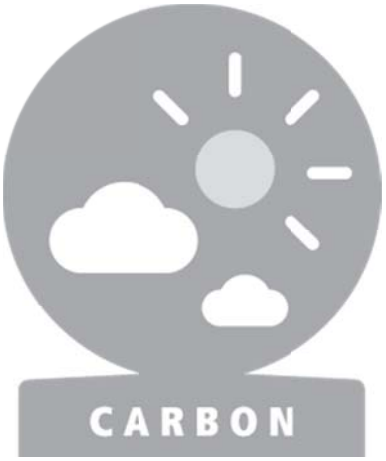
CARBON

Toyota Motor North America Position Statement



Released April 2018

Updated December 2019

"CARBON" *is one of Toyota's four environmental focus areas in North America. Climate change is a significant challenge facing the global community. Our carbon strategy includes reducing CO_2 emissions from new vehicles, eliminating CO_2 emissions from our operations, and sharing our know-how to help suppliers, dealers and other stakeholders eliminate their CO_2 emissions. We are working at every stage of the vehicle life cycle to help the world build a low carbon future.*

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TMNA'S CARBON POSITION

Taking urgent action to combat climate change and its impacts by building resilience and improving awareness is a shared challenge that requires a shared response. By developing vehicles that emit less carbon dioxide and finding ways to use more sustainable energy, we are helping to build a more sustainable future for society, business and the planet.

TMNA Environmental Sustainability's CARBON focus area relates to Challenges 1, 2 and 3 of Toyota's Environmental Challenge 2050. These three challenges call for reducing new vehicle CO_2 emissions by 90 percent from 2010 levels, helping suppliers and dealers eliminate CO_2 emissions from their operations, and eliminating CO_2 emissions from our facilities and processes. In support of these challenges, TMNA will reduce environmental impacts, help protect the natural world and share its know-how with others, to help create net positive value for the benefit of our company and society. Toyota aims to create net positive value for CARBON by engaging in and supporting efforts that generate renewable energy greater than 100 percent of the total amount of energy we use. We recognize climate change presents an urgent and likely irreversible threat and we must be part of the solution. By 2050, we will strive to:

1. Eliminate GHG emissions from operations.
2. Eliminate our dependence on fossil fuels in operations by switching to renewable energy sources.
3. Reduce new vehicle CO_2 emissions by 90 percent from a 2010 baseline by improving fuel efficiency, increasing sales and offerings of vehicles with alternative powertrains, and promoting low carbon fuels.
4. Engage with communities and nonprofit organizations to enhance their energy security by helping them conserve energy and switch to renewable energy sources.
5. Assist our major suppliers and dealers with adopting these same goals.

100% Protection	+	Zero Impact	+	Share Know-How	=	Net Positive Value
100% Energy Independence from Fossil Fuels/ Eliminate pollution from brown power	+	Zero GHG Emissions	+	Enhance Energy Security	=	Generating more renewable energy than we use

The table above represents our aspirational goals. TMNA will adopt policies and develop actions plans and procedures that aim to achieve these goals in all aspects of our operations.

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TMNA's Approach to a Low Carbon Society

Toyota is ready to do our part to help build a low carbon future. TMNA's approach to Challenges 1, 2 and 3 involves three action areas:

