

TOYOTA

# Decarbonizing at Scale: Environmental Challenge 2050

**Toyota Motor North America**

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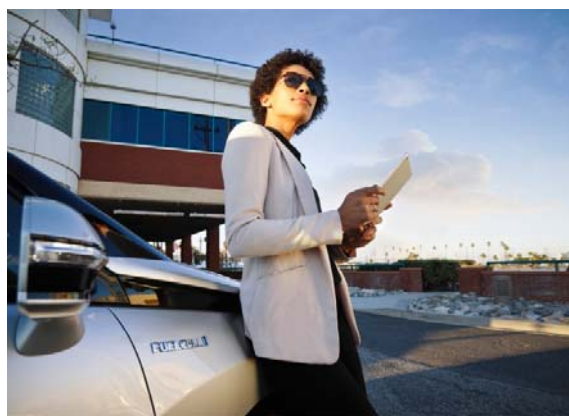


LET'S MAKE A BETTER PLANET



## AGENDA

- + Toyota and the Environment
- + Challenge 2050
- + Areas of Focus
- + Sustainable Development Goals
- + Expectations
- + Renewable Energy



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# ENVIRONMENTAL SUSTAINABILITY IS IN OUR DNA



THE **TOYOTA** WAY

CONTINUOUS IMPROVEMENT

RESPECT FOR PEOPLE & THE ENVIRONMENT

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## ENVIRONMENTAL CHALLENGE 2050



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<b>CHALLENGE 1</b> Eliminate almost all CO <sub>2</sub> emissions from Toyota vehicles 	<b>CHALLENGE 2</b> Partner with suppliers and dealers to help them eliminate CO <sub>2</sub> from their operations 	<b>CHALLENGE 3</b> Eliminate all CO <sub>2</sub> emissions from Toyota facilities and processes 
<b>CHALLENGE 4</b> Ensure all Toyota facilities and processes conserve and protect water resources 	<b>CHALLENGE 5</b> Ensure all Toyota facilities and processes support a recycling-based society 	<b>CHALLENGE 6</b> Ensure all Toyota facilities and processes operate in harmony with nature 

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## ENVIRONMENTAL FOCUS AREAS

**TOYOTA NA MEASURES ENVIRONMENTAL PERFORMANCE ACROSS FOUR KEY FOCUS AREAS.**

Toyota's environmental activities in North America are designed around these core environmental sustainability areas that drive our planning, strategies and actions.

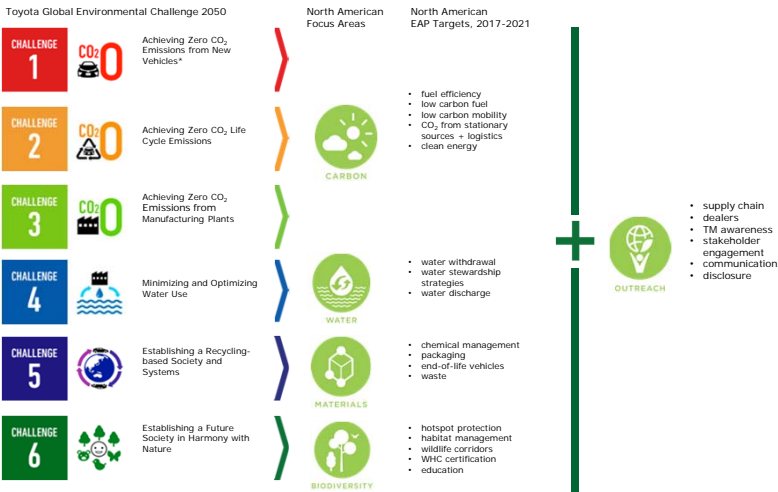
 <b>CARBON</b>	 <b>WATER</b>
 <b>MATERIALS</b>	 <b>BIODIVERSITY</b>

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# FOCUS AREAS & CHALLENGE 2050

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\*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.

# LEED CATEGORY ALIGNMENT

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## UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

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## CONNECTING SDGs WITH OUR FOCUS AREAS



## SHAREHOLDER & PUBLIC EXPECTATIONS

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PLUS: the scope of reporting, actions and expectations is increasing rapidly

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## CARBON

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### HOW DO WE REDUCE CARBON?

We reduce CO<sub>2</sub> emissions from our vehicles through improved fuel efficiency and the use of hybrid technology, hydrogen fuel cells and electrification.

In our manufacturing plants and logistics operations, we reduce CO<sub>2</sub> emissions through innovative projects that cut energy and fuel consumption and increase our use of renewable energy.



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**UNINSPECTED** **ONE TOYOTA**

# Sustainability Principles for One Toyota

*...relocate to a single, state-of-the-art, environmentally-sustainable campus in Plano\**

