



**TOYOTA**

North American  
Environmental Report

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## ABOUT THIS REPORT

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 2016 (April 1, 2015 through March 31, 2016) and product model year 2016. 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 2016

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The 2017 Prius Prime, Toyota's second generation plug-in hybrid, is the most fuel-efficient vehicle on the road today.

> HOME PAGE

Welcome to Toyota's 2016 North American Environmental Report. This year's report features information about our four focus areas – CARBON, WATER, MATERIALS and BIODIVERSITY – plus related OUTREACH activities.



Toyota considers global warming to be a top priority. In 2016, we found ways to reduce carbon dioxide across the business. We launched [Prius Prime](#), which offers the highest fuel efficiency of any vehicle on the road today, and [Mirai](#) continues to roll through California, emitting only water vapor. Our North American manufacturing division won an impressive 12th consecutive [ENERGY STAR Partner of the Year – Sustained Excellence in Energy Management Award](#), and we began the process of installing a [7.75 megawatt solar array](#) at our new headquarters campus in Texas. These projects are advancing us along the path to a low carbon future.



Water is vital to the health of our economy and our environment. That’s why we continue our efforts to conserve. In 2016, we reduced water withdrawals by **99.8 million gallons**, or the amount used in one year by 911 average American families. We also continued to work with others to protect water resources. We helped our **dealerships in Northern California** administer a program that saved 8.4 million gallons, and, as part of the annual **World Water Monitoring Challenge**, we taught sixth-graders about the importance of fresh, clean water by helping them take water quality samples from local water bodies. In Toyota’s cycle of water stewardship, every member of society needs to get involved to turn the tide and protect this precious resource.



For Toyota, “Materials” refers to everything used to make a vehicle, whether it ends up in the final product or not. We seek opportunities to use **sustainable materials** and reduce the use of **substances of concern**. In the process of making vehicles, some material becomes waste – but not much. Last year, we reduced, reused or recycled 96 percent of our own solid waste and were recognized with the **WasteWise Very Large Business Partner of the Year Award**. We also collected 267,818 pounds of **household waste and donation items** from our neighbors. Together, we are advancing toward a circular economy where waste is eliminated and recycling rules the day.



More than 2,200 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 team members, government agencies and conservation organizations to preserve habitats and build connected communities. From protecting **pollinators** to supporting **National Public Lands Day**, these efforts are all part of our commitment to advancing the health of the world’s ecosystems and operating in harmony with nature.



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 on **greening Canada’s schools**; and, through the **National Mayor’s Challenge for Water Conservation**, we are part of one of the largest conservation awareness programs in the U.S. Through the power of collaboration, we hope to create lasting positive outcomes on a macro scale that advance us toward a more sustainable future.

Please 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), our environmental compliance record, information on the ISO 14001 certification status of our sites and a list of our LEED®-certified facilities.

## Dear Readers:

As one of the world’s largest automakers, Toyota is in a unique position to shape the future of mobility. That’s why last fall, our parent company announced the global Environmental Challenge 2050, an ambitious set of six challenges to ultimately create a net positive impact on the planet.

The six challenges address four complex environmental issues facing communities all around the world. Challenges 1, 2 and 3 focus on carbon and call for *eliminating* – not just reducing – greenhouse gas emissions from our vehicles, operations and supply chain. Challenge 4 addresses water availability and quality; Challenge 5 seeks to move us closer to a recycling-based society; and Challenge 6 is devoted to protecting nature.

Here in North America, we are already taking action to achieve the six challenges. On the vehicle side, we know the future of mobility includes electrification. Last year, we launched the Toyota RAV4 Hybrid, and 2016 brought the second generation Prius plug-in hybrid, Prius Prime, to the U.S. and Canada. The Mirai fuel cell electric vehicle continues to roll through California, boasting one of the highest ranges of any zero emission vehicle on the road.

Including Prius Prime, Toyota and Lexus now have 14 hybrid models available in North America; globally, we have 33. We estimate Toyota’s hybrid technology has helped save more than 6.6 billion gallons of gasoline worldwide and resulted in an estimated 67 million fewer tons of CO<sub>2</sub> emissions, all since 1997, when Prius first became available in Japan.

On the operations side, we continue to improve our environmental performance. Last year, our North American manufacturing division received its 12<sup>th</sup> ENERGY STAR Partner of the Year – Sustained Excellence in Energy Management Award; our North American operations reduced water withdrawals by 99.8 million gallons; we were named the WasteWise Very Large Business Partner of the Year; and two more of our sites received Conservation Certifications from the Wildlife Habitat Council.

We’re also building our new North American headquarters campus in Texas to be a model for environmental sustainability. Our plans call for more than 7.7 megawatts of renewable energy and a goal of Platinum LEED® certification, the highest level possible.

These accomplishments all helped us meet, and in some cases exceed, our 2014-2016 targets on vehicles, energy and greenhouse gases, water, chemical management, waste, biodiversity and outreach. But our past success doesn’t mean we can rest.

We are already hard at work on our new environmental action plan that takes us to 2021. This five-year plan will continue to move us toward the 2050 challenge of creating a net positive impact on the planet. We continue to focus on four core areas – carbon, water, materials and biodiversity – and on enhancing outreach activities.

In this report, you’ll find information on many of the advances made over the last year in our focus areas, all moving us closer to creating net positive impact. The culture of Toyota is rooted in continuous improvement – in making constant, small advances until we reach our long-term goals. We believe that if we continue to make small advances, we will create positive change and a more sustainable future.







*Jim Lentz*  
**Jim Lentz**  
 Chief Executive Officer  
 Toyota Motor North America, Inc.



*Kevin M. Butt*  
**Kevin M. Butt**  
 Regional Environmental Director  
 Toyota Motor North America, Inc.

## Highlights

	<ul style="list-style-type: none"> <li>• Toyota launched Prius Prime, whose EPA-estimated 133 MPGe makes it the most fuel-efficient vehicle on the road today. The improved efficiency represents a substantial 26 percent enhancement over its predecessor.</li> <li>• Toyota scientists recently made a breakthrough in battery research that could open the door for smaller, longer-lasting batteries for everything from cell phones to cars.</li> <li>• The 7.75 megawatt solar array planned for our new headquarters campus in Plano will be the largest corporate office on-site solar installation among non-utility companies in Texas and will reduce carbon dioxide emissions by 7,122 metric tons, or the equivalent of the electricity used by almost 1,000 homes for a year.</li> </ul>
	<ul style="list-style-type: none"> <li>• In 2016, we reduced water withdrawals by 99.8 million gallons. That's equivalent to the annual water use of 911 average American families.</li> <li>• Toyota dealers in Northern California saved 8.4 million gallons of water last summer by encouraging customers to skip the complimentary car wash after service.</li> <li>• Since 2005, our assembly plant in Indiana has been teaching elementary school students about the importance of protecting water resources. In 2015, team members helped about 600 sixth-graders take water quality samples at approximately 100 different lakes, rivers and streams across southwestern Indiana.</li> </ul>
	<ul style="list-style-type: none"> <li>• Toyota Motor North America won the WasteWise Very Large Business Partner of the Year Award. WasteWise is part of EPA's sustainable materials management program, which promotes the use and reuse of materials more productively over their entire life cycles.</li> <li>• Toyota's North American facilities reduced, reused or recycled 96 percent of non-regulated waste during calendar year 2015.</li> <li>• Toyota's Kentucky Parts Center developed collapsible packaging that can be reused an average of 14 times and eliminates 608,600 pounds from being landfilled.</li> </ul>
	<ul style="list-style-type: none"> <li>• Toyota has over 1,000 acres across 10 North American sites with Conservation Certifications from the Wildlife Habitat Council.</li> <li>• Team members at 11 North American sites have planted gardens to attract bees, butterflies and other pollinators. Four sites have even had their gardens certified as Monarch Waystations by Monarch Watch.</li> <li>• Toyota has been the national corporate sponsor of National Public Lands Day since 1999. The 2015 event contributed an estimated \$18 million in volunteer services to improve public lands across the U.S.</li> </ul>
	<ul style="list-style-type: none"> <li>• With 54 and counting, Toyota and Lexus have more dealership facilities certified to LEED® standards in the U.S. and Canada than any other auto manufacturer.</li> <li>• Residents from more than 4,100 U.S. cities pledged to save over 1.9 billion gallons of water as part of the annual National Mayor's Challenge for Water Conservation, sponsored by Toyota.</li> <li>• Last year, Toyota sites collected 267,818 pounds of household waste and donations from team members and local residents, equal to the weight of 20 full-size male African elephants.</li> </ul>



Carbon	Reduce carbon footprint of vehicles and operations
Water	Conserve water and protect water sources



## STRATEGY

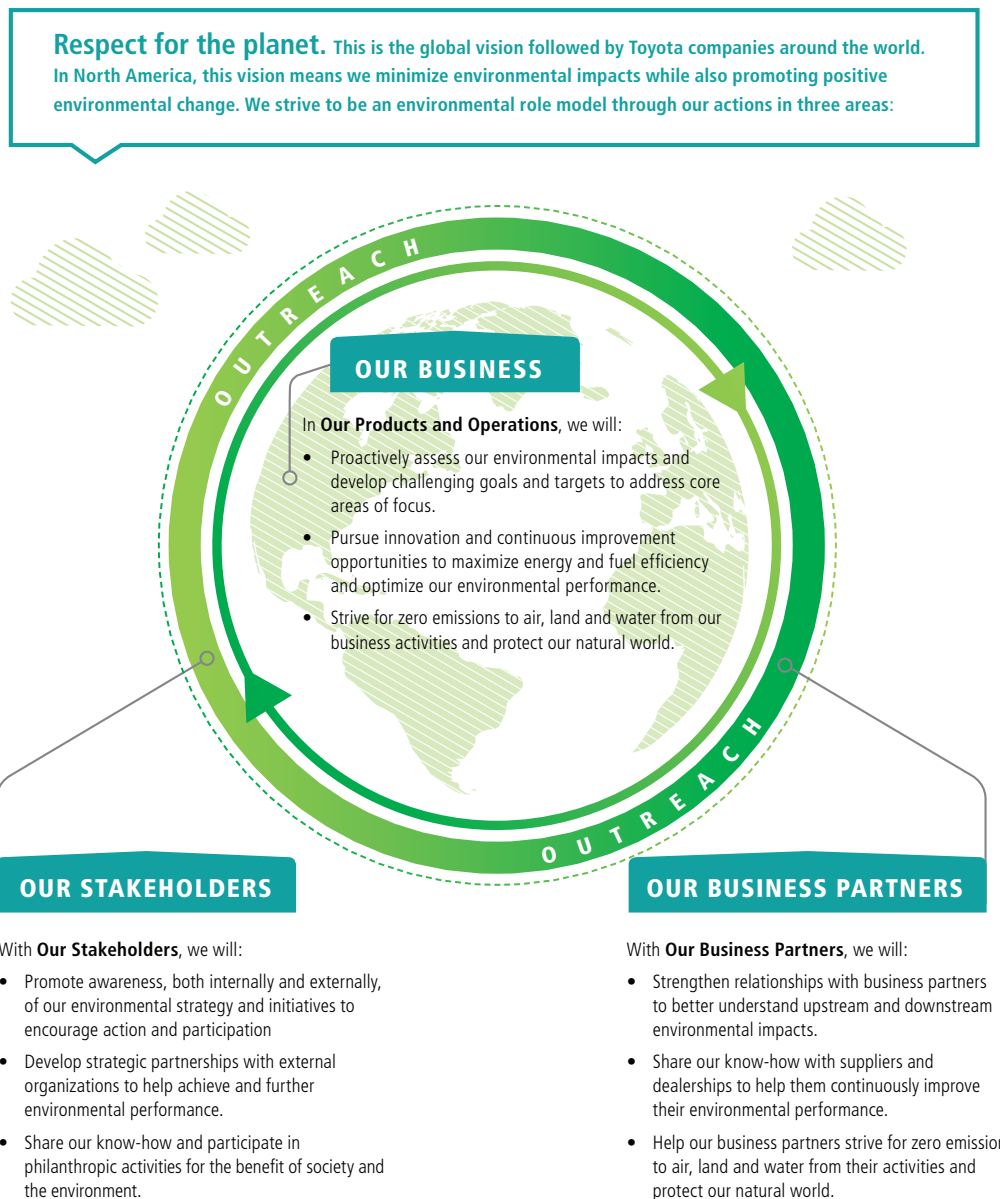
- > MISSION
- > MATERIALITY
- > ENVIRONMENTAL ACTION PLAN
- > GOVERNANCE
- > LOOKING AHEAD TO 2050



# MISSION

Toyota Motor North America’s Environmental Mission states our commitment to minimizing environmental impacts and promoting positive environmental change. The mission represents our regional take on Toyota’s global Earth Charter and is aligned with Toyota’s Global Vision and Guiding Principles (see Toyota’s [global website](#)).

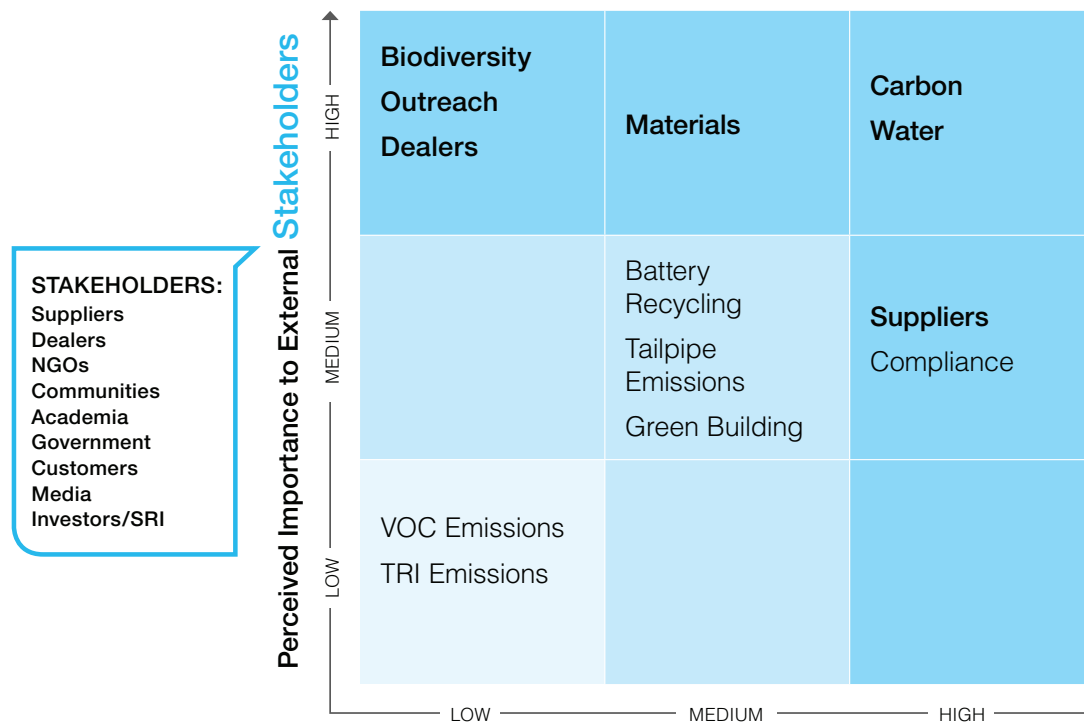
FG1 • Toyota Motor North America Environmental Mission



# MATERIALITY

As part of our environmental materiality assessment for North America, we evaluated the relative significance of the environmental topics facing us in the region as well as the importance of these topics to our stakeholders. We considered both current and expected future conditions. We performed this analysis as One Toyota: Manufacturing, sales and logistics, and R&D all participated.

FG2 • Environmental Materiality Assessment for North America

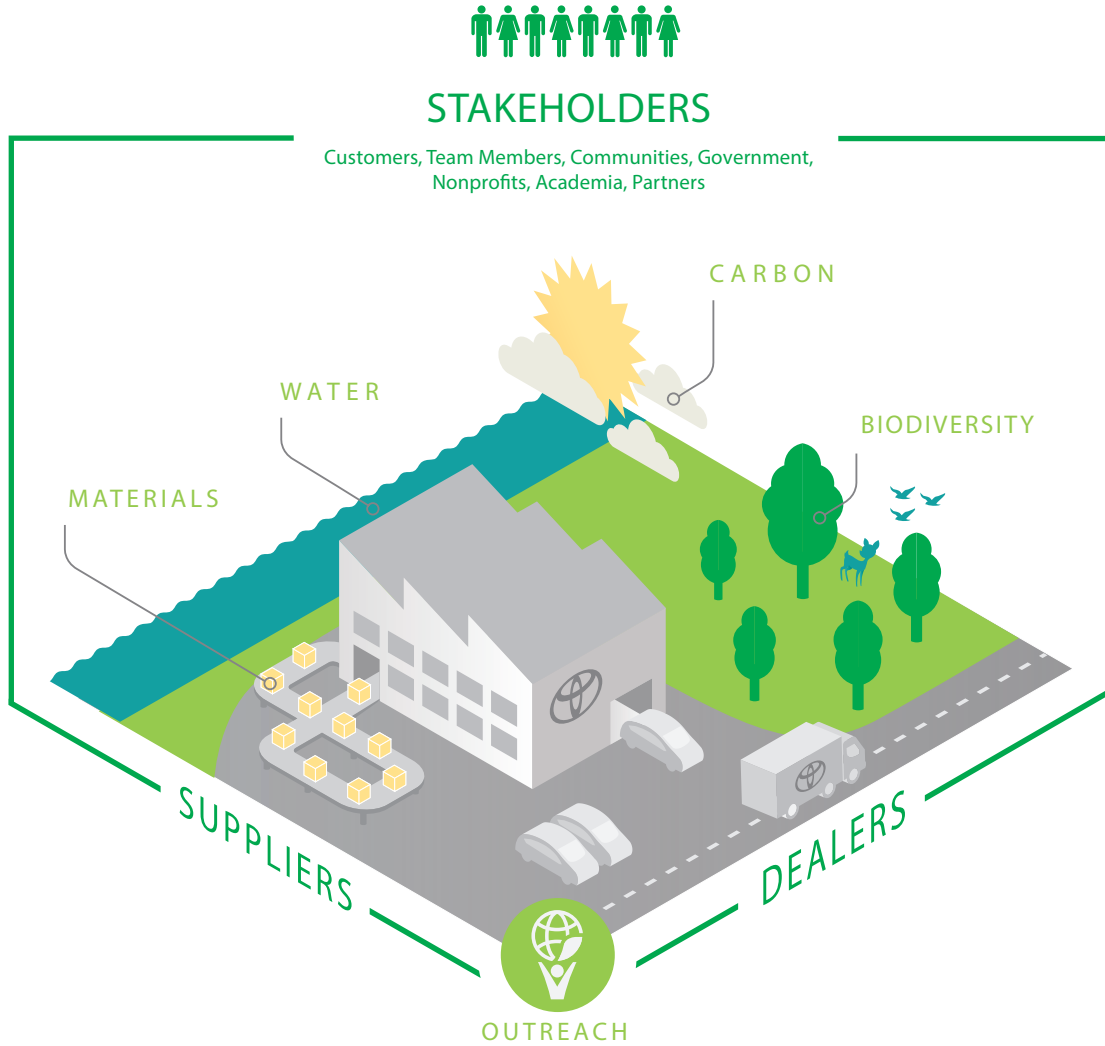


**Impact to Toyota/Environment (Current and Within 5 Years)**

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 prioritized and focused on in our environmental action plan for fiscal years 2014-2016.

We performed our first “One Toyota” environmental materiality assessment in 2012. Each year since, we have confirmed through a streamlined assessment that four core focus areas 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.

FG3 • Toyota Motor North America’s Environmental Focus Areas



- 

**CARBON**  
CARBON FOOTPRINT OF PRODUCT AND OPERATIONS
- 

**WATER**  
WATER CONSERVATION AND WATERSHED PROTECTION
- 

**MATERIALS**  
CHEMICAL MANAGEMENT AND WASTE MINIMIZATION
- 

**BIODIVERSITY**  
BIODIVERSITY PROTECTION AND ENHANCEMENT
- 

**OUTREACH**  
INTERNAL AND EXTERNAL ENVIRONMENTAL ENGAGEMENT



During fiscal year 2016, we performed an in-depth materiality assessment of current and future conditions to guide the development of our 2017-2021 environmental action plan. We will publish the results of that assessment in next year’s report. Please see [Looking Ahead](#) for more information on our plans for the future.

# ENVIRONMENTAL ACTION PLAN

FG4 • Toyota Motor North America Environmental Action Plan, FY2014-2016

		GOAL	FY2016 TARGET	STATUS	FY2016 RESULTS
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	○	Launched the 2015 Lexus NX 300h; launched the 2016 Toyota RAV4 Hybrid
			Reduce energy consumption 12% per vehicle produced, from a baseline of FY2010	⊙	Reduced energy use per vehicle 23.6%
			Reduce GHG emissions from operations 12% per vehicle produced, from a baseline of FY2010	⊙	Reduced GHGs per vehicle 22%
	Water	Conserve water and protect water sources	Reduce water withdrawal 6% per vehicle produced by FY2016, from a baseline of FY2010	⊙	Reduced water withdrawal per vehicle 14%
	Materials	Eliminate waste and improve recycling and reuse opportunities	Implement IMDS data management systems enterprise wide	○	Completed data collection for all North American-produced vehicles
			Develop and test a new target for waste	○	Defined the 3R rate; tracked results for 2 years (96% in CY2015)
Biodiversity	Improve biodiversity on and near Toyota facilities	Achieve Wildlife Habitat Council certification at 9 sites by the end of calendar year 2016	⊙	10 sites certified	
OUTREACH	Suppliers	Strengthen supplier relationships	Develop a new supplier environmental engagement process	○	Established new methods of tracking progress and sharing best practices; established GHG reduction target for FY2017-2021; began piloting new alternative transport technology
	Dealers	Promote and enhance dealer environmental initiatives	Maintain the leadership position in dealership green building and certify 53 dealerships to LEED® standards	⊙	54 certified dealers
	Stakeholders	Strengthen Toyota's position as an environmental role model	Create environmental ambassadors by educating and empowering employees	○	Expanded and enhanced Earth Day/Week/Month activities
		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 focus areas. See FG 26

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

This environmental action plan reflects the first time 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, R&D sites, parts and vehicle distribution centers, and sales offices. The creation of One Toyota, in terms of consolidating both physical office locations and departments and aligning strategies, has been a huge undertaking for us and will continue to be a major focus over the next fiscal year.

## GOVERNANCE

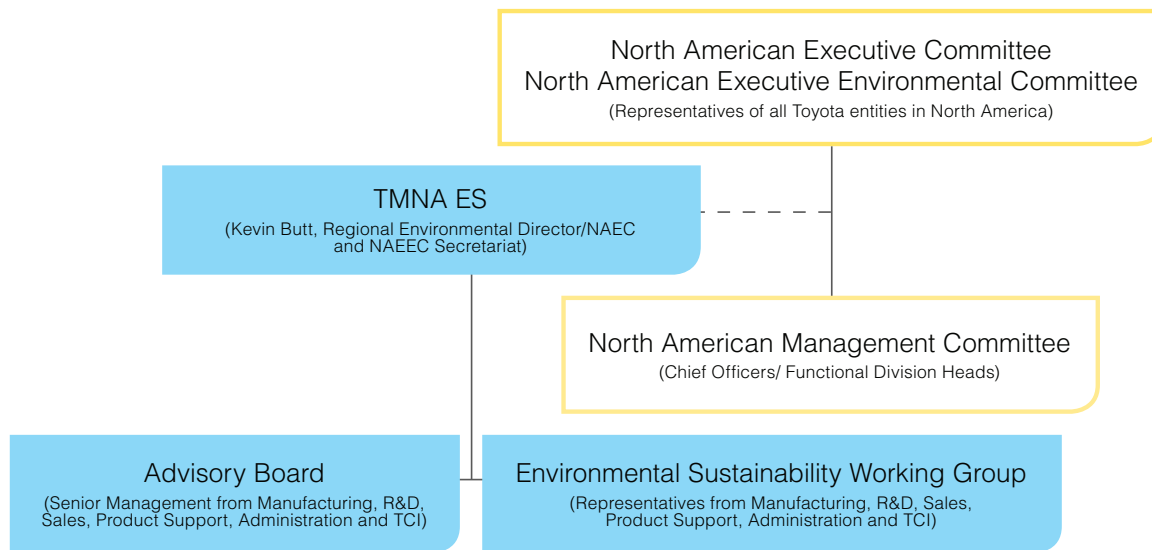
The Toyota Motor North America (TMNA) Environmental Sustainability (ES) department reports to the North American Executive Committee and serves as the chief environmental body representing Toyota entities in North America. ES, in cooperation with the Toyota North American Executive Environmental Committee (which is comprised of members from the Executive Committee), establishes activities and provides one voice for appropriate responses to environmental sustainability issues in North America. The ES department’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.

TMNA ES facilitates an Advisory Board and Working Group as a coordinating mechanism across the organization. Both are comprised of environmental experts and representatives from various divisions:

- **Manufacturing**
- **Research and Development**
- **Sales**
- **Product Support**
- **Administration** (*includes Regulatory Affairs and Legal*)
- **Social Innovation**
- **Compliance and Audit**
- **Toyota Canada Inc. (TCI)**

This report contains information from these divisions. Representatives from these divisions also participate in focus groups that concentrate on a particular environmental issue (such as water or biodiversity). These focus groups report to the Environmental Sustainability 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 among team members and external stakeholders.

FG5 • Environmental Governance in North America



## LOOKING AHEAD TO 2050

In October 2015, Toyota Motor Corporation (TMC) announced the [Toyota Environmental Challenge 2050](#), a set of six challenges that go beyond zero environmental impact to achieve a net positive impact on society. These six challenges were developed after extensive research and consultations between TMC and the Toyota regions (including North America) and, over the next 35 years, they will direct Toyota’s efforts toward sustainable development.

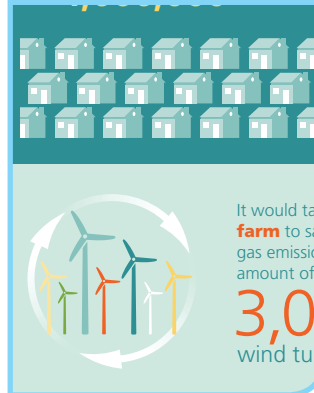
As a key step toward achieving these long-term goals, TMC announced its Sixth Environmental Action Plan (EAP) for fiscal years 2017 to 2021. TMC’s global challenges and EAP serve as guides for the regions, who have developed their own action plans with targets specific to regional conditions. In North America, our action plan for fiscal years 2017 to 2021 aligns with both TMC’s Sixth EAP and the six challenges, and puts us on a path to meeting, and in some cases going beyond, the challenges put forth by our parent company. We look forward to sharing our first year of progress against this new plan in next year’s report. We are also building a regional strategy to 2050 and look forward to sharing details of that with you next year as well.

### FG6 • Summary of Toyota Motor North America’s New Environmental Action Plan



\* By 2050, Toyota will reduce CO<sub>2</sub> emissions from new vehicles by 90 percent from 2010 levels.

Toyota Motor North America (TMNA) has aligned our core focus areas with the six 2050 Global Challenges. In TMNA’s 2017-2021 Environmental Action Plan, we set targets that cover all aspects of our operations to put us on a path towards achieving these challenges. In each focus area, we are working towards zero environmental impact and net positive impact for society. We will publish our new environmental action plan in next year’s report.



It would take **farm** to save gas emissions amount of **3,0** wind turbines



# CARBON

> VEHICLES

> OPERATIONS

> OUTREACH: TOWARD A LOW CARBON FUTURE





Toyota is collaborating with the National Renewable Energy Laboratory (NREL) to find ways to advance hydrogen. Led by Craig Scott (left) from Toyota's Advanced Technologies Group and Keith Wipke from NREL, we are working together to realize hydrogen's potential as a sustainable transportation fuel.

#### > CARBON

CARBON is one of Toyota's four focus areas in North America. We are working to reduce the carbon footprint of our [products](#) and [operations](#), and conducting [outreach](#) activities that help our stakeholders do the same. Climate change is a significant challenge facing the global community. We are working at every stage of the vehicle life cycle to help the world advance toward a low carbon future.

The impacts of climate change – floods, droughts, changes to weather patterns – are being felt around the globe. Earth's average temperature has risen by 1.4°F over the past century and is projected to rise another 2 to 11.5°F over the next 100 years. Small changes in the average temperature of the planet can translate to large shifts in climate and weather.

According to the International Energy Agency, the transportation sector is responsible for approximately 23 percent of the world's total carbon dioxide (CO<sub>2</sub>) emissions from fuel combustion. Toyota considers responses to help prevent global warming – a key aspect of climate change – to be a priority management issue. In North America, Toyota's strategy for a low carbon future focuses on our [products](#), [operations](#) and [outreach](#) activities.

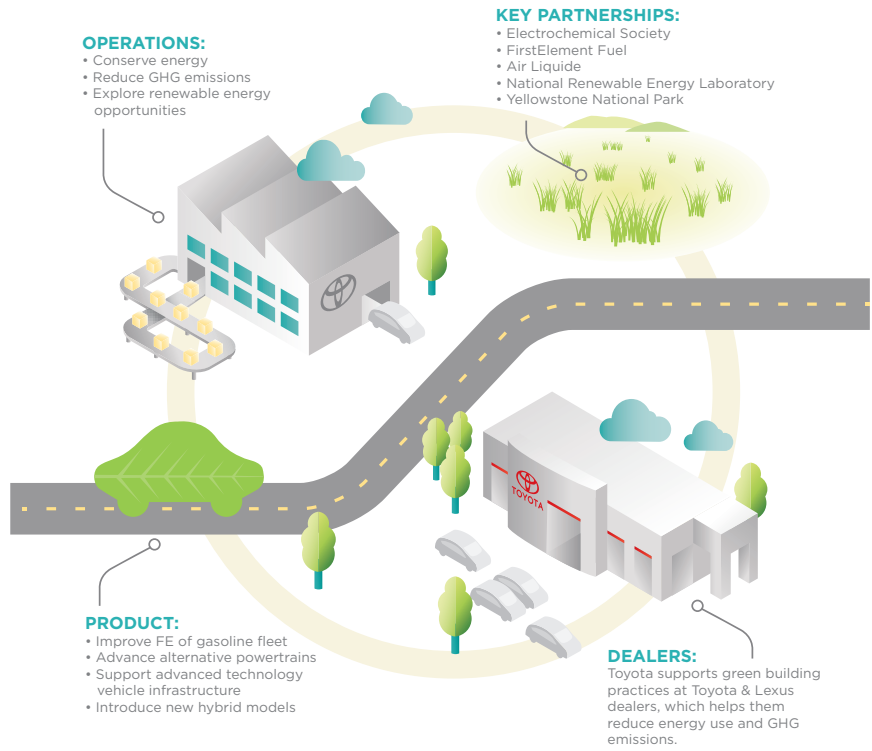


FG7 • Carbon Infographic

TOYOTA'S PATH TO A LOW CARBON FUTURE



The impacts of climate change – floods, droughts, changes to weather patterns – are being felt around the globe. The transportation sector is responsible for approximately 23 percent of the world's total CO<sub>2</sub> emissions from fuel combustion. Toyota considers responses to help prevent global warming to be a priority management issue. In North America, Toyota is working to reduce the carbon footprint of our products and activities and engaging with stakeholders to build a low carbon future. Find out more about our efforts at [www.toyota.com/environmentreport2016/carbon](http://www.toyota.com/environmentreport2016/carbon).



TOYOTA'S DESIRED PROGRESS ACROSS EACH OF THE FOLLOWING:

	^	∨	∨	^	^
<b>THEN - 2002</b>	26.1 MPG* (Toyota U.S. fleet average, combined)	340 g CO <sub>2</sub> /mile (Toyota U.S. fleet)	1.24 MT CO <sub>2</sub> e/vehicle (operations, stationary sources)	0 MWh Renewable Energy Consumed	0 LEED® Certified Dealers
<b>NOW - 2016</b>	33.1 MPG* (Toyota U.S. fleet average, combined)	268 g CO <sub>2</sub> /mile (Toyota U.S. fleet)	0.59 MT CO <sub>2</sub> e/ vehicle (operations, stationary sources)	13,700 MWh Renewable Energy Consumed	54 LEED® certified Toyota & Lexus Dealers

**FUTURE - 2021**

Toyota has developed our next five-year environmental action plan that includes targets to further reduce the carbon footprint of our products and activities and expand the positive impacts of our outreach efforts.



\* The combined MPG fleet averages are calculated based on EPA-estimated fuel economy ratings for each vehicle in Toyota's U.S. fleet.

## 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. We evaluate vehicle powertrains, weight, aerodynamics and other design factors to boost vehicle efficiency while preserving the vehicle size, power, driving range and affordability that our customers demand — without sacrificing world-class vehicle safety features and performance.

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. We are making progress in all of these areas, advancing us toward a low carbon future.

### Improving Gasoline Vehicle FE

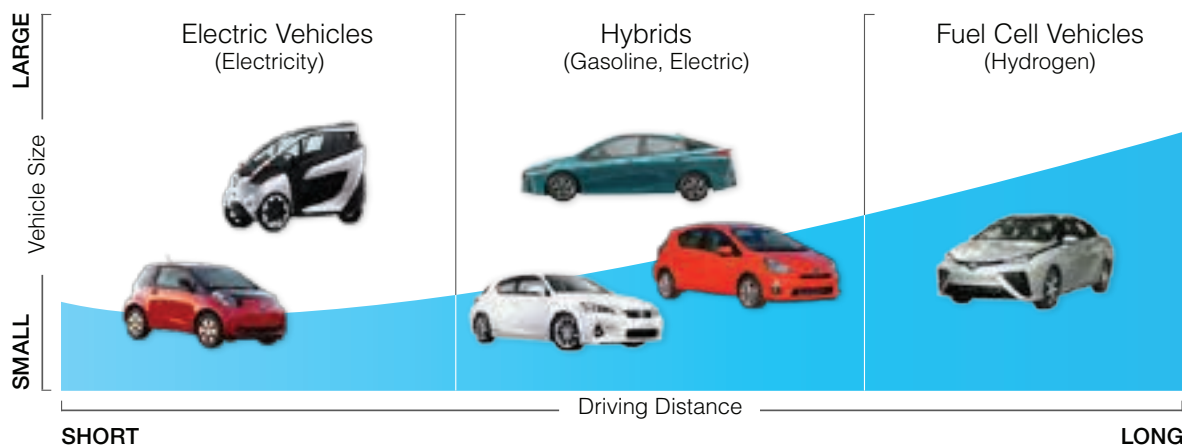
Toyota is working to introduce vehicles with highly efficient gasoline engines that achieve fuel efficiency improvements. The 2015 Lexus NX 200t introduced a turbo 2.0L engine, which offers the best combination of efficiency and performance to meet customer demands. Toyota also introduced more fuel-efficient engines into the U.S. for the 2016 Toyota Tacoma 3.5L, Lexus RX and RX Hybrid. These engines will help Toyota achieve 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.

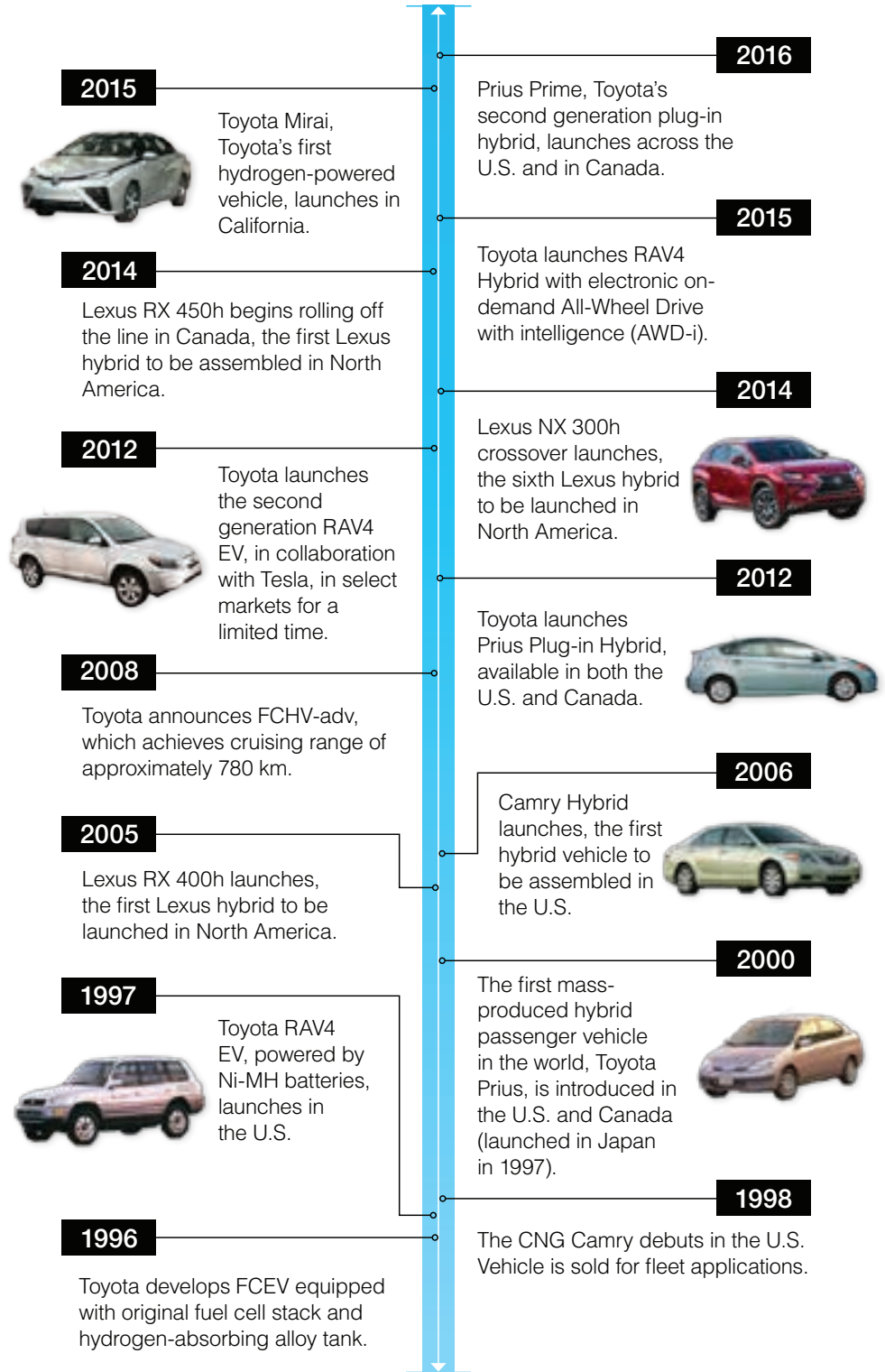
We address customers’ needs for driving distance and vehicle size using different portfolio technologies. Our vision for small battery electric vehicles (such as iQ EV) is based on short trips around town, while our hybrids (such as Prius Prime) and fuel cell vehicle (Mirai) are ideal for longer driving distances.

FG8 • Toyota’s North American Advanced Technology Strategy



\* The vehicles shown from left to right are: iQ EV, i-Road, Lexus CT 200h, Prius Prime, Prius c and Mirai

**FG9 • Advanced Technology Vehicle Milestones**



## HYBRID VEHICLES

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 and electricity.

It took nine years and nine months for Toyota to sell 1 million hybrids worldwide. In the nine years since then, Toyota has sold 8 million more. In April 2016, the cumulative figure for global sales of Toyota hybrid vehicles surpassed the 9 million mark. Toyota sells 33 different hybrid passenger car models and one plug-in hybrid model in more than 90 countries and regions (as of April 2016).

Also in April, Lexus International announced the sale of its 1 millionth hybrid vehicle. The world's first luxury hybrid, the Lexus RX 400h, was launched in North America in 2005. Today, Lexus sells 10 hybrid models worldwide and is the luxury brand with the widest hybrid line-up.

The Toyota Prius hybrid is a marquee vehicle that established mainstream adoption of hybrid technology. By achieving global mass-market appeal, Toyota hybrids have created a significant positive impact in gasoline consumption and emissions generated by driving. Toyota calculates that as of April 30, 2016, the use of Toyota hybrid vehicles worldwide in lieu of conventional vehicles of similar size and driving performance has resulted in approximately 67 million fewer tons of CO<sub>2</sub> emissions, believed to be a cause of global warming.\* Toyota also estimates that its hybrid vehicles have saved approximately 6.6 billion gallons of gasoline compared to the amount used by gasoline-powered vehicles in the same class.

Toyota and Lexus currently have 13 hybrid models and one plug-in hybrid model on the market in North America, all using our unique series-parallel hybrid system. In the U.S., Toyota and Lexus hybrids account for 59 percent of industry hybrid sales. Cumulative Toyota and Lexus hybrid sales in North America are over 2.8 million (as of June 2016).

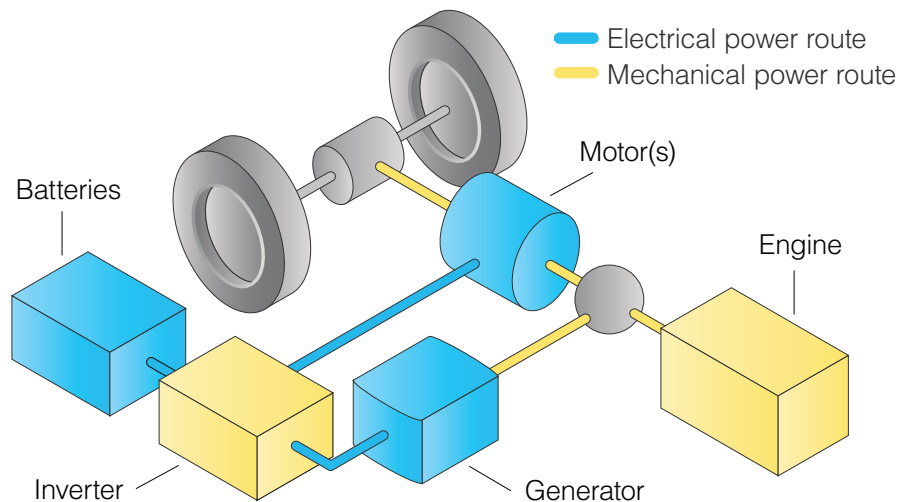
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\* *Number of registered vehicles × estimated distance traveled × fuel efficiency rating × CO<sub>2</sub> conversion factor*

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 Prime**	2012
Lexus ES 300h	2012
Avalon Hybrid	2012
Lexus NX 300h	2014
RAV4 Hybrid	2015

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

\*\* Prius Prime is the second generation of Prius Plug-in Hybrid, which launched in 2012. Prius Prime launched in the fall of 2016.

## AUTO INDUSTRY'S ONLY ASSET-BACKED GREEN BOND PROGRAM EXPANDED

To support the sale of green vehicles, Toyota Financial Services (TFS) issued its third asset-backed green bond in May 2016 in the amount of \$1.6 billion. TFS revolutionized the green bond market by introducing the auto industry's first-ever asset-backed green bond in 2014, then issued a second in 2015. Green bonds are an important component of TFS' broad-ranging funding program and serve to advance Toyota's already extensive environmental commitment.

TFS' three issuances of asset-backed green bonds have raised \$4.6 billion. Proceeds of the latest TFS green bond are being used to fund new retail finance contracts and lease contracts for Toyota and Lexus vehicles that meet 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**
- **EPA Smog Rating of 8 or better (10 being the cleanest), as determined by the U.S. EPA for the purchase of a vehicle in California**

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 Lloyds and RBC acted as joint-lead managers.

## HYBRIDS AND HOLLYWOOD

In 2000, shortly after Toyota launched Prius in the U.S., the Environmental Media Association (EMA) and Toyota connected to help bring the hybrid to Hollywood. In October 2015, Toyota and Lexus celebrated 15 years of partnership with EMA and the 15<sup>th</sup> anniversary of Prius at the 25<sup>th</sup> annual Environmental Media Awards at Warner Bros. Studios in Burbank, California. The all-new 2016 Prius made its Hollywood debut at the green carpet event.

The award ceremony honored film and television productions that communicate environmental messages in creative and influential ways. Honorees included Don Henley, Gwyneth Paltrow, Kristin Davis, Van Jones, Zem and James Joaquin, and a special tribute to 25 years of the Simpson's series excellence in environmental messaging.

"The entertainment industry elevated Prius to a cultural icon and made hybrids cool," said Bob Carter, senior vice president of automotive operations at Toyota Motor Sales, U.S.A., Inc. "Toyota and Lexus are proud to support and celebrate Hollywood's positive influence and impact on the planet."

In addition to Prius, Lexus showcased two vehicles for the evening: the NX 300h AWD, a luxury hybrid with class-leading MPG and innovative design, and the CT F SPORT Special Edition, with sport-tuned suspension, exclusive F SPORT styling and impressive fuel efficiency.

The hydrogen-powered Mirai fuel cell vehicle also attended the party. The Mirai combines two elements – hydrogen and oxygen – to produce electricity to power the car. The best part is what leaves the tailpipe: only water vapor.

The Environmental Media Association (EMA), organizer and host of the awards, is a nonprofit founded in 1989 by Cindy and Alan Horn and Lyn and Norman Lear. EMA's mission is to mobilize the entertainment industry in educating people about environmental issues. Toyota Motor Sales, U.S.A., Inc. is a member of the EMA Corporate Board.

**TOYOTA CANADA TEAM WINS AT ECO-RALLY**

At the first-ever Nîmes-Alès eco-rally in southern France, Toyota’s Canadian rally team – Vinh Pham and Alan Ockwell – piloted their 2016 Toyota Prius to a first place finish in the Hybrid category and a second-place Overall result. The Nîmes-Alès eco-rally was created to promote advanced technologies in southern France.

“For almost two decades, Toyota has developed and built advanced hybrid vehicles that are cleaner, fuel efficient, fun to drive and easy to adopt by drivers around the world – and events such as this eco-rally are how we prove to Canadians that our hybrids are more than ready for the real world,” said Cyril Dimitris, vice president of Toyota Canada Inc. “We’re proud of Vinh and Alan for their excellent performance, which confirms that the 2016 Toyota Prius shatters the perceptions of what’s possible in a hybrid.”

The rally took place in June 2016 in the mountainous terrain around Nîmes and Alès. Teams were required to drive more than 300 kilometers (186 miles), including a 30-minute track-endurance stage during which an average speed of 65 km/h had to be maintained.

Since the first FIA Alternative Energy Cup was awarded in 2007, Toyota has won the Hybrid class (Category VII) in six of nine years. The FIA Alternative Energy Cup is a world championship series for hybrids and other alternatives to conventional vehicles.



For the inaugural Nîmes-Alès eco-rally, Toyota Europe and Toyota France partnered to provide the Canadian team with a 2016 Prius. Vinh Pham (pictured) and his partner Alan Ockwell achieved an impressive overall rally fuel efficiency of just 4.2L/100 km – actually beating the model’s official Canadian fuel efficiency rating of 4.5L/100 km (city/highway combined).

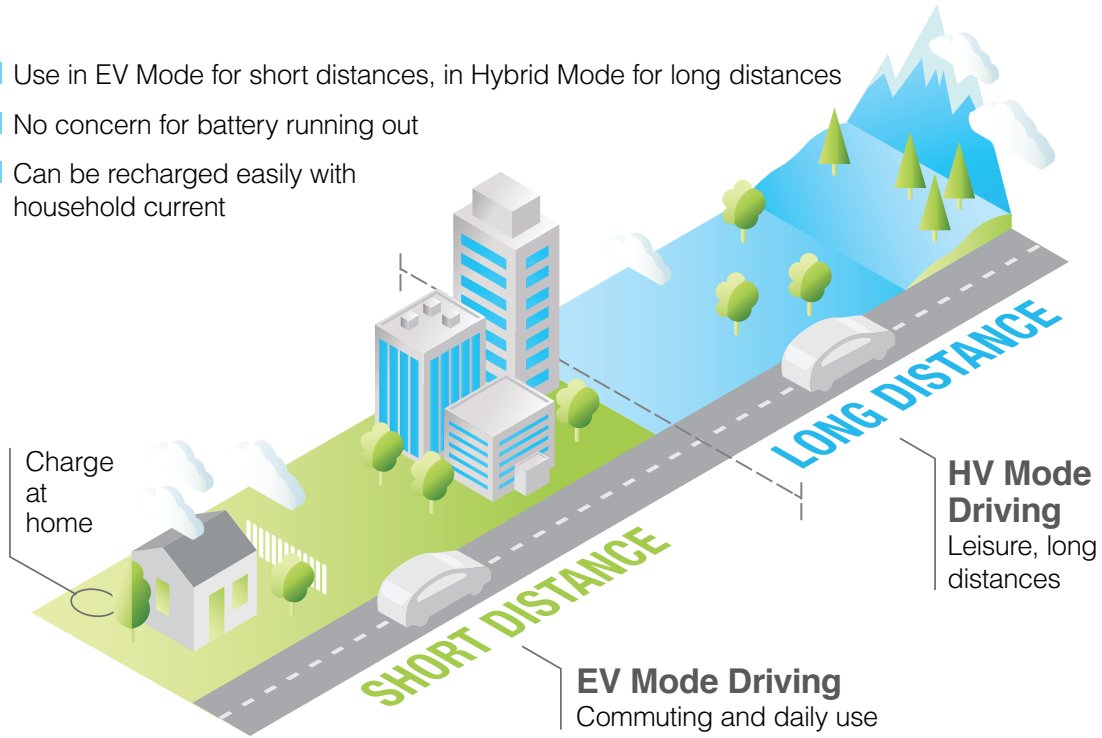


**PLUG-IN HYBRID VEHICLES**

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 emissions 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.

FG11 • Plug-in Hybrid Vehicle Characteristics

- Use in EV Mode for short distances, in Hybrid Mode for long distances
- No concern for battery running out
- Can be recharged easily with household current



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



## PRIUS PRIME

Toyota first launched Prius Plug-in Hybrid in 2012. In the fall of 2016, the second generation of this vehicle, the 2017 Prius Prime, became available in all 50 states and Canada. “Prime” means best, making it the perfect name for the most technologically advanced, best-equipped Prius in the model’s history. Prius Prime is a giant leap over the first generation Prius Plug-in Hybrid, boasting a dramatic redesign both inside and out, along with advanced next generation technology.

Prius Prime’s EPA-estimated 133 miles per gallon equivalent (MPGe) makes it the most fuel-efficient vehicle on the road today. It also represents a substantial 26 percent enhancement over its predecessor, a result of greater battery capacity and an improved hybrid system. On one 11.3-gallon tank of regular-grade gasoline and a full electric charge, the 2017 Prius Prime anticipates a class-leading estimated total driving range of over 600 miles.

An important distinction between Prime and its predecessor is its ability to operate in Electric Vehicle (EV) Mode more often, in more situations and for longer periods, helping to deliver a better EV experience. Thanks to advanced technologies like a new dual-motor generator drive system, a new HVAC system and a unique battery warming system, Prime is expected to be significantly less reliant on gasoline power than its predecessor. The 2017 Prius Prime is expected to drive at speeds up to 84 mph without leaving EV Mode and offer an estimated EV Mode driving range of 22 miles, meeting the daily commuter distance of over half of U.S. drivers.

Prius Prime can be plugged in at home to recharge its larger 8.8 kWh battery pack. No special equipment is needed for home charging. Prius Prime has an expected charging time of less than 5.5 hours using a standard household outlet (110/120V). Charging takes less than half the time when using a 240V source (such as a public charging station or home-based installation).



The 2017 Prius Prime became available in the U.S. and Canada in the fall of 2016. With an EPA-estimated 133 MPGe and an anticipated EPA-estimated EV Mode driving range of 22 miles – enough to meet the daily commuter distance of over half of U.S. drivers – Prius Prime anticipates an EPA-estimated class-leading total driving range of over 600 miles.

## BATTERY ELECTRIC VEHICLES

Toyota engineers have been studying purely electric battery-powered vehicles for nearly 40 years. Alongside the company's groundbreaking hybrid, plug-in hybrid and fuel cell vehicles, battery electric vehicle (BEV) technology represents another component of Toyota's long-term vision for future mobility.

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. To overcome these barriers, Toyota has active research projects in battery technology to improve range and recharge time, both for today's lithium-ion technology and for the future "beyond lithium."

We are continuing to explore how battery electric vehicles may fit into the transportation landscape, particularly as we look for ways to help ease congestion in major metropolitan areas. We are working with partners like the [U.S. Department of Energy's National Renewable Energy Laboratory](#) and others to determine where electric vehicles make sense and how to integrate the vehicle, the customer and the power grid.

Demonstration programs for i-Road, Toyota's three-wheeled electric vehicle, are underway in France and Japan, testing usage and acceptance in urban markets. For more information on i-Road, see Toyota's [global website](#).

## MAGNESIUM BATTERIES

Scientists at the Toyota Research Institute of North America (TRINA) have been conducting advanced battery research and recently made a breakthrough involving magnesium batteries that could open the door for smaller, longer-lasting batteries for everything from cell phones to cars.

Magnesium metal has long been theorized as a more energy-dense alternative to current lithium battery technology. Lithium metal, in its natural state, is unstable when exposed to air. In order to make lithium metal safe for batteries, ions are taken from the lithium metal and embedded into graphite rods, which are then used in batteries. That lack of actual metal, however, limits the amount of power a battery can store. Magnesium, on the other hand, is a very stable metal with the potential to store much more energy. But, until now, research on magnesium-based batteries was limited because a magnesium-friendly electrolyte did not exist.

Toyota principal scientist and chemical engineer Rana Mohtadi was researching hydrogen storage materials and their application to fuel cell technology when she heard her fellow researchers discussing the challenges of developing an electrolyte for a practical magnesium battery. Mohtadi realized her hydrogen storage material might just solve the longstanding problem. With further experimentation and the help of fellow researchers, her theory proved correct.

"We were able to take a material that was only used in hydrogen storage and make it practical and very competitive for magnesium battery chemistry," said Mohtadi. "It was exciting."

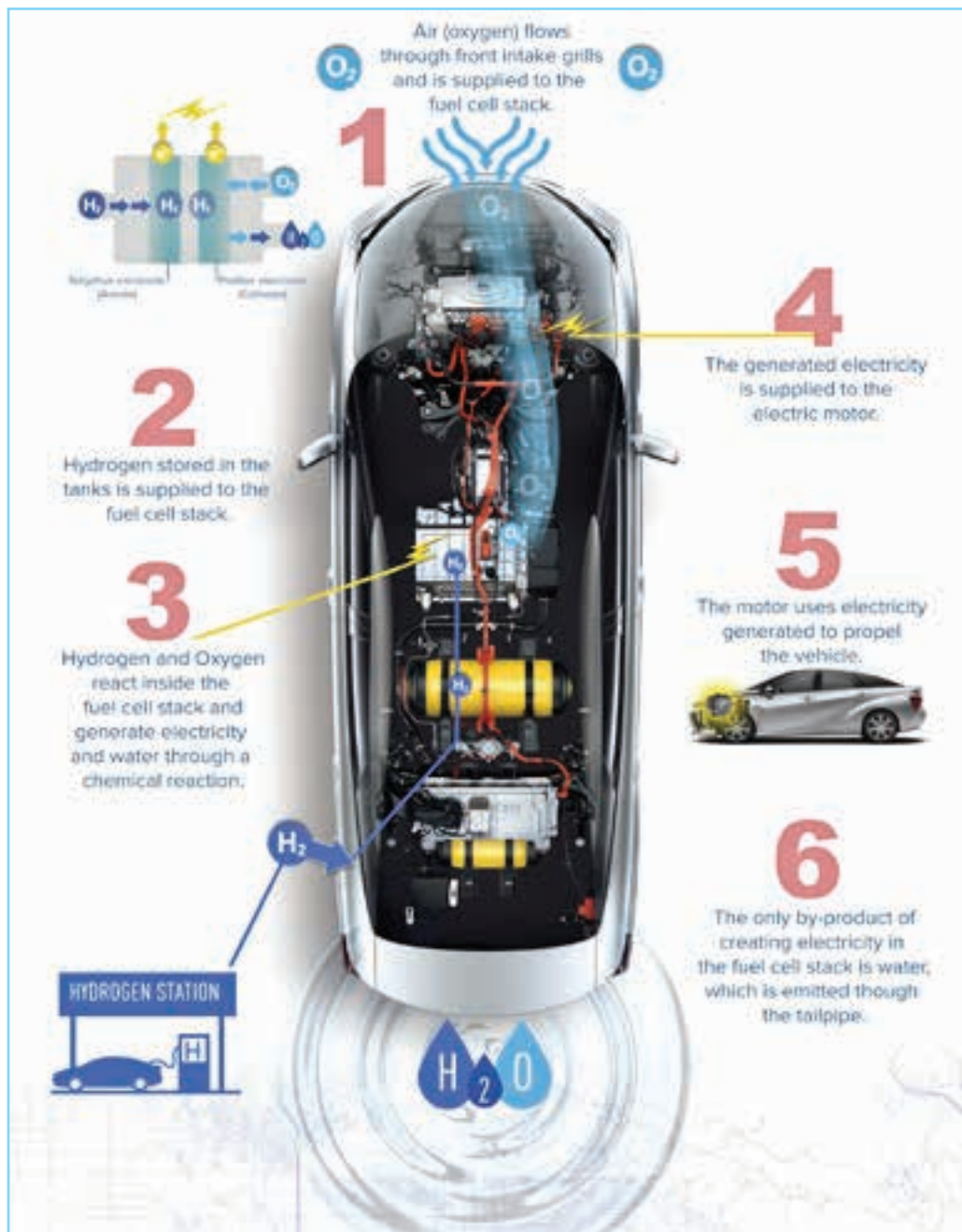
While it's easy to get caught up in the potential of a dramatically improved battery, it could take 20 years of research and development before magnesium batteries reach the consumer market. To help move the process along, Toyota's scientists aren't keeping their discovery to themselves. Fellow researcher Oscar Tutusaus, who collaborated with Mohtadi on the discovery, said, "We want to make this electrolyte a standard for magnesium batteries, and we want other researchers to develop it further so these batteries can see the light of day."

Toyota's scientists made their findings public in a paper detailing their discovery entitled "An Efficient Halogen-Free Electrolyte for Use in Rechargeable Magnesium Batteries," which was published in *Angewandte Chemie International Edition* (Vol. 54, Issue 27).

FUEL CELL VEHICLES

Toyota Mirai is one of the world’s first mass-produced hydrogen fuel cell electric vehicles and is available for sale in California. Mirai is a four-door, mid-size sedan that offers an EPA-estimated 67 miles per gallon equivalent (MPGe) city/ highway/ combined and an EPA-estimated driving range rating of 312 miles on a single fill of hydrogen. Mirai is one of the only zero emission electric vehicles on the market that tops the 300-mile range.

Mirai fully competes with traditional internal combustion engines – without using gasoline. Toyota Mirai creates electricity on demand using hydrogen fuel, oxygen and a fuel cell, and emits nothing but water vapor in the process.



Hydrogen is one of the most promising alternative fuel sources and when used in a fuel cell, is highly efficient and leaves no CO<sub>2</sub> emissions behind. This gives hydrogen the potential to help solve greenhouse gas emissions and energy security challenges faced by the transportation sector.

To acknowledge hydrogen’s potential as an alternative transportation fuel and for renewable energy storage, Toyota, with support from the Fuel Cell and Hydrogen Energy Association, helped create National Hydrogen and Fuel Cell Day. Officially recognized in 2015 by the unanimous passage of Senate Resolution 217, October 8 (10.08) was chosen in recognition of the atomic weight of hydrogen (1.008).

For updates on hydrogen fueling infrastructure and our Fueled by Everything episodes, see [the Mirai](#) section of our website.



Attendees of the 2016 International Consumer Electronics Show in Las Vegas, Nevada, got a first-hand look at Toyota’s FCV Plus concept vehicle, which showcases the potential of hydrogen fuel cell technology beyond the automotive industry. The concept vehicle is capable of generating electricity directly from hydrogen stored outside the vehicle, allowing it to operate as a stable source of electric power for use at home or on the go. This vehicle demonstrates Toyota’s vision of a connected, sustainable hydrogen society.

**MIRAI NAMED WORLD GREEN CAR**

Toyota Mirai was declared the 2016 World Green Car at the 2016 New York International Auto Show.

“Just as Prius changed the world nearly 20 years ago, the hydrogen-powered Mirai is ready to make history,” said Bill Fay, group vice president and general manager of the Toyota Division of Toyota Motor Sales, U.S.A., Inc. “With an EPA-estimated driving range of over 300 miles per tank, an approximate refueling time of under five minutes and emissions that consist only of water vapor, Mirai is leading the world forward toward a more sustainable future.”

Mirai was chosen from an initial entry list of eight new vehicles from all over the world. Tailpipe emissions, fuel consumption and use of a major advanced power plant technology (beyond engine componentry), aimed specifically at increasing the vehicle’s environmental responsibility, were all taken into consideration. Vehicles were selected and voted on by an international jury panel comprised of 73 top-level automotive journalists from 23 countries around the world.





## Supporting EV and FCV Infrastructure

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 H2USA, the California Fuel Cell Partnership (CaFCP), the Fuel Cell and Hydrogen Energy Association (FCHEA) 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.

### INTEGRATING PLUG-IN HYBRIDS AND THE POWER GRID

The Toyota Research Institute of North America (TRINA) is collaborating with the Department of Energy's National Renewable Energy Laboratory (NREL) on multiple projects, including one to find new and better ways to integrate plug-in hybrid electric vehicles (PHEVs) into the power grid. The market for hybrid electric vehicles has seen rapid growth during the last few years, going from a blip on the radar to more than 1 million PHEVs on the road and counting. With the launch of Toyota's Prius Prime, we expect that number to continue its rapid growth.

Toyota and NREL want to find out how all those new vehicles charging up at the same time will affect power quality on the distribution grid. Knowing how much is too much for the grid will lead to better strategies to monitor and control distribution, ensuring that as more PHEV owners plug in, the grid is ready.

Scientists and engineers at NREL's Energy Systems Integration Facility (ESIF) and NREL's Vehicle Testing and Integration Facility are testing 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 has been constructed in a laboratory setting. Ten iQ electric vehicles and 22 Prius Plug-in hybrid electric vehicles are being used 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 demand for electricity from the grid is at its peak.

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 and 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.

## HYDROGEN FUELING INFRASTRUCTURE

Hydrogen fueling stations take processed hydrogen, compress it and cool it to deliver it safely to a fuel cell vehicle (FCV). Hydrogen stations operate a lot like gasoline stations and it takes only about five minutes to refill the tank of Toyota's Mirai.

One of the challenges with commercializing fuel cell vehicles has been the availability of hydrogen fueling stations. The University of California Irvine estimates 68 stations are needed to support 10,000 fuel cell vehicles state-wide. The state of California has earmarked \$200 million for as many as 100 new hydrogen stations in the next several years, with up to 40 stations by the end of 2016. In addition, Toyota is helping fund infrastructure that supports a growing community of FCV drivers by working with government agencies and committing millions of dollars to hydrogen fuel providers like FirstElement Fuels, Air Liquide and Linde:

- **FirstElement Fuels**, as part of a financial agreement with Toyota, is working 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. At the end of 2016, FirstElement had completed construction of 16 stations.
- In the northeast United States, Toyota and **Air Liquide** are collaborating to develop and supply a fully-integrated hydrogen fueling infrastructure to support the introduction of Mirai on the east coast in 2017. Air Liquide's hydrogen fueling infrastructure in the northeast is expected to consist initially of 12 filling stations across New York, New Jersey, Massachusetts, Connecticut and Rhode Island, with plans to extend the network as demand warrants.
- Industrial gas supplier **Linde LLC** is building a hydrogen fueling station on Toyota-owned property 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.

With the development of hydrogen fueling infrastructure, the automotive industry has reached a turning point and the transition from gasoline to hydrogen as the predominant vehicle fuel has begun. "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," said Bob Carter, Toyota's senior vice president of automotive operations.



The first hydrogen fueling station fed directly from an active industrial hydrogen pipeline opened adjacent to Toyota's Torrance sales office campus in 2011. The station was a collaborative effort between Toyota, Air Products and Shell. Shell operates the facility and Air Products provides on-site equipment, station maintenance and hydrogen gas through a pipeline from its plants in Wilmington and Carson, California.

## SPOTLIGHT: THE ROAD TO RENEWABLE HYDROGEN

After decades of research and development, Toyota's fuel cell electric vehicle, the Mirai, is now available to the public. But a vehicle powered by a hydrogen fuel cell that emits nothing but water vapor is only half the story. To fully realize hydrogen's zero emissions potential, we also need zero emission fuel.

That's where collaboration comes in. Toyota has been partnering with the U.S. Department of Energy's (DOE's) National Renewable Energy Laboratory (NREL) for the last 15 years on advancing hydrogen. NREL, supported by DOE's Fuel Cell Technologies Office, is at the forefront of renewable hydrogen production research.

"Hydrogen is a really important part of our future energy portfolio in this country," said Keith Wipke, NREL program manager for fuel cell and hydrogen technologies. "Hydrogen can be produced domestically, and the pathways we're researching all involve making hydrogen from renewable or low carbon sources so that it can be a zero emission fuel."

NREL is investigating the following renewable hydrogen pathways:

- 1. Biomass Fermentation:** Through fermentation, the complex sugars in biomass, which is sugar-rich plant-based material, are broken down to produce hydrogen. NREL's process uses microbes that can ferment cellulose directly to hydrogen without the need for expensive enzymes.
- 2. Photobiological Pathway:** Through photosynthesis, microbes growing in water, such as water-grown algae and cyanobacteria, use sunlight to split water into oxygen and hydrogen.
- 3. Electrolysis:** Solar, wind, geothermal or other renewable sources of power are used to generate electricity that powers an electrolyzer system to split water into oxygen and hydrogen.
- 4. Photoelectrochemical Pathway:** Sunlight is used to directly electrolyze water molecules into hydrogen and oxygen gas – at greater than 15 percent solar-to-hydrogen efficiency – on the surface of high efficiency multi-junction solar cells.

"NREL's research is integral to making hydrogen a sustainable transportation fuel," said Craig Scott, senior manager of Toyota Motor North America's Advanced Technologies Group. "If we can combine renewable hydrogen fuel with the hydrogen fuel cell in Toyota's Mirai – which is 2 to 2.5 times more efficient than the gasoline-powered vehicles we drive around in today – we will have made a huge leap in reducing greenhouse gas emissions and securing our energy future."

NREL's hydrogen and fuel cell research goes beyond hydrogen production to evaluate delivery and storage. Toyota and other fuel cell vehicle manufacturers have identified a critical need to improve the cost and reliability of hydrogen station technology. Through the DOE-supported Hydrogen Fueling Infrastructure Research and Station Technology (H2FIRST) project, NREL is working with Sandia National Laboratories to address the technical challenges of hydrogen station deployment in the early market.

"Infrastructure reliability is the leading technical challenge facing the early adoption of fuel cell vehicles in the U.S.," explained Wipke. "Scientists here at NREL are using a Toyota Mirai plus other fuel cell vehicles to evaluate the hydrogen fueling experience and equipment to help address this challenge."

Beyond transportation, NREL is also conducting research on the use of hydrogen fuel cell technology in other applications. Toyota recently funded a research project at NREL that will help us create and use renewable hydrogen at one of our facilities.

Toyota's partnership with NREL is one piece of the complex puzzle in bringing hydrogen fuel cell vehicles to market. Thanks to the collaboration of auto manufacturers, government agencies, trade associations, academia and nonprofits, we are advancing along the path toward a low carbon future and getting closer to overcoming the technological, economic and institutional barriers to the widespread commercialization of hydrogen and fuel cell vehicles.

For information about Toyota's partnership with NREL on plug-in hybrids and grid integration, [click here](#).

## Hybrid Vehicles Target

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

Toyota launched the 2015 Lexus NX 300h crossover in the fall of 2014. The 2016 RAV4 Hybrid became available in the fall of 2015. These vehicles joined 11 other Toyota and Lexus hybrid models on the roads in the U.S. and Canada during fiscal year 2016.\*

*\*This does not include Prius Prime, which launched in fiscal year 2017. Toyota's fiscal year runs April 1-March 31.*



## Fuel Economy & CO<sub>2</sub> Vehicle Emissions

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 (mpg); 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 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.

In Canada, Toyota supports alignment with the United States for setting vehicle emissions standards. The Canadian federal government introduced a GHG emissions regulation under the Canadian Environmental Protection Act for the 2011-2016 model years, and in October of 2014 issued final GHG regulations for the 2017-2025 model years.

In Mexico, the government has modeled vehicle GHG standards after 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.

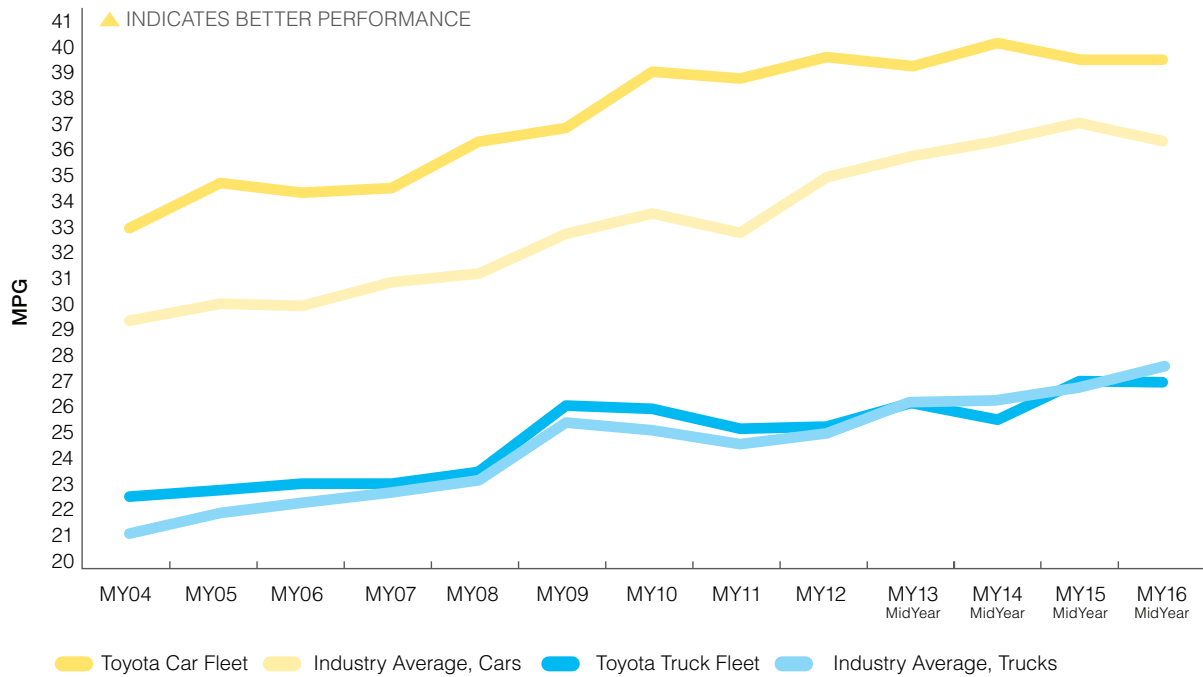
Many of our hybrid products are already capable of meeting their respective future targets for fuel economy and GHG standards in all three countries. But there is still a sense of urgency as states like California seek to accelerate the number of zero emission vehicles on the road to meet its ZEV requirements.

Toyota achieved the required U.S. Corporate Average Fuel Economy (CAFE) standards and met the required vehicle CO<sub>2</sub> per mile standards in the United States, Canada and Mexico. See Figures 12-14 for our performance in the U.S. and Canada. In Mexico, Toyota's fleet average in calendar year 2014 was 183.8 grams CO<sub>2</sub> per kilometer (g CO<sub>2</sub>/km); in 2015, Toyota's fleet average was 178.7 g CO<sub>2</sub>/km.

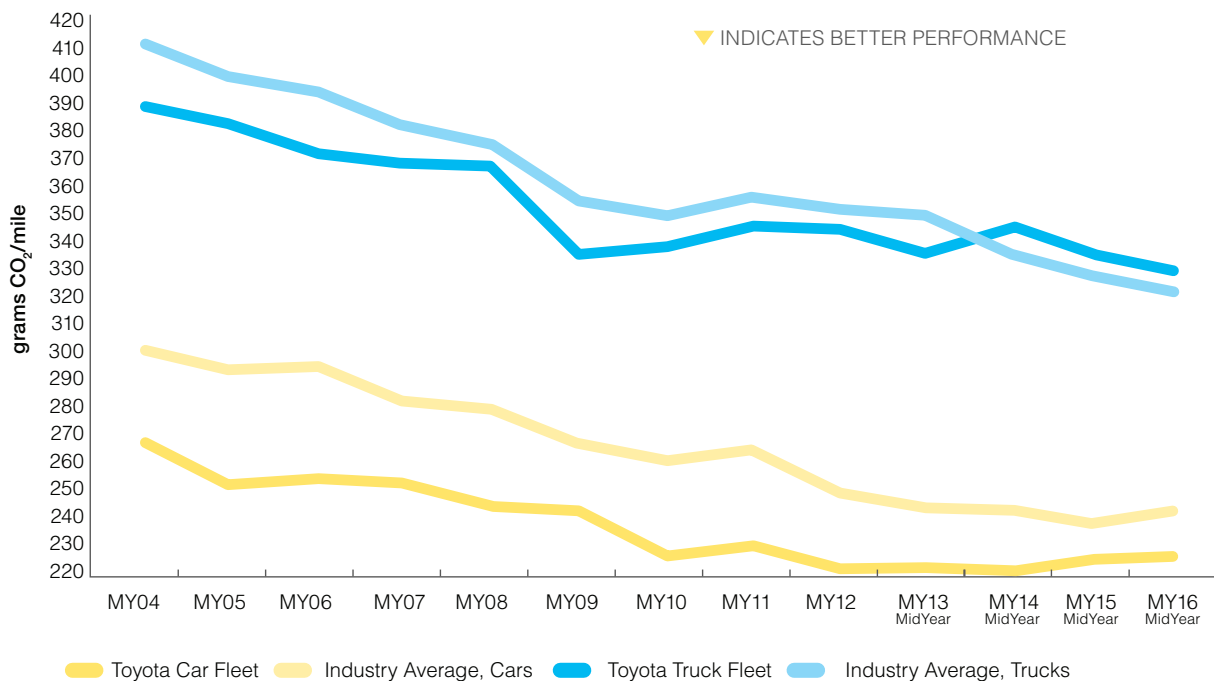


UNITED STATES

FG12 • U.S. Car Corporate Average Fuel Economy, or CAFE



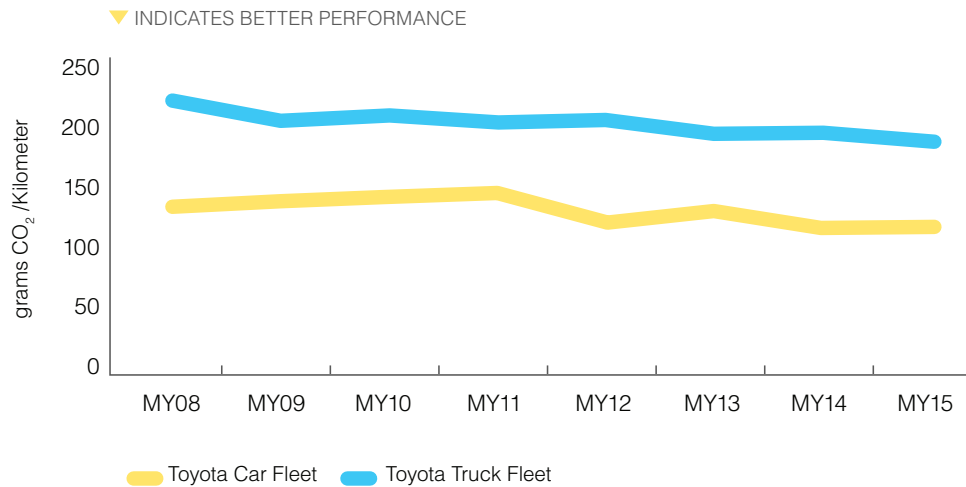
FG13 • Annual CO<sub>2</sub> per Mile\*, Toyota U.S. Fleet



\*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

FG14 • Annual CO<sub>2</sub> per Kilometer\*, Toyota Canada Fleet



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

FUEL ECONOMY AWARDS

Toyota offers several models that achieved best-in-class fuel economy ratings in 2016. For example:

- Camry Hybrid and Prius were named two of the “10 Best Green Cars of 2016” by Kelley Blue Book’s KBB.com. Each year, KBB.com editors pick 10 standouts boasting the best combinations of fuel efficiency, value and overall appeal. 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 five Toyota/Lexus vehicles as best-in-class for fuel efficiency for the 2016 model year, more than any other manufacturer. Best-in-class vehicles have the lowest combined fuel consumption rating, based on 55 percent city and 45 percent highway driving. For each class, the most fuel-efficient conventional vehicle and the most efficient advanced technology vehicle (where applicable) are recognized. Five Toyota and Lexus vehicles were awarded by NRCan for the lowest estimated annual fuel use in their respective classes:

- **Toyota Prius c** (Compact car)
- **Toyota Prius** (Mid-size car)
- **Toyota Prius v** (Mid-size station wagon)
- **Toyota RAV4 Hybrid AWD** (Small SUV)
- **Lexus RX 450h** (Standard SUV)

This marked the 16<sup>th</sup> 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 four years it has been on the market. In fact, for the second year every Prius hybrid model won its respective category.

## OPERATIONS

Toyota's North American operations use energy, mainly electricity, natural gas, diesel and gasoline. Most of this energy is used at manufacturing plants to build powertrains and vehicles.

Our strategy for reducing the carbon footprint of our operations focuses on improving energy and greenhouse gas (GHG) efficiency from stationary sources, improving the fuel efficiency of our logistics operation and investing in renewable energy.

## Energy & GHGs From Stationary Sources

Team members implement projects large and small that save electricity and natural gas and generate fewer GHG emissions from stationary sources. Examples of projects implemented in fiscal year 2016 include:

- **Optimizing chilled water systems.** Last year, we reported on optimizing the chillers used to cool water for the HVAC systems at our plants in Ontario (Woodstock), Mississippi and Texas. Our powertrain plant in Huntsville, Alabama, is the newest to adopt this practice. Team members there installed variable frequency drives on cooling tower fans and pumps and made other modifications to three large chillers to make them operate more efficiently, which saves an estimated 1 million kilowatt-hours (kWh) and over 600 metric tons of carbon dioxide per year. Combined, the four plants that have optimized their chilled water systems save over 8 million kWh and 4,280 metric tons of carbon dioxide annually.
- **Reducing compressed air demand.** At our assembly plant in Mississippi, the supply of compressed air was often exceeding demand. Team members designed and programmed a control system to connect all the air compressors. The new system collects electronic data, operates different machines, provides alarm and warning notifications, and has the ability to program schedules between shifts and on weekends. This new system reduces annual electricity use by approximately 498,000 kWh and saves 302 metric tons of carbon dioxide and almost \$40,000 per year.

### Energy Efficiency Target

Reduce energy use 12 percent per vehicle produced by FY2016 (achieved early)

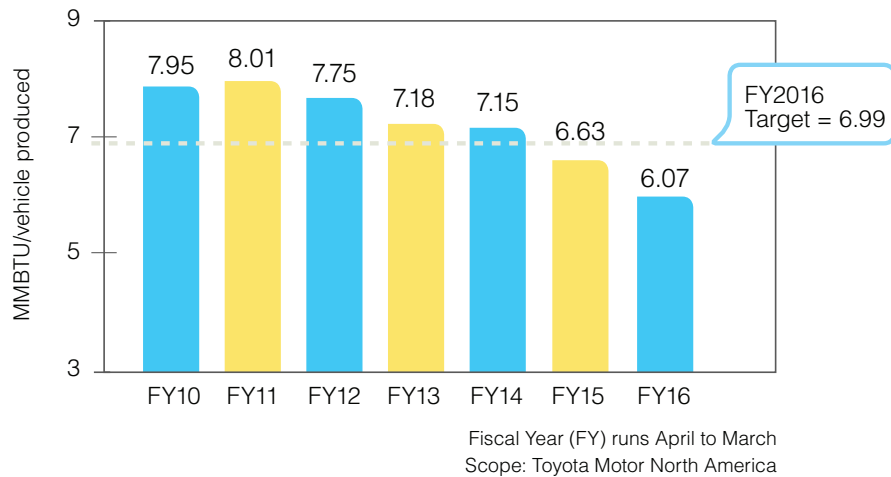


During fiscal year 2016, Toyota used 1.64 million megawatt-hours of electricity – a 2.4 percent decrease from the previous year – and 177.14 million cubic meters of natural gas – an 8.3 percent decrease from the previous year – at more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers and offices. Our consolidated energy efficiency target covers all of these sites.

Our target was to reduce energy use from stationary sources by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline. We met this target in fiscal year 2015, one year ahead of schedule. At the end of fiscal year 2016, we had improved energy efficiency by 23.6 percent.

This target covers the purchase and use of non-renewable 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.

FG15 • Energy Use Per Vehicle Produced (Stationary Sources)



**ENERGY STAR PARTNERSHIP**

Since 2002, Toyota has saved over 16 billion kilowatt-hours of electricity, the equivalent of powering 995,000 average American homes for an entire year. Saving that much energy across Toyota’s 14 North American manufacturing facilities could not have been possible without the individual efforts of team members to reduce energy use in their processes and work areas. Thanks to their efforts, Toyota earned the U.S. Environmental Protection Agency ENERGY STAR Partner of the Year – Sustained Excellence in Energy Management Award for the 12<sup>th</sup> consecutive year.

“Being named an ENERGY STAR Partner of the Year is a tremendous honor,” said Toyota’s Plant and Environmental Engineering Group General Manager Robin Haugen. “Earning that honor 12 years in a row is testament to the dedication of our team members to reduce our carbon footprint and become an environmental leader in our industry.”

Since benchmarking began in 2002, Toyota has realized cost savings of more than \$640 million and reduced overall energy consumption by 35 percent.

Through the ENERGY STAR Challenge for Industry program, EPA also recognizes plants that reduce their energy intensity by 10 percent within five years. In 2015, our plants in Troy, Missouri; Princeton, Indiana; Georgetown, Kentucky; San Antonio, Texas; and Baja California, Mexico, achieved the challenge.

Additionally, Toyota’s plants in Indiana, Kentucky, Mississippi and Texas were certified as 2015 ENERGY STAR Manufacturing Plants for reaching the top 25 percent of energy performance in the automotive industry nationwide.



FG16 • Energy Savings Infographic

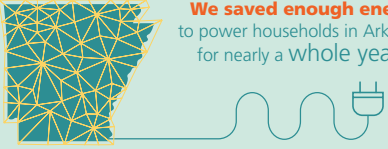
## TOYOTA Celebrates ENERGY EXCELLENCE

For the 12th time in 12 years, Toyota's efforts to lead the industry in energy savings have been recognized with the ENERGY STAR Partner of the Year—Sustained Excellence Award. That's more than any other auto manufacturer. Ever.

Since 2002, Toyota has had a **35% reduction** in energy use, that is equivalent to nearly **15 billion kWh** of energy and over **\$600 million** cost savings across Toyota's 14 North American manufacturing plants.\*


\* Energy savings are based on performance since 2002, when we began tracking performance against a target. We won our first Energy Star Partner of the Year Award in 2005.


### JUST HOW MUCH ENERGY HAVE WE SAVED?



**We saved enough energy** to power households in Arkansas, for nearly a whole year.\*


How many homes would that power? A lot. Almost **1,000,000** of them for a whole year.






It would take a **giant wind farm** to save the greenhouse gas emissions from using that amount of electricity: One with **3,003** wind turbines.

This savings is equal to the carbon sequestered by **297,732,792** tree seedlings grown for 10 years.






This savings is like removing the greenhouse gas emissions from **2,296,753** passenger vehicles driven for one year.

For more information on our environmental programs and initiatives, as well as our performance against targets, please visit the **2015 Toyota North American Environmental Report:**  
[www.toyota.com/usa/environmentreport2015/](http://www.toyota.com/usa/environmentreport2015/)  
[www.toyota.ca/rapportenvironnemental2015](http://www.toyota.ca/rapportenvironnemental2015) [FRENCH]

\*Source: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator> and <https://www.eia.gov/justfacts/cadea/ET04a21500>



## GHG Efficiency Target

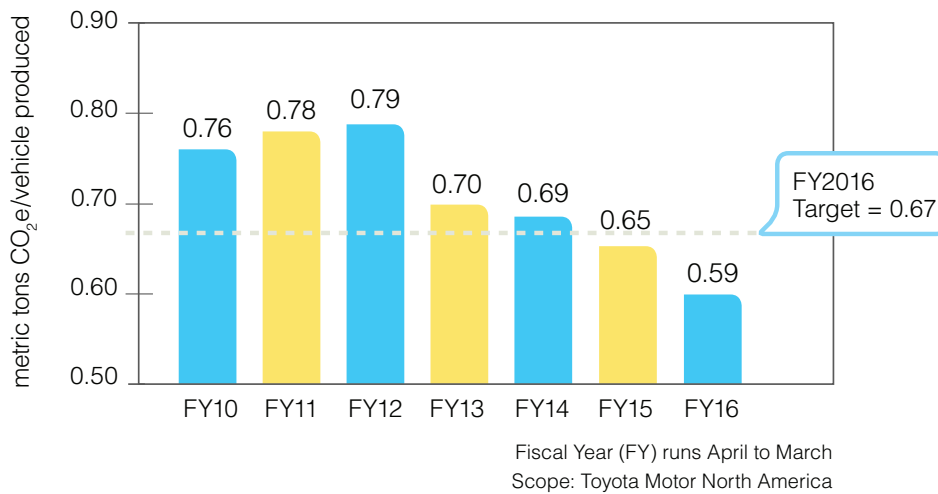
Reduce GHG emissions from stationary sources 12 percent per vehicle produced by FY2016 **(achieved early)**

Our consolidated GHG emissions target covers more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers and offices. Our target was to reduce GHG emissions from stationary sources (emissions from our use of electricity and natural gas) by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline.

We met this target in fiscal year 2015, one year ahead of schedule. At the end of fiscal year 2016, we had improved GHG efficiency by 22 percent.

Click [here](#) for more information on our North American GHG inventory, including total Scope 1, 2 and 3 emissions, and our reporting of GHG data to government agencies.

FG17 • GHG Emissions Per Vehicle Produced (Stationary Sources)



## Fuel Efficiency in Logistics

### IN-HOUSE SERVICE PARTS TRUCKING

Last year, Toyota's in-house service parts trucking replaced all of its 53-foot and 48-foot dealer delivery trailers. In California, the Air Resources Board (ARB) requires 53-foot length trailers – the longest trailer used in the U.S. – to be fitted with side skirts to direct air flow and improve fuel efficiency. We complied on our five 53-foot trailers, then went beyond ARB's requirements by fitting side skirts on all 63 of our 48-foot trailers. EPA estimates that adding side skirts can improve fuel efficiency by up to 5 percent. This is a significant improvement when considering the average dealer delivery trailer averages 85,000 miles each year. The 68 new trailers join 95 trailers operating between parts distribution centers that are also fitted with side skirts. Combined, these 163 trailers travel in excess of 6 million miles every year.

Another way of saving fuel and reducing GHG emissions is by leveraging reverse logistics. Toyota began using our dealer delivery trailers to bring used parts such as batteries, transmissions and steering racks back to the distribution centers, where they are returned to suppliers and turned into remanufactured parts. This saves money, avoids GHG emissions and keeps used parts out of landfills.

### IN-HOUSE VEHICLE TRUCKING

In 2016, Toyota Transport (truck carrier) and Toyota Logistics Services (shipper) renewed their membership 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. One of the main purposes of SmartWay is to improve fuel efficiency and reduce GHG emissions from the movement of goods. According to EPA, SmartWay partners have saved 170 million barrels of oil and \$24.9 billion in fuel costs, resulting in 73 million metric tons of carbon dioxide avoided (2004-2015).

Since joining SmartWay in 2009, Toyota Transport, our in-house trucking carrier for completed vehicles, has improved the GHG efficiency of its deliveries by 13 percent (per ton-kilometer). To further reduce GHG emissions, Toyota Transport began piloting a truck fueled by compressed natural gas (CNG) in the fall of 2015 for short hauls from the Port at Long Beach, California. The CNG truck was designed and built in collaboration with Peterbilt and Cottrell, Inc., the truck and trailer manufacturers. The CNG truck plus trailer is expected to emit 85 percent less overall particulate matter and 10 percent less carbon dioxide than its diesel-powered counterpart.



## Renewable Energy

We have been expanding the use of renewable energy as a means of reducing our carbon footprint and our reliance on non-renewable energy sources. 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.

We are evaluating applications of solar, geothermal, landfill gas to energy and stationary hydrogen fuel cells as well as the purchase of green power either directly from a utility company or through renewable energy credits. During fiscal year 2016, we used more than 13.7 million kWh of renewable energy across North America.

### LANDFILL GAS POWERS KENTUCKY ASSEMBLY PLANT

Toyota's assembly plant in Georgetown, 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.

As solid waste naturally breaks down in a landfill, methane gas – the second most prevalent greenhouse gas emitted in the U.S. – is created. A network of wells at the landfill collect this gas, which is used to fuel generators for electricity. Underground transmission lines then carry the electricity to Toyota's assembly plant, located a few miles south of the landfill. The system reduces methane emissions from the landfill by as much as 90 percent.

The system went online in late 2015 and generates 1 megawatt of electricity each hour it operates, or about what it takes to power approximately 800 homes, based on average consumption in the U.S. Toyota estimates the locally generated landfill gas supplies enough power each year for the production of 10,000 vehicles.



## SOLAR TO POWER NEW HQ CAMPUS IN PLANO

Toyota's plans for the new North American headquarters campus in Plano, Texas, call for a 7.75 megawatt solar system to be designed and installed by SunPower Corp. The system will be the largest on-site corporate office solar installation among non-utility companies in the state of Texas. In total, the system is expected to provide approximately 25 percent of the power needed for the new headquarters campus. The Plano solar array will reduce annual carbon dioxide emissions by 7,122 metric tons, or the equivalent of the electricity used by almost 1,000 homes for a year, and position Toyota as the leader among auto companies in the U.S. for installed solar power.

Current plans call for the solar system to be completed in phases. Phase one will cover two parking structures – approximately 2.45 megawatts per garage – and will come online by August 2017. The final installation, located on a third parking structure, is slated for December 2017 and will produce about 2.83 megawatts.

Toyota also signed a five-year energy contract with MP2, a Texas-based power company, to provide 100 percent renewable energy solutions to the Plano campus. Beyond the SunPower solar system, MP2 will procure renewable energy from various resources including wind, additional on-site generation in the future and renewable energy credits. The flexible energy contract also allows for excess power generation to be sold back to the grid. This contract was negotiated by Power Priority Management, an energy management solutions company.

Everything from LED lights to solar panels and high efficiency building shells will help cut down on the amount of energy used on campus. Multiple rooftops will feature specially designed roofs teeming with plant life to help manage rainwater, reduce heat and further insulate the buildings. This installation is just one example of Toyota's environmental efforts to achieve the goal of Platinum LEED® Certification for the state-of-the-art campus.

“We are dedicated to making sure our new headquarters campus supports – even redefines – Toyota's commitment to the environment,” said Kevin Butt, regional director of Toyota's North American Environmental Sustainability department. “The Plano solar system will not only reduce our environmental footprint and educate team members about renewable energy, it will also move us closer to Toyota's 2050 global environmental challenge to eliminate carbon emissions in all operations.”



Toyota's new North American headquarters campus in Plano, Texas, will be powered by a 7.75 megawatt solar array that will provide an estimated 25 percent of the campus' energy needs. The system will be the largest on-site corporate office solar installation among non-utility companies in the state of Texas. Completion of the Plano campus is expected in early 2017.

## OUTREACH: TOWARD 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 and share our experience and know-how. We work with stakeholders ranging from government agencies to other companies and individual communities.

Examples of advancing our commitment to a low carbon future through outreach include:

- Working with partners to develop [hydrogen fueling infrastructure](#) for fuel cell vehicles.
- Hosting the 39<sup>th</sup> annual [World Energy Engineering Congress \(WEEC\)](#).
- Supporting the annual [Dream Car Art Contest](#). One of this year's winners of the U.S. contest envisions a solar-powered green energy maker as the car of the future.
- Supporting the second annual [ECS Toyota Young Investigator Fellowship](#), which provides \$50,000 each to three young professors and scholars pursuing innovative electrochemical research in green energy technology.
- Partnering with Horizon Educational Group to bring the [Hydrogen Horizon Automotive Challenge](#) to 20 California schools in Los Angeles and Orange Counties.
- Partnering with [Shell Eco-marathon® Americas](#). The year-round program gives young innovators practical experience developing smarter, energy-efficient transportation technologies. Tracing its roots back to 1939 and a friendly competition between scientists at a Shell research facility, the program can inspire careers tackling the global energy challenge.



## WATER

- > WATER RISKS
- > WATER CONSERVATION
- > WATERSHED PROTECTION



Steve Kay (left), service director at Modesto Toyota, and Steve Waddell (right), vehicle operations manager for Toyota Motor North America, Inc., were joined by dealerships and customers all across California who participated in “The Wash Can Wait” program and saved millions of gallons of water.

#### > WATER

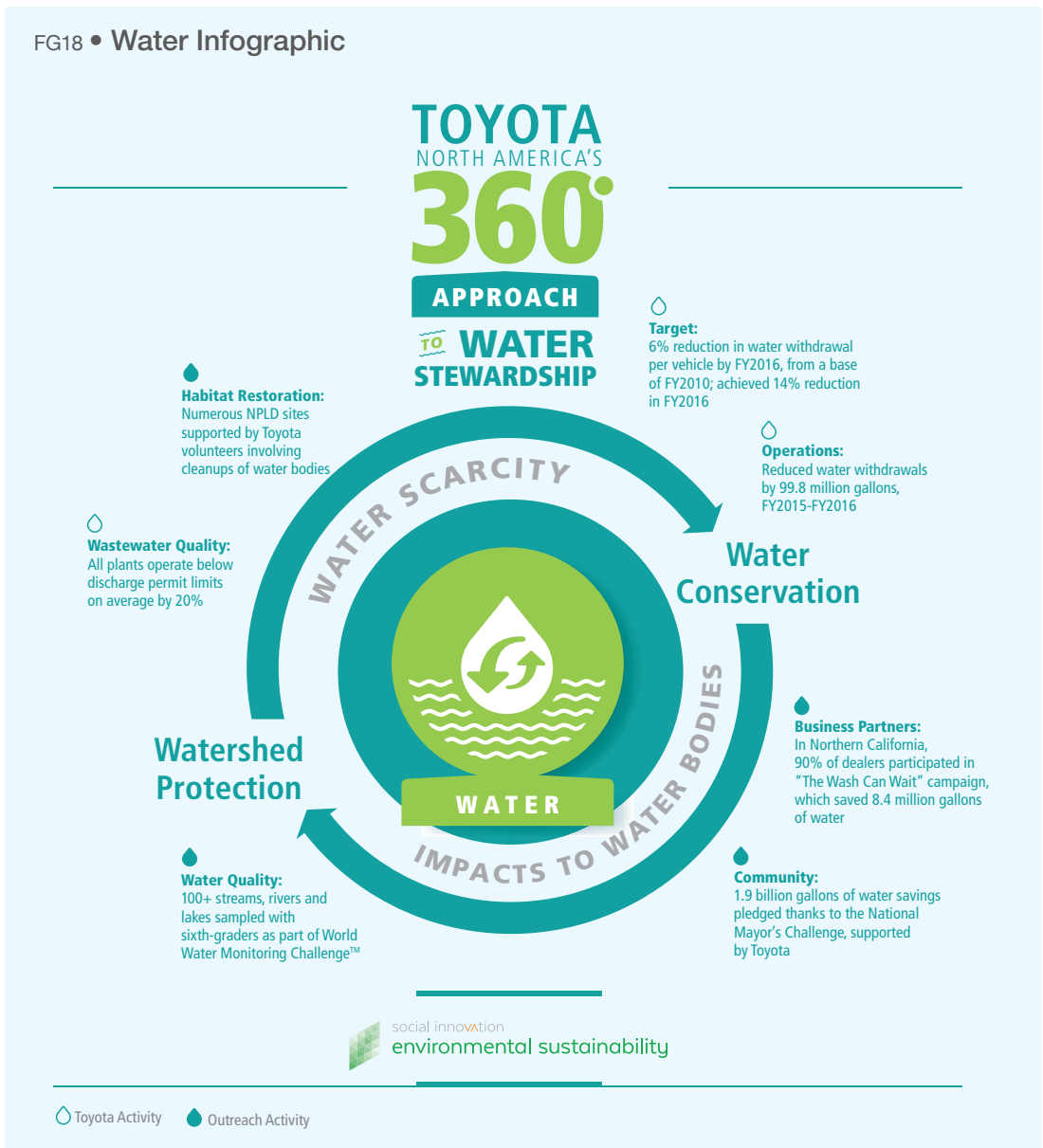
WATER is one of Toyota’s four focus areas in North America. We have developed a 360° approach to water stewardship that addresses [water risks](#) through [water conservation](#) and [watershed protection](#) activities at our sites and in our communities. Every living thing needs water to survive. What we do today to protect this precious resource creates lasting value, advancing us toward a better tomorrow for the planet.

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As the world’s population increases, so, too, does the world’s demand for fresh water. 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.

Water is a precious resource. So what can we do to protect and conserve the limited supply of fresh water we have? Each of us has a role to play. Individuals, elected officials, companies and communities 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 have all hands on deck. Our 360° approach to water stewardship is based on an evaluation of [water risks](#) in North America and a commitment to [water conservation](#) and [watershed protection](#). Our efforts to conserve water encompass our entire value chain, from our own operations to those of our business partners and communities. We supplement these conservation efforts with outreach activities that protect water quality and restore habitat. This is Toyota’s cycle of water stewardship, where everyone plays a part in making sure our most precious resource is available for generations to come.





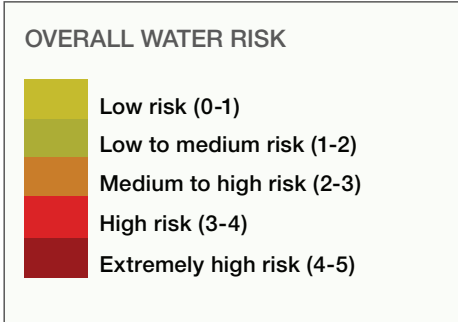
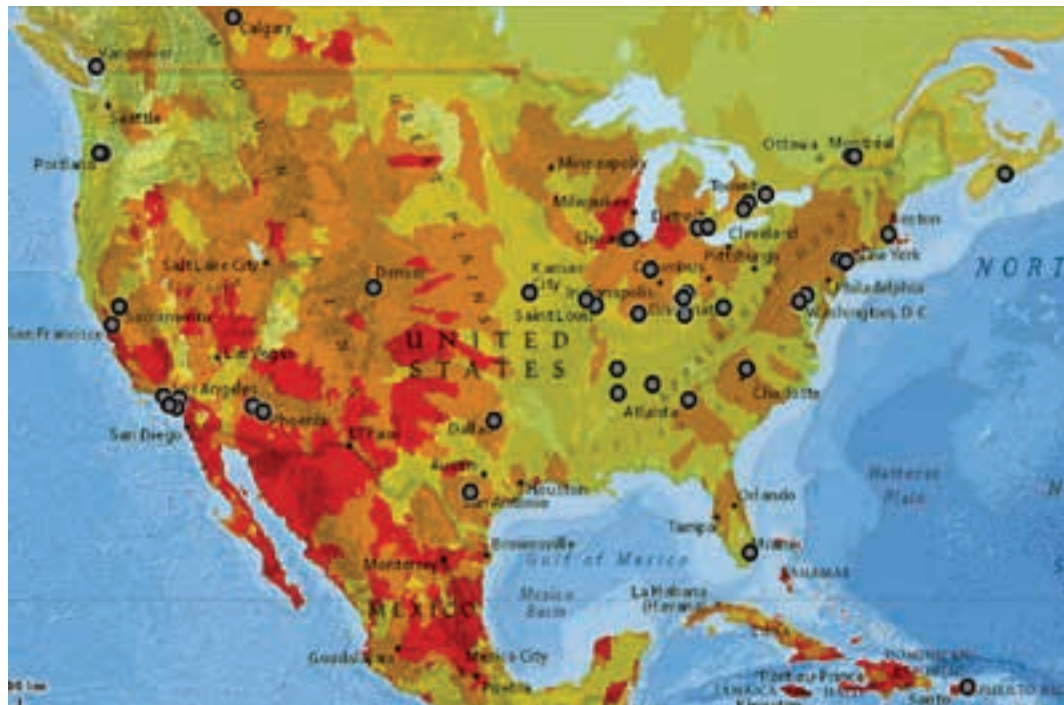
## WATER RISKS

During fiscal years 2014 and 2015, we conducted and refined 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 a total of 19 of Toyota’s North American locations, including three manufacturing plants, 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 aid in developing future tailored strategies for certain sites and/or regions within North America.

FG19 • Toyota’s Overall Water Risk in North America



\* This map was generated from WRI’s Aqueduct™ Water Risk Atlas. 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. We mapped 73 sites in North America, including assembly and unit plants, R&D centers, parts and vehicle distribution centers, and office buildings. Not all 73 sites are visible at this resolution. Sites in close proximity appear as a single dot.

# WATER CONSERVATION



## Water Target

**Reduce water withdrawals 6% per vehicle by FY2016 (achieved early)**

During fiscal year 2016, Toyota withdrew 1.62 billion gallons of water – a 5.8 percent decrease from the previous year – at more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers and offices.

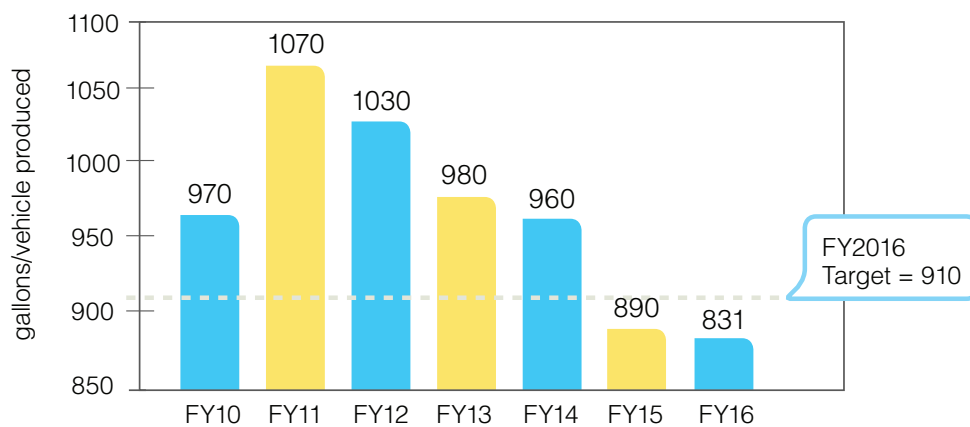
Of the total amount of water withdrawn, 94.8 percent came from municipal sources, 5.1 percent from surface water and the remaining 0.1 percent was rain water.

Our metric counts water withdrawals, such as from a public utility or surface water. We recently completed 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.

Our consolidated water target, which covers all of our sites, was to reduce water withdrawals by 6 percent per vehicle produced by fiscal year 2016, from a baseline of fiscal year 2010.

We met this target in fiscal year 2015, one year ahead of schedule. At the end of fiscal year 2016, we had achieved a 14 percent reduction from our baseline in water withdrawals per vehicle produced.

FG20 • Water Withdrawal per Vehicle Produced



\* Includes Toyota Motor 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

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 during fiscal year 2016, Toyota reduced water withdrawals in North America by 99.8 million gallons. That's equivalent to the annual water use of 911 average American families (based on U.S. EPA's estimate that the average American family uses about 300 gallons of water per day at home).

Examples of water savings projects implemented in fiscal year 2016:

- Team members at our assembly plant in Mississippi implemented three projects that they estimate are saving more than 10.5 million gallons per year. They put an unused tank into service to recycle water back to the cooling tower, changed the pretreatment process to use less water rinsing vehicles before they are painted, and installed a reverse osmosis concentrate recovery system that filters and purifies water so that it can be used instead of discharged.
- The air in our paint booths must be maintained at a specific temperature and humidity to ensure paint adhesion. During the winter months, when the air has a low moisture content, we humidify the air. Team members at our assembly plant in Kentucky began using deionized water from the drains that catch condensate from humidifiers to maintain water levels in the paint reclamation system. By capturing and reusing this water, the plant reduced the amount of water needed from the city and saved 2 million gallons in fiscal year 2016 (compared to fiscal year 2015).

## Business Partners

Dealers are key business partners. We track utility cost and usage information from all of our dealers and analyze monthly changes in water use to help them identify opportunities for water savings. For example, we've helped dealerships identify water leaks. Dealerships have vast amounts of piping, so finding and repairing a water leak is crucial to their water efficiency efforts.

We also encourage dealers to pursue LEED® certification and guide them through the process. 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. The 54 Toyota and Lexus dealers that have achieved LEED certification (as of June 2016) have all implemented water savings projects. Many of these dealers applied for certification under the LEED NC (new construction) standard, which required 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 list of LEED-certified Toyota and Lexus dealers.

**SPOTLIGHT: THE WASH CAN WAIT CAMPAIGN**

With California experiencing one of the most severe droughts on record, Toyota dealerships in Northern California partnered with their customers to help conserve water through a program called “The Wash Can Wait.” During July and August 2015, the program offered customers the opportunity to opt out of a complimentary car wash following a service appointment. Most Toyota service centers provide customers with complimentary car washes with each visit. On average, a dealer uses 50 gallons of water per wash.

Of the Northern California dealers that offer car washes, 90 percent participated in the two-month campaign. More than 168,700 customers opted out of car washes, saving 8.4 million gallons of water.

The opt-out program was also launched with dealers across Southern California. In total, more than 70 percent of Toyota’s California dealers participated in the program across the state. (The remaining 30 percent of dealers either don’t have an on-site car wash facility, or they use recycled water for car washes as part of their existing conservation programs.)

“I always thought the car wash was a nice touch, but I understand the reality of the situation,” said Jean Morgan, owner of a 2004 Sienna and a Tustin Toyota customer. “It is my honor to partner with Toyota. They always have the bigger picture in mind.”

As an extension of the program, Toyota joined forces with Save Our Water, a partnership between the Association of California Water Agencies and the California Department of Water Resources, to create educational material for display in the dealership and to hand out to customers. This material encouraged customers to conserve water at home and gave them 10 tips on how to do so. Save Our Water is dedicated to helping residents reduce water use on a daily basis.

“Toyota’s announcement to reduce water use should be applauded. Every Californian should take a similarly thoughtful approach to how they use our most precious resource – water – during this historic drought,” said Jennifer Persike, deputy executive director for external affairs and operations for the Association of California Water Agencies.

Even though the official campaign has ended, 34 Northern California dealers chose to continue with the program. These dealers are advancing Toyota’s commitment to water stewardship and continuing to partner with customers to conserve water. “It’s exciting to see dealers so passionate about this program and truly inspiring when they take it a step further,” said Steve Waddell, vehicle operations manager for Toyota Motor North America.



Through “The Wash Can Wait” program, Toyota partnered with dealerships and customers to help advance Toyota’s 360° approach to water stewardship. During the summer of 2015, customers at Northern California dealerships opted out of a complimentary car wash following a service appointment and saved 8.4 million gallons of water.

## 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. During April 2016, 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 use across the nation.

During the fifth annual National Mayor's Challenge for Water Conservation, U.S. mayors encouraged their residents to make pledges online to reduce water usage. Overall, residents from 4,100 cities in 50 states pledged 404,407 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 1.9 billion gallons.

The challenge addresses the growing importance of educating individuals about the many ways they can conserve water — for example, by swapping out their lawns in favor of drought-resistant native plants, fixing leaks and looking at how we use water for food and manufacturing. As prospects of water reduction mandates grow in the U.S., the campaign provides cities with a way to engage residents with positive incentives and raises the collective water I.Q. of the nation. Pledges are designed to promote water sustainability and improve water quality. Click [here](#) for the full story.

## WATERSHED PROTECTION

Toyota's efforts to use less water are only part of our approach to water stewardship. Water is a finite resource, but 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 that we monitor to meet local, 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 an average of 20 percent. There were no unplanned discharges of wastewater during fiscal year 2016 and no water bodies were adversely affected by Toyota's wastewater discharges.

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

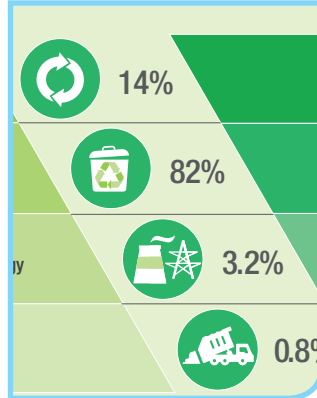
As part of our partnership with Waterkeeper Alliance, Toyota served as the official sponsor — and Toyota Mirai the official vehicle — of the Keep It Clean comedy benefit hosted by Jimmy Kimmel on April 21, 2016 in Hollywood. Proceeds from the show are helping more than 290 Waterkeeper organizations defend rivers, bays, streams and coastlines worldwide from pollution.

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 read the full story.

## Habitat Restoration

Many species live on or near water bodies. Team members participate in a variety of events to help keep waterways free of debris. For example, Toyota supports [National Public Lands Day \(NPLD\)](#), the largest, single-day volunteer effort for public lands in the U.S. During NPLD, team members help clean up parks, streams and recreation areas; many of these events involve cleanup of a water body.

This year's middle school winner of the [Lexus Eco Challenge](#) conducted research on how to prevent algae from reaching a bloom state in their local reservoirs to help reduce damage to the ecosystem. Instead of using harmful chemicals, the team tested various plants in an effort to find the best species to absorb the excess phosphorus and nitrogen that cause algal blooms.



## MATERIALS

- > CHEMICAL MANAGEMENT
- > SUSTAINABLE MATERIALS
- > WASTE MINIMIZATION



Pictured from left to right are Angela Gubacsi from Toyota Motor Manufacturing Canada, Adam Knowles from PakFab and Julie Cook from Toyota Boshoku. Together, they found a way to use headliner offcuts – a waste once thrown away in a landfill – to make bins to ship and store delicate vehicle parts.

#### > MATERIALS

MATERIALS is one of Toyota's four focus areas in North America. "Materials" refers to everything used to make a vehicle, whether it ends up in the final product or not. Our materials strategy addresses [chemical management](#) (minimizing use of chemicals of concern), [sustainable materials](#) (use of recycled, recyclable or renewable materials) and [waste minimization](#). Everything we do today to better manage materials advances us toward a cleaner, healthier future.

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## CHEMICAL MANAGEMENT

Chemical management addresses Toyota's use of chemicals in our products and manufacturing processes as well as the shipment of items (such as used hybrid batteries) that contain 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 chemicals contained in consumer products. These regulations either restrict or prohibit the use of certain chemicals or require their use to be reported to a government agency. Toyota 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 (achieved)



Suppliers are required to enter detailed information about the chemical composition of parts and accessories into the International Material Data System (IMDS), which Toyota uses as the primary tool for collecting this information. Through IMDS, 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 in which Toyota actively participates.

Use of IMDS is particularly crucial for ensuring compliance with international recyclability and chemical management laws (such as those in China, South Korea, Europe and Japan). 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, in fiscal year 2016, Toyota exported Avalon, Camry and Sienna from North America to South Korea, and data collected with IMDS was 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. Since July 2014, suppliers have been required to report IMDS data for all new production parts following part 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.



COPPER IN BRAKE PADS

Copper in brake pads is to be reduced by 2021 to the required *de minimis* levels outlined in 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.

Sustainable Materials

Over the course of a vehicle’s life cycle, sustainable materials – those that are renewable, recyclable or are made of recycled content – have a smaller greenhouse gas footprint and generate less waste than their alternatives. Toyota uses renewable, recycled and recyclable 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 May 2016, Toyota became the world’s first automaker to use biohydrin, a newly developed biosynthetic rubber product, in engine and drive system hoses.

Jointly developed by Toyota, Zeon Corporation and Sumitomo Riko Co., Ltd., biohydrin rubber is manufactured using plant-derived biomaterials instead of epichlorohydrin, a commonly used epoxy compound. Since plants absorb carbon dioxide from the atmosphere during their lifespan, such biomaterials achieve an estimated 20 percent reduction in material life cycle carbon dioxide emissions (compared with conventional petroleum-based hydrin rubber).

Biohydrin rubber is expected to be used on all Toyota automobiles manufactured in Japan by the end of 2016 (including Prius family vehicles manufactured in Japan and sold in North America). Toyota plans to expand the use of biohydrin to other high-performance rubber components, such as brake hoses and fuel line hoses.

Toyota has 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 Toyota Prius, Corolla, Matrix and RAV4, and in Lexus RX 350 and CT 200h. Going forward, Toyota will continue to develop and commercialize technologies that enable the use of materials like Ecological Plastic and biosynthetic rubber in a wider range of components.



In addition to looking for opportunities to use sustainable materials inside the vehicle, we also consider packaging. The Ontario Parts Center in California worked with Classic Pallets to design a custom pallet made of 100 percent recycled wood for the Mirai’s hydrogen fuel tank. The spare hydrogen fuel tank is shipped from Japan in a metal container, which, along with the fuel tank, weighs more than 200 pounds. While these containers could be stored safely at our facility, they were not ideal for shipping to dealers due to a top-heavy design. Classic Pallets designed and delivered 12 custom-made pallets for the Mirai’s hydrogen fuel tank using only recycled wood.

## WASTE MINIMIZATION



### Waste Target

**Develop and test a new waste metric (achieved)**

As part of Toyota’s environmental action plan for fiscal years 2014 to 2016, we set a target to develop and test a new target for waste. We started by identifying a new key performance indicator (KPI) in 2014, the 3R Rate. Toyota’s 3R Rate is defined as: **(Reduce + Reuse + Recycle) / Total Waste**

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 3R Rate shifts the focus from the end of the hierarchy on landfill to the top of the hierarchy to reduce/reuse/recycle. Simply measuring waste generation would ignore end-of-life management and does not adequately account for reuse.

Toyota’s 3R Rate was 96 percent using calendar year 2015 data. (We are using calendar year data instead of fiscal year data to align with EPA’s WasteWise program.) Our 3R Rate counts all types of non-regulated waste (including scrap steel) and covers all North American assembly and unit plants as well as U.S. parts and vehicle distribution centers and sales offices.

Going forward, Toyota will roll in the remaining North American sites. Next steps include developing an integrated waste tracking system for use by all North American entities and estimating avoided waste from continuous improvement activities. Ultimately, our work on developing and testing this new KPI is preparing us for setting a 3R Rate target, which we plan to do as part of our next five-year environmental action plan.

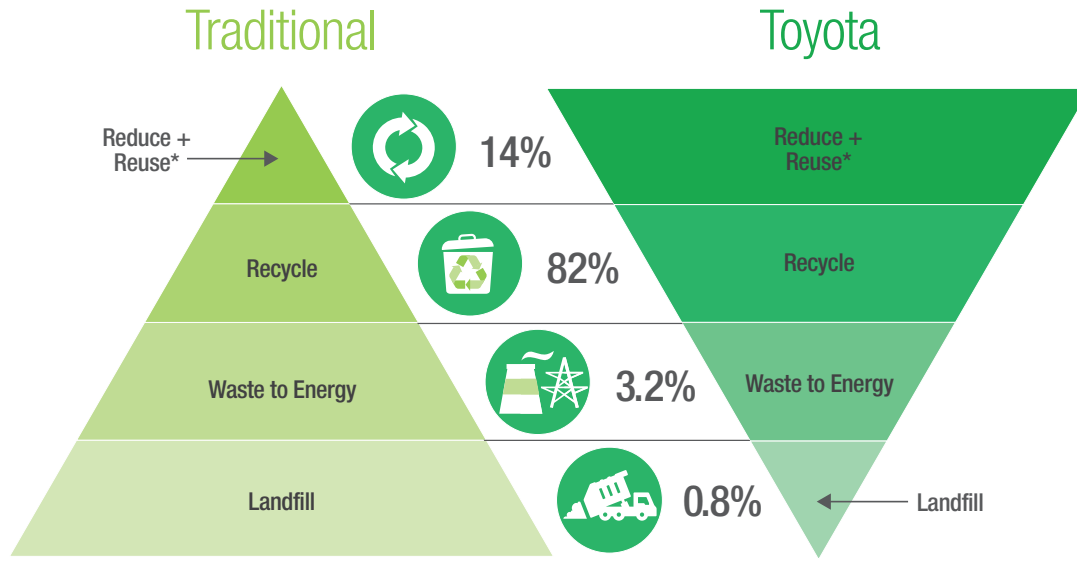
Toyota’s 3R Rate uses the same waste hierarchy promoted by the U.S. Zero Waste Business Council (USZWBC): **Reduce > Reuse > Recycle > Recover Clean > Disposal**. In this hierarchy, disposal includes landfilling as well as “dirty” forms of recovery, such as burning waste to recover energy. (Toyota currently does not have any non-regulated waste in the Recover Clean category.)

USZWBC defines a “Zero Waste Business” as one with a 90 percent or greater diversion of all waste from landfill, incineration and the environment, with an ultimate goal of 100 percent diversion. Toyota has 27 North American facilities that meet this definition, including 10 manufacturing plants.

Toyota became a founding member of USZWBC in December 2013.



FG21 • Waste Management at Toyota Motor North America



Total Non-Regulated Waste: **902,428,000 lbs.**

**96%** 2015 3R Rate

(Reduce + Reuse + Recycle) / (Reduce + Reuse + Recycle + Waste to Energy + Landfill)

\* We combine Reduce and Reuse into a single category because we do not yet track these separately. Additional reduce and reuse activities have occurred but have not yet been calculated using our new methodology.

Based on calendar year 2015 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 only (i.e., does not include hazardous, universal, special or state-regulated wastes).

## WasteWise Membership

In January 2016, the U.S. EPA recognized Toyota Motor North America with a WasteWise Partner of the Year Award in the Very Large Business category. The award is based on our submission of calendar year 2014 data that covers both our U.S. plants and our sales and logistics sites. The WasteWise awards program recognizes organizations' efforts to reduce waste, increase recycling and purchase environmentally preferable products.

This is the fifth consecutive year that a Toyota North American entity has earned a WasteWise award. 2015 was our first year of membership as a consolidated entity. Prior to 2015, our U.S. sales and logistics arm, Toyota Motor Sales, U.S.A., Inc. (TMS), was a member and was named the 2011 and 2013 WasteWise Large Business Partner of the Year. In 2010 and 2012, TMS received honorable mention awards. The WasteWise program helps organizations and businesses apply sustainable materials management practices to reduce municipal and select industrial wastes.



## Examples of Reduce, Reuse & Recycle

Toyota team members focus on minimizing all kinds of waste, such as process waste, damaged parts and wooden pallets, using the practices we all know: reduce, reuse and recycle. Examples of projects implemented during fiscal year 2016 include:

- **Lowering the set point on empty drums.** Team members at our assembly plant in Indiana reduced waste by more than 22,000 pounds. They noticed that a drum considered “empty” still had 20 to 40 pounds of a raw material left that was being disposed. This material is used on the interior of vehicle doors to seal them from rain and snow. To reduce the amount of material disposed, team members standardized the set point for “empty” on the drum pumps in the east and west plants. Once both plants were at the same set point, they began systematically lowering it. They were able to lower the set point by 3 inches with no impact to quality.
- **Developing reusable packaging.** The Kentucky Parts Center developed a reusable master pack made of corrugated plastic that reduced the amount of wood pallets and corrugated cardboard sent to landfill by an estimated 608,600 pounds per year and saved more than \$490,000. The CR90 is collapsible, can be reused an average of 14 times and increases trailer density by 57 percent.

We also partner with our suppliers, who help us find additional ways to reduce, reuse and recycle. Examples of supplier partnership projects implemented last fiscal year include:

- **Recycling swarf.** Toyota’s powertrain plant in West Virginia and assembly plant in Kentucky are now recycling 4.5 million pounds of swarf instead of sending this material to landfill. “Swarf” is the very fine metal produced from grinding steel. Recyclers won’t accept swarf because it’s too wet, which makes it explosive, and it’s too fine, which causes it to burn off instead of melt. Working with our recycling vendor, Green Metals, Inc. (GMI), we found a company in Austria to build us a briquetter machine that would compress the swarf into solid briquettes. Compressing the swarf eliminates the moisture and makes it a marketable material. Swarf from both plants is now sent to GMI in West Virginia, where it is fed into the machine and compressed into briquettes. GMI sells the swarf briquettes to a steel company that melts them and turns them into high-grade steel coil. Because the compressed swarf is marketable, and because of what we save on disposal costs, the payback on the briquetter is just over 1 year.
- **Purchasing recycled pallets.** Toyota’s Service Parts and Accessories division purchased 900 used C3 pallets from Classic Pallets last year, which prevented an estimated 43,000 pounds of wood from being sent to landfill and saved \$20,000. Wooden C3 pallets are a custom pallet made for Toyota and used when we don’t have enough metal returnable modules to support our operation. Classic Pallets offers a unique service of repairing/rebuilding pallets from other scrap pallets so that no wood goes to landfill. Even small scrap wood pieces are sent to another company, which grinds them to make particle board or other wood materials. The Ontario Parts Center in California is now working with Classic Pallets to develop an inspect/repair/return program for C3’s that meets Ontario’s pallet specs for both safety and quality.

**SPOTLIGHT: TURNING TRASH INTO TREASURE**

How do you turn trash that’s being sent to a landfill into something that has value? You expand your thinking about how a material can be used. Team members at Toyota Motor Manufacturing Canada (TMMC), along with representatives from a supplier, did just that. They found a way to recycle vehicle headliner offcuts, which are the pieces cut out of the roof to make room for a sunroof, into reusable and returnable packaging for parts deliveries. This material is no longer being disposed in a landfill, and the new packaging performs better than the original material. Their efforts earned TMMC a Gold ECO Award from our parent company in 2015.

During a “Go and See” activity at Toyota Boshoku, our supplier of headliners for the RAV4, TMMC team members noticed the storage of large volumes of headliner offcuts. “Because the headliner sunroof offcut was not recyclable, it was being stored until it could be disposed of in a landfill,” explained Tim Youse from TMMC’s Production Control Packaging department. “When you consider we manufacture more than 181,000 RAV4 SUVs with a sunroof every year at our Woodstock plant, that adds up to quite a bit of offcut material.” Together, Toyota Boshoku and TMMC team members Tim Youse, Glenn Corbett, Bill Fantin and Angela Gubacsi set a target to reduce offcut waste by 90 percent.

The material used on the interior of the roof is not used anywhere else on the vehicle. However, a similar material is used in the manufacturing of flow rack packaging. A third-party lab confirmed that the headliner material met the specifications for formability, durability and longevity required for this type of packaging. “Testing showed the headliner actually performed better than the existing packaging material,” said Angela Gubacsi from TMMC’s Purchasing department. “That’s the best kind of reuse – when you can replace a material with something that performs even better.”

The headliner offcut was named R3 Board (R3 = Recover, Reuse and Recycle). Thanks to R3 Board, Toyota Boshoku eliminated all 72 metric tons of their annual offcut waste, exceeding the target to reduce it by 90 percent. “This activity also reduced our total waste to landfill by 6.4 percent,” explained Julie Cook, production control specialist at Toyota Boshoku Canada. “This was a fantastic idea and we appreciate the effort made by everyone involved to achieve these results.”



The material shown is what’s cut out of a RAV4 roof to make room for a sunroof. This “offcut” was once sent to a landfill for disposal, but now, it’s sent to PakFab, who turns it into returnable packaging bins. Called R3 Board, it performs better than the material it replaces.



TMMC now requires the use of R3 Board to repair existing packaging whenever possible, and all suppliers are instructed to use R3 in their packaging design going forward. Dunnage suppliers can now provide all of Toyota's North American plants with reduced packaging costs since the raw material – the headliner offcuts – is free to obtain. In fact, this groundbreaking idea can be used worldwide by any auto maker and is already being considered by the world's largest manufacturer of headliners.

Due to the success of this project, TMMC team members are now assessing the feasibility of using vehicle floor carpet offcuts in new packaging designs.

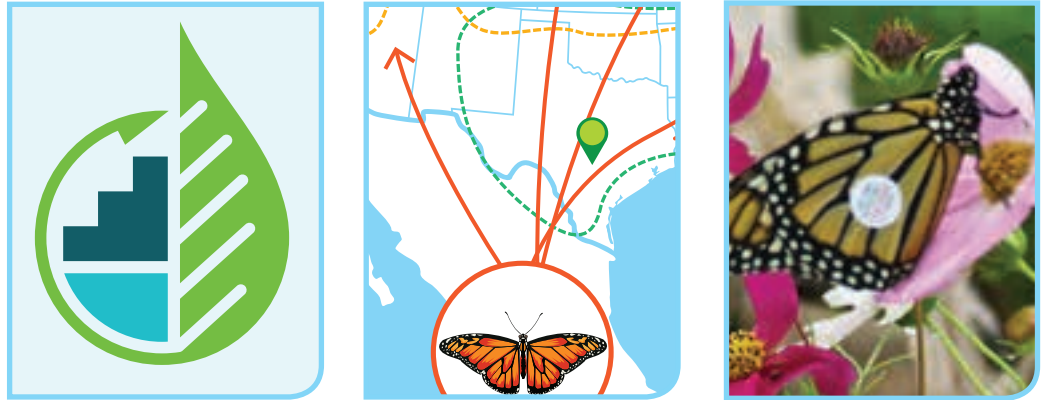
TMMC has won a total of five ECO awards in the last four years – three Gold and two Silver awards. Toyota Motor Corporation (TMC) established the Global ECO Awards in 2011 to recognize the environmental achievements of Toyota manufacturing centers around the world. Each year, North American manufacturing plants submit projects to Toyota Motor North America, which then selects four projects to represent North America and compete against projects from other regions around the world. In the end, up to eight projects from the global pool are selected by TMC to receive a Gold Award. Platinum and Silver 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.

## OUTREACH: RECYCLING

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

For over 20 years, Toyota has helped team members and surrounding communities recycle and properly dispose of household waste. During designated collection days, many of our sites 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. During events held in October 2015 and May 2016, we collected 267,818 pounds of waste and donations, equal to the weight of 20 full-size male African elephants. For more information, see the full story [here](#).

In 2015, Toyota Technical Center (TTC) in Ann Arbor, Michigan, donated 478 used computers, monitors and related parts to [Digital Inclusion](#), a computer refurbishment and technical training enterprise that benefits area youth and low income residents. The donation helped support the opening of Digital Inclusion's second storefront at Washtenaw Community College, and some of these computers are now in a computer lab at a low income housing development in Ypsilanti, Michigan.



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## BIODIVERSITY

- > PARTNER: WILDLIFE HABITAT COUNCIL
- > PROMOTING POLLINATOR HEALTH
- > OUTREACH: CONSERVATION





Zachary Sallade, fourth-grade teacher at Hometown Elementary School, brings his class to the green loop at Toyota's West Virginia powertrain plant. Wildflowers, pollinator gardens, and bird and bat houses help to teach the students about native plants, insects and animals.

> BIODIVERSITY

BIODIVERSITY is one of Toyota's four focus areas in North America. We are expanding our [partnership with the Wildlife Habitat Council](#), engaging team members in [promoting the health of pollinator species](#) and conducting [outreach](#) with our communities. We are committed to operating in harmony with the environment and advancing the health of ecosystems so that future generations may continue to enjoy the natural wonders of our world.

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. We benefit from the resources they provide, including fresh water, fertile soils, food, ingredients for medicines, shelter and recreation.

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 impacts (for example, by restoring habitat).

## PARTNER: WILDLIFE HABITAT COUNCIL

Our partnership with the Wildlife Habitat Council (WHC) began in 2008, when our Georgetown, Kentucky, assembly plant became the first Toyota plant to obtain certification to WHC’s “Wildlife at Work” and “Corporate Lands for Learning” programs. Since then, nine more Toyota facilities – for a total of 10 – have been certified by WHC ([see Biodiversity Target](#)).

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.

Toyota Motor North America, jointly with the Wildlife Habitat Council and General Motors, was honored with the Keystone Leadership in Environment Award at the 23<sup>rd</sup> annual Keystone Policy Center awards dinner. Both automakers partner with WHC to expand wildlife habitat, support pollinator health and enhance biodiversity at manufacturing locations. The Keystone Policy Center established its Leadership Awards program in 1994 to recognize extraordinary leadership by individuals and companies whose work embraces the nonprofit’s model, spirit and mission of inspiring critical thinking, seeking multiple perspectives in decision-making and advancing public policy.



### WHC CONSERVATION CERTIFICATION

The Wildlife Habitat Council’s Conservation 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.

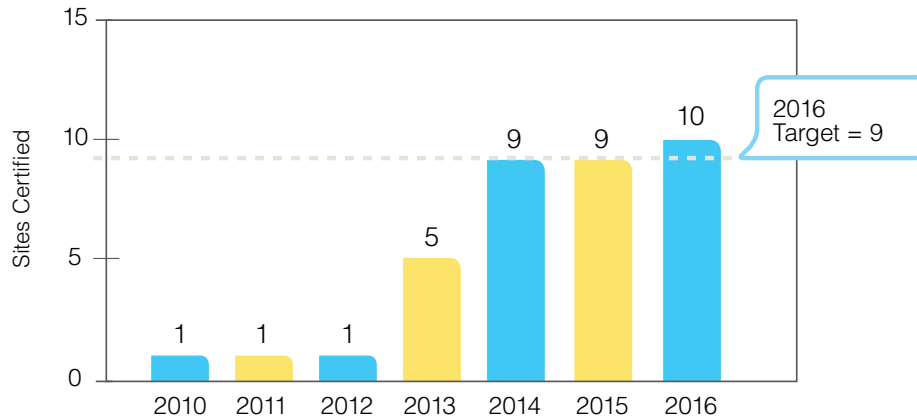
WHC recently updated its certification program. Instead of two separate certifications for Wildlife at Work and Corporate Lands for Learning, sites now receive a Conservation Certification. Toyota’s eight sites certified under the old programs are being transitioned. In late 2016, Toyota Motor Manufacturing, West Virginia (TMMWV) became the latest Toyota site to receive certification, and certification for Bodine Aluminum in Troy, Missouri, is expected by the end of 2016. These are the first two Toyota sites certified under the updated Conservation Certification program.

As part of WHC certification, TMMWV enhanced an existing walking trail lined with 20 birdhouses, three bat houses and 1.5 acres of wildflowers and pollinator gardens. The bird and bat houses were built by a local boy scout troop, girl scout troop and fifth-grade class, with the help of team members. To raise team member awareness of local habitats and the benefits of wildlife, the plant awarded prizes for walking the trail and filling out critter cards. Critter cards help the plant monitor the wildlife around the trail. Between April and July 2016, 170 team members clocked more than 2,000 miles walking the trail and filled out 1,600 critter cards. Many different mammals, birds and insects were spotted, including deer, turkeys, groundhogs, sparrows, ducks, butterflies, bees, sand pipers, frogs and grasshoppers.



Toyota’s West Virginia team members spent a day with Cub Scout Pack 236 building birdhouses, which were placed along the walking trail at the assembly plant.

FG22 • Wildlife Habitat Council Conservation Certifications in North America (cumulative)



## Biodiversity Target

Certify 9 sites with the Wildlife Habitat Council by the end of 2016 **(achieved)**



The Wildlife Habitat Council (WHC) awards Conservation Certifications in November of each year. Because of this timing, our target is based on a calendar year cycle. As of the end of 2016, Toyota had 10 sites\* certified with WHC:

- **Toyota Motor Manufacturing, Kentucky — certified in 2008 and recertified in 2013**
- **Toyota Motor Manufacturing Canada, Cambridge plant — certified in 2013**
- **Toyota Motor Manufacturing Canada, Woodstock plant — certified in 2013**
- **Toyota Motor Manufacturing, Indiana — certified in 2013**
- **Toyota Motor Manufacturing, Alabama — certified in 2014**
- **Toyota Motor Manufacturing, Mississippi — certified in 2014**
- **Toyota Motor Manufacturing, Texas – certified in 2015**
- **Bodine Aluminum (Jackson, Tennessee) – certified in 2015**
- **Bodine Aluminum (Troy, Missouri) – certified in 2016**
- **Toyota Motor Manufacturing, West Virginia – certified in 2016**

*\* Our Cambridge and Woodstock, Ontario, plants, while two separate sites, are covered by a single certification held by Toyota Motor Manufacturing Canada. Certification for Bodine Aluminum in Troy is expected by the end of 2016; however, at the time of publishing, certification was still pending. Toyota’s manufacturing headquarters campus in Erlanger, Kentucky, was certified in 2013. Because this campus is in the process of moving to new offices in Plano, Texas, and Georgetown, Kentucky, we let this certification expire at the end of 2016. We counted this site in 2013-2015 but did not include it in our 2016 results.*



## PROMOTING POLLINATOR HEALTH

Pollinators move pollen from the male to the female part of a flower to fertilize the plant. Pollinators come in different shapes and sizes, from bees to birds, bats and butterflies.

These industrious creatures pollinate more than flowers. A number of food crops, like apples, pumpkins and alfalfa, rely on honey bees for pollination. In fact, pollinators affect 35 percent of the world’s crop production, increasing outputs of 87 of the leading food crops worldwide as well as many plant-derived medicines. In the United States alone, pollination of agricultural crops is valued at \$10 billion annually. Globally, pollination services are likely worth more than \$3 trillion.\*

Bees are the most recognized pollinator and the most effective. But hard times have befallen the honey bee. Over the past decade, colony numbers in the U.S. have dropped to their lowest in 50 years.

That’s why efforts to protect honey bees and other pollinators are so important. In May 2015, an interagency task force under the leadership of the U.S. EPA and U.S. Department of Agriculture released a *Strategy to Promote the Health of Honey Bees and Other Pollinators*, which has three overarching goals:

- 1. Reduce honey bee colony losses to economically sustainable levels.**
- 2. Increase monarch butterfly numbers to protect the annual migration.**
- 3. Restore or enhance millions of acres of land for pollinators through combined public and private action.**

With 21,000 acres of land in North America, Toyota is proud to do our part to support this strategy. Two of our sites maintain honey bee colonies, four Toyota sites have monarch waystation habitats certified by Monarch Watch and 11 sites are maintaining pollinator gardens.

\* Sources for this data include the Food and Agriculture Organization of the United Nations and the U.S. Fish & Wildlife Service.



In the spring of 2016, our assembly plant in Alabama built a wildlife walking trail to allow team members the opportunity to interact and enjoy wildlife and nature at work. The trail is one mile and consists of a pond, purple martin bird houses and several pollinator gardens. Toyota Motor Manufacturing, Alabama received Conservation Certification from the Wildlife Habitat Council in 2014.

## SPOTLIGHT: FLYING WITH MONARCH BUTTERFLIES

The annual migration cycle of the monarch butterfly (*Danaus plexippus*) has been called an endangered natural phenomenon because of the 90 percent decline in the monarch population over the past two decades. The monarch is the only butterfly known to make a two-way migration. Unlike other species of butterflies that can overwinter as larvae, pupae or even as adults, monarchs can't survive the cold winters of northern climates.

Monarchs from the eastern part of North America migrate to the Sierra Madre Mountains in Mexico, where they spend October to late March roosting in oyamel fir forests. Monarchs from west of the Rocky Mountain range in North America overwinter in California along the Pacific coast near Santa Cruz and San Diego, roosting in eucalyptus, Monterey pines and Monterey cypresses. Some migration routes are as long as 3,000 miles, and it can take a monarch as long as two months to complete its journey south.

Toyota hopes to help the monarchs by offering these colorful commuters “pollinator pit stops” on their trip south in the fall and north in the spring:

- **Toyota's assembly plant in Cambridge, Ontario**, has over 150 milkweed plants already established; additional wildflowers were planted last year to enhance pollinator habitat. Their pollinator garden has been certified by Monarch Watch as a monarch waystation.
- **Toyota's assembly plant in Woodstock, Ontario**, enhanced naturally occurring wildflower and milkweed growth by adding new wildflower mixes and planted a pollinator garden using wildflower mixes and plants from the Canadian Wildlife Federation. Their pollinator garden has been certified by Monarch Watch as a monarch waystation.
- **Toyota's assembly plant in Indiana** planted a pollinator garden in the spring of 2016.
- **Toyota's assembly plant in Kentucky** has two on-site monarch waystations and has supported four additional waystations in surrounding communities.
- **Toyota's North American manufacturing headquarters** in Erlanger, Kentucky, has a pollinator garden with a butterfly pond. The pollinator garden has been certified by Monarch Watch as a monarch waystation.
- Over 100 team members at **Toyota's powertrain plant in Alabama** helped plant a pollinator garden and wildflower meadow with a butterfly and hummingbird wildflower seed mix on half an acre in celebration of Earth Day 2016.
- **Toyota's aluminum casting facility in Jackson, Tennessee**, worked with a landscaper to plant over 1 acre of Southeastern Wildflower mix.
- **Toyota's aluminum casting facility in Troy, Missouri**, planted and maintains a pollinator garden and wildflower meadow.
- **Toyota's powertrain plant in West Virginia** has wildflowers and a pollinator garden.
- **Toyota's assembly plant in Mississippi** has four pollinator gardens that have been certified by Monarch Watch as monarch waystations.
- **Toyota's assembly plant in Texas** has four on-site pollinator gardens. Team members are working on increasing the variety of native species in these gardens.

FG23 • Toyota and the Monarch Migration



The monarch is the only butterfly known to make a two-way migration. Monarchs from the eastern part of North America migrate to the Sierra Madre Mountains in Mexico, while those from west of the Rocky Mountain range overwinter in California. Some migration routes are as long as 3,000 miles. It can take as long as two months for a monarch to complete the journey south.

Toyota hopes to help the monarchs by offering these colorful commuters a “pollinator pit stop” on their trip south in the fall and north in the spring. Toyota has 11 facilities with pollinator gardens located along the monarch’s migration pathway.



FROM CATERPILLAR TO BUTTERFLY

Even in the best of circumstances, monarchs have a low chance of survival in the wild. An adult butterfly can lay up to 400 eggs, but only a few of those survive to adulthood. This is what nature intended, except nature didn't plan on the species declining by 90 percent in the past 20 years.

That's where Toyota team members come in. At 11 Toyota sites across North America, team members have planted pollinator gardens to nurture monarchs as well as other pollinator species. Four of our sites have planted monarch waystations that have been certified by Monarch Watch. These waystations are on the monarch migration path, meaning they provide food and shelter to the butterflies at various stages of their life cycle as they make their way south for the winter, then return in the spring.

Last spring, team members from our assembly plant in Woodstock, Ontario, found 14 caterpillars in the swamp milkweed they had planted. To increase their chances of survival, the caterpillars were collected and protected as they matured and finally transformed into butterflies. Thirteen made it to adulthood; these monarchs were fitted with tags from Monarch Watch before they were released. The tags help Monarch Watch collect information about the monarch's migration, including route and distance travelled. While our tags have not been recovered, we are excited to participate in the continental-wide effort to help this amazing creature.



One of the 13 butterflies raised by team members from our Woodstock plant is shown here with a Monarch Watch tag on its wing. Tagging is done by volunteers and helps Monarch Watch collect data related to the monarch migration.

## OUTREACH: CONSERVATION

Our biodiversity efforts extend beyond our facilities into our communities. We participate in a number of conservation activities 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. For example:

- To support environmental education, Toyota's assembly plant in Blue Springs provided land to a graduate student from Mississippi State University to study the effects of soil fracturing on a tree's root system.
- In May 2016, Toyota Motor Manufacturing Canada (TMMC) announced CAN\$250,000 in funding to the Grand River Conservation Foundation to help expand recreation programs at Grand River Conservation Authority (GRCA) parks. TMMC team members also help the GRCA annually through participation in Community Support Program Days, when they plant trees and remove invasive species over the span of six days each spring.
- A number of sites host annual [Earth Day/Earth Week/Earth Month](#) events to educate team members about Toyota's environmental commitment and provide them with opportunities to participate in activities that protect nature. For example, our assembly plant in Indiana hosted a one-day camp for third-graders in 2016 and taught them about pollinators.
- Toyota Canada Inc. partnered with Toyota dealers to hand out tree seedlings to students in Quebec, then partnered with the [Eden Projects](#) to plant trees in heavily deforested areas of Madagascar.
- In September 2015, more than 4,000 Toyota team members volunteered at sites across the U.S. for [National Public Lands Day](#). They joined thousands of volunteers who collected approximately 500 tons of trash, built and maintained 1,500 miles of trail, and contributed an estimated \$18 million to improving public lands across the country.
- The [Toyota Evergreen Learning Grounds](#) program helps schools create outdoor classrooms to provide students with a healthy place to play, learn and develop a genuine respect for nature. By planting trees, shrubs and wildflowers, creating meadows, butterfly gardens and other theme areas on school grounds, learning opportunities literally come alive.



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## OUTREACH

- > SUPPLIERS
- > DEALERS
- > STAKEHOLDERS



An underwater cleaning car, drawn by Ashley McGinn, won the U.S. silver award in Toyota's 2016 Dream Car Art Contest.

#### > OUTREACH

OUTREACH is a core element of Toyota's approach to our four main focus areas in North America. We conduct outreach activities related to carbon, water, materials and biodiversity as a way of creating a net positive impact. By collaborating with [suppliers](#), [dealers](#), [government agencies](#), [team members](#) and [communities](#), our actions harness the power of partnerships to advance us beyond building better cars. We are building connections that are helping to shape a more sustainable future.



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

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

Our outreach begins with communicating our story in this report, on our website and through social media. We connect with our own team members, consumers, the general public, government agencies and organizations that communicate environmental messages in creative and effective ways. Sharing our story motivates us to continue to advance our environmental commitment.

Next, we engage 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 don't stop there. The dedication and creativity of Toyota's team members are 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 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, sharing our knowledge and experience to help them improve their environmental performance.

Our suppliers also bring their know-how to us. In the [Waste Minimization](#) section, we describe several projects where we partnered with a supplier to find a way to reduce or recycle our waste. With their help, we reduced waste by 43,000 pounds and recycled 5.1 million pounds.

We also partnered with one of our parts suppliers to help them reduce their waste. Together, we eliminated an entire waste stream and found a use for the sunroof offcuts from Toyota RAV4 headliners. To learn how this material is being recycled, read the story [here](#).



### Supplier Target

**Develop a new supplier environmental engagement process (achieved)**

In the past, our efforts to work with suppliers to reduce environmental impacts were decentralized, making it difficult to share successes internally. That’s all changed. Now that we have consolidated under One Toyota and are coming together at a single headquarters campus in Plano, we have developed a new, consolidated supplier environmental engagement process that will build on the successes of the past and ensure even greater success going forward.

A primary focus of this new engagement process is logistics. Toyota’s logistics network is a complex operation that ensures smooth shipping and delivery of vehicles, parts and accessories, from the supplier to the plant, to Toyota’s distribution centers, and ultimately to dealerships and customers. Through the use of returnable shipping containers, packaging reductions, light weighting and densification, our own logistics operation has reduced waste, fuel consumption and greenhouse gas (GHG) emissions, and we have helped our third-party logistics carriers do the same.

Through fiscal year 2016, we worked with third-party logistics (mainly trucking and rail carriers) to prepare for the launch of our next five-year environmental action plan (EAP). We established methods for tracking and communicating progress, sharing best practices and piloting new technologies. As a result of these efforts, we are establishing a GHG efficiency target that will apply to both owned and third-party logistics, and have begun piloting a new alternative transport technology that will further reduce GHGs from logistics.

Additionally, in the spring of 2016, Toyota became a member of U.S. EPA’s Suppliers Partnership for the Environment (SP), an innovative partnership between automobile original equipment manufacturers, their suppliers and EPA. SP provides a forum for small, mid-sized and large automotive and vehicle suppliers to work together, learn from each other and share environmental best practices.





## 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 that we share our environmental values and know-how with the dealership population and support their efforts to advance their environmental performance.

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. Operating 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 green buildings have been shown to improve worker health and productivity. See [below](#) for information on our target to certify Toyota and Lexus dealerships to LEED® standards.

We also track water and energy utility cost and usage information from all of our dealers, which allows us to identify opportunities for improvement. For example, 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.


In California, where historic drought conditions have plagued the state for the past five years, Toyota helped dealers institute a “Wash Can Wait” campaign, which encouraged customers to forego having their vehicle washed after service. Last summer, this program saved more than 8.4 million gallons. Click [here](#) for the full story.

Toyota also partners with our dealers to support community environmental initiatives. Learn more about our partnerships with [Toyota Evergreen Learning Grounds](#) and the [Eden Projects](#).

### Dealer Target

**Maintain the leadership position in dealership green building and certify 53 dealerships to LEED® standards by 2016 (achieved)**

Toyota and Lexus continue to lead the industry with more dealership facilities certified to LEED® standards in both the U.S. and Canada than any other auto manufacturer. As of June 2016, we had assisted 54 Toyota and Lexus dealerships — 49 in the United States and five in Canada — with LEED certification.



### FG24 • LEED®-Certified Toyota and Lexus Dealerships

	U.S.	Canada
Toyota Dealerships	41	4
Lexus Dealerships	8	1

Additionally, several more dealerships have completed construction and are waiting for their LEED 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.

Both our Toyota and Lexus dealer divisions work with dealers on new construction and remodeling projects through programs that encourage sustainable building practices and the use of the LEED rating system. 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 about 25 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.

LEED, or 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.

FG25 • North American Toyota and Lexus Dealerships With LEED® Certifications

PLATINUM	<p><b>Stratford Toyota</b> Stratford, Ontario, Canada, 2010</p> <p><b>Toyota of El Cajon Certified Center</b> Santee, California, 2010</p> <p><b>Caldwell Toyota</b> Conway, Arkansas, 2009</p> <p><b>Fitzgerald's Lakeforest Toyota</b> Gaithersburg, Maryland, 2009</p>	<p><b>Dave Mungenast Lexus of St. Louis</b> St. Louis, Missouri, 2010</p> <p><b>Grossinger City Toyota</b> Chicago, Illinois, 2010</p> <p><b>Fred Bean's Toyota of Flemington</b> Flemington, New Jersey, 2010</p> <p><b>Jerry Durant Toyota</b> Granbury, Texas, 2010</p>
<p><b>San Francisco Toyota</b> San Francisco, California, 2012</p> <p><b>Maguire Toyota</b> Ithaca, New York, 2012</p> <p><b>Kendall Toyota</b> Eugene, Oregon, 2010</p>	<p><b>Lexus of Las Vegas</b> Las Vegas, Nevada, 2009</p> <p><b>Mark Miller Toyota</b> Salt Lake City, Utah, 2009</p> <p><b>Sewell Lexus Pre-Owned</b> Fort Worth, Texas, 2009</p> <p><b>Toyota of Rockwall</b> Rockwall, Texas, 2008</p>	<p><b>Toyota of El Cajon</b> El Cajon, California, 2010</p> <p><b>Pat Lobb Toyota</b> McKinney, Texas, 2007</p>
GOLD	SILVER	CERTIFIED
<p><b>Bell Lexus</b> Scottsdale, Arizona, 2014</p> <p><b>Toyota Vandermeer</b> Cobourg, Ontario, Canada, 2014</p> <p><b>R&amp;H Toyota</b> Owings Mills, Maryland, 2014</p> <p><b>Transky Sawmill Toyota</b> Dublin, Ohio, 2014</p> <p><b>Lost Pines Toyota</b> Bastrop, Texas, 2013</p> <p><b>DCH Toyota of Torrance</b> Torrance, California, 2013</p> <p><b>Welland Toyota</b> Welland, Ontario, Canada, 2012</p> <p><b>Beaverton Toyota (TCSC)</b> Beaverton, Oregon, 2012</p> <p><b>Sun Toyota</b> Holiday, Florida, 2012</p> <p><b>Bennett Toyota</b> Allentown, Pennsylvania, 2012</p> <p><b>Toyota Scion of Bend</b> Bend, Oregon, 2011</p> <p><b>Legends Toyota</b> Kansas City, Kansas, 2011</p> <p><b>Lexus of Henderson</b> Henderson, Nevada, 2011</p> <p><b>Stouffville Toyota</b> Stouffville, Ontario, Canada, 2011</p>	<p><b>Fox Lexus</b> El Paso, Texas, 2016</p> <p><b>Wellesley Toyota</b> Wellesley, Massachusetts, 2016</p> <p><b>Stevenson Toyota</b> Jacksonville, North Carolina, 2016</p> <p><b>Victory Toyota</b> Seaside, California, 2016</p> <p><b>Dunning Toyota Ann Arbor</b> Ann Arbor, Michigan, 2014</p> <p><b>Tustin Toyota</b> Tustin, California, 2013</p> <p><b>OpenRoad Lexus</b> Richmond, British Columbia, 2013</p> <p><b>Alamo Toyota</b> San Antonio, Texas, 2012</p> <p><b>Vancouver Toyota</b> Vancouver, Washington, 2012</p> <p><b>Toyota of the Black Hills</b> Rapid City, South Dakota, 2012</p>	<p><b>Fox Toyota</b> El Paso, Texas, 2016</p> <p><b>Park Place Lexus</b> Plano, Texas, 2016</p> <p><b>Burleson Toyota</b> Burleson, Texas, 2016</p> <p><b>Toyota of Irving</b> Irving, Texas, 2016</p> <p><b>Livermore Toyota</b> Livermore, California, 2016</p> <p><b>Miracle Toyota</b> Winter Haven, Florida, 2016</p> <p><b>Hendrick Lexus</b> Merriam, Kansas, 2016</p> <p><b>Westbrook Toyota</b> Westbrook, Connecticut, 2013</p> <p><b>Grappone Toyota</b> Concord, New Hampshire, 2012</p> <p><b>Beaman Toyota</b> Nashville, Tennessee, 2011</p> <p><b>Toyota of Lakewood</b> Bradenton, Florida, 2013</p> <p><b>Kenny Ross Toyota</b> Coraopolis, Pennsylvania, 2013</p>

## STAKEHOLDERS

Our stakeholders include customers, team members, communities, government agencies, nonprofit organizations, academia and other partners (including other companies and trade associations). We engage with customers through demonstration programs, ride and drive events and through our dealers.

Team members from Toyota Motor North America (TMNA) are members of the Boards of Directors of a number of nonprofit organizations, such as the Wildlife Habitat Council, Kentucky Fish & Wildlife Foundation, National Environmental Education Foundation, Environmental Media Association and U.S. Zero Waste Business Council. Toyota is also a member of the National Council of World Wildlife Fund (WWF), an advisory group to WWF's Board.

Additionally, TMNA participates in a number of annual conferences related to environmental sustainability through sponsorship, exhibiting and/or as speakers or panel members. These conferences are an opportunity to network with current and potential partners in academia, government, trade associations, other companies and nonprofits. They provide a chance for us to share our know-how as well as learn from others. Recent events include:

- **Aspen Ideas Festival**
- **Environmental Leader Conference**
- **Green Build, U.S. Green Building Council**
- **International Consumer Electronics Show**
- **Sustainable Brands Conference**
- **World Energy Engineering Congress**

We have been participating in some of these events for multiple years. For example, we participate in the annual World Energy Engineering Congress (WEEC). WEEC is the largest energy conference and technology expo held in the U.S. specifically for business, industrial and institutional energy users. The top experts in all areas of the field convene to share their pathways to energy efficiency, facility optimization and sustainability.

At the 2015 conference during the water/energy nexus session, Frank Canterbury, water specialist with Toyota Motor Engineering & Manufacturing (TEMA), spoke about the unique wastewater recycling system at Toyota's assembly plant in Tecate, Baja California, Mexico, which recycles 13.3 million gallons of wastewater annually.

In September 2016, Toyota hosted the 39th World Energy Engineering Conference in Washington, D.C. In addition to exhibiting Toyota's Mirai and Prius Prime, Tom Stricker, vice president of product regulatory affairs for TMNA, delivered a welcome address and the closing keynote, and 14 team members participated in various conference tracks with presentations on a range of topics, including the energy/water nexus, emerging energy trends, renewable energy and the Toyota Environmental Challenge 2050.



## Government Agencies

We engage and collaborate with state and local government agencies and other companies through state-sponsored environmental programs. For example, our assembly plant in Indiana has been a member of **Partners for Pollution Prevention** since 2006. This program is organized by the Indiana Department of Environmental Management (IDEM) to provide a forum for discussing and sharing pollution prevention (P2) successes and to advise IDEM on P2 policies and programs.

Our assembly plant in Blue Springs, Mississippi, has been a Leader in **EnHance** (Envision Heightened Awareness Nurturing Conservation & Environmental Excellence) since 2014. EnHance is a voluntary environmental stewardship program run by the Mississippi Department of Environmental Quality that recognizes committed environmental leaders who accomplish goals beyond their legal requirements. Membership is valid for three years; the plant submitted its renewal application in September 2016. Our Mississippi team members actively participate at EnHance events. For example, team members Linda Tucker, Phillip Williams and Mark Hildenbrand shared information about projects that reduced waste, energy and water at the EnHance Annual Meeting in April 2016.

We also partner with the U.S. Environmental Protection Agency (EPA) through the **ENERGY STAR** and **WasteWise** programs, and with the U.S. Department of Energy through projects with the **National Renewable Energy Laboratory**.

### Team Member Target

**Create environmental ambassadors by educating and empowering team members (achieved)**

Becoming an environmental ambassador has three elements: 1) becoming educated about our environmental activities, 2) participating in projects that improve our environmental performance and 3) sharing our know-how with others.

We take a variety of approaches to **educating our team members** about our environmental mission, action plan and activities. We host lunch-and-learns, publish newsletters and include 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.

Team members play a big part in **helping us identify projects** that save energy, paper and everything in between. Some projects require a small group of dedicated team members, and others succeed thanks to help from our suppliers. A number of these projects are described in the Carbon, Water and Materials sections of this report.

Some projects rely on the commitment of an entire division to succeed. For example, Toyota's Service Parts and Accessories division held an office paper reduction challenge between Earth Day 2015 and Earth Day 2016. Their goal was to save 88 reams – or 44,000 sheets – of paper. Thanks to the involvement of every team member in the division, they actually saved 273 reams, or 136,500 sheets of paper. This is an example of how we encourage participation and imbed the spirit of continuous improvement in every team member at every level.

Finally, we encourage team members to take all the good things we do at work and **share their know-how** with others. Earth Day provides an annual opportunity for us to educate and engage team members on environmental topics and empower them to take what they know home and into their communities. Many of our locations host activities for a week or even a whole month that include a chance for team members to give back to their communities.



**AMBASSADORS IN OUR COMMUNITIES**

**Toyota Canada Inc. (TCI)** executives and team members dedicate their lunch time during Earth Week to cleaning up the outdoor area near the organization’s Head Office in Toronto. In 2016, they collected 66 bags of garbage and 132 pounds (60 kilograms) of other items.

In honor of Earth Day, volunteers from **Toyota Motor Manufacturing, Mississippi (TMMMS)** and Hunter Douglas built a bridge at Tombigbee State Park that allowed the park’s nature trail to reopen. Forty Boys & Girls Club members joined volunteers to help clear the nature trail.

During Earth Week 2016, **Toyota Motor Manufacturing, Indiana (TMMI)** once again hosted Earth Aware Camp at Camp Carson. Team members shared their knowledge of all things environmental with third-grade students, who spent a day doing activities and games designed to teach them about environmental responsibility. During the recycle relay, student teams raced through the contents of barrels to separate what could be recycled. Wildlife exhibits and a hike through the forest at a local nature center helped deliver the message of preservation.

One of this year’s new activities was a pollinator station. Paul Delor, environmental specialist at TMMI, and Whitney McGrew of the Gibson Soil and Water Conservation District worked together to teach the students facts about pollinators, including how important they are in growing the food we eat. Students paired up different pollinators with different plants or means of spreading pollen through a card matching game, then did a learning craft. Students drew flowers on paper plates, coloring the centers with colored chalk. The students then held a cotton ball to their nose and went around “smelling” the various flowers that were drawn. The chalk (representing pollen) was transferred from flower to flower on the cotton balls, similar to how a pollinator transfers pollen in the wild. Not only did the students enjoy the craft time, the demonstration brought to life what was happening in the fields and flower beds.

Students were sent home with packets of pollinator seeds so that they could plant their own pollinator garden, just like team members did at TMMI. Click [here](#) for more information about how Toyota supports pollinators.



(left) Teaching youngsters about pollinators is one way to expand the reach of Toyota’s biodiversity programs. Third-grade students at Earth Aware Camp, hosted by Toyota’s assembly plant in Indiana, drew flowers on paper plates and colored the centers with chalk. They then used cotton balls to see how the chalk – like pollen – is transferred from flower to flower.

(right) At Earth Aware Camp, a few lucky students were given the chance to dress up in a bee keepers outfit while learning a little bit about bee keeping. Toyota’s assembly plant in Princeton, Indiana, has hosted this camp for third-grade students since 2000.





## Community Target

Support community projects that align with our core focus areas (**achieved**)

Toyota supports local and national community projects that align with our core focus areas of **carbon, water, materials** and **biodiversity**. By concentrating our support on organizations that address challenges in these four areas, we are advancing our environmental commitment beyond minimizing negative impacts and helping to promote positive environmental change across the North American region. We share our know-how and collaborate so that we can build more than great cars. We are building a better tomorrow by harnessing the power of collective action.

### FG26 • 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
Digital Inclusion				
Dream Car Art Contest				
ECS/Toyota Young Investigator Fellowship				
The Eden Projects				
Household Waste & E-Waste Collections				
Hydrogen Horizon Automotive Challenge				
Lexus Eco Challenge				
National Mayor's Challenge for Water Conservation				
National Public Lands Day				
Shell Eco-Marathon Americas®				
Toyota Evergreen Learning Grounds				
World Water Monitoring Challenge™				
Youth Environmental Program, West Virginia				

**DIGITAL INCLUSION**

In 2015, Toyota Technical Center (TTC) in Ann Arbor, Michigan, donated 478 used computers, monitors and related parts to Digital Inclusion, a computer refurbishment and technical training enterprise that benefits area youth and low income residents. The mission of Digital Inclusion is to lead, educate and train low and moderate income youth and young adults in multiple areas of information technology and, by doing so, create community access to affordable technology, technology support and information technology career pathways.

The donation helped support the opening of Digital Inclusion’s second storefront at Washtenaw Community College. Once refurbished, the computer systems make their way to university students, low income residents and community centers.

For example, some of the computers donated by Toyota are now in a computer lab at Hamilton Crossing, a low income housing complex in Ypsilanti, Michigan.

“Toyota’s donation is impacting an entire community,” said Digital Inclusion Board Chair and President Jack Bidlack. “The computer lab at Hamilton Crossing is a very active place where kids can do their homework and residents can engage in online services. This is a great example of what we’ve been able to accomplish, thanks to partners like Toyota.”

This was Toyota’s second donation to Digital Inclusion. “We recycle our computer equipment with an organization that’s really making a difference in the community,” remarked Cynthia Mahalak, manager of external affairs at TTC. “Toyota is very much a technology company, so helping to bridge the digital divide here really takes our recycling efforts to another level.”

Since 2012, TTC has made three donations to Digital Inclusion totaling 601 used computers, monitors and related parts.



Toyota Technical Center donated computers and monitors to Digital Inclusion, a computer refurbishment and technical training nonprofit that benefits area youth and low income residents. Toyota’s refurbished computers are now being used by students and residents at a low income housing complex in Ypsilanti, Michigan.

**DREAM CAR ART CONTEST**

The Toyota Dream Car Art Contest is an annual contest designed to inspire creativity in youth and help them imagine the future of mobility. From September 2015 through February 2016, youth, ages 4-15, across the U.S. and Canada were invited to create and submit a drawing of their idea of a “Dream Car.”

The first international contest was held in 2004 by Toyota Motor Corporation in Japan, with the dual goals of inspiring children to understand the importance of having a dream and encouraging them to become interested in cars by designing the “Dream Cars” of their imagination. Winners of the worldwide Toyota Dream Car Art Contest are chosen from three age categories (under 8 years old, 8-11 years old and 12-15 years old), and judging is based on three criteria: execution of concept, uniqueness and artistry.

“The Toyota Dream Car Art Contest is designed to inspire children and young teens to imagine the evolution of transportation in a rapidly changing world,” said Mike Groff, president and CEO of Toyota Financial Services and one of the U.S. judges. “What we see in these young artists’ work is more than cars, but solutions to a variety of social, environmental and economic issues these kids see around them. They’re envisioning a world in which enhanced transportation is making the world a better place.”

“In my first year as a judge for the Toyota Dream Car Art Contest, I’m amazed by the artwork of so many young and talented Canadians,” said Larry Hutchinson, president and CEO of Toyota Canada Inc. “A glimpse into the creativity demonstrated in these submissions provides insights into the way youth think about the future of mobility.”

The nine U.S. Winners and nine Canadian Winners were selected by panels of judges. Their artwork advanced to represent the U.S. and Canada as World Contest Semi-Finalists to compete among entrants from over 80 countries. In August 2016, the top 30 World Winners won an all-expenses-paid trip to Toyota City, Japan, to participate in an awards ceremony, which includes a tour of a Toyota manufacturing plant.



Ema M. Chiu, age 13, from Ann Arbor, Michigan, is one of the U.S. winners of Toyota’s Dream Car Art contest. “The vehicle has a high-efficiency solar powered converter that converts solar rays into electricity,” explains Ema. “The electricity can be used to power cities, factories and all sorts of transportation.”



Thomas Chen, age 7, from British Columbia, is one of Canada’s winners and one of the 30 World Winners of Toyota’s Dream Car Art Contest. “When people drive the car on the street, the vehicle will collect leaves from trees,” explained Thomas. “Leaves will be processed in the vehicle and turned into different categories of books. Those books will be delivered to school libraries.”

## ECS FELLOWSHIP WINNERS FOR PROJECTS IN GREEN ENERGY TECHNOLOGY

The ECS Toyota Young Investigator Fellowship is a partnership between the Electrochemical Society (ECS) and the Toyota Research Institute of North America (TRINA), an advanced research arm of Toyota Motor North America. Now in its second year, the Young Investigator Fellowship aims to encourage young professors and scholars to pursue research in green energy technology that may promote the development of next-generation vehicles capable of utilizing alternative fuels. A diverse applicant pool of more than 100 young professors and scholars pursuing innovative electrochemical research in green energy technology responded to ECS's request for proposals.

Today, the automotive industry faces three challenges regarding environmental and energy issues: 1) finding a viable alternative energy source as a replacement for oil, 2) reducing CO<sub>2</sub> emissions, and 3) preventing air pollution. Currently, oil remains the main source of automotive fuel; however, further research and development of alternative energies may bring change. "Scientists and engineers seek to unveil what is possible and to exploit that knowledge to provide solutions to the myriad of problems facing our world," said ECS Executive Director Roque Calvo. "We are proud to have the continued support of Toyota in this never-ending endeavor to uncover new frontiers and face new challenges."

Electrochemical research has already informed the development and improvement of innovative batteries, electrocatalysts, photovoltaics and fuel cells. Through this fellowship, ECS and TRINA hope to see further innovative and unconventional technologies borne from electrochemical research.

"While the new projects this year focus on traditional applications such as lithium-ion batteries and fuel cells, each project proposes unique solutions to known challenges which may also be instructive in other areas," said Paul Fanson, Fellowship Chair and manager of Toyota's North American Research Strategy Office. "That is the beauty of research. You plant seeds and sometimes unexpected things grow, especially when you are fortunate enough to work with a group of energetic and diverse young faculty such as this year's winners."

The three selected fellows receive restricted grants of \$50,000 to conduct the research outlined in their proposals within one year. They also receive a one-year complimentary ECS membership as well as the opportunity to present and/or publish their research with ECS.

### 2016-2017 ECS Toyota Young Investigator Fellows:

- **Professor Elizabeth Biddinger, City College of New York**  
*Electrochemical Safety Switch Using Switchable Electrolytes:* To examine the use of silylamine reversible ionic liquids that have the ability to have conductivity turned off or on reversibly using carbon dioxide as a trigger for application as a reversible safety switch in high-energy density batteries, and the impact of silylamine chemical structure on electrochemical switching properties.
- **Professor Joaquin Rodriguez Lopez, University of Illinois at Urbana-Champaign**  
*Achieving the Ultimate Performance of Fuel Cell Electrocatalysts via Programmable Electronic Control of Surface Reactivity:* To explore the reactive modulation of cathodes for the oxygen reduction reaction using a dynamic surface on which complex perturbations are created during operation and evaluated using advanced electroanalytical tools.
- **Professor Joshua Snyder, Drexel University**  
*Electrocatalytic Interface Engineering to Address Scaling Relations in Multi-Intermediate Electrochemical Reactions:* To control the interaction of water with electrocatalytic surfaces through the development of metal/ionic liquid composite interfaces and their role in breaking intermediate scaling relations.



**THE EDEN PROJECTS**

With support from the Eden Projects, Toyota Canada Inc. (TCI) and Toyota dealers in Quebec, seedlings were distributed during Earth Week 2016 to more than 450 children in select Quebec schools. Each student was responsible for taking care of his or her own tree seedling for one month, then the seedlings were planted to create urban forest in the city of Saint-Jean-sur-Richelieu.

For each tree planted in Quebec, Toyota has arranged for the Eden Projects to have the same number of trees planted by students at a school in Madagascar. The Eden Projects is a nonprofit that hires local villagers to plant trees in Haiti, Madagascar, Ethiopia and Nepal. More than 90 percent of Madagascar’s original forests have been destroyed, including entire mangrove estuaries. The Eden Projects began planting trees there in 2007 and today, Eden operates five nurseries and has planted 79,730,000 trees. Their work reduces extreme poverty and restores healthy forest ecosystems.



TCI President and CEO Larry Hutchinson helped hand out tree seedlings to school children in Quebec in honor of Earth Day. “Earth Day is a great reminder of the responsibility each individual has to the environment every day,” said Larry. The seedlings were planted in Saint-Jean-sur-Richelieu to create an urban forest.

**HOUSEHOLD WASTE & E-WASTE COLLECTIONS**

For over 20 years, Toyota has helped team members and surrounding communities recycle and properly dispose of household waste. During designated collection days, many of our sites 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. During events held in October 2015 and May 2016, we collected 267,818 pounds of waste and donations, equal to the weight of 20 full-size male African elephants.

- **Toyota’s assembly plant in Georgetown, Kentucky,** hosted a household and electronic waste collection in May 2016 for team members and local residents in partnership with the City of Georgetown, Scott County and Green Metals, Inc. Over a Friday and Saturday, 956 vehicles came to the plant to drop off 153,277 pounds of household hazardous and electronic waste. Since this event began in 1994, the Kentucky plant has collected 927,503 pounds from 5,949 vehicles.

- **Toyota's assembly plant in Princeton, Indiana**, collected 97,268 pounds of paint, solvents, waste oils, antifreeze, aerosols, computer equipment, pesticides, fluorescent bulbs and batteries from 1,264 team members and Gibson County residents during an event in October 2015 and another one during Earth Month 2016. Since these events began in 2006, the plant has collected 589,023 pounds of household waste.
- **Toyota's assembly plants in Cambridge and Woodstock, Ontario**, collected 3,299 kilograms (7,273 pounds) of electronic waste from team members during Earth Month 2016. Since this event began in 2013, the two plants have collected a total of 10,184 kilograms (22,452 pounds) of electronic waste.
- **Toyota's head office in Toronto, Ontario**, collected 3,575 kilograms (7,935 pounds) of household and electronic waste and donations in April 2016. Since collections began in 2007, the head office has collected 45,607 kilograms (100,545 pounds) of household and electronic waste.
- **Toyota's sales and logistics headquarters in Torrance, California**, collected over 10,000 pounds of electronics, donated household goods and secure documents for recycling in partnership with Goodwill Industries.

## HYDROGEN HORIZON AUTOMOTIVE CHALLENGE

Today's classroom is evolving. The next generation of innovators crave hands-on learning experiences and working alongside professionals who share their passion. Toyota embraces this collaborative spirit and an ongoing commitment to advancing Science, Technology, Engineering and Mathematics (STEM) education. That's why Toyota is partnering with Horizon Educational Group to bring the Hydrogen Horizon Automotive Challenge to 20 California schools in Los Angeles and Orange Counties.

The Hydrogen Horizon Automotive Challenge is a semester-long, afterschool program focused on alternative fuels and climate change. During the unique, hands-on program, teams of high school students have the opportunity to build their own fuel cell remote control vehicles and learn first-hand about the future of fuel cell technology. The program kicked off in August 2016 with a teacher training event at Toyota's offices in Torrance, California, and will cross the finish line when student teams race their fuel cells vehicles in March 2017. "The Hydrogen Horizon Automotive Challenge provides an opportunity to introduce the next generation of innovators to fuel cell technology," said Doug Coleman, Toyota national vehicle marketing manager. "We hope this challenge encourages students to join Toyota in the effort to create a more eco-conscious and sustainable future."

The customized, interactive STEM curriculum is rooted in the design principles of the Toyota Mirai, including exploring challenges and solutions Mirai engineers experienced during vehicle development, with a focus on renewable energy technology. In addition to support from Toyota fuel cell engineers, the students will be coached by trailblazing Mirai owners and will work with members of a Toyota NASCAR Pit Crew for their final race.



Students began working on building their own fuel cell remote control vehicle as part of the Hydrogen Horizon Automotive Challenge. With support from Toyota's fuel cell engineers, Mirai owners and members of Toyota's NASCAR Pit Crew, students will be able to race their vehicles in March 2017.



## 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 that is important to them, develop an action plan to address the issue, implement the plan and report on the results.

Lexus and Scholastic reviewed the finalists' innovative submissions and selected one middle school team and one high school team as the 2015-2016 Lexus Eco Challenge Grand Prize winners.

The Grand Prize-winning teams each earn \$30,000. Each winning team divides the grand prize: a \$7,000 grant for the school, a \$3,000 grant for the team's teacher advisor and \$20,000 in scholarships for the students to share.

This year's Grand Prize winners are "The Endocrine Fighters" from Arlington High School in LaGrangeville, New York, and middle school team "Aquaponics" from Christa McAuliffe School in Jersey City, New Jersey.

To combat endocrine-disrupting compounds (EDCs) – chemicals that prevent normal functioning of hormones and cause other negative effects – "The Endocrine Fighters" conducted extensive research and experiments. The team found that the disruptors can be found in everyday personal-care products such as sunscreen and lotion. They took action and produced their own homemade lotion and lip balm. In addition, the team lobbied for EDC-free soap for their school district, requesting it be replaced with a safer alternative. The team also educated their community and took political action by forging important relationships and communicating with people at county, state and national levels to enact change.

"Aquaponics" researched how to prevent algae from reaching a bloom state in their local reservoirs in order to help reduce damage to the ecosystem. Instead of using harmful chemicals, the team explored natural methods and implemented a solution to limit algal bloom. Aquaponics tested various plants in an effort to find the best species to absorb the excess phosphorus and nitrogen that cause algal blooms. The team also designed, built and installed the Maize Chinampa that was placed in their local reservoir to absorb nutrients. They subsequently took it to the next level in building a second and larger chinampa they called "Algae Attack Chinampa." Aquaponics furthered their community outreach with presentations at six different schools, developing public service announcements and conducting interviews with their local television station.



"Aquaponics" from Christa McAuliffe School in Jersey City, New Jersey, was the winning middle school team in the 2015-2016 Lexus Eco Challenge. The team researched how to prevent algae from reaching a bloom state in their local reservoirs. They tested various plants in an effort to find the best species to absorb the excess phosphorus and nitrogen that cause algal blooms.

The 2015-2016 Lexus Eco Challenge had more than 1,535 student participants. Eight teams were selected as First Prize winners and were awarded \$15,000 each, and 32 middle and high school teams were selected as finalists for the Lexus Eco Challenge, each claiming a \$10,000 prize.

Over the past nine years, the Lexus Eco Challenge has awarded more than \$5 million in scholarships. More than 30,000 middle and high school students have impacted their communities, learned about the environment and improved their teamwork skills.

The Lexus Eco Challenge also provides supplemental educational materials, created and distributed by Scholastic, the global children's publishing, education and media company, to encourage teachers to integrate creative environmental lesson plans 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.

## NATIONAL MAYOR'S CHALLENGE FOR WATER CONSERVATION

In 2016, residents in more than 4,100 cities across the United States took part in the fifth annual Wyland National Mayor's Challenge for Water Conservation, presented by Toyota, by pledging to save over 1.9 billion gallons of water over the next year. The annual month-long campaign to promote drought resiliency and water quality ended on April 30 with mayors from 39 states vying to see whose city could be the nation's most "water wise."

The cities with the highest percentage of residents making pledges during the campaign included Laguna Beach, California; Andover, Minnesota; Ventura, California; Aurora, Colorado; and Boston, Massachusetts. Overall, residents around the nation, from Anchorage to the Florida Keys, made 404,407 pledges to reduce water waste by more than 1.9 billion gallons — or roughly enough water to fill 2,877 Olympic-sized swimming pools.

The challenge, presented by the Wyland Foundation and Toyota, with support from the U.S. EPA, National League of Cities, The Toro Company, Earth Friendly Products (ECOS) and Conserva Irrigation, addresses the growing importance of educating consumers about the many ways they can conserve water — for example, by swapping out their lawns in favor of drought-resistant native plants, fixing leaks and looking at how we use water for food and manufacturing. In fact, pledges included more than 500 million gallons of water savings by simply reducing food waste.

"The challenge in general was more successful than ever, but this year rather than simply asking people to save water in a conventional way, we wanted them to focus on how we grow, buy and consume food," explained Steve Creech, vice president of the Wyland Foundation. "So we brought in horticulturists and irrigation experts to show us how to grow water-wise edible gardens and top chefs to show us how to make the most out of the food we grow, while using the least water and having the least impact on our local water ways."

Residents from winning cities were entered into a drawing for over \$50,000 in prizes, including a Grand Prize Toyota Prius, "Greening Your Cleaning" gift baskets from Earth Friendly Products (ECOS), home irrigation equipment from The Toro Company, EcoFlow Showerheads from Waterpik, Avex water bottles, dimmable LED light bulbs that use 84 percent less energy, and a \$1,000 home improvement store shopping spree.

In addition to reducing water, challenge participants in 50 states pledged to reduce their use of single-use plastic water bottles by 3.7 million bottles and eliminate 87,000 pounds of hazardous waste from entering watersheds. By altering daily lifestyle choices, pledges have the potential to reduce landfill waste by 42 million pounds; save 12 million gallons of oil, 6.1 billion pounds of carbon dioxide and 126 million kilowatt-hours of electricity; and lead to \$29 million in consumer cost savings.

## NATIONAL PUBLIC LANDS DAY

National Public Lands Day (NPLD) is the largest, single-day volunteer effort for public lands in the U.S. It is a celebration of the work, play and learning that takes place on public lands every day and offers everyone an opportunity to help maintain these special places. NPLD is hosted by the National Environmental Education Foundation, and Toyota has been the national corporate sponsor since 1999.

The 2015 National Public Lands Day was the largest in the event's history. What started in 1994 as three events and 700 volunteers has grown to over 2,500 events and more than 175,000 volunteers. Volunteers collected approximately 500 tons of trash, built and maintained 1,500 miles of trail and contributed an estimated \$18 million to improving public lands across the country.

In 2015, more than 4,000 Toyota team members volunteered and participated in NPLD events across the country, providing thousands of hours of service to our communities. For example, more than 400 team members from Toyota's assembly plant in Blue Springs, Mississippi, worked with other volunteers to restore cabins, maintain trails, mulch and pick up trash at Tombigbee State Park. Year after year, the Mississippi plant sets the record for the highest number of team member volunteers, helping to make the event at Tombigbee Park the largest in the country.

In 2015, Toyota announced a commitment of \$250,000 over five years to Tombigbee State Park to make improvements to the campgrounds, restore the amphitheater, rebuild docks, restore trail access throughout the park, and drain and remove excess sediment from the lake to improve the health of the overall ecosystem. The first phase of restoration projects was completed during the 2015 NPLD event; the second phase was slated for the 2016 event.

**SHELL ECO-MARATHON AMERICAS**

Toyota Technical Center (TTC) and Toyota Motor Manufacturing, Texas (TMMTX) teamed up to support the Shell Eco-marathon in 2016. Held annually in the Americas, Europe and Asia, the Shell Eco-marathon challenges students to design, build and drive the most energy-efficient car. Shell launched this unique competition in Europe in 1985 and brought it to the Americas in 2007. Each year, more than 5,000 students participate in Shell Eco-marathon competitions around the world.

TTC provided a \$25,000 sponsorship and Engineer and Technical Mentors for all the teams participating in the Americas competition, held in Detroit in April 2016. TMMTX provided \$15,000 to sponsor the Southwest Engineering Team from Southwest High School in San Antonio, Texas. The team of 20 students worked with TMMTX team members, led by Plant Engineering Assistant Manager Julio Mata, to build their entry, a prototype hydrogen fuel cell car.

“I am a product of mentorship!” exclaimed Julio. “I had great mentors in my career and Toyota has provided me the same opportunity to mentor others.” Julio has been volunteering with Southwest High School for the past five years.

The Southwest Engineering Team was one of a record 124 teams from seven countries to compete in Detroit. According to a spokesperson from the Southwest Independent School District, “The Southwest Engineering Team has been able to advance to larger national and international competitions with the support of Toyota.”

At each of the Shell Eco-marathon competitions, students compete in two categories of vehicles. The Prototype category invites students to enter futuristic, streamlined vehicles, while the Urban Concept category focuses on road-worthy, fuel-efficient vehicles aimed at meeting the real-life needs of drivers. Teams power their cars on fuels ranging from hydrogen, compressed natural gas and battery power to traditional gasoline and alternatives such as ethanol.

In addition to the student teams, 20,000 visitors came to Detroit for the energy-efficiency driving challenge. Toyota had a Mirai on display to provide information about the hydrogen-powered vehicle to attendees and their families.



The Southwest Engineering Team from Southwest High School in San Antonio, Texas, competed in the Shell Eco-marathon Americas for the first time in 2016. The team was supported by team members from Toyota’s assembly plant in San Antonio. Pictured are the 11 members of the team who were able to make the trip to Detroit for the competition, along with their advisors and their prototype hydrogen fuel cell car.



## TOYOTA EVERGREEN LEARNING GROUNDS

The Toyota Evergreen Learning Grounds (TELG) program is a national initiative that helps Canadian schools create dynamic and sustainable outdoor environments. These spaces provide students with a healthy place to play, learn and develop a genuine respect for nature. TELG is a program that transforms barren Canadian school grounds into natural environments. By planting trees, shrubs and wildflowers, creating meadows, butterfly gardens and other theme areas on school grounds, learning opportunities literally come alive.

TELG was created in 2000 by Toyota Canada Inc. (TCI), its dealerships and Evergreen, a Canadian charity focused on sustainable cities. TELG has distributed more than CAN\$3.2 million through 2,370 grants to schools across Canada. TCI has invested a total of CAN\$11.5 million in the TELG program. In addition to grants, this investment supports a national network of 16 School Ground Greening & Design Consultants working in partnership with local school boards in cities coast to coast, school ground greening workshops in communities across Canada and a toolbox of teacher training resources to support teaching in the outdoors. Thanks to this impactful partnership:

- More than 1.1 million elementary and secondary students and 93,000 teachers have directly benefited from a greening project at their school.
- More than 1,200 workshops have been held to train 43,100 teachers, parents, administrators and community members in the design and implementation of outdoor classrooms and natural learning spaces.
- Across Canada, 209 Toyota dealerships have been directly involved in one of more school ground greening projects in their communities.

Together, TCI and Evergreen are fostering a new spirit of community involvement and environmental stewardship within the hearts and minds of Canada’s future, our children and youth. TELG has pioneered school ground greening work in Canada, is a leader in North America for its work on school grounds and outdoor learning, and is regularly asked to present and advise on its impact in Canada, the U.S. and internationally. In 2014-2015, 110 schools received funding and engaged 47,720 students and school staff.



### GRANT IN ACTION: ESSEX PUBLIC SCHOOL, TORONTO

The implementation of full-day kindergarten in Ontario meant that the school grounds at Essex Public School needed additional space for their kindergarteners. In the finished outdoor play and learning environment, more than 100 daycare and kindergarten students benefit daily from the improvements made. They explore their mini forest, tend to their vegetable gardens and observe the bird and pollinator activity in their new flora. Teachers bring their students outdoors to explore, play and get dirty, creating a wealth of new learning opportunities.



With input from the school's young students, guidance from an Evergreen School Ground Greening & Design Consultant and help from community volunteers, the finished landscape design at Essex Public School utilizes mosaic art that weaves a nature trail through a maze of native shrubs, affectionately known as their mini forest.

**DEALERSHIP INVOLVEMENT**

The Dealership Matching Program runs concurrently with the Learning Grounds program to provide Toyota dealers with opportunities to engage with their communities. When a dealership is matched with a school receiving a grant through the program, they have an opportunity to represent TELG and experience a moment of connection with their community by presenting the check to the school.

Toyota dealers are making the most of these opportunities. They see the value of the program and, in addition to presenting checks to schools, often invest their own funds and personal volunteer time in support of school projects.

In 2014-2015, 48 dealerships were matched with 60 funded schools. About 85 percent of Toyota dealerships in Canada have participated in the TELG program.



Aaron LaFontaine, human resources manager at Kingsway Toyota of Edmonton, presented a check to St. Francis of Assisi School. "I really enjoy being a part of the Toyota Evergreen Learning Grounds program and having the opportunity to present checks on behalf of Kingsway Toyota! I get to see children in my community learning about nature and the importance of preserving our natural environments. Edmonton students really enjoy building their outdoor classrooms which gives them the wonderful feeling of being a part of building something good while learning about teamwork and community."



## WORLD WATER MONITORING CHALLENGE

Each year during Earth Week, Toyota’s assembly plant in Princeton, Indiana, sponsors a poster contest for fifth-grade students in Gibson, Vanderburgh, Posey and Warrick counties. Students are asked to design a poster focusing on why we need clean water and how to protect the earth’s water resources.

“Team members here used to design our own T-shirts,” said Paul Delor, environmental specialist at the plant. “But we decided to do a contest for local kids instead. The kids are very creative and very good at coming up with unique designs.”

The winner of the 2016 Earth Day Poster Contest was Kaden Keeverenz from Farmersville Elementary School in Mount Vernon, Indiana. Her design was chosen from over 2,100 student entries representing 103 different classes. All participating classes received a pizza party just for entering the contest – that’s over \$6,000 in pizza!

Each year, 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. Each year, over 180,000 visits are made by participants to monitoring sites in more than 50 countries.

In November 2015, Toyota once again worked with about 600 sixth-graders from 27 classes to sample about 100 different lakes, rivers and streams across southwestern Indiana. Monitoring data has been uploaded into the WWMC database. Toyota Indiana has supported World Water Monitoring Challenge activities since 2005 and in that time, has worked with more than 18,000 students.



Kaden Keeverenz (center) was the 2016 winner of Toyota Indiana’s Earth Day Poster Contest. Kaden, along with her fifth-grade classmates from Farmersville Elementary in Mount Vernon, are wearing T-shirts with her design. T-shirts with her design were handed out to sixth-graders who participated in the World Water Monitoring Challenge in the fall of 2016.

**WEST VIRGINIA'S YOUTH ENVIRONMENTAL PROGRAM**

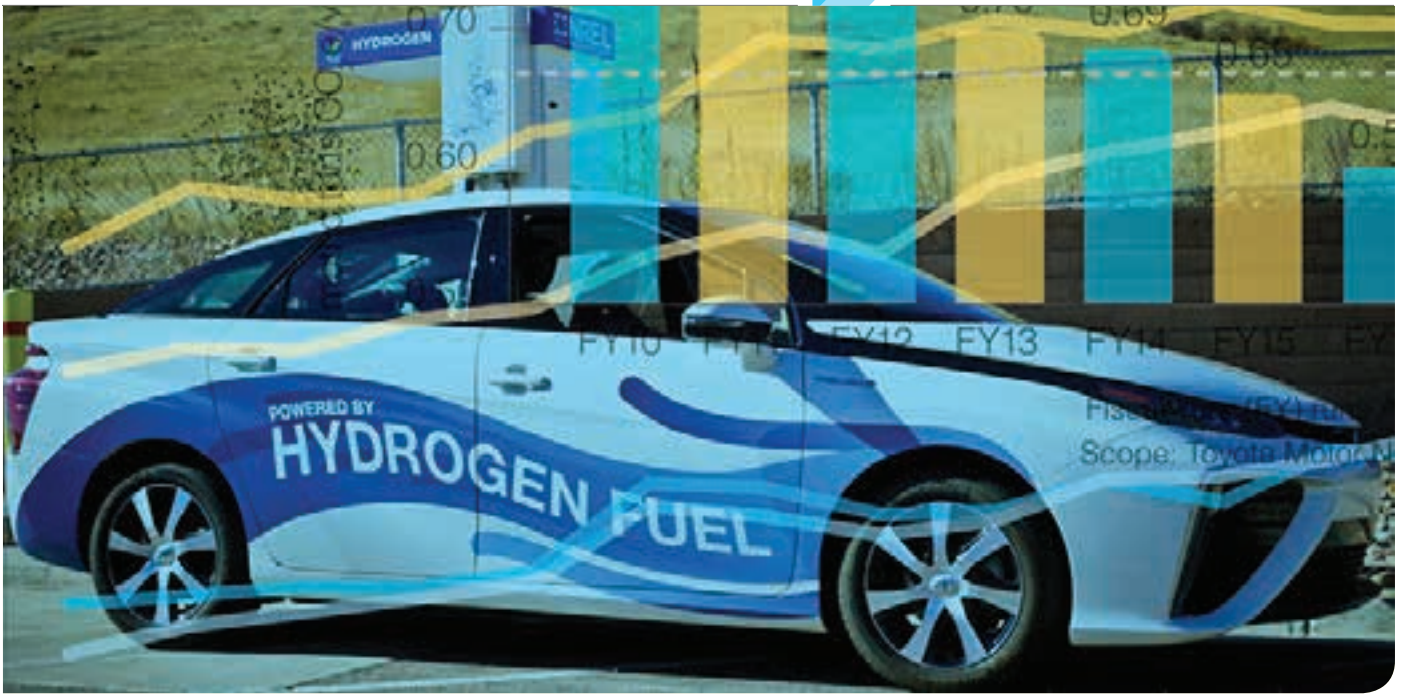
Toyota's powertrain plant in West Virginia, where we make 4- and 6-cylinder engines and 6-speed automatic transmissions, believes in teaching children about the environment and getting them outdoors to enjoy the beauty of nature. For the past 17 years, our West Virginia team members have participated in the state's Youth Environmental Program (YEP), designed to unite existing youth groups and encourage them to actively participate in environmental projects. YEP is run by the West Virginia Department of Environmental Protection.

Toyota, along with other companies, provides funding for awards handed out at Youth Environmental Day, held each year in May at North Bend State Park. Over \$15,000 in cash awards and scholarships were presented to youth groups in 2016 who participated in the state's Youth Environmental Program and completed community environmental and sustainability projects in conservation, recycling, litter control, forestry, water protection and wildlife management, among others. 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.

Each June, Toyota also sponsors 20 children to attend Junior Conservation Camp. The one-week camp, open to children ages 11 to 14, 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 and recycling.



During the 2016 Youth Environmental Day at North Bend State Park in West Virginia, children played games like spinning the Wheel of Wildlife to learn about the environment. The day is part of the state's Youth Environmental Program, which Toyota's West Virginia powertrain facility has supported since 1999.



> PERFORMANCE

# PERFORMANCE

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

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

# ENVIRONMENTAL ACTION PLAN

## FG4 • Toyota Motor North America Environmental Action Plan, FY2014-2016

		GOAL	FY2016 TARGET	STATUS	FY2016 RESULTS
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	○	Launched the 2015 Lexus NX 300h; launched the 2016 Toyota RAV4 Hybrid
			Reduce energy consumption 12% per vehicle produced, from a baseline of FY2010	⊙	Reduced energy use per vehicle 23.6%
			Reduce GHG emissions from operations 12% per vehicle produced, from a baseline of FY2010	⊙	Reduced GHGs per vehicle 22%
	Water	Conserve water and protect water sources	Reduce water withdrawal 6% per vehicle produced by FY2016, from a baseline of FY2010	⊙	Reduced water withdrawal per vehicle 14%
	Materials	Eliminate waste and improve recycling and reuse opportunities	Implement IMDS data management systems enterprise wide	○	Completed data collection for all North American-produced vehicles
			Develop and test a new target for waste	○	Defined the 3R rate; tracked results for 2 years (96% in CY2015)
Biodiversity	Improve biodiversity on and near Toyota facilities	Achieve Wildlife Habitat Council certification at 9 sites by the end of calendar year 2016	⊙	10 sites certified	
OUTREACH	Suppliers	Strengthen supplier relationships	Develop a new supplier environmental engagement process	○	Established new methods of tracking progress and sharing best practices; established GHG reduction target for FY2017-2021; began piloting new alternative transport technology
	Dealers	Promote and enhance dealer environmental initiatives	Maintain the leadership position in dealership green building and certify 53 dealerships to LEED® standards	⊙	54 certified dealers
	Stakeholders	Strengthen Toyota's position as an environmental role model	Create environmental ambassadors by educating and empowering employees	○	Expanded and enhanced Earth Day/Week/Month activities
		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 focus areas. See FG 26

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

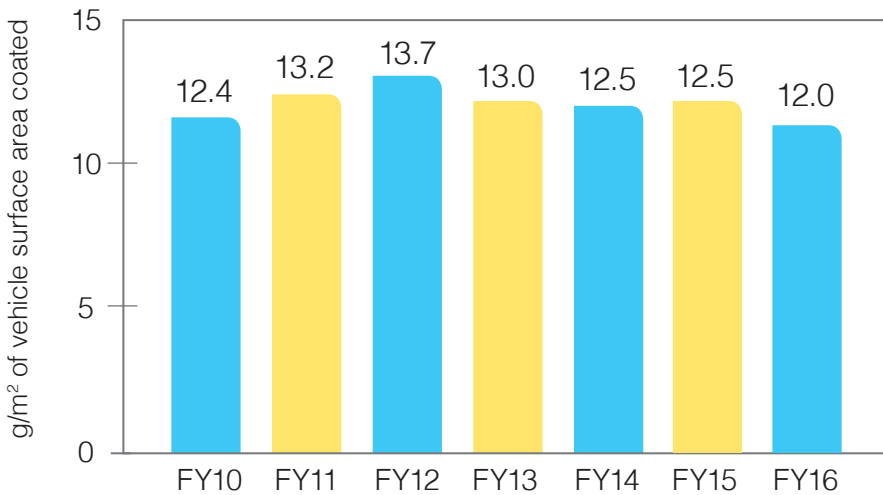
**About This Chart:** This chart summarizes the results of our environmental action (EAP) plan targets for fiscal years 2014 to 2016 in the areas of carbon, water, materials, biodiversity and outreach. Our targets cover over 85 assembly and unit plants, parts and vehicle distribution centers, sales offices and R&D sites. We will publish our next five-year EAP covering fiscal years 2017 through 2021 in next year's report



# AIR QUALITY

## Volatile Organic Compounds

### FG27 • VOC Emissions



Fiscal Year (FY) runs April to March

Scope: Toyota's North American Manufacturing Plants

About This Chart: The primary concern with non-greenhouse gas 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 of 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/m<sup>2</sup>). Since 2002, we have reduced VOC emissions by 66 percent, from 35.0 to 12.0 g/m<sup>2</sup>.

## CRITERIA POLLUTANT TAILPIPE EMISSIONS

### FG28 • Toyota and Lexus SULEVs

Specifically for vehicles offered in the 2016 model year, 36 percent of all Toyota, Lexus and Scion passenger cars and 23 percent of trucks are certified to SULEV or better. These vehicles include:

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Avalon Hybrid
Prius
Prius c
Prius v
Camry Hybrid
Highlander Hybrid
Lexus CT 200h
Lexus ES 300h
Lexus NX 300h
Lexus GS 450h
Lexus RX 450h
Lexus LS 600h L
Mirai

\*Data is U.S. only and is not sales-weighted.  
 \*Prius Plug-in Hybrid is not included in this list because production ended in June 2015. A model year 2016 Plug-in was not offered. Prius Prime launched as a model year 2017 vehicle and will be included in next year's chart.

**About This Chart:** Hydrocarbons, nitrogen oxides (NOx) and carbon monoxide — all byproducts of fuel combustion — are linked to various air quality issues, including smog formation 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 (g/mi). (The Canadian program is equivalent to the U.S. federal program.)

In California, the Low-Emission Vehicle III (LEV III) 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 2016 model year, the California LEV III regulations required an auto manufacturer's fleet average to meet an emission standard for non-methane organic gas with nitrogen oxides (NMOG + NOx) of 0.093 g/mi for passenger cars and light-duty trucks up to 3,750 pounds, and 0.110 for other light-duty trucks.



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.

Environment and Climate Change Canada has issued 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 in California, are needed to enable the after-treatment systems being designed for Tier 3 compliance.

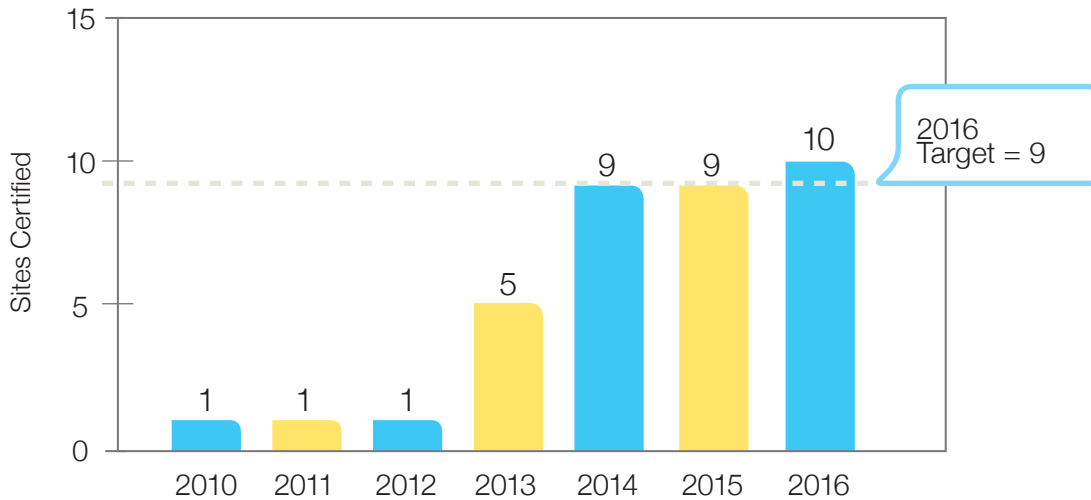
Toyota annually complies with the state of California, U.S. and Canadian federal vehicle emissions programs, and we have met the requirements for each model year.

Three Toyota/Lexus vehicles were named on the American Council for an Energy Efficient Economy (ACEEE) "Greenest Vehicles of 2016" list: Toyota Prius, Toyota Prius c and Toyota Prius Two Eco\*. 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.

\* The Prius Two Eco is an available trim level within the Prius model line. This trim option offers customers even better fuel efficiency than other Prius trims thanks to lighter weight and further optimized aerodynamics.

## BIODIVERSITY

### FG22 • Wildlife Habitat Council Conservation Certifications in North America (cumulative)



The Wildlife Habitat Council (WHC) awards Conservation Certifications in November of each year. Because of this timing, our target is based on a calendar year cycle. As of the end of 2016, Toyota had 10 sites\* certified with WHC:

Toyota Motor Manufacturing, Kentucky — certified in 2008 and recertified in 2013

Toyota Motor Manufacturing Canada, Cambridge plant — certified in 2013

Toyota Motor Manufacturing Canada, Woodstock plant — certified in 2013

Toyota Motor Manufacturing, Indiana — certified in 2013

Toyota Motor Manufacturing, Alabama — certified in 2014

Toyota Motor Manufacturing, Mississippi — certified in 2014

Toyota Motor Manufacturing, Texas — certified in 2015

Bodine Aluminum (Jackson, Tennessee) — certified in 2015

Bodine Aluminum (Troy, Missouri) — certified in 2016

Toyota Motor Manufacturing, West Virginia — certified in 2016

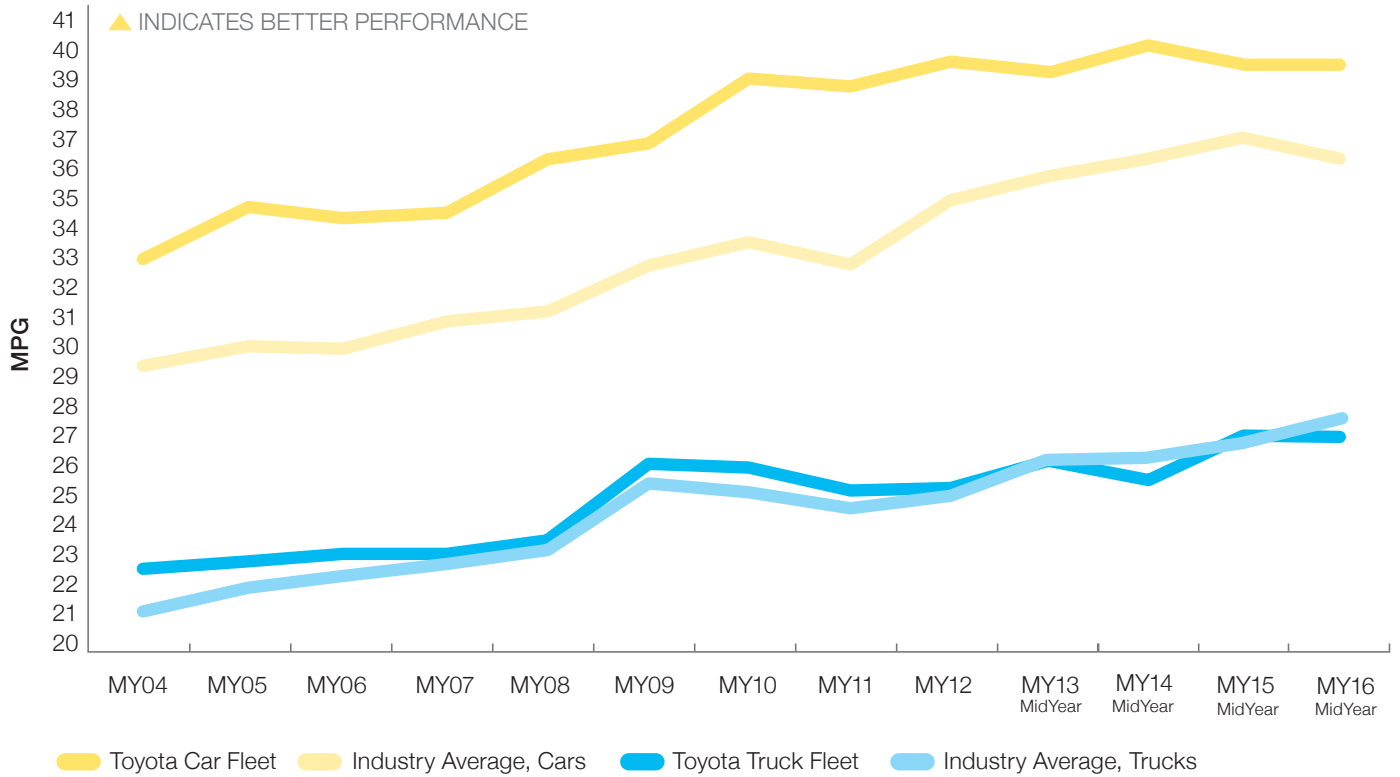
\* Our Cambridge and Woodstock, Ontario, plants, while two separate sites, are covered by a single certification held by Toyota Motor Manufacturing Canada. Certification for Bodine Aluminum in Troy is expected by the end of 2016; however, at the time of publishing, certification was still pending. Toyota’s manufacturing headquarters campus in Erlanger, Kentucky, was certified in 2013. Because this campus is in the process of moving to new offices in Plano, Texas, and Georgetown, Kentucky, we let this certification expire at the end of 2016. We counted this site in 2013-2015 but did not include it in our 2016 results.