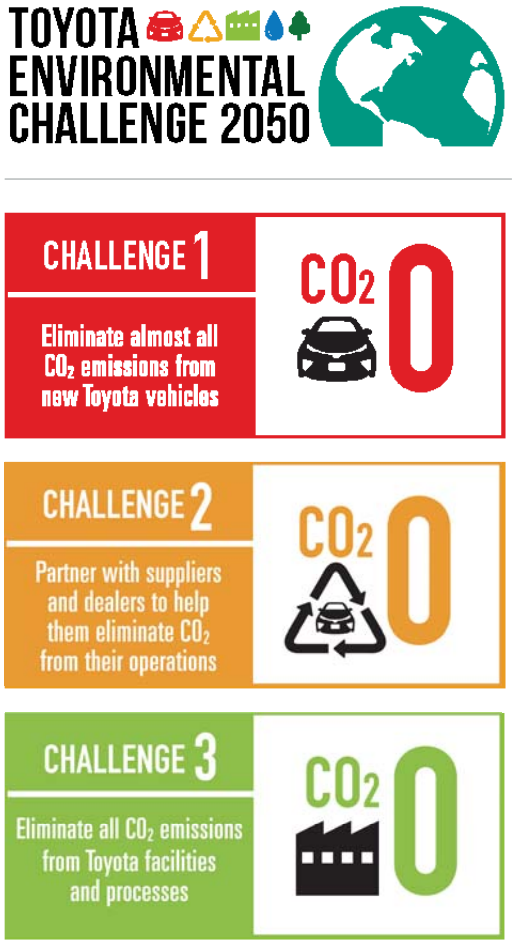
1. **100 percent protection by reducing new vehicle CO_2 emissions** through improving the fuel efficiency of conventional gasoline vehicles, increasing hybrid technology market penetration, developing advanced technology vehicles, and promoting low carbon fuels (Challenge 1). We continue to pioneer the path to greater engine efficiency and next-generation vehicles by providing a range of intelligently engineered products to meet our customers' diverse needs. We also work with a variety of partners on how to make alternative fuels from renewable sources, such as hydrogen for fuel cell electric vehicles and electricity to power battery electric and plug-in vehicles.

2. **Sharing our know-how** and engaging in outreach with stakeholders – especially suppliers who manufacture the parts and materials used to produce Toyota vehicles and dealerships who sell and service our vehicles – to eliminate CO_2 emissions from the vehicle life cycle (Challenge 2). We will work with all stakeholder groups to scale up progress and support efforts to generate more renewable energy than the total amount of energy we consume. Key to our engagement is close collaboration with communities, suppliers and dealerships toward building a low carbon society.

3. **Zero impact by reducing CO_2 emissions from operations** in ways that eventually will lead us to be net zero for carbon (Challenge 3). Getting to zero requires us to rethink the way we power our facilities, especially our manufacturing plants. We are implementing projects that reduce our energy consumption, investing in renewable energy and improving the GHG intensity of both owned and third-party logistics.

06 / TMNA's Approach to a Low Carbon Society

Our CARBON focus area relates to Challenges 1, 2 and 3 of Toyota's Environmental Challenge 2050. This challenge recognizes climate change as a global issue that must be addressed across the vehicle life cycle. Toyota is ready to do our part to build a low carbon future. Here in North America, we developed an approach to conquering this challenge that involves three actions:



CARBON

Reducing New Vehicle CO_2 Emissions:

- Advance next-generation powertrains and vehicles
- Support infrastructure development for advanced technology running on alternative fuels
- Help develop low carbon vehicle fuels

Sharing Know- How:

Support efforts to generate more renewable energy than the total amount of energy we use by engaging with:

- Local communities
- Major suppliers
- Dealers

Eliminating CO_2 Emissions From Operations:

- Reduce energy use
- Use 100% renewable energy

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NA Mechanisms to Address Carbon

TMNA will take a systems approach that considers linkages among the four focus areas (Carbon, Water, Materials and Biodiversity). Climate change, water, materials and biodiversity are intertwined issues and should not be addressed in isolation.

We will consider the following mechanisms to address climate change risks and opportunities and help us create net positive value for carbon:

Products	Operations	Stakeholders
• Fuel efficiency improvements • Product mix • EV/ FCEV infrastructure expansion • Green mobility solutions	• Low and zero carbon energy sources, incl. onsite and offsite renewable energy generation • Energy efficiency improvements	• Supply chain GHG reductions • Outreach • Communities

GLOBAL SOCIETAL CONTEXT

Earth's average temperature has risen over the past century. Human influence on the climate system is clear. Anthropogenic greenhouse gas (GHG) emissions have increased since the pre-industrial era driven largely by economic and population growth. From 2000 to 2010, emissions were the highest in history.[1]

According to the International Energy Agency, the transportation sector is responsible for approximately 23 percent of the world's total carbon dioxide (CO_2) emissions from fuel combustion.

Continued emission of greenhouse gases (GHGs) – including carbon dioxide – is expected to cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and perhaps irