010	Silver
Caldwell Toyota	Conway, Arkansas	2009	Gold
Fitzgerald's Lakeforest Toyota	Gaithersburg, Maryland	2009	Gold
Lexus of Las Vegas	Las Vegas, Nevada	2009	Gold
Mark Miller Toyota	Salt Lake City, Utah	2009	Gold
Sewell Lexus Pre-Owned	Fort Worth, Texas	2009	Gold
Toyota of Rockwall	Rockwall, Texas	2008	Gold
Pat Lobb Toyota	McKinney, Texas	2007	Silver

## VANDERMEER TOYOTA CELEBRATES EARTH WEEK WITH LEED® GOLD

This year's Earth Week was extra special for Vandermeer Toyota. One year after opening a new 22,000 square-foot state-of-the-art facility, Vandermeer Toyota became certified as an official Leadership in Energy and Environmental Design (LEED) Green Building.

"Toyota is extremely proud to have its name on the first LEED-certified facility in the community of Cobourg," said Larry Hutchinson, Vice President, Sales, Toyota Canada Inc. "Vandermeer Toyota joins a growing list of Toyota and Lexus dealerships across Canada that have achieved this important designation, demonstrating the ability to meet the most stringent of environmental standards."

Hank Vandermeer, Dealer Principal of Vandermeer Toyota, added: "From the moment we decided to move to a new and larger site, we were committed to making green innovation the essence of the facility. We strove to attain a silver LEED certification and managed to achieve the Gold standard. We are ecstatic to be giving the people of Cobourg a building that puts our community at the leading edge of environmental sustainability."

The dealership, located at 959 Division Street in Cobourg, is the fourth Toyota dealership in Canada to receive the designation. Toyota has the most LEED-certified dealerships of any auto manufacturer in Canada. It was achieved through a wide array of environmentally friendly features, including:

- 28 percent of building materials made of recycled content, and 40 percent of the materials sourced regionally
- 83 percent of construction waste diverted from landfill
- 79 percent savings of internal potable water use and 100 percent externally, partly attributable to introducing native and drought-tolerant plant species
- Sewage conveyance (i.e., toilets and urinals) water savings of 98.5 percent by using a cistern to capture and use rain water
- 93 percent of the construction wood certified by the Forest Stewardship Council (FSC)
- Energy cost savings of 4 percent and consumption savings of 42 percent, partially achieved through the use of solar panels and skylights
- Maintaining indoor air quality with a special monitoring system
- Using environmentally preferred refrigerants and low-emitting materials throughout the building, and initiating a green housekeeping program

With 22 employees, Vandermeer Toyota has been serving customers in Cobourg for the past 26 years. The dealership offers LEED tours to anyone who is interested.





# STAKEHOLDERS

## Employee Target: Create environmental ambassadors by educating and empowering employees (on track)

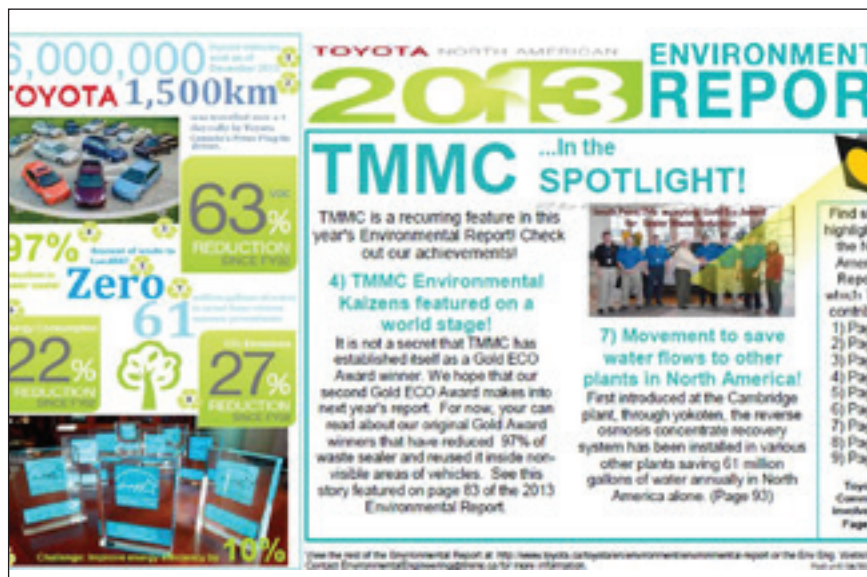
We take a variety of approaches to communicating our environmental mission, action plan and activities to team members and associates. We do everything from hosting lunch-and-learns, to publishing newsletters and including an overview of Toyota’s North American Environmental Report in new hire training. We want to make sure everyone at every level – not just those with the word “environmental” in their job title – is aware of our environmental activities and understands they have a role to play.

Toyota’s North American Environmental Report is the primary avenue for communicating all things environmental. We use it as a reference guide and as a source for stories. Even the process of developing the report provides an opportunity to engage a wide array of job functions at all levels of the company.

For Earth Month, team members at Toyota Motor Manufacturing Canada (TMMC) created posters for the Cambridge and Woodstock plant entrances using the 2013 North American Environmental Report. These posters highlighted some of Toyota’s big accomplishments in Canada, North America and globally.

“These posters are a great way to share our story,” said Miye Cox, Environmental Engineering Manager at TMMC. “Seeing these posters gives our team members a sense of accomplishment and pride. It’s really motivating when you see your story in print. It makes you want to do more.”

TMMC isn’t alone in using Earth Day as an opportunity to raise environmental awareness. Many of our facilities celebrate for a full week, while others dedicate an entire month. Earth Week activities at our assembly plant in Georgetown, Kentucky, followed a theme of “energy reduction” in 2014. Educational materials about things that can be done at home to save energy, and the connection between energy use and climate change, were posted around the plant. Team members received LED night lights to take home, which also encouraged sharing the message with families.



Examples of the posters created by TMMC for Earth Month. They highlight TMMC’s environmental accomplishments and provide some of the most noteworthy statistics about Toyota’s environmental performance in North America.

## EARN POINTS, RAISE AWARENESS

We want Toyota team members and associates to be role models for each other at work, at home and in their communities. So we foster an environment that encourages volunteerism, and we find ways to give back to reward them for their efforts.

Reducing the environmental impact of our products and processes is central to Toyota's culture. Employees at every level look for ways to innovate new and better ways to design and build vehicles using less energy and water and generating less waste and fewer emissions. But our manufacturing company in Ontario – the only manufacturer in Canada to assemble gasoline, hybrid and electric vehicles – goes a step further and encourages its team members to be ambassadors of the environment. Toyota Motor Manufacturing Canada (TMMC) supports a number of activities that encourage and reward team members for taking the environmental lessons they learn at work, home to their families and friends.

TMMC's efforts to help raise environmental awareness beyond the workplace are a big part of the reason for being named one of Canada's Greenest Employers. This is TMMC's 4th consecutive year on this list. The *Canada's Greenest Employers* competition is organized by the editors of the *Canada's Top 100 Employers* project. This special designation recognizes the employers that lead the nation in creating a culture of environmental awareness in their organizations.



TMMC cultivates its ambassadors by making a number of environmental activities eligible for prizes and translating participation into “eco-points.” Every eco-point equals a donation of CAN\$0.50 to the Toyota Nature Center at Shade's Mills Conservation Area in Cambridge. The nature center provides hands-on programs that teach environmental concepts and foster an appreciation of the natural world. TMMC donated almost CAN\$3,000 to Shade's Mill in fiscal year 2014.

So how have team members collected eco-points this year? During Earth Month (April 2014), they took advantage of a number of opportunities to earn points:

- ✓ They brought in over 1,000 kilograms (2,200 pounds) of electronic waste from their homes to be safely recycled.
- ✓ They participated in the Global Earth Hour initiative to reduce their electricity demand for one hour. In the spirit of practicing what you preach, TMMC also participated in Earth Hour by minimizing outdoor lighting requirements.
- ✓ Their families participated in a drawing contest that fostered environmental awareness in young children. Each art submission earned the child a free gift of an Earth-shaped ball, and entered them in a drawing for a family visit to Ripley's Aquarium of Canada.
- ✓ They made Green Pledges to say how they will help the environment this year. There were hundreds of pledges including ways to reduce a family's carbon footprint and contribute to recycling efforts.

“These are just a few examples of how Toyota team members and associates across North America live our environmental mission of respect for the planet in their everyday lives,” said Phil Rodi, Vice President and Environmental Director at TMMC. “They are our ambassadors, bringing our environmental commitment home to their families and friends and showcasing the positive impact that a collaborative community can have.”



**The Green Pledge Tree at TMMC's Woodstock plant, where team members wrote their pledges on a green "leaf car." Some examples of pledges made in 2014:**

“I pledge to buy and eat locally grown foods resulting in fewer emissions to get the food to my plate, and I also pledge to take quicker showers resulting in less water used.” - **Tom Beleny, Materials North**

“I will plant two trees with my kids every year on their birthday and we will take a picture. It was my oldest son's idea for Earth Month.” - **Shahid Shaikh, Administration**

### BIRDHOUSES AREN'T JUST FOR THE BIRDS

TMMC used birdhouse kits to encourage team members to enhance their own backyards and teach younger generations about biodiversity. During Earth Month, TMMC gave out 700 birdhouse kits. The kits come from a local supplier in Peterborough, Ontario, who repurposes waste plywood from a box manufacturing plant to create birdhouse and birdfeeder kits.

By submitting photos of completed birdhouses, families were entered into a drawing to win a family visit to Ripley’s Aquarium of Canada. Team members could also choose to donate their birdhouses back to TMMC to enhance wildlife areas around the plant.



Barry Fewkes, West Point, with son Carter (7) and daughter Lydia (5), completed one of the first birdhouses. “Thanks for the birdhouse project. The kids and I had a blast building it! I waterproofed it so I’d like to donate it to one of the TMMC properties.” The Fewkes family birdhouse was hung in the Woodstock wetland area, where TMMC has reserved 200 acres for wildlife. Tree swallows occupied the birdhouse within one week of it being put up.

### CHARITY GARDENS BEAR FRUIT

The Giving Gardens at Toyota’s Cambridge and Woodstock plants produced another bumper crop. In 2013, 350 kilograms (772 pounds) of fruits and vegetables were harvested and donated to local shelters. The harvest included potatoes, tomatoes, onions, peppers, cucumbers, zucchini, Japanese pumpkins, beans, radishes and lettuce.

“The gardens are managed entirely by team member volunteers,” said Kathleen Curtin, Administrative Specialist. “Team members learn natural gardening techniques that they can then apply in their gardens at home.”

Summer 2013 was also one of the best seasons for the cherry trees along the southern fence of our Cambridge plant. Team members volunteered to pick cherries for a local women’s shelter. In addition to enjoying fresh cherries, shelter residents learned how to make preserves. The shelter hopes this kind of skill will help prepare residents for life on their own.

“Our Cambridge plant has been working with the Women’s Crisis Services of Kitchener-Waterloo since 2010,” said Kathleen. “We provided the shelter with startup funds and helped them start their own vegetable garden. This is our way of sharing our know-how and supporting the great services the shelter provides.”



One of TMMC’s many cherry harvests, and one of their managers, helping harvest the cherries. The cherries were donated to local shelters.



**Community Target: Support community projects that align with our core areas of focus (on track)**

Now more than ever, consumers expect companies to be active stewards of a healthy environment by both engaging in sustainable business practices and supporting community efforts. To be a good corporate citizen, companies must do everything in their power not just to minimize their environmental impacts and conserve resources, but also to drive that same commitment more broadly throughout their communities.

We want to build more than just great cars. We want to build great places to live. By sharing our principles and practices and through collaborating with community partners, we are driving toward a better world for all.

Over the last year, we mapped our existing environmental partners against our core areas of focus to show the projects we support are extensions of our commitments in carbon, water, materials and biodiversity.

We also started a few new initiatives to fill some gaps. For example, we began building our biodiversity strategy around a theme of protecting pollinators. This led to commitments by four of our manufacturing plants to certify monarch waystation habitats on and around their sites.

Our community projects cover a wide spectrum, from simple trash pickups to building hybrid battery storage systems for the oldest national park in the U.S. Just as we innovate green technology in our vehicles, we have some innovative ways of sharing our know-how with others.

Our hope is that we continue to spur a spirit of collaboration among our team members and associates and with the communities we touch. Our collective actions are all helping to build a better tomorrow.

## FG29 • The Power of Collective Action

Toyota supports community projects that focus on the same issues we do: carbon, water, materials, biodiversity. By concentrating our support on these issues, we are harnessing the power of collective action to shape a better tomorrow.



COMMUNITY PROJECTS	CARBON	WATER	MATERIALS	BIODIVERSITY
100 Cars for Good		✔		✔
Household Trash & Recycling Collections			✔	
Lexus Eco Challenge	✔	✔		✔
Lunchtime Make-over, Toronto			✔	
Monarch Waystations, Kentucky				✔
National Mayor’s Challenge for Water Conservation		✔		
National Public Lands Day		✔		✔
Nexus Energy’s AlabamaWISE Program	✔			
Northern Great Plains Project				✔
Toyota-Blue Springs Water Garden and Education Park		✔	✔	✔
Toyota Education Initiatives in STEAM Innovation	✔			
Toyota TogetherGreen	✔	✔	✔	✔
World Water Monitoring Challenge™		✔		
Yellowstone National Park Hybrid Battery Storage System + Vehicle Donations	✔			
Youth Environmental Program, West Virginia		✔	✔	✔

**WILDLIFE RIDES IN STYLE WITH 100 CARS FOR GOOD**

When black bear cubs are injured or orphaned, members of Appalachian Bear Rescue pounce. Unfortunately, their unreliable truck sometimes stops them in their tracks.

“Our curator is using an old pickup truck that was once caught in a flood,” says group spokeswoman Heather Ripley. “The constant trips to get food for the orphaned cubs and the trips to meet wildlife officials to collect injured cubs are often delayed because of mechanical problems.”

But thanks to Toyota’s 100 Cars for Good program, the nonprofit will no longer bear this burden. A new Tundra will help give rescued cubs a second chance at a wild life.

The Tennessee bear rescue group, which rehabilitates the cubs for release back to the wild, is one of dozens of nonprofits selected to receive a Tundra, Highlander, Prius, Sienna or Sienna Mobility. The vehicles come with a six-year, 100,000-mile powertrain warranty from Toyota Financial Services.

The program awarded vehicles to two nonprofits daily for 50 days through November 19, 2013. The public picked the winners by voting for two of five finalists each day at [www.100carsforgood.com](http://www.100carsforgood.com).



Orphaned and injured black bear cubs look forward to freedom, thanks to Appalachian Bear Rescue and a new Tundra donated by Toyota’s 100 Cars for Good program.

See the highlights video at: <https://vimby.wistia.com/medias/pgyv4ctxg7>





The Wildlife Center of Virginia was also a winner of the 100 Cars for Good contest. They will use their new Toyota Sienna minivan to support their work as a veterinary hospital and education center. Each year the Center presents compelling, engaging programs in hundreds of schools and libraries across Virginia, highlighting the steps that each of us can take to protect wildlife and preserve the environment. They generally take three animals – a raptor (hawk or owl), an opossum and a snake – for programs. These non-releasable animals make life-changing impressions on audiences young and old. The Sienna will provide reliable and roomy transportation for both staff and animals.

See the highlights video at:  
<https://vimby.wistia.com/medias/3j4qrntgwo>



The Emerald Coast Wildlife Refuge provides wildlife rescue, rehabilitation and environmental outreach to five counties in northwest Florida. The refuge rescues thousands of animals a year working closely with local, state and federal agencies to protect, treat and release native species. The refuge is the lead response team for the Federal Marine Mammal Stranding Network, assisting with all strandings and is trained to stabilize and transport distressed marine mammals and sea turtles. Their job will be made easier thanks to a new Tundra donated by Toyota's 100 Cars for Good program.

See the highlights video at:  
<https://vimby.wistia.com/medias/28f6cj4yva>

## HOUSEHOLD TRASH & RECYCLING COLLECTIONS

We've all been there – the dreaded garage clean-out. The lovely time when you dredge up a 42-pound CRT monitor from 1997, the after-college futon you thought you donated two years ago and some crusted paint cans you (responsibly) did not throw away but never quite made it to the hazardous waste center.

Over the last 20 years, Toyota has helped associates, team members and surrounding communities avoid this drama by hosting collection days for household waste and donation items. We collect electronic waste, appliances, paint and other household items that are difficult to recycle or dispose. At the same time, we also collect items such as clothing and eye glasses that can be donated to those in need.

How much waste didn't land in landfills? Since 1994, Toyota has collected over 1.6 million pounds or 805 short tons. That's equal to 529 Prius vehicles or 132 elephants or 10 space shuttles.

And what became of the more than 1.6 million pounds of materials pulled out of the garage and kept out of the garbage? All reusable items were donated and the rest recycled or, in the case of hazardous waste, disposed of properly.

And saving household chemicals and electronics from the garbage doesn't just recover materials and save landfill space, it also keeps some nasty stuff out of the environment.

That doesn't even count the 5.8 million pounds of paper, plastics, aluminum cans and batteries that our plant in Indiana has collected from team members over the years. Toyota Motor Manufacturing, Indiana provides recycling containers in their parking lots, which team members can use to recycle items from home. The money earned from recycling aluminum cans is used to fund activities such as company picnics – their way of rewarding team members for participating in the recycling program.

Toyota Motor Sales headquarters campus in Torrance, California, holds two events annually, for both associates and members of the Torrance community, to collect e-waste and household items. Toyota Motor Manufacturing, Kentucky holds SuperRecycling Day biannually for team members and local residents to collect household waste items. Toyota Technical Center in Ann Arbor holds an annual Earth Day event for team members to collect household hazardous and electronic waste and donations for Disabled American Veterans. Toyota Canada's headquarters in Toronto holds an annual associate e-waste and household goods drive.



Toyota Motor Manufacturing, Kentucky held a household hazardous waste collection drive as part of their 2014 Earth Week activities. More than 600 vehicles dropped off 91,501 pounds of household waste. Each driver was given a recyclable grocery bag and a brochure of the plant's Environmental Education Center.

## STUDENTS GET DOLLARS AND SENSE IN LEXUS ECO CHALLENGE

It's a win, win situation! Communities become a better place and students, teachers and schools have the chance to share \$500,000 in scholarships and grants through the Lexus Eco Challenge.

The Lexus Eco Challenge is an educational program and contest that inspires and empowers young people to learn about the environment and take action to improve it. High school and middle school teams nationwide define an environmental issue important to them, develop an action plan to address the issue, implement the plan, and report on the results.

In 2014, the \$30,000 Grand Prize winners were the Pinelands Eco Scienteers from Little Egg Harbor, New Jersey, and the E.T. Electrical Team from Byron Center, Michigan.

The Pinelands Eco Scienteers from Pinelands Regional High School focused on reducing deforestation in third-world countries. They developed a machine that presses locally found combustible materials into briquettes to use as an alternative to cutting trees for cooking fuel.

The winning middle school, Byron Center West, earned money to send water filters to Haiti and the Philippines to help local villages create a more sustainable environment.

For their efforts, the students, teacher advisor and school each get a part of the \$30,000 prize. Students share \$20,000 in scholarships while their teacher receives a \$3,000 grant and the school earns \$7,000.

Additionally, eight First Place winning teams received \$15,000 each.

More than 1,500 students participated in the 2013-2014 Lexus Eco Challenge. Teams from 32 middle and high schools each received \$10,000 for their programs in the Land/Water or Air/Climate challenges. For the final challenge, all 32 finalist teams were asked to reach beyond the local community and inspire environmental action around the world through innovative ideas that are communicated to a wide audience.

Over seven years, the Lexus Eco Challenge has awarded more than \$4 million in scholarships. More than 26,000 middle and high school students have positively impacted their communities, learned about the environment, and improved their teamwork skills.

The Lexus Eco Challenge also includes educational materials created and distributed by Scholastic, the global children's media, publishing, and education company, to encourage teachers to integrate creative lesson plans about the environment into their classrooms. For each challenge, the website ([www.scholastic.com/lexus](http://www.scholastic.com/lexus)) has lesson plans and teacher instructions, including questions to help guide a discussion about the current challenge topic, facts about the topic, and guidelines for a specific classroom project.

The Lexus Eco Challenge is part of [The Lexus Pursuit of Potential](#), a philanthropic initiative that generates up to \$3 million in donations each year for organizations that help build, shape and improve children's lives.

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# STUDENTS BLOSSOM WITH THE LEXUS ECO CHALLENGE!

**LEXUS ECO CHALLENGE DEVELOPS STUDENTS**

- Critical Thinking
- Teamwork
- Empowerment
- Activism

**\$500,000 (ANNUALLY)**  
Total Prize Money for Students/Teachers  
\$4 Million (2007-2014)

**STUDENTS PARTICIPATING IN THE CHALLENGES (2007-2014)**  
26,412

**2013-2014 \$30K GRAND PRIZE WINNERS**  
Pinelands Regional High School, NJ  
Byron Center West Middle School, MI

**IS YOUR CLASS PARTICIPATING?**  
States with participating schools depicted in blue

**LEXUS ECO CHALLENGE**

Meets Common Core Standards

Science, Technology, Engineering and Mathematics Curriculum

SUPPORTS STEM

#LexusEco  
[www.scholastic.com/lexus](http://www.scholastic.com/lexus)

**LUNCHTIME MAKE-OVER**

Toyota Canada Inc. (TCI) wrapped up Earth Week in style, venturing into the local community for some heavy-duty spring cleaning.

Changing out of their business attire and into running shoes and gloves, 70 Toyota Canada executives and associates dedicated their lunchtime in TCI’s annual “make-over” of the outdoor area near the organization’s Head Office. They stuffed a record number of 104 bags full of garbage.

“We take great pride in everything we do at Toyota Canada on a daily basis to make our part of the world a greener place, but it makes an even bigger difference – and it is a lot of fun – to do this with the entire team during Earth Week,” said Seiji Ichii, President and CEO of Toyota Canada, who has participated in each cleanup held during his assignment in Canada. “Having such a great turnout demonstrates the great strength of our team’s commitment to environmental responsibility.”

The executives and associates were divided into five groups. Each was responsible for collecting garbage at a separate location, outside the Head Office building itself and in nearby ravines.

Going one step further, associates separated out recyclables, keeping a significant portion of what was collected from ending up in a landfill.



During Earth Week 2014, Sandy DiFelice, Director of External Affairs, worked with Seiji Ichii, President and CEO of Toyota Canada, and 68 other associates to clean up various sites near the company’s Head Office in Toronto.

**PLANTING MONARCH WAYSTATIONS**

Millions of monarch butterflies fly south every winter from Canada through the United States all the way to Mexico. Along the way, butterflies lay their eggs on milkweed plants.

Monarch larvae eat the leaves as their first meal and use the plant for shelter as they grow.

They also pollinate. But monarch numbers have been declining over the past several years. To help reverse this trend, several Toyota locations, including plants in Kentucky, Alabama, Mississippi and Indiana, committed during National Pollinator Week (June 16-22, 2014) to certifying Monarch Waystation Habitats. Waystation habitats are places that provide the necessary resources for monarchs to produce successive generations and sustain their migration. These waystations provide milkweed for larvae and energy sources from wildflower nectar for adult butterflies.

Toyota’s Georgetown, Kentucky, plant has two waystations onsite, one at the Childcare Development Center and another along the Environmental Education Center | Nature Trail. Team members are also taking their pledge to protect pollinators out into the community. The plant is supporting four monarch waystation habitats at Liberty, Breckenridge and Yates Elementary Schools in Lexington and at the Yuko-en Park in Georgetown. Toyota provided the seed packets and signage for each site to show it has been registered with MonarchWatch.org. Toyota also provided the Child Development Center with books and posters during Kentucky’s Pollinator Week in June.

We expect to see monarchs at these stations in the fall, and plan to provide an update to our efforts in next year’s report.



Toyota’s Georgetown, Kentucky, plant has two monarch waystations onsite. Monarch butterflies are pollinators, and waystations provide them with food and shelter. The plant is located along the monarch’s migration path.

## NATIONAL MAYOR'S CHALLENGE FOR WATER CONSERVATION

Companies can be active stewards of a healthy environment by supporting community efforts. That's why Toyota partners with the Wyland Foundation in support of the National Mayor's Challenge for Water Conservation. Mayors across the country once again asked residents to make a commitment to conserve water and cut pollution by taking part in a national contest aimed at drastically slashing water and energy use across the nation. The campaign is also supported by the U.S. EPA's Office of Water, National League of Cities, U.S. Forest Service, The Toro Company, WonderGrove Kids.com, Bytelaunch.com, and WaterSmart Software.

In 2014, kids got in on the act. As part of a commitment to fostering a community approach to conservation, the Wyland Foundation created a companion website ([www.mywaterpledge.com/students](http://www.mywaterpledge.com/students)) and a series of animated public service announcements to encourage teachers and students to work together to help their cities win the popular annual challenge. Just as residents make a series of informative, easy-to-use online pledges on behalf of their cities to reduce water and energy usage, teachers were encouraged to enter on behalf of their classes. Participating classrooms were entered into drawings for \$500 in classroom supplies.

"Whether it's drought conditions in the West or the high costs of energy related to water use in the East, saving water has become one of the most talked about issues facing the nation today," said Wyland, artist and president of the Wyland Foundation. "But it's vital that we recognize that children will be the future decision makers of how we use this resource."

During the month of April, more than 100 U.S. mayors participated in the National Mayor's Challenge for Water Conservation and encouraged their residents to make pledges online to reduce water and energy usage. Overall, residents from 3,600 cities in 50 states took part.

The top cities in five population categories with the highest percentage of residents participating were named winners of the challenge. The cities of Dallas, Texas; Corpus Christi, Texas; Huntington Beach, California; Bremerton, Washington; and Crete, Nebraska, led an effort among over 23,000 people who pledged to take 277,742 specific actions over the next year to change the way they use water in their homes, yards and communities.

Residents from the five cities were eligible for drawings for over \$50,000 in eco-friendly prizes, including a Grand Prize Toyota Prius Plug-In. Water utilities of the winning cities also received a software application from WaterSmart Software to help reduce water use by five percent over the next year.

"Access to a clean and reliable supply of fresh water is fundamental to our lives," said artist and conservationist Wyland. "Most people do not think about their water footprint and the extent to which water quality issues can impact them personally."

By sticking to their commitments, the collective efforts of these residents will:

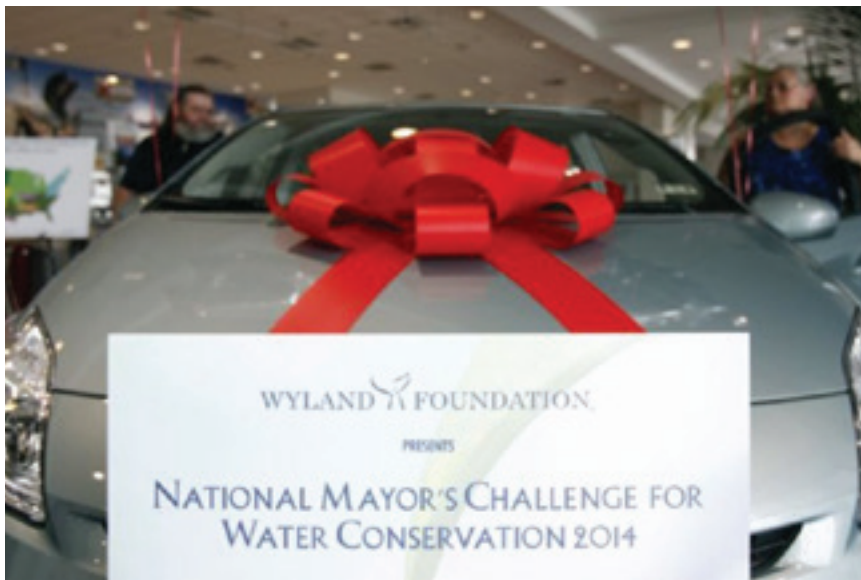
- Reduce national water waste by 1.4 billion gallons;
- Reduce waste sent to landfills by 36 million pounds;
- Eliminate more than 179,000 pounds of hazardous waste from entering our watersheds;
- Reduce greenhouse gas emissions by 2.4 million metric tons; and
- Save \$52 million.

The challenge comes at a time when population growth, extreme weather patterns, water shortages, and poor infrastructure threaten access to a steady, sustainable supply of water in the United States. The National Mayor’s Challenge for Water Conservation provides a positive way to reward residents across the country for using water wisely and controlling what goes down the drain and into their local watershed.

“Since 2000, Toyota has cut back on water consumption in our manufacturing process by 23 percent,” said Michael Rouse, Vice President of Diversity, Philanthropy and Community Affairs for Toyota Motor Sales, USA. “We are proud to support the National Mayor’s Challenge for Water Conservation to engage communities in efforts to reduce water consumption and protect this valuable resource.”

For tips on how you can save water every day and learn about water-efficient products for the home, visit:

[www.epa.gov/watersense](http://www.epa.gov/watersense) and [www.wylandfoundation.org](http://www.wylandfoundation.org).



The 2014 National Mayor’s Challenge for Water Conservation grand prize winner was Robert Ball from Corpus Christi, Texas. He and his wife Dianna Zornes won a Prius Plug-in. Photo courtesy of Corpus Christi Caller-Times.



## ALL HANDS ON DECK FOR NATIONAL PUBLIC LANDS DAY

Toyota first signed on as the national corporate sponsor of National Public Lands Day (NPLD) in 1999. But there's plenty of evidence to suggest the company's support for the event is even stronger today than it was 15 years ago. Consider these numbers:

- \$3 million—the amount Toyota contributed to the National Environmental Education Foundation (NEEF), the group that organizes NPLD. The funds help underwrite NEEF's "Every Day Grants" program that supports groups caring for public lands on the local level.
- 3,424—the number of Toyota associates who volunteered to help out in 2013.
- 36—the number of NPLD sites supported by Toyota associates and team members.
- 50—The number of middle and high school students selected by the Greening Youth Foundation that, in partnership with Toyota and REI, hosted an Urban Youth Campout the night before the NPLD event in Atlanta.

Without a doubt, Toyota's commitment—both in terms of time and money—is impressive. NPLD's overall impact, however, is even greater. Consider these 2013 stats:

- 180,000—the number of volunteers nationwide.
- 2,150—the total number of NPLD sites.
- 180,000—an estimate of the number of native plants, shrubs and trees planted by volunteers.
- \$18 million—the estimated value of improvements made on federal, state and local public lands.
- 20 million—the number of acres under NEEF's stewardship.
- 20—the number of years NEEF has hosted NPLD.

According to NEEF President Diane Wood, Toyota's \$3 million contribution helps make many of these efforts possible.

"Many local groups lack the necessary resources to be as effective as they possibly can," said Wood. "Toyota's gift unleashes the power of these groups to serve their local parks and lands by increasing their capacity to establish lasting organizations, recruit volunteers and involve their local communities."

Want to lend your hand to this cause? Check out [www.PublicLandsDay.org](http://www.PublicLandsDay.org) for more information.



**Moving Mountains** – Team members from Toyota Motor Manufacturing, Kentucky have been coming to the Salato Wildlife Education Center in Frankfort, Kentucky, for NPLD for the last several years. In 2013, they mulched and spruced up the grounds, and built and painted a deck.



**Heavy Lifting**—Michael Meacham, a Rail Car Associate at Toyota Logistics Services’ Portland facility, removes a large chunk of debris from the Willamette River. Meachem’s son Mitchell patrols the shore. They were just two of about 70 Toyota volunteers who worked this NPLD site, one of 36 tended to by Toyota associates and team members nationwide.



**Ship to Shore**—Four Toyota volunteers—(left to right) Nathan Terra, TLS Portland Safety and Environmental Administrator; Doug Warneke, Production Supervisor; Austin Woodard (a nephew of a TLS associate); and Tom Kurtzbein, Parts Associate—offload debris retrieved from the Willamette River. The TLS Portland contingent made use of three motorboats, seven canoes and some 20 kayaks in its clean-up effort.

**BLAZING STAR CERTIFICATE OF RECOGNITION**

Since 2000, Bodine Aluminum, Inc. in Troy, Missouri, has provided hundreds of volunteers and thousands of dollars to Cuivre River State Park for National Public Lands Day. Their efforts have been primarily directed toward natural resource management activities with some trail work. Projects during the past 14 years have included thinning trees in savanna and woodland restorations, removal of slash, restoring two small glades, collecting native prairie seeds, and adding native seeds to roadside planting. Trail work activities have helped address problems of erosion and trampling of adjacent vegetation. To assist the park with these projects, Bodine has supplied equipment like chain saws and backpack sprayers that have been crucial to many resource management projects.

By generously supporting National Public Lands Day projects in Cuivre River State Park for the past 14 years, Bodine has greatly aided the park efforts to protect, restore and reconstruct native flora and natural communities in one of Missouri’s premier natural resource parks. In 2014, Bodine was recognized for these efforts by the Missouri Native Plant Society with a Blazing Star Certificate.



Sarah Medler, Environmental Specialist and Terry Henderson (right), General Manager – Administration were on hand to receive Bodine’s Blazing Star Certificate. Bruce Schuette (center), Park Naturalist at Cuivre River State Park, nominated Bodine for their steady support of the park over the last 14 years.

**TOYOTA SUPPORTS NEXUS ENERGY’S ALABAMAWISE PROGRAM**

Alabama residents may end up with more cash in their pockets, thanks to support from Toyota. Toyota Motor Manufacturing, Alabama recently donated \$25,000 to Nexus Energy’s AlabamaWISE, a community energy program that empowers families to take control of their energy costs. Through resources such as home improvement advice, contractor referrals and affordable loans, AlabamaWISE helps residents lower their monthly utility bills while raising energy savings. The average homeowner sees a 20-30 percent savings in energy costs after participating in AlabamaWISE.

Toyota Alabama is one of two model plants for environmental sustainability in North America. Programs to improve environmental performance, implement innovative technologies and strengthen community partnerships are part of day-to-day operations at the plant. The donation to Nexus Energy was part of a milestone celebration for Toyota Alabama – expansion of the all-new V6 engine line and reveal of the plant’s three millionth engine produced.

## RESTORING THE NORTHERN GREAT PLAINS

The Northern Great Plains spans more than 180 million acres and crosses five U.S. states and two Canadian provinces. As large as California and Nevada combined, this short- and mixed-grass prairie is one of only four remaining intact temperate grasslands in the world.

Grasslands play an important role filtering the water we drink, reducing soil erosion and flooding, providing pollination services, and acting as a buffer against climate change. According to research from the U.S. Geological Survey, \$29 billion per year in pollination services are produced in the Northern Great Plains alone.

But in the Mississippi River basin alone, over one million hectares (2.8 million acres) of grasslands are lost annually. Demand for agricultural commodities and new drought-resistant bioengineered crops encourage the degradation of native grasslands and drain waterways and watersheds. Development, roads and fences, habitat clearing and invasive plant species are causing

habitat fragmentation. Rates of grassland conversion to corn and soy are “comparable to deforestation rates in Brazil, Malaysia and Indonesia” (Wright et al., PNAS 2013).

But WWF is working to change that with the help of a number of partners and supporters, including Toyota. WWF’s Northern Great Plains program includes working with ranchers and Native American Tribes to return bison to their ancestral homeland, establishing the first tribal national park, and creating sustainable ranching initiatives.

The program has already seen some impressive results. New herds of bison – totaling nearly 800 animals and growing – have been established at Grasslands National Park (Saskatchewan), Fort Belknap and Fort



With the help of partners and supporters, including Toyota, WWF is working with ranchers and Native American Tribes to restore bison to their ancestral homeland on the Northern Great Plains. Photo courtesy of Dennis Lingohr/ WWF

Peck Reservations, and American Prairie Reserve, and the black-footed ferret has been reintroduced throughout its historic range of Mexico, the U.S. and Canada.

Kevin Butt, Director of Toyota North American Environmental, sits on WWF’s Board and on the Northern Great Plains Advisory Committee. “At Toyota, our commitment to the environment is not just about our pioneering work with fuel-efficient vehicles. It’s also reflected in our longstanding efforts to inspire people to join the conservation movement,” said Kevin. “That’s why Toyota is proud to support WWF’s Northern Great Plains program.”

“The Northern Great Plains is one of the greatest conservation opportunities in North America today, the success of which will depend on engaging with the people who live and work on the landscape including tribes, ranchers and government managers. WWF is proud to work in this iconic place in partnership with Toyota and others,” Martha Kauffman, Managing Director, WWF Northern Great Plains program.

## TOYOTA-BLUE SPRINGS WATER GARDEN & EDUCATION PARK

A pavilion, a play structure and a community garden are just some of the features included in the plans for the Toyota-Blue Springs Water Garden and Education Park. Sean Suggs, Vice President of Administration for Toyota Motor Manufacturing, Mississippi, and Rita Gentry, Mayor of Blue Springs, unveiled the park design in July 2014 at a ceremony in downtown Blue Springs.

“We thank the community of Blue Springs for the warm welcome shown to our team members and are pleased to give the town something in return,” remarked Mr. Suggs. He added that the park would have something for all ages.

Material and labor donated for park construction are valued at approximately \$100,000.

Toyota Mississippi financed the park, which was built by Toyota team members and members of the Blue Springs community. Local suppliers B&B Concrete Co., Inc. and MMC Materials donated concrete for the pavilion area and for a sidewalk encircling the park to provide a walking path for patrons.

“We are honored that Toyota asked us to partner with them on such a meaningful initiative,” said Mark Jarrett, Sales Manager at B&B Concrete Co. “We are happy to support a project that will have a tremendous impact on the town of Blue Springs and improve residents’ overall quality of life.”

The all-new community park showcases two features supporting Toyota’s sustainability and conservation education philosophy:

1. Compost bins and a water cistern were built by team members to ensure reuse of water and waste resources.
2. A garden of wild flowers was planted by children to support the natural migration path of the monarch butterfly. Information about the life cycle, gardening instructions and migration of the species is explained to help support a greater understanding and appreciation of the challenge of monarch conservation.

“We could not have asked for a better corporate and community partner and we are thrilled to work with Toyota on this project,” stated Mayor Gentry. “This park will serve as a symbol of the wonderful relationship we share with Toyota and will be a safe community space that all our residents can enjoy. We have a bright future together.”

Park construction was completed September 20, 2014, as part of Toyota’s National Public Lands Day volunteer event.

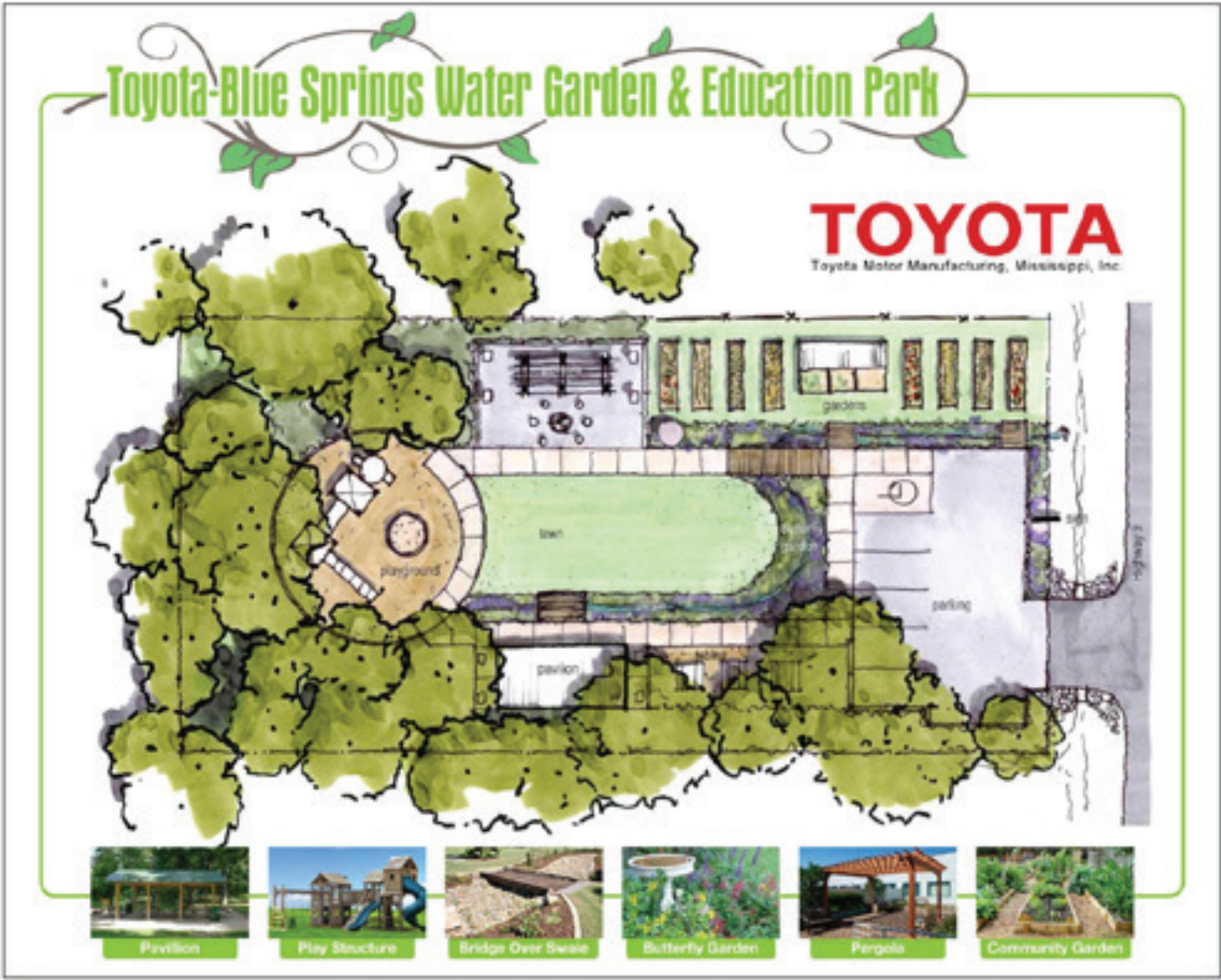
Between 200 and 800 Toyota Mississippi volunteers participate in National Public Lands Day annually, the highest number of volunteers from any Toyota plant in the country.

Suggs added, “I am privileged to work alongside our team members who share Toyota’s commitment to our planet and to the communities where they live, work and serve.”

Toyota Mississippi is committed to not only building the best cars in the world, but also to building better communities. Chosen by Toyota Motor Corporation in 2008 to be a model sustainable plant, Toyota Mississippi focuses on four key environmental areas: performance, biodiversity, renewable energy and education.

Toyota Motor Manufacturing, Mississippi in Blue Springs produces the Toyota Corolla and employs 2,000 team members. The plant represents an investment of over \$870 million and has the annual capacity to produce 170,000 Corollas. To date, Toyota Mississippi has contributed over \$1.5 million and over 10,000 volunteer hours to local community organizations.

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## TOYOTA GATHERS STEAM IN SINGAPORE

For the second year, Ann Arbor Public Schools (AAPS) staff members have been invited to join the Toyota Education Initiatives in STEAM Innovation (Toyota STEAM) program. This year, Superintendent Dr. Jeanice K. Swift made the trip along with 20 other AAPS staff representing many from the district's instructional and administrative levels.

Fully funded by Toyota and administered by the Institute of International Education (IIE), this professional development program for U.S. secondary school educators is designed to support efforts to prepare and inspire an increased number of U.S. students to study and pursue careers in STEAM (Science, Technology, Engineering, Arts and Mathematics) fields.

Over the past 15 years, Toyota and IIE have conducted 21 international short-study programs in Japan, the Galápagos Islands, Costa Rica, South Africa and Singapore through the Toyota International Teacher Program. Over 700 alumni, including the first cohort from Ann Arbor Public Schools, make up a network across the U.S. representing some of the nation's top educators.

The new Toyota Education Initiatives in STEAM Innovation program aims to have a larger impact on an entire school district. AAPS staff learned about Singapore's STEM educational practices, which are known for their global achievements in the areas of science and mathematics.

During the summer of 2013, 10 AAPS staff members traveled to Singapore as part of the first year pilot. They collaborated with Toyota and IIE to develop this year's work-study program in partnership with the Academy of Singapore Teachers, Singapore Ministry of Education. The AAPS Development Team in partnership with the 2014 STEAM Cohort is working with AAPS staff and students during the 2014-15 school year to develop innovative integration of STEAM lessons, units and projects for AAPS students.

## STUDENTS BUILD A SOLAR HEATER FOR THEIR CLASSROOM

Jason Shields teaches math and engineering at Kings High School in South Lebanon, Ohio. His students have worked on a number of innovative projects at the school, all sparked by Jason's participation in the Toyota International Teacher Program (TITP, now known as the Toyota STEAM program).

Jason traveled on a TITP-sponsored trip to Costa Rica in 2009, then again in 2011 as a discussion leader. As part of the program, he developed sustainability lessons and created an action plan to bring back to his classroom.

"Both of my trips to Costa Rica offered a true paradigm shift that led to the development of new lessons and projects for my school and community," Shields said. He has made it his goal to help produce the next generation of green engineers and inventors by placing his students at the forefront of green technologies and sustainable engineering.

His students' latest project is a solar heater they designed and built for his classroom.

"The students used Solid Edge, software developed and donated by Siemens, to design their original ideas, and we worked with experts at Siemens to help us run a finite element analysis of our designs," said Jason. "This helped us troubleshoot and analyze air flow and distribution."

The solar heater is about seven feet tall and three feet wide. It runs on two 10-volt solar photovoltaic panels that are angled to maximize sun exposure at the school's latitude and longitude.

After constructing multiple prototypes, the students finally developed a product that actually heats Shields' room. On a sunny 10 degree Fahrenheit day, the solar heater will deliver enough warm air to heat his large classroom to 70 degrees.

“One of the things we are most proud of is our unique diffusor system for the air at the bottom of the solar heater. This is a huge improvement over our original prototypes and is a strong improvement over anything we were able to find on the internet.”

The project was part of Jason’s high school Dual Enrollment University of Cincinnati Engineering class. This is one of the classes in a program that offers college credit for students still in high school, which ultimately allows students to earn their engineering master’s degree within four years after high school.

“The Toyota International Teacher Program has had a huge impact on my teaching,” said Jason. “No other professional development program has revolutionized my teaching more than the experiences I had in Costa Rica.”



Kings High School engineering students created a solar heater to warm their classroom. Pictured are (from left): teacher Jason Shields and students Matt Hovis, Jennifer Niemantsverdriet, Abigail Nenna, Matt Sosnowski, Will Pfirman. Not pictured is Josh Baker. Photo courtesy of Dawn Gould.



FG32



Audubon and Toyota created the Toyota TogetherGreen initiative in 2008. Now in its sixth year, funding from Toyota totals \$23.5 million.

The program has  
**EXPANDED  
 THE SCOPE  
 AND REACH**  
 of Audubon’s conservation  
 action nationwide with  
 impressive results :



Funding recipients have **MULTIPLIED  
 THEIR IMPACT** by translating their  
 dollars into **\$9.1 MILLION  
 IN MATCHING FUNDS** and  
**\$11.1 MILLION** worth of volunteer time.



**TOYOTA TOGETHERGREEN**

Audubon and Toyota TogetherGreen are changing the face of conservation in America by tackling tough problems with creativity, innovation and a diverse array of perspectives. From religious groups to inner-city students to low-income communities, Americans from all walks of life have gotten involved in this movement.

The National Audubon Society and Toyota created the Toyota TogetherGreen initiative in 2008 through a \$20 million grant – the largest donation in Audubon’s 104-year history. With this support, Audubon has expanded the scope and reach of its conservation action nationwide. Audubon and Toyota TogetherGreen have trained 495 conservation leaders, improved over 33,000 acres of habitat, conserved over 15.6 million gallons of water, and captured \$11.1 million worth of volunteer time in 299 cities across all 50 states.

In hundreds of communities, the program helps tens of thousands of people take conservation action, including a congregation in Chicago’s South Side that hosts organic farmers markets for residents with little access to healthy food, veterans who are healing war wounds through ecological restoration, and prisons that help restore habitat for the threatened Silverspot Butterfly in Oregon.

So far, Audubon has awarded 260 Toyota TogetherGreen fellowships to promising and proven individuals to help them advance their environmental work and leadership skills. Each fellowship has included a \$10,000 grant to develop and execute a community conservation action project, professional development opportunities, and access to numerous networks and events. All fellows have been required to conduct a 12-month community-based action project to achieve measurable outcomes that address conservation goals.

Innovation grants have been awarded to 260 cutting-edge conservation projects that involve communities traditionally under-represented in the conservation movement, with a focus on habitat, water and energy preservation. All grantees have been required to build strategic organizational partnerships to help generate impact and long-term results.

## A Look Back: 2008 TogetherGreen Fellow Marian Langan

Marian Langan grew up in rural Nebraska and deeply appreciates the natural and human history of her home state. As the Director of the Spring Creek Prairie Audubon Center outside Lincoln, she led her organization with an understanding and appreciation of the values of the communities in the rural Great Plains. And during her 15 years of experience in conservation, public outreach, environmental education and prairie habitat management, that connection to the people she served paid off in the form of numerous awards, including Professional of the Year from the Nebraska Wildlife Society and Educator of the Year from the Nebraska Safari Club.

As part of the Toyota TogetherGreen Conservation Fellowship she received in 2008, Marian worked with faith-based groups. These groups wield a strong influence in the Nebraskan communities where Marian lives and works, just as they do in communities around the country.

Yet, Marian felt, the great strength in the overlap between conservationists' goals for a healthy planet and the goals of many people of faith for a healthy, just humanity, had not been fully explored. So Marian built relationships with leaders in the faith community around Spring Creek Audubon Center, learned more about the work being done worldwide on the intersection between religion, environment and culture, and learned how to interest more people of faith in stewarding our planet – in particular, native tallgrass prairies.

What does it really mean to steward the earth, for a conservationist or a person of faith? To Marian, the answer depends on people stepping out of their comfort zones and building relationships with a wide diversity of partners.

“Stepping out of comfort zones takes some risk – both personally and professionally,” said Marian. “The TogetherGreen Fellowship created the space for us to take those risks.

It allowed us to do that in a myriad of ways – from being challenged by emerging leaders and colleagues from all over the country, to building relationships with new partners in our own community. The events Spring Creek Prairie Audubon Center hosted with leaders in the local faith community allowed us all to think about and approach our efforts from a much broader perspective. We were all able to walk in each other's shoes just a little bit, and find out how much we had in common.”

Marian added, “I am grateful to have had the opportunity of the fellowship, as the ability to find shared interests within a wide variety of partners and perspectives has impacted every aspect of my work since that experience.”

Marian was promoted to Executive Director of Audubon Nebraska in 2011. The skills she developed during her fellowship have strengthened her ability to work with others and achieve positive results. Through her, we see the lasting value of the Toyota TogetherGreen fellowship program.



Spring Creek Prairie Audubon's Park School Summer Program helps children discover Nebraska's unique ecosystems. They learn which species make their home in the tallgrass prairie and discover how our rich human history is integrated into this landscape. Marian Langan was Director of the Spring Creek Audubon Center for 10 years. Photo courtesy of Audubon Nebraska.



From left, Governor John Hickenlooper (Colorado), Governor Sam Brownback (Kansas), Marian Langan (Audubon Nebraska), Governor Dave Heineman (Nebraska), and Bill Taddicken (Rowe Sanctuary) enjoyed the sandhill crane migration from Audubon's viewing blinds on the Platte River at Rowe Sanctuary. Photo courtesy of Audubon Nebraska.