\*presented October, April 28, 2014

- Net Positive Energy** (Net Carbon Negative): Campus buildings and site **generate** more green power than they **consume**
  - On-site generation using Renewable Burning + geothermal Cycles
  - On-site Energy Generation: Solar (Solar Panels, Wind Turbines), Fuel Cells
  - Waste-to-Energy Heating Plants
  - Heat-Recovery: Exhaust-Heating + Cooling
  - Wet-Storage: Storage
  - Greenhouse: Greenhouse
- Zero Waste to Landfill** and **Waste Minimization**: reduced policy-driven recycling and waste reduction goals
  - Minimize generation of Residue + Waste on each hour
  - 400-ton/Year Waste Avoidance
  - Waste-to-Energy: Wet-Storage + Fuel Cells
  - Waste-to-Energy Plant: Converting Campus Wastewater Hydrogen Fuelcell
- Net Zero Water Campus**: **not** use more water than the site can capture annually via **rainwater** and **technology**
  - Water Reuse
  - Water Recycling (Wastewater Irrigation (Desalination/Cleaned))
  - High Efficient Plumbing
  - Waterless Toilet
- Net Greenhouse**: **not** positive impact to native species and pollinators
  - Wildlife + Invertebrate Supporting Landscaping
  - Wildlife Management: Aquatic + Surface Habitat
  - Wildlife Safety for Wildlife
- Environmental Quality + Healthy Space**: **minimize** impact to the environment, the community, + team members / associates
  - Wildlife Support + Landscaping
  - Wildlife Safe Road + Transit Link: Emission Car Program
  - Wildlife Support: Pedestrian, Parking + Storage
- Net Greenhouse + Net Carbon Negative**: **minimize** impact to the environment, **Reduce** + **green's** operations and **advance** for **concrete** environmental performance
  - Leadership in Environmental Policy
  - Leadership in Environmental Policy: Employee
  - Waste Certification
  - Waste-to-Energy: Wet-Storage + Fuel Cells
  - Waste-to-Energy: Wet-Storage + Fuel Cells



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The **8.79-megawatt** solar array is the largest on-site corporate solar installation among non-utility companies in the state of Texas. In total, the system is expected to provide approximately one-third of the power needed for Toyota's new headquarters campus.



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## CARBON HIGHLIGHT

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### SOLAR IN SAN ANTONIO

3.2-megawatt solar array is the second largest on-site corporate solar installation in the state of Texas



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## CARBON HIGHLIGHT

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### THE POWER OF VPPAs

VIRTUAL  
POWER  
PURCHASE  
AGREEMENT

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PLANET

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ENVIRONMENTAL  
CHALLENGE 2050



#### BY DRIVING A CLEAN MOBILITY FUTURE TOGETHER

Toyota is committed to reducing emissions from the energy we use. We are taking action, through power purchase agreements, to supply emissions free renewable energy to the same grid we get our power from. This is one step in converting our energy demand to emissions free energy.

TARGET RENEWABLE  
ENERGY SOURCES =  
ZERO EMISSIONS



WIND

SOLAR

#### VISION FOR TOYOTA'S VPPAs



=  
CLEANER  
MOBILITY



NEW  
RENEWABLE  
POWER  
GENERATORS

UP TO  
**40**  
PERCENT  
REDUCTION  
IN TOYOTA'S  
US EMISSIONS

VPPAs = New Renewable Generation = Reduced Carbon Emissions = Environmental Sustainability

Want to learn more? Go to [www.toyota.com/usa/environmentreport/education.html](http://www.toyota.com/usa/environmentreport/education.html)

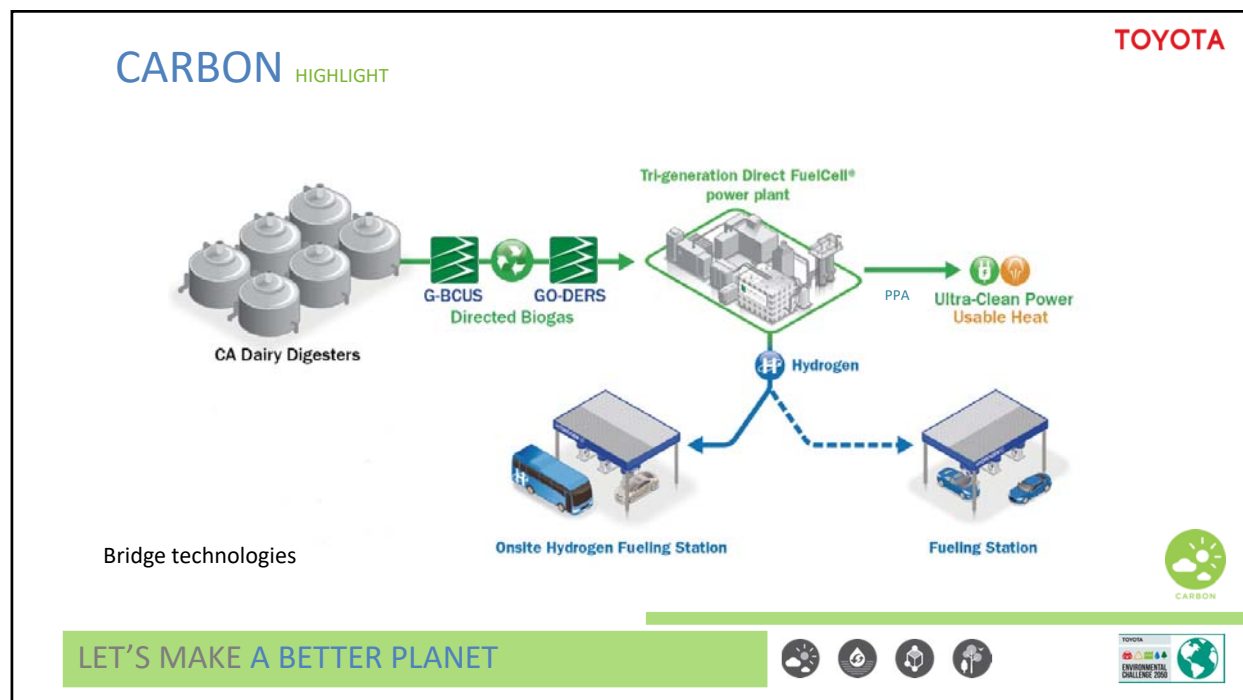


CARBON

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**GET MORE INFORMATION**

The laptop screen shows the Toyota website with the headline **LET'S MAKE A BETTER PLANET.** Below this, it mentions **PRODUCTS** and features a photo of two women smiling in a car. A **Google** logo is overlaid on the right side of the laptop screen.

**2018 Toyota North American Environmental Report**

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TOYOTA ENVIRONMENTAL CHALLENGE 2050