# CARBON

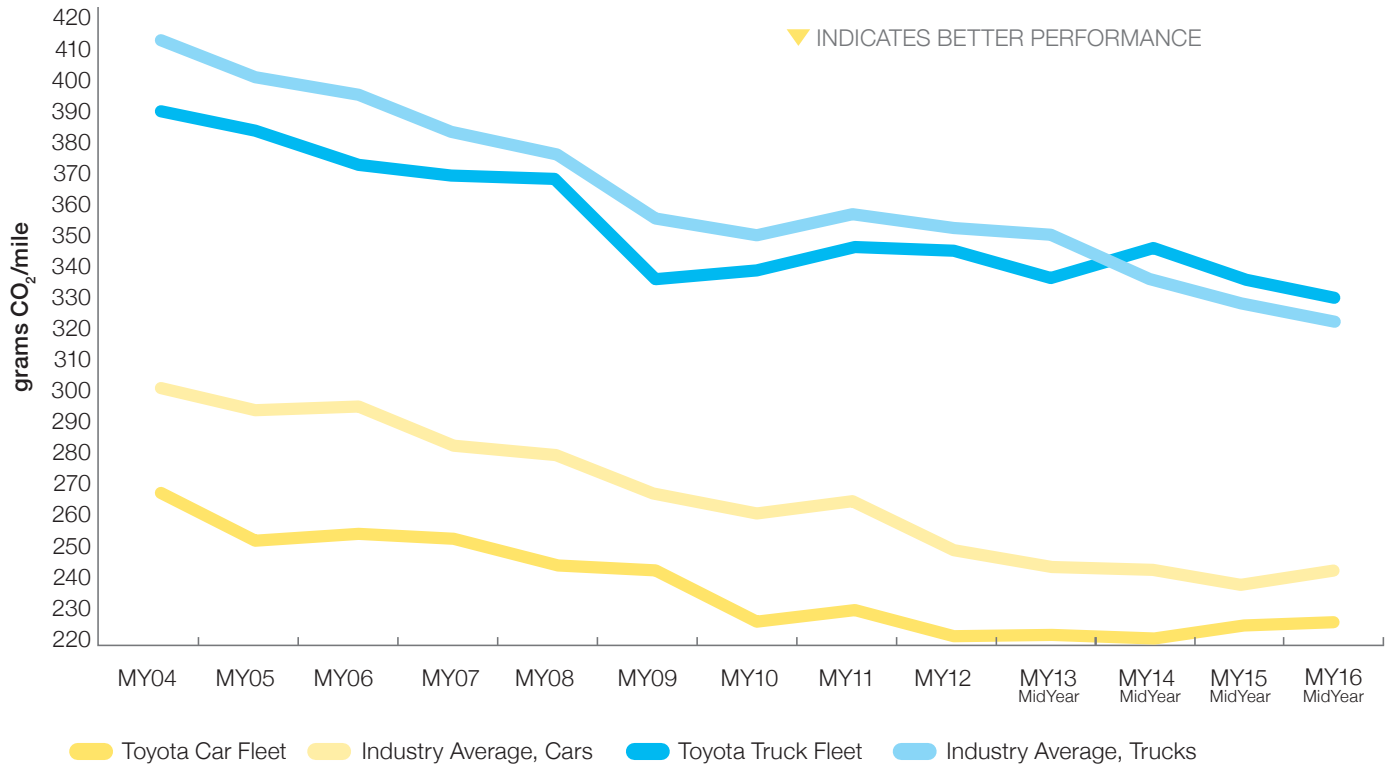
## Vehicle Fuel Economy + CO<sub>2</sub>

### UNITED STATES

FG12 • U.S. Car Corporate Average Fuel Economy, or CAFE



FG13 • Annual CO<sub>2</sub> per Mile\*, Toyota U.S. Fleet

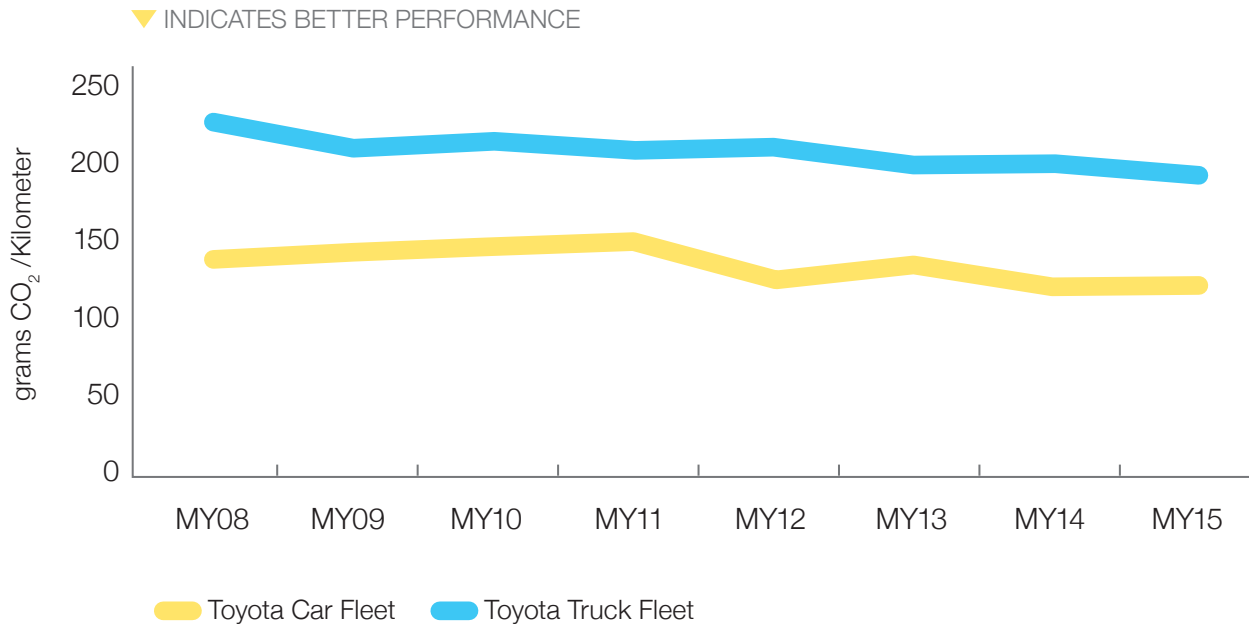


\*This data represents CAFE fuel economy performance in terms of CO<sub>2</sub> (grams per mile) and does not reflect provisions in the U.S. EPA GHG program (starting 2012 model year) such as air conditioning credits.

About These Charts: Toyota achieved the required U.S. Corporate Average Fuel Economy (CAFE) standards for both cars and trucks, and the required vehicle CO<sub>2</sub> standards

CANADA

FG14 • Annual CO<sub>2</sub> per Kilometer\*, Toyota Canada Fleet



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

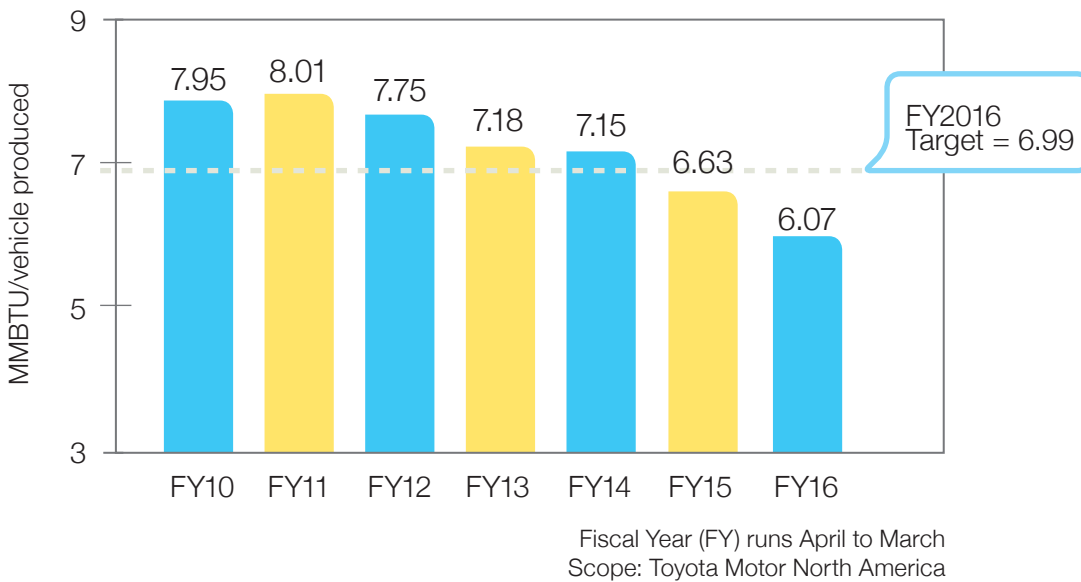
About This Chart: Toyota met the required vehicle CO<sub>2</sub> standards in Canada for the 2015 model year. (2015 is the latest full year of data available.)

MEXICO

In Mexico, Toyota achieved the required vehicle CO<sub>2</sub> standards for calendar years 2014 and 2015. In 2014, Toyota’s fleet average was 183.8 grams CO<sub>2</sub> per kilometer (g CO<sub>2</sub>/km), and in 2015, Toyota’s fleet average was 178.7 g CO<sub>2</sub>/km.

ENERGY DATA

FG15 • Energy Use Per Vehicle Produced (Stationary Sources)



About This Chart: During fiscal year 2016, Toyota used 1.64 million megawatt-hours of electricity – a 2.4 percent decrease from the previous year – and 177.14 million cubic meters of natural gas – an 8.3 percent decrease from the previous year – at more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers and offices. Our consolidated energy efficiency target covers all of these sites.

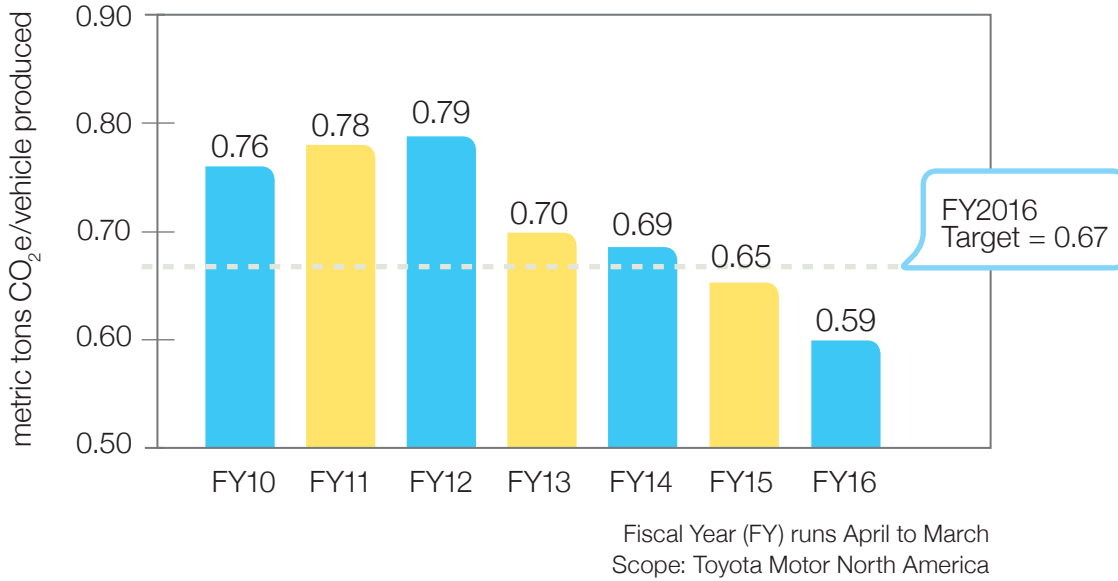
Our target was to reduce energy use from stationary sources by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline. We met this target in fiscal year 2015, one year ahead of schedule. At the end of fiscal year 2016, we had improved energy efficiency by 23.6 percent.

This target covers the purchase and use of non-renewable 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.



## GHG DATA

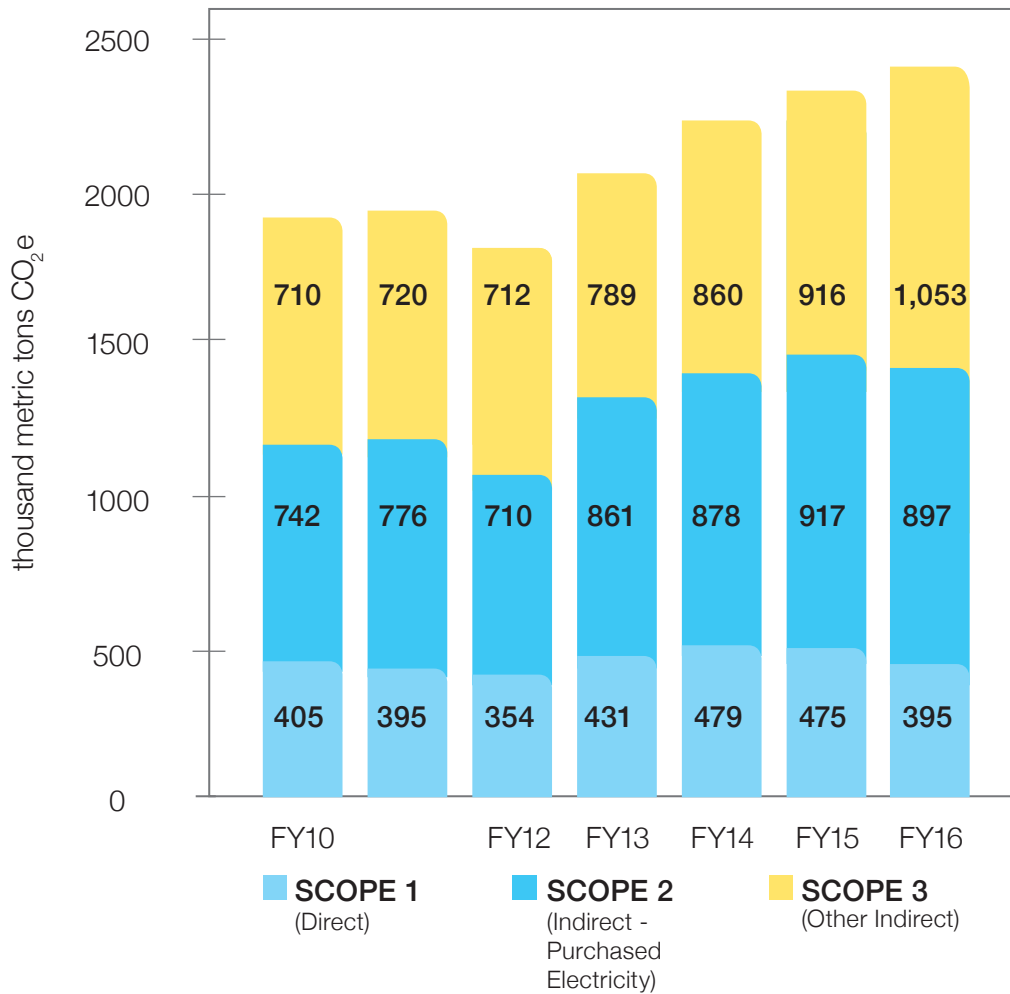
FG17 • GHG Emissions Per Vehicle Produced (Stationary Sources)



About This Chart: Our consolidated GHG emissions target covers more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers and offices. Our target was to reduce GHG emissions from stationary sources (emissions from our use of electricity and natural gas) by 12 percent per vehicle produced by fiscal year 2016, from a 2010 baseline.

We met this target in fiscal year 2015, one year ahead of schedule. At the end of fiscal year 2016, we had improved GHG efficiency by 22 percent.

FG29 • North American Greenhouse Gas Inventory



About This Chart: Each year we prepare an inventory of greenhouse gas (GHG) emissions from Toyota's North American companies. 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.

The inventory measures GHG emissions from Scopes 1, 2 and 3, as defined by The GHG Protocol:

Scope 1 includes emissions from the consumption of natural gas as well as fuel consumption by in-house trucking operations.

Scope 2 includes emissions from the consumption of purchased electricity.

Scope 3 includes emissions from fuel consumed by third-party carriers, team member commuting and business travel. These are emissions which Toyota has influence over but does not directly control. (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> Vehicle Emissions.](#))

## Reporting GHG Data to Government Agencies

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

In Canada, Toyota Motor Manufacturing Canada (TMMC) and CAPTIN are required to report GHG emissions data. TMMC’s Cambridge plant is required to report under Environment Canada’s Greenhouse Gas Emissions Reporting Program; both the Cambridge and Woodstock plants are required to report GHG emissions to the province of Ontario under its Environmental Protection Act. CAPTIN is required to report GHG emissions to the province of British Columbia under its Greenhouse Gas Reduction Act.

## COMPLIANCE

### FG30 • Environmental Compliance

	Significant Environmental Violations
FY10	0
FY11	2
FY12	1
FY13	0
FY14	0
FY15	0
FY16	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 chemical management, air emissions, water discharges, storm water management, greenhouse gas emissions, and waste treatment and disposal. These regulations vary by facility based on the type of equipment we operate and the functions performed.

Toyota reports significant environmental violations – those resulting in fines of \$5,000 or more and/or in an impact to the environment (we do not report administrative violations). In fiscal year 2016, our North American manufacturing plants and logistics sites had zero significant environmental regulatory violations.

# DEALER GREEN BUILDING

## FG24 • LEED®-Certified Toyota and Lexus Dealerships

	U.S.	Canada
Toyota Dealerships	41	4
Lexus Dealerships	8	1

## FG25 • North American Toyota and Lexus Dealerships With LEED® Certifications

PLATINUM	<p><b>Stratford Toyota</b> Stratford, Ontario, Canada, 2010</p> <p><b>Toyota of El Cajon Certified Center</b> Santee, California, 2010</p> <p><b>Caldwell Toyota</b> Conway, Arkansas, 2009</p> <p><b>Fitzgerald's Lakeforest Toyota</b> Gaithersburg, Maryland, 2009</p>	<p><b>Dave Mungenast Lexus of St. Louis</b> St. Louis, Missouri, 2010</p> <p><b>Grossinger City Toyota</b> Chicago, Illinois, 2010</p> <p><b>Fred Bean's Toyota of Flemington</b> Flemington, New Jersey, 2010</p> <p><b>Jerry Durant Toyota</b> Granbury, Texas, 2010</p> <p><b>Toyota of El Cajon</b> El Cajon, California, 2010</p>		
GOLD	<p><b>San Francisco Toyota</b> San Francisco, California, 2012</p> <p><b>Maguire Toyota</b> Ithaca, New York, 2012</p> <p><b>Kendall Toyota</b> Eugene, Oregon, 2010</p> <p><b>Lexus of Las Vegas</b> Las Vegas, Nevada, 2009</p> <p><b>Mark Miller Toyota</b> Salt Lake City, Utah, 2009</p> <p><b>Sewell Lexus Pre-Owned</b> Fort Worth, Texas, 2009</p> <p><b>Toyota of Rockwall</b> Rockwall, Texas, 2008</p>	<p><b>Pat Lobb Toyota</b> McKinney, Texas, 2007</p>		
SILVER	<p><b>Fox Lexus</b> El Paso, Texas, 2016</p> <p><b>Wellesley Toyota</b> Wellesley, Massachusetts, 2016</p> <p><b>Stevenson Toyota</b> Jacksonville, North Carolina, 2016</p> <p><b>Victory Toyota</b> Seaside, California, 2016</p> <p><b>Dunning Toyota Ann Arbor</b> Ann Arbor, Michigan, 2014</p> <p><b>Tustin Toyota</b> Tustin, California, 2013</p> <p><b>OpenRoad Lexus</b> Richmond, British Columbia, 2013</p> <p><b>Alamo Toyota</b> San Antonio, Texas, 2012</p> <p><b>Vancouver Toyota</b> Vancouver, Washington, 2012</p> <p><b>Toyota of the Black Hills</b> Rapid City, South Dakota, 2012</p>	<th>CERTIFIED</th> <td> <p><b>Fox Toyota</b> El Paso, Texas, 2016</p> <p><b>Park Place Lexus</b> Plano, Texas, 2016</p> <p><b>Burleson Toyota</b> Burleson, Texas, 2016</p> <p><b>Toyota of Irving</b> Irving, Texas, 2016</p> <p><b>Livermore Toyota</b> Livermore, California, 2016</p> <p><b>Miracle Toyota</b> Winter Haven, Florida, 2016</p> <p><b>Hendrick Lexus</b> Merriam, Kansas, 2016</p> <p><b>Westbrook Toyota</b> Westbrook, Connecticut, 2013</p> <p><b>Grappone Toyota</b> Concord, New Hampshire, 2012</p> <p><b>Beaman Toyota</b> Nashville, Tennessee, 2011</p> <p><b>Toyota of Lakewood</b> Bradenton, Florida, 2013</p> <p><b>Kenny Ross Toyota</b> Coraopolis, Pennsylvania, 2013</p> </td>	CERTIFIED	<p><b>Fox Toyota</b> El Paso, Texas, 2016</p> <p><b>Park Place Lexus</b> Plano, Texas, 2016</p> <p><b>Burleson Toyota</b> Burleson, Texas, 2016</p> <p><b>Toyota of Irving</b> Irving, Texas, 2016</p> <p><b>Livermore Toyota</b> Livermore, California, 2016</p> <p><b>Miracle Toyota</b> Winter Haven, Florida, 2016</p> <p><b>Hendrick Lexus</b> Merriam, Kansas, 2016</p> <p><b>Westbrook Toyota</b> Westbrook, Connecticut, 2013</p> <p><b>Grappone Toyota</b> Concord, New Hampshire, 2012</p> <p><b>Beaman Toyota</b> Nashville, Tennessee, 2011</p> <p><b>Toyota of Lakewood</b> Bradenton, Florida, 2013</p> <p><b>Kenny Ross Toyota</b> Coraopolis, Pennsylvania, 2013</p>
<p><b>Bell Lexus</b> Scottsdale, Arizona, 2014</p> <p><b>Toyota Vandermeer</b> Cobourg, Ontario, Canada, 2014</p> <p><b>R&amp;H Toyota</b> Owings Mills, Maryland, 2014</p> <p><b>Transky Sawmill Toyota</b> Dublin, Ohio, 2014</p> <p><b>Lost Pines Toyota</b> Bastrop, Texas, 2013</p> <p><b>DCH Toyota of Torrance</b> Torrance, California, 2013</p> <p><b>Welland Toyota</b> Welland, Ontario, Canada, 2012</p> <p><b>Beaverton Toyota (TCSC)</b> Beaverton, Oregon, 2012</p> <p><b>Sun Toyota</b> Holiday, Florida, 2012</p> <p><b>Bennett Toyota</b> Allentown, Pennsylvania, 2012</p> <p><b>Toyota Scion of Bend</b> Bend, Oregon, 2011</p> <p><b>Legends Toyota</b> Kansas City, Kansas, 2011</p> <p><b>Lexus of Henderson</b> Henderson, Nevada, 2011</p> <p><b>Stouffville Toyota</b> Stouffville, Ontario, Canada, 2011</p>				

About These Charts: Toyota and Lexus continue to lead the industry with more LEED-certified dealership facilities in both the U.S. and Canada than any other auto manufacturer. As of June 2016, we have assisted 54 Toyota and Lexus dealerships — 49 in the United States and 5 in Canada — with LEED certification.

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.

LEED, or 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.

## ENVIRONMENTAL MANAGEMENT SYSTEMS

### FG31 • ISO 14001 Certifications of Toyota’s North American Facilities

	LOCATION	ORIGINAL CERTIFICATION DATE	DATE OF LATEST RECERTIFICATION
Manufacturing Plants	Huntsville, Alabama	2005	2016
	Long Beach, California	1998	2016
	Princeton, Indiana	1999	2014
	Georgetown, Kentucky	1998	2016
	St. Louis, Missouri	1998	2014
	Troy, Missouri	1998	2014
	Blue Springs, Mississippi	2012	2015
	Jackson, Tennessee	2007	2016
	San Antonio, Texas	2008	2014
	Buffalo, West Virginia	2000	2016
	Woodstock, Ontario	2009	2016
	Cambridge, Ontario	1998	2016
	Delta, British Columbia	1997	2015
	Baja California, Mexico	2006	2015
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 third-party certified to the ISO 14001 standard, the International Organization for Standardization’s standard for designing and implementing an effective environmental management system.

## LEED® CERTIFICATION

### FG32 • Toyota’s North American Facilities With LEED® Certifications

TOYOTA FACILITY	LOCATION	YEAR	CERTIFICATION LEVEL
Chicago Service Training Center	Aurora, Illinois	2015	NC Gold
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

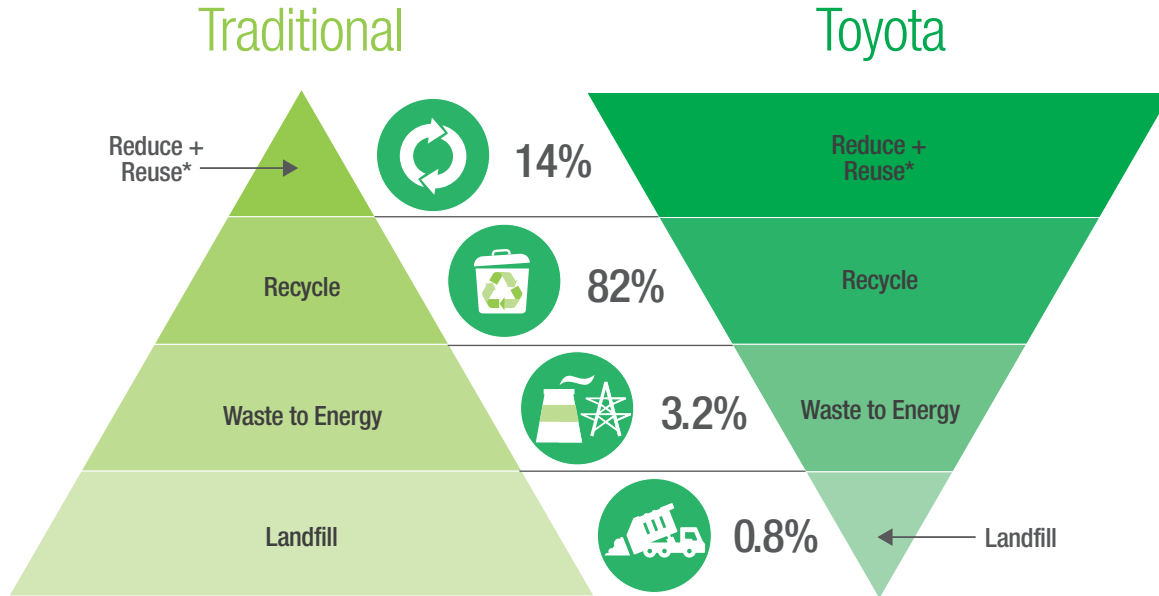
NC = new construction      CI = commercial interiors

About This Chart: A total of 13 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. Toyota is pursuing LEED for the new North American headquarters campus being built in Plano, Texas, and for the new sites under construction in York, Michigan, and Georgetown, Kentucky.



# MATERIALS

## FG21 • Waste Management at Toyota Motor North America



Total Non-Regulated Waste: **902,428,000 lbs.**

**96%** 2015 3R Rate

(Reduce + Reuse + Recycle) / (Reduce + Reuse + Recycle + Waste to Energy + Landfill)

\* We combine Reduce and Reuse into a single category because we do not yet track these separately. Additional reduce and reuse activities have occurred but have not yet been calculated using our new methodology.

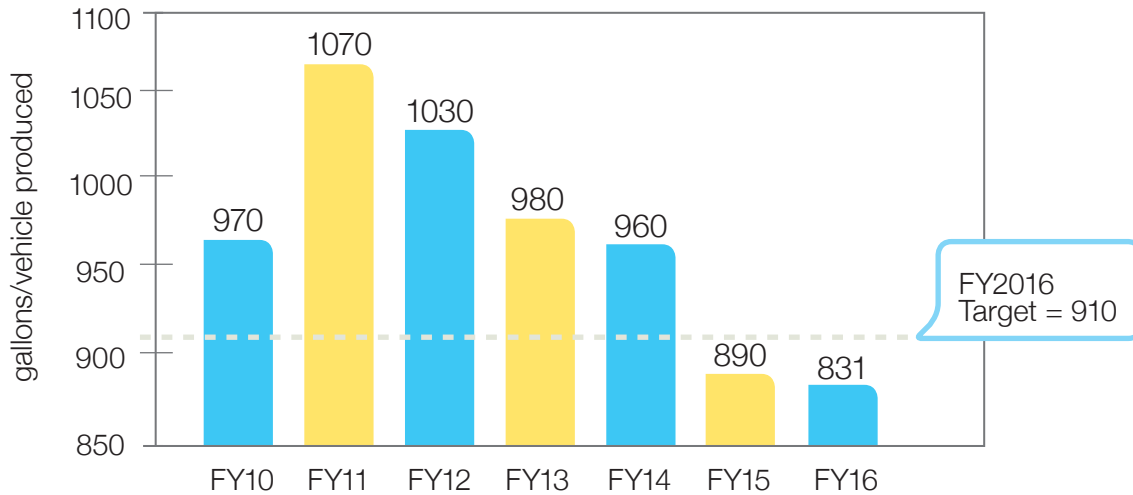
Based on calendar year 2015 data to align with EPA's WasteWise program. Scope includes all North American assembly and unit plants, plus U.S. parts and vehicle distribution centers and sales offices. Data includes non-regulated waste only (i.e., does not include hazardous, universal, special or state-regulated wastes).

About This Chart: As part of Toyota's environmental action plan for fiscal years 2014 to 2016, we set a target to develop and test a new target for waste. We started by identifying a new key performance indicator (KPI) in 2014, the 3R Rate. Toyota's 3R Rate is defined as: (Reduce + Reuse + Recycle) / Total Waste

Toyota's 3R Rate was 96 percent using calendar year 2015 data. (We are using calendar year data instead of fiscal year data to align with EPA's WasteWise program.) Our 3R Rate counts all types of non-regulated waste (including scrap steel) and covers all North American assembly and unit plants as well as U.S. parts and vehicle distribution centers and sales offices.

# WATER

## FG20 • Water Withdrawal per Vehicle Produced



\* Includes Toyota Motor 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: During fiscal year 2016, Toyota withdrew 1.62 billion gallons of water – a 5.8 percent decrease from the previous year – at more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D centers and offices.

Of the total amount of water withdrawn, 94.8 percent came from municipal sources, 5.1 percent from surface water and the remaining 0.1 percent was rain water.

Our metric counts water withdrawals, such as from a public utility or surface water. We recently completed 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.

Our consolidated water target, which covers all of our sites, was to reduce water withdrawals by 6 percent per vehicle produced by fiscal year 2016, from a baseline of fiscal year 2010.

We met this target in fiscal year 2015, one year ahead of schedule. At the end of fiscal year 2016, we had achieved a 14 percent reduction from our baseline in water withdrawals per vehicle produced.