## Teens Grow Up Green in the White River Glades and Woodlands

In 2009, 16 high school students from rural communities attended the first Green Leadership Academy for Diverse Ecosystems (GLADE) camp. Thanks to an Innovation Grant from Toyota TogetherGreen, plus support from the Community Foundation of the Ozarks Rural Schools Project and in-kind donations of supplies and services from Missouri State University, Greater Ozarks Audubon, and the Missouri Department of Conservation, the week-long residential ecology camp was free of charge to students.

Now in its sixth year, GLADE continues to blend leadership training, habitat restoration and ecology-based curriculum into an innovative model of conservation education, environmental stewardship and community building.

During the course of the academy, team-building challenges are invaluable in teaching leadership styles and the dynamics of group interaction, and in reinforcing individual strengths. However, these simulated activities cannot compare with the personal growth and development that occurs when the GLADE team actively engages in an authentic conservation challenge head on. For this reason, GLADE youth take on the real-world work of restoring vital habitat for species of special concern in the White River Glades and Woodlands Important Bird Area. During GLADE programs, participants cut down red cedars and remove invasive species in order to facilitate the growth of native glade species.

The ecological results of the participants' work may not be immediately apparent, but investing in tomorrow's conservation leaders has an immediate human benefit: Conservation service is firmly implanted in the lives of the young naturalists. The habitat restoration experience connects them to supportive peers and channels their energy into action within the expanding GLADE network.

GLADE's participants continue to contribute after their participation in the program ends. Post-GLADE grants awarded to graduates by the Community Foundation of the Ozarks turn the youth conservationists into community leaders, and their dreams into realities as outdoor learning centers, native plant gardens, bluebird trails, recycling programs, low-impact developments, waterway cleanups and other environmental projects spring up across the Ozarks landscape.

"If you are looking for a way to help the environment, future generations and teenagers today, look no further than GLADE," says Paul, 16, a volunteer for the U.S. National Park Service. "GLADE guides teenage conservationists through a series of activities designed to help them grow together and learn valuable environmental and scientific skills. It produces people with a keen love for the environment and the skills to do something about it."

"Everybody there has a similar passion, which is nature" says Emily, a 15-year-old birder and current GOAS Board member. "It is truly a life-changing camp and if you are looking for a way to help make a change in our natural community, this is it!"



Teens at the GLADE leadership academy in Ozark, Missouri, learn first-hand about different bird species and remove invasive species in order to facilitate the growth of native glade species. These young naturalists are on their way to becoming conservation leaders of tomorrow. Photos courtesy of Nina Suzuki.



### WORLD WATER MONITORING CHALLENGE

Each year during Earth Week, Toyota’s Indiana plant sponsors a poster contest for fifth-grade students in Gibson, Vanderburgh, Posey, and Warrick counties. The winning design is put on a T-shirt given to all sixth-grade students who participate in the World Water Monitoring Challenge™ in the fall.

World Water Monitoring Challenge (WWMC) is an international education and outreach program that builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local water bodies. Last year, over 250,000 visits were made by participants to sites in 66 countries.

Students had to design a poster that focused on why we need clean water and how to protect the earth’s water resources. This year, 66 schools – a 20 percent increase over last year – participated in the contest and submitted over 2,000 designs.

“Toyota Indiana has supported the World Water Monitoring Challenge activities since 2005,” said Kelly Dillon, Manager of External Affairs at Toyota. “Our goal is to continue to share the importance of water quality with our students, and we hope to do that by expanding the program to more counties in the future.”

In November, Toyota once again worked with sixth-grade students to sample about 100 different lakes, rivers and streams across southwestern Indiana. Monitoring data is uploaded into the WWMC database.



Zorah Mehrzad from Scott Elementary School in Evansville drew the winning poster (left), and her design is printed on the front of this year’s WWMC T-shirts. The design for the back of the shirt was done by Mia Evans of Chandler Elementary School in Chandler, Indiana.

### YELLOWSTONE NATIONAL PARK

Toyota’s image for a low carbon future extends beyond our facilities to some pretty remote places. We are developing a battery storage system to power the Lamar Buffalo Ranch field campus in Yellowstone National Park. The batteries will store clean power generated by solar arrays and a micro-hydro turbine, creating a sustainable, off-the-grid power source for one of the most remote and pristine places in the U.S.

When installed, the stationary distributed energy system will feature 208 used Camry Hybrid nickel-metal hydride battery packs and a total storage capacity of 85 kWh, more than enough to power the five buildings on the Ranch field campus. It’s a new lease on life for the batteries and a new, zero emission energy option for the Ranch.

This type of reuse is expected to double the overall life span of the hybrid batteries. It’s important to note that if a used hybrid battery pack is not suitable for reuse, Toyota’s established hybrid battery recycling program is followed.

Toyota dealers in Japan have been tapping into used hybrid battery packs for stationary power storage since 2013. Toyota Motor Manufacturing, Alabama will soon be testing a similar project to help power their operations and provide back-up power during emergencies. We will have more on this story next year.



The battery storage system Toyota is helping to develop for the Lamar Buffalo Ranch at Yellowstone National Park will feature 208 used batteries from Camry Hybrid vehicles. This project is expected to double the life span of these batteries.



Toyota donated a RAV4 to Yellowstone National Park for use at the Lamar Buffalo Ranch. This is the 12th Toyota vehicle donated to Yellowstone National Park in the last decade.

**SPONSORING WEST VIRGINIA'S YOUTH ENVIRONMENTAL PROGRAM**

Toyota’s plant in West Virginia – where we make 4- and 6-cylinder engines and 6-speed automatic transmissions – believes in teaching children about the environment and getting them outdoors to enjoy the beauty of nature. After all, children are our future – our future team members, engineers and environmental specialists. So each June, Toyota sponsors 20 children to attend the state Department of Environmental Protection’s Junior Conservation Camp.

The one-week camp, open to children ages 11 to 14, is part of the state’s Youth Environmental Program. The camp offers a wide variety of classes to teach pre-teens about the environment and encourage them to become good stewards of our natural resources. Classes cover a range of topics such as forestry, wildlife, water study and recycling.

Toyota, along with other companies, also provides funding for awards handed out at the annual Youth Environmental Day at North Bend State Park. Over \$11,000 in cash awards and scholarships are presented to youth groups who participate in the state’s Youth Environmental Program, in recognition of their outstanding environmental accomplishments.

In 2014, Toyota sponsored awards for youth groups involved in community environmental projects including litter cleanups, recycling drives, school landscaping projects, tree planting, wildlife management, watershed protection and much more. Students worked on these projects all year long. Congratulations to all of the students who are working hard to make our world a better place.

This is Toyota’s 15th year participating in the state’s Youth Environmental Program. “The Youth Environmental Program and Junior Conservation Camp have been recipients of Toyota’s generosity for many years through award and scholarship contributions” said Diana Haid, Environmental Resources Specialist for the Youth Environmental Program at West Virginia’s Department of Environmental Protection.

“Being able to ‘pay it forward,’ so to speak, by recognizing hundreds of West Virginia’s children for their efforts to keep their communities clean and beautiful as well as being able to give hundreds of other children the chance for a positive camping experience full of fun and environmental learning is the true reward. I am sincerely grateful to Toyota for that opportunity.”



Julia Parsons, daughter of Scott Parsons, a team member in Production Engineering at our West Virginia plant, received the Vecellio Art Award for her environmental poster. Deana Marcum, Toyota West Virginia’s Human Resources Assistant Manager, was on hand at the 51st annual Youth Environmental Day to present awards sponsored by Toyota.





> PERFORMANCE

Welcome to the Performance section of Toyota’s North American Environmental Report. Here we provide our Environmental Action Plan as well as data related to our environmental performance in the following areas:

- CARBON
- WATER
- MATERIALS
- BIODIVERSITY
- DEALER GREEN BUILDING
- AIR QUALITY
- LEED CERTIFICATION
- ENVIRONMENTAL MANAGEMENT SYSTEMS
- COMPLIANCE

# ENVIRONMENTAL ACTION PLAN

## FG5 • Toyota North American Environmental Action Plan, FY2014-2016

	GOAL	FY2016 TARGET	FY2014 PROGRESS	STATUS	
CORE AREAS OF FOCUS	Carbon	Reduce carbon footprint of vehicles and operations	Expand Toyota's global hybrid lineup by successfully introducing new hybrid models in North America	Announced the 2015 Lexus NX 300h is coming to showrooms in the fall of 2014	△
		Reduce energy consumption 12% per vehicle produced, from a baseline of FY2010	Reduce energy consumption 12% per vehicle produced, from a baseline of FY2010	Reduced energy use 10%	△
		Reduce GHG emissions from operations 12% per vehicle produced, from a baseline of FY2010	Reduce GHG emissions from operations 12% per vehicle produced, from a baseline of FY2010	Reduced GHGs 9%	△
	Water	Conserve water and protect water sources	Reduce water withdrawal 6% per vehicle produced by FY2016, from a baseline of FY2010	Reduced water withdrawal 1%; plans in place to further reduce	△
	Materials	Eliminate waste and improve recycling and reuse opportunities	Develop and test new metric for waste	Defined the 3R Rate	△
			Implement IMDS data management systems enterprise wide	Completed data collection for all North American-produced vehicles	△
Biodiversity	Improve biodiversity on and near Toyota facilities	Achieve Wildlife Habitat Council certification at 9 sites	7 sites certified: TMMK, TMMC (Cambridge & Woodstock), TEMA, TMMI, TMMAL, TMMMS	△	
OUTREACH	Suppliers	Strengthen supplier relationships	Develop a new supplier environmental engagement process	Updated Toyota's Green Supplier Guidelines and agreed to industry guiding principles for supply chain sustainability	△
	Dealers	Promote and enhance dealer environmental initiatives	Maintain the leadership position in dealership green building and certify 53 dealerships to LEED®	42 certified dealers	△
	Stakeholders	Strengthen Toyota's position as an environmental role model	Create environmental ambassadors by educating and empowering employees	TMMC's employee environmental outreach efforts earned them a spot on Canada's Greenest Employers list	△
		Pursue philanthropic initiatives aligned with our environmental mission and goals	Support community projects that align with our core focus areas	All major projects align with 4 core areas of focus. See FG 29	△

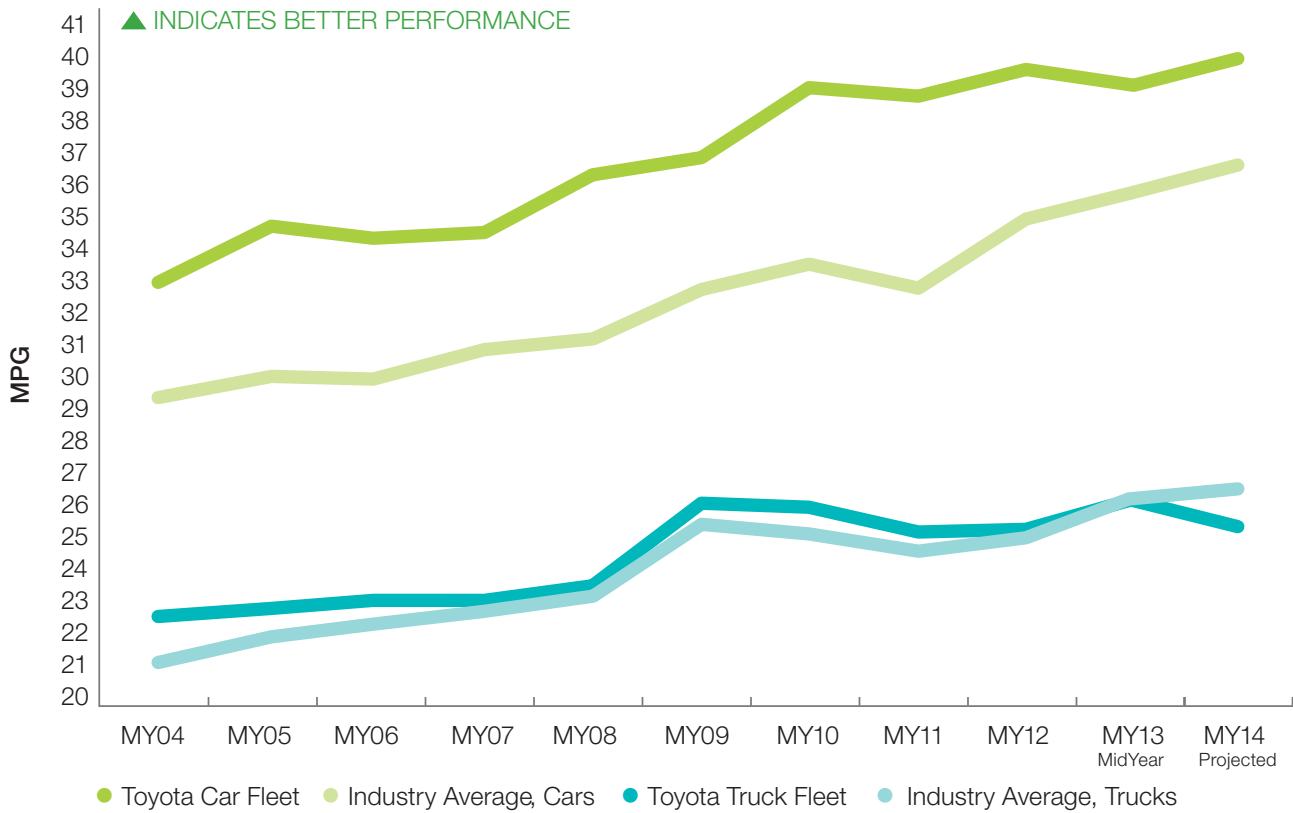
○ Target Exceeded    ○ Target Achieved    △ On Track    X Target Missed

**About This Chart:** This chart summarizes progress against our new environmental action plan targets in the area of carbon, water, materials, biodiversity and outreach. This is the first time that Toyota's North American affiliates have come together and set targets as One Toyota. Instead of separate targets for manufacturing, R&D, and sales and logistics, our targets now cover over 85 assembly and unit plants, parts and vehicle distribution centers, sales offices, and R&D sites.

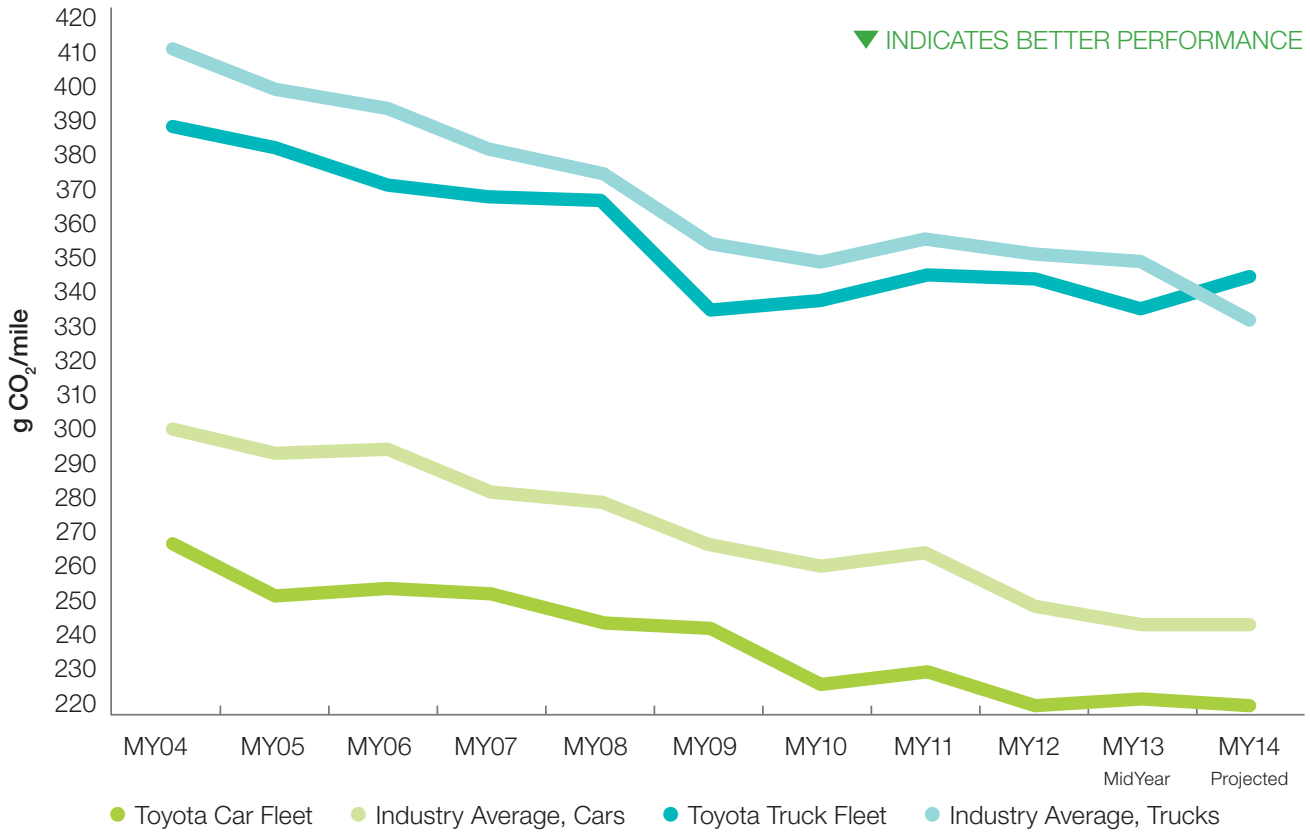
# CARBON

## Vehicle fuel economy + CO<sub>2</sub>

FG13 • U.S. Car Corporate Average Fuel Economy, or CAFE



FG14 • Annual CO<sub>2</sub> per Mile\*, Toyota U.S. Fleet

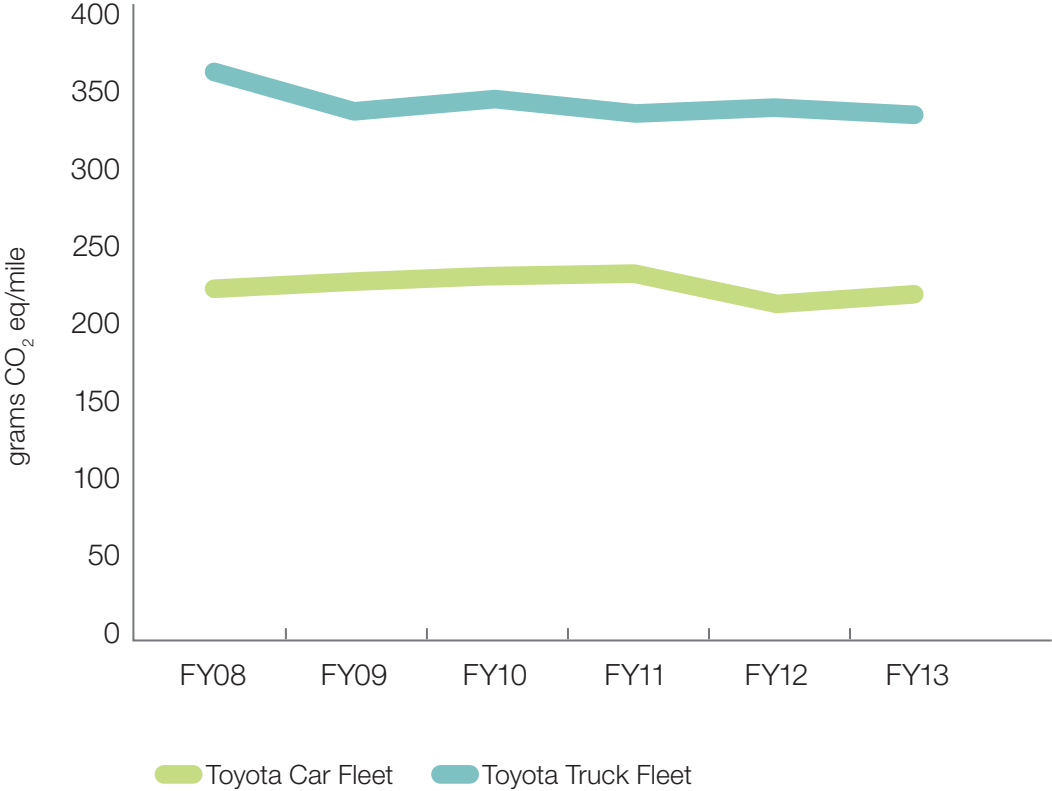


\*This data represents CAFE fuel economy performance in terms of CO<sub>2</sub> (grams per mile) and does not reflect provisions in the U.S. EPA GHG program (starting 2012 model year) such as air conditioning credits.

**About This Chart: Toyota's model year 2014 fleet achieved the required U.S. Corporate Average Fuel Economy (CAFE) standards for both cars and trucks, and the required CO<sub>2</sub> standards.**

FG15 • Annual CO<sub>2</sub> per Mile\*, Toyota Canada Fleet

✓ INDICATES BETTER PERFORMANCE

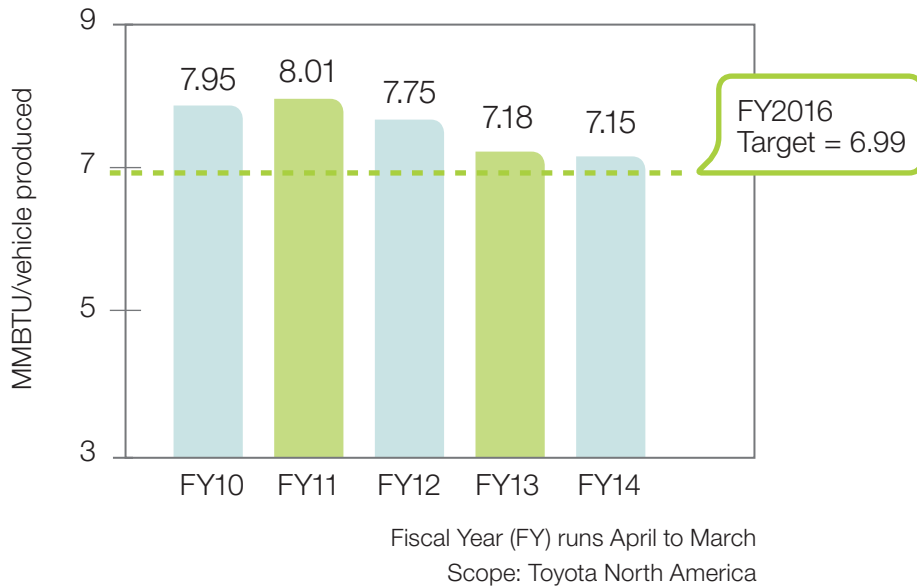


\*Based on CO<sub>2</sub> emissions data reported to Environment Canada

**About This Chart: Toyota met the required CO<sub>2</sub> standards in Canada.**

## Energy Use + GHG Emissions in Operations

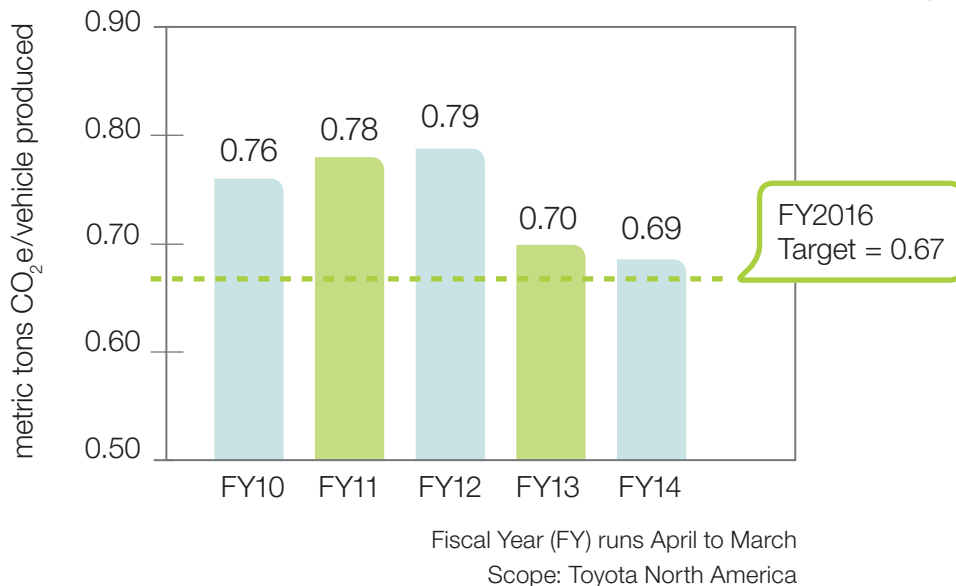
### FG19 • Energy Use Per Vehicle (from Stationary Sources)



**About This Chart:** Our new energy target is to reduce energy use from stationary sources by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline. We are on track for meeting this target and have achieved a 10 percent reduction thus far. Examples of how we reduced energy use during fiscal year 2014 can be found here.

Our target covers the purchase and use of electricity and natural gas. We convert all energy measurements to MMBtus for this target as a way to combine these energy sources into a single metric.

### FG20 • GHG Emissions Per Vehicle (from Stationary Sources)



**About This Chart:** Our new GHG target is to reduce GHG emissions from stationary sources by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline. We are on track for meeting this target and have achieved a 9 percent reduction thus far.

Our target covers emissions from our use of electricity and natural gas. Our methodology for calculating GHG emissions from these sources is based on The GHG Protocol® developed by the World Resources Institute and World Business Council for Sustainable Development.

FG21 • North American GHG Inventory

	SCOPE 1 (Direct)	SCOPE 2 (Indirect - Purchased Electricity)	SCOPE 3 (Other Indirect)
FY2008	437,000	950,000	872,000
FY2009	382,000	767,000	711,000
FY2010	405,000	742,000	710,000
FY2011	395,000	776,000	720,000
FY2012	354,000	710,000	712,000
FY2013	431,000	861,000	789,000
FY2014	479,000	878,000	860,000

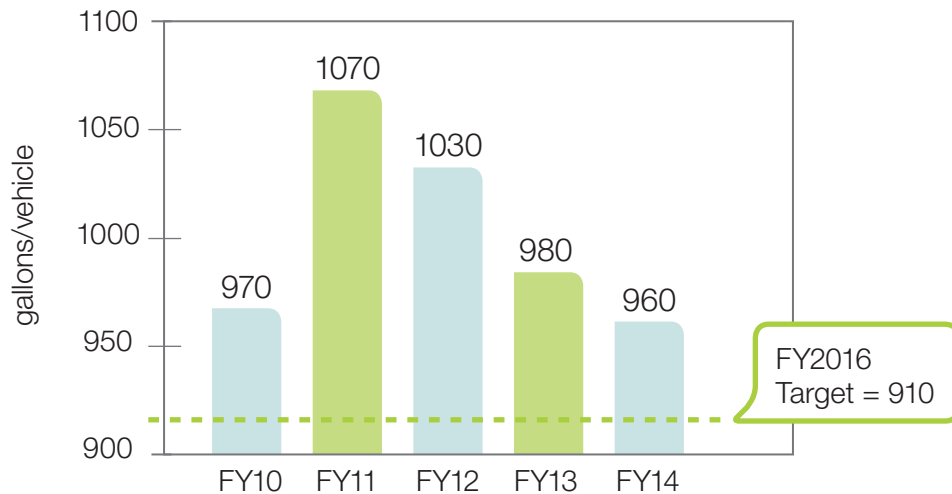
metric tons CO<sub>2</sub>e

\*Scope 3 emissions include indirect emissions from employee commuting, third-party logistics, and business travel. These are emissions which Toyota has influence over but does not directly control.

**About This Chart:** Toyota’s North American GHG inventory measures GHG emissions from the consumption of electricity and natural gas at plants, logistics sites and owned and leased office space, as well as from fuel consumption by in-house trucking operations and third-party carriers, employee commuting and business travel. The methodology used to calculate emissions is based on The GHG Protocol® developed by the World Resources Institute and the World Business Council for Sustainable Development.

WATER

FG24 • Water Withdrawal per Vehicle



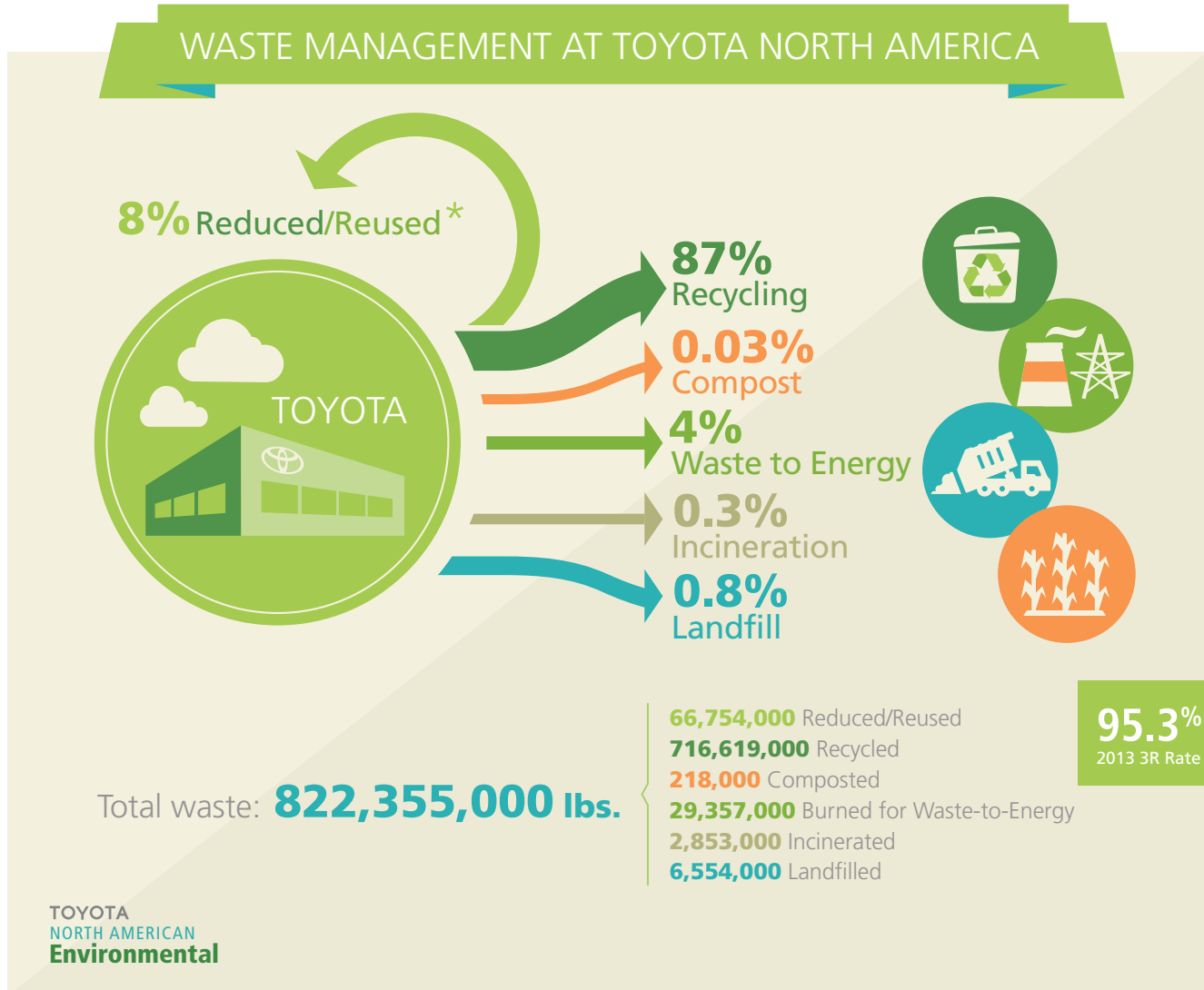
\* Includes Toyota North America’s water withdrawals, such as from a public utility or groundwater well. There are a handful of water sources currently not included in our metric. We are evaluating these and will include them going forward, as appropriate.

**About This Chart:** Our new water target is to reduce water withdrawals by 6 percent per vehicle produced by fiscal year 2016, from a baseline of fiscal year 2010. In fiscal year 2014, we achieved a 1 percent reduction and expect further reductions over the next two years. Examples of how we saved water during fiscal year 2014 can be found here.

Our metric counts water withdrawals, such as from a public utility or groundwater well.

# MATERIALS

FG25



\* Additional reduce/reuse activities have occurred but have not yet been calculated using our new methodology.

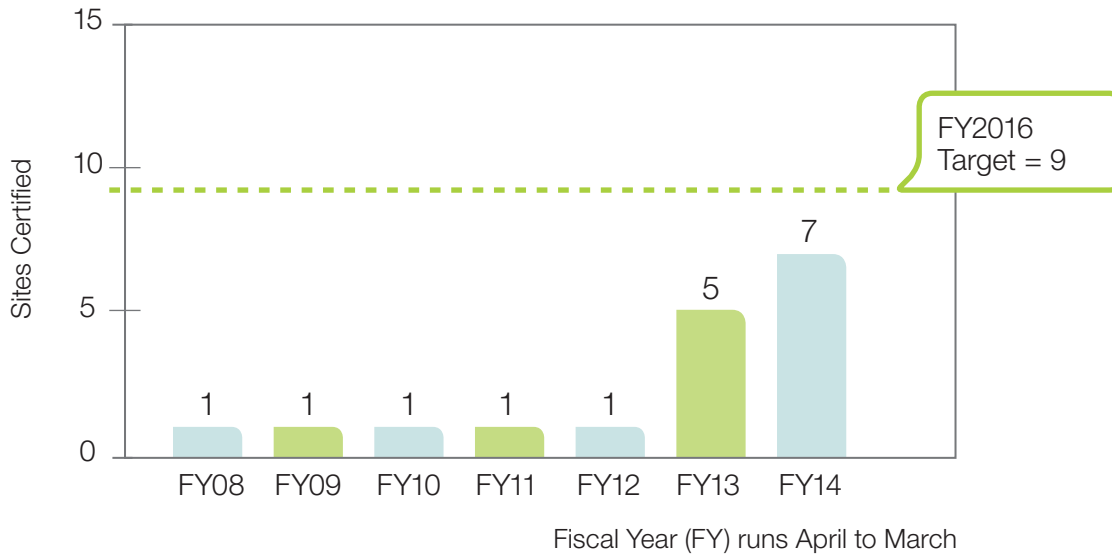
Based on calendar year 2013 data to align with EPA’s WasteWise program. Scope includes all North American assembly and unit plants, plus U.S. parts and vehicle distribution centers and sales offices. Data includes non-regulated waste, except for incineration, where regulated waste is included. Certain types of hazardous waste are incinerated as a form of treatment, in accordance with law.

**About This Chart:** As part of Toyota’s fiscal year 2014-2016 environmental action plan, we set a target to develop and test a new key performance indicator (KPI) for waste. During 2014, we defined and agreed to “the 3R Rate” as our new KPI. Toyota’s 3R Rate is defined as: (Reduce + Reuse + Recycle) / (Reduce + Reuse + Recycle + Recover + Landfill).



# BIODIVERSITY

## FG27 • Wildlife Habitat Council Certifications in North America (cumulative)



\* Toyota’s Kentucky plant was the first site to be certified, and maintains both *Wildlife at Work* and *Corporate Lands for Learning* certifications. All other sites are certified for *Wildlife at Work*. Our Cambridge and Woodstock, Ontario, sites are covered by a single certification.

**About This Chart:** Toyota currently has 7 sites certified with the Wildlife Habitat Council in North America. The Wildlife Habitat Council’s Corporate Wildlife Habitat Certification/International Accreditation Program recognizes commendable wildlife habitat management and environmental education programs at individual sites. Certification criteria are stringent. Sites must demonstrate programs have been active for at least one year, and have a management plan listing goals, objectives and prescriptions as well as complete documentation of all programs.

## DEALER GREEN BUILDING

### FG28 • North American Toyota and Lexus Dealerships With LEED® Certifications

DEALER NAME	LOCATION	YEAR	
Victory Toyota	Seaside, California	2014	Silver
Toyota Vandermeer	Cobourg, Ontario, Canada	2014	Gold
Dunning Toyota Ann Arbor	Ann Arbor, Michigan	2014	Silver
R&H Toyota	Owings Mills, Maryland	2014	Gold
Transky Sawmill Toyota	Dublin, Ohio	2014	Gold
Lost Pines Toyota	Bastrop, Texas	2013	Gold
OpenRoad Lexus	Richmond, British Ontario, Canada	2013	Silver
DCH Toyota of Torrance	Torrance, California	2013	Gold
Westbrook Toyota	Westbrook, Connecticut	2013	Certified
Toyota of Lakewood	Bradenton, Florida	2013	Certified
Tustin Toyota	Tustin, California	2013	Silver
Kenny Ross Toyota	Coraopolis, Pennsylvania	2013	Certified
Welland Toyota	Welland, Ontario, Canada	2012	Gold
Beaverton Toyota (TCSC)	Beaverton, Oregon	2012	Gold
Grappone Toyota	Concord, New Hampshire	2012	Certified
San Francisco Toyota	San Francisco, California	2012	Platinum
Alamo Toyota	San Antonio, Texas	2012	Silver
Sun Toyota	Holiday, Florida	2012	Gold
Vancouver Toyota	Vancouver, Washington	2012	Silver
Bennett Toyota	Allentown, Pennsylvania	2012	Gold
Toyota of the Black Hills	Rapid City, South Dakota	2012	Silver
Maguire Toyota	Ithaca, New York	2012	Platinum
Toyota Scion of Bend	Bend, Oregon	2011	Gold
Beaman Toyota	Nashville, Tennessee	2011	Certified
Legends Toyota	Kansas City, Kansas	2011	Gold
Lexus of Henderson	Henderson, Nevada	2011	Gold
Stouffville Toyota	Stouffville, Ontario, Canada	2011	Gold
Dave Mungenast Lexus of St. Louis	St. Louis, Missouri	2010	Silver
Grossinger City Toyota	Chicago, Illinois	2010	Silver
Fred Bean's Toyota of Flemington	Flemington, New Jersey	2010	Silver
Jerry Durant Toyota	Granbury, Texas	2010	Silver
Kendall Toyota	Eugene, Oregon	2010	Platinum
Stratford Toyota	Stratford, Ontario, Canada	2010	Gold
Toyota of El Cajon Certified Center	Santee, California	2010	Gold
Toyota of El Cajon	El Cajon, California	2010	Silver
Caldwell Toyota	Conway, Arkansas	2009	Gold
Fitzgerald's Lakeforest Toyota	Gaithersburg, Maryland	2009	Gold
Lexus of Las Vegas	Las Vegas, Nevada	2009	Gold
Mark Miller Toyota	Salt Lake City, Utah	2009	Gold
Sewell Lexus Pre-Owned	Fort Worth, Texas	2009	Gold
Toyota of Rockwall	Rockwall, Texas	2008	Gold
Pat Lobb Toyota	McKinney, Texas	2007	Silver

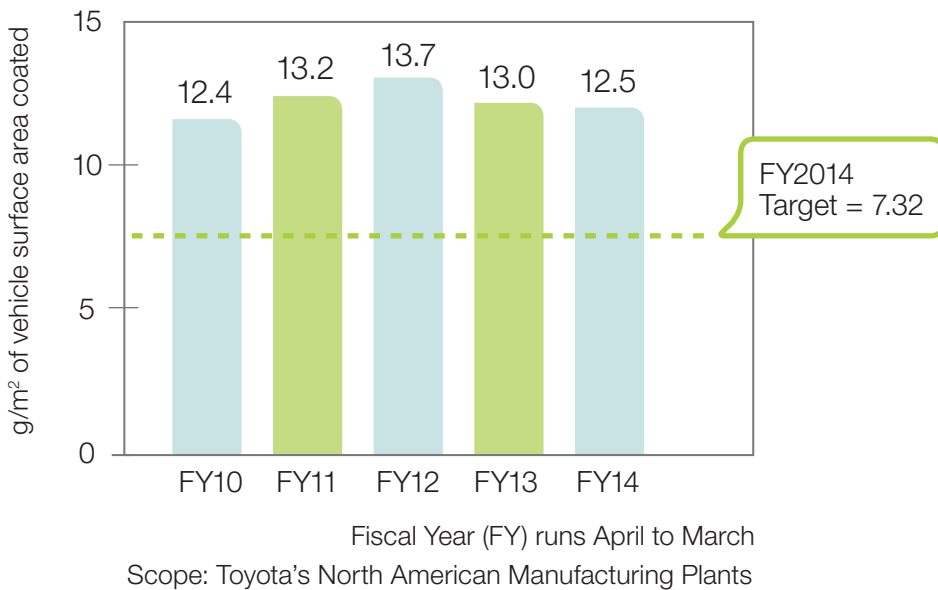
**About This Chart:** We have been working on LEED® projects with our dealers since 2005, and we are leading the industry in both the U.S. and Canada with the number of dealerships certified to LEED. So far, we have assisted 42 Toyota and Lexus dealerships: 33 Toyota and 4 Lexus dealerships in the U.S., and 1 Lexus and 4 Toyota dealerships in Canada. Several more dealerships have completed construction and are waiting for their ratings to be decided. In North America, Toyota and Lexus dealerships combined have over 2.3 million square feet of LEED-certified building space.

LEED (Leadership in Energy and Environmental Design) is a point-based system administered by the U.S. and Canadian Green Building Councils promoting a whole-building approach to sustainable construction and remodeling. LEED certification is based on meeting stringent evaluations in sustainable site development, water savings, energy efficiency, materials selection and indoor air quality.

## AIR QUALITY

### Volatile Organic Compounds

#### FG33 • VOC Emissions



**About This Chart:** The primary area of concern for non-GHG air emissions is smog. Smog is formed as particulate matter, nitrogen oxides and volatile organic compounds (VOCs) react with sunlight. Smog has been linked to a number of health issues and is particularly prevalent in dense urban areas with heavy traffic, industrial activity and sunny, warm climates.

Toyota's painting operations generate the majority of our VOC emissions. We have a North American Manufacturing VOC Working Group studying aspects of the vehicle body painting process to find ways to reduce VOC emissions. Group members review painting operations as a whole, as well as the components of the process, to find big and small opportunities for improvement. We benefit from sharing and transfer of knowledge and lessons learned from one plant to the next.

Toyota's North American manufacturing plants measure grams of VOCs emitted per square meter of vehicle surface area coated (g/m²). Since 2002, we have reduced VOC emissions by 64 percent, from 35.0 to 12.5 g/m².

## Criteria Pollutant Tailpipe Emissions

### FG34 • Toyota and Lexus SULEVs

Specifically for vehicles offered in the 2014 model year, 40 percent of all Toyota, Lexus and Scion passenger cars and 13 percent of trucks are certified to SULEV or better.

These vehicles include:

Avalon Hybrid
Prius
Prius c
Prius v
Prius Plug-In Hybrid
Camry Hybrid
Camry PZEV
Highlander Hybrid
RAV 4 EV
Lexus ES 300h
Lexus GS 450h
Lexus RX 450h
Lexus LS 600h L
Lexus CT 200h

\*Data is U.S. only and is not sales-weighted.

**About This Chart:** Hydrocarbons, nitrogen oxides (NOx) and carbon monoxide — all byproducts of fuel combustion — are linked to various air quality issues, including smog and acid rain, as well as a number of health effects. Limiting criteria pollutant tailpipe emissions from our vehicles helps to reduce some of the environmental impacts of driving.

The U.S. Environmental Protection Agency (EPA) and the state of California have certification programs to categorize vehicles in terms of their level of tailpipe emissions. EPA’s certification program categorizes vehicles into Tier 2, Bins 1 through 8. Lower bin numbers correspond to vehicles with lower tailpipe emissions; Bin 1 is for vehicles with zero tailpipe emissions. This program requires a manufacturer’s fleet average to meet a Tier 2 NOx standard of 0.07 grams per mile (gpm). (The Canadian and U.S. federal programs have equivalent standards.)

In California, the Low-Emission Vehicle II (LEV II) regulations categorize vehicles as LEV (Low Emission Vehicle), ULEV (Ultra Low Emission Vehicle), SULEV (Super Ultra Low Emission Vehicle), ZEV (Zero Emission Vehicle), or AT-PZEV (Advanced Technology Partial Zero Emission Vehicle). For the 2014 model year, the California LEV II regulations required an auto manufacturer’s fleet average to meet an emission standard for non-methane organic gas (NMOG) of 0.035 gpm for passenger cars and light-duty trucks up to 3,750 pounds, and 0.043 for other light-duty trucks.

The LEV II standards are in effect through the 2014 model year. LEV III was adopted in California on December 31, 2012, and will be effective in the 2015 model year.

Federal vehicle emission standards will change based on EPA’s issuance of their Tier 3 rule. In Tier 3, EPA established more stringent vehicle emissions standards to reduce the sulfur content of gasoline beginning in 2017, as part of a systems approach to addressing the impacts of motor vehicles and fuels on air quality and public health. The gasoline sulfur standard will make emission control systems more effective for both existing and new vehicles. The more stringent vehicle standards will reduce both tailpipe and evaporative emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. This will result in significant reductions in pollutants such as ozone, particulate matter and air toxics and help state and local agencies in their efforts to attain and maintain health-based National Ambient Air Quality Standards.

These vehicle standards are intended to harmonize with California's Low Emission Vehicle program, thus creating a federal vehicle emissions program that will allow automakers to sell the same vehicles in all 50 states. The vehicle standards will be implemented over the same timeframe as the greenhouse gas/fuel efficiency standards for light-duty vehicles (promulgated by EPA and the National Highway Safety Administration in 2012), as part of a comprehensive approach toward regulating emissions from motor vehicles. The final rule became effective on June 27, 2014.

Environment Canada has announced they will also pursue Tier 3 regulations aligned with the final U.S. Tier 3 rule.

Toyota, along with other auto manufacturers, supported efforts to harmonize the new California LEV III and federal Tier 3 programs. We worked with federal and state agencies, through their regulatory processes, to help develop rules that are both effective and feasible. Our goal was and is to maintain the flexibility to build vehicles based on customer preferences. In setting tailpipe emission regulations, we believe standards should be performance-based and take into account the interaction with other vehicle rules — such as fuel economy/greenhouse gas standards — to ensure the total package of requirements is effective and acceptable to the consumer. As with greenhouse gas emissions, fuels must be considered with vehicle technologies as a holistic system. Reduced sulfur levels in gasoline, already available for the LEV III program, are needed to enable the after-treatment systems being designed for Tier 3 compliance.

Toyota annually complies with the state of California, U.S. and Canadian federal vehicle emissions programs, and we have met the requirements for each model year.

Four Toyota/Lexus vehicles were named on the American Council for an Energy Efficient Economy (ACEEE) "Greenest Vehicles of 2014" list: Toyota Prius c, Toyota Prius, Lexus CT 200h and Toyota Prius Plug-in Hybrid. The list is notable in that it takes into account a variety of criteria when determining the greenest car, including the car's emissions, emissions from the electric grid on which it charges, and energy necessary to build and dispose of the car.

More information about the emissions performance of Toyota, Lexus and Scion vehicles sold in the United States can be found in EPA's Green Vehicle Guide.

## LEED® CERTIFICATION

### FG35 • Toyota's North American Facilities With LEED® Certifications

TOYOTA FACILITY	LOCATION	YEAR	CERTIFICATION LEVEL
Lexus Eastern Area Office	Parsippany, New Jersey	2014	Platinum
Toyota Kansas City Training Center	Kansas City, Missouri	2012	NC Gold
Toyota Inland Empire Training Center	Rancho Cucamonga, California	2010	CI Gold
Toyota Motor North America, Inc.	New York, New York	2010	CI Gold
Toyota Technical Center	York Township, Michigan	2010	NC Gold
Toyota Racing Development North Carolina	Salisbury, North Carolina	2010	NC certified
Lexus Florida Training Center	Miramar, Florida	2009	CI Gold
Toyota Phoenix Training Center	Phoenix, Arizona	2009	CI Silver
North America Production Support Center	Georgetown, Kentucky	2006	CI Silver
Toyota Motor North America, Inc.	Washington, D.C.	2006	CI Silver
Portland Vehicle Distribution Center	Portland, Oregon	2004	NC Gold
Toyota Motor Sales – South Campus	Torrance, California	2003	NC Gold

NC = new construction    CI = commercial interiors

**About This Chart:** A total of 12 Toyota and Lexus facilities have achieved Leadership in Energy and Environmental Design (LEED) certification. LEED is a point-based system administered by the U.S. and Canadian Green Building Councils promoting a whole-building approach to sustainable construction and remodeling. LEED certification is based on meeting stringent evaluations in sustainable site development, water savings, energy efficiency, materials selection and indoor air quality.

Ranging from office space to vehicle distribution centers, these facilities represent Toyota's continued efforts to improve the design and efficiency of all operations. The Lexus Eastern Area Office in Parsippany, New Jersey, was awarded Platinum LEED certification in 2014. This is Toyota's first facility to be awarded Platinum, the highest level of certification granted by the U.S. Green Building Council.

## ENVIRONMENTAL MANAGEMENT SYSTEMS

### FG36 • ISO 14001 Certifications of Toyota’s North American Facilities

	LOCATION	ORIGINAL CERTIFICATION DATE	DATE OF LATEST RECERTIFICATION
Manufacturing Plants	Manufacturing Headquarters in Erlanger, Kentucky	1999	2014
	Huntsville, Alabama	2005	2014
	Long Beach, California	1998	2013
	Princeton, Indiana	1999	2012
	Georgetown, Kentucky	1998	2013
	St. Louis, Missouri	1998	2014
	Troy, Missouri	1998	2014
	Blue Springs, Mississippi	2012	—
	Jackson, Tennessee	2007	2013
	San Antonio, Texas	2008	2014
	Buffalo, West Virginia	2000	2013
	Woodstock, Ontario	2009	2012
	Cambridge, Ontario	1998	2013
	Delta, British Columbia	1997	2013
Baja California, Mexico	2006	2012	
Vehicle Distribution Centers	Toronto, Ontario	2002	2014
	Montreal, Quebec	2003	2014
Parts Distribution Centers	Toronto, Ontario	2001	2014
	Vancouver, British Columbia	2002	2014
Sales and Regional Offices	Canadian Sales Headquarters in Toronto, Ontario	2001	2014
	Pacific Regional Office and TFS	2002	2014
	Quebec Regional Office and TFS	2005	2014
	Prairie Regional Office and TFS	2008	2014
	Atlantic Regional Office and TFS	2006	2014

Our logistics facilities in the U.S. (parts centers, parts distribution centers and vehicle distribution centers) are all operating under an ISO 14001-compliant management system that goes beyond the requirements of ISO 14001. Our Toyota Integrated EHS Management System, or TIMS, includes environmental management as well as the management of occupational safety (compliant to the OHSAS 18001 standard) and HazMat transportation. In order to dedicate additional resources to the launch of this comprehensive management system, we have not had these facilities third-party certified.

**About This Chart: Environmental management systems are an essential part of Toyota’s overall effort to minimize risks and achieve leading levels of environmental performance. Each Toyota location has an environmental management system (EMS) that identifies the significant environmental aspects and impacts of its operations and sets corresponding controls, goals and targets to manage and reduce these impacts over time. The facilities listed in the chart have been certified to the ISO 14001 standard, the International Organization for Standardization’s core set of standards for designing and implementing an effective environmental management system.**

## COMPLIANCE

### FG37 • Complaints and Non-Compliance

	Complaint Cases	Notices of Violation
FY10	0	0
FY11	0	2
FY12	0	1
FY13	0	0
FY14	0	0

**About This Chart:** Many of our activities in vehicle development, manufacturing and logistics are subject to local, state, provincial and federal laws that regulate air emissions, water discharges, storm water management, greenhouse gas emissions, waste treatment and disposal, and chemical management. These regulations vary by facility based on the type of equipment we operate and the functions performed. In fiscal year 2014, our North American manufacturing plants and logistics sites had zero regulatory violations. In addition to regulatory violations, the manufacturing plants also track the number of complaints made by third parties. There were no complaints in fiscal year 2014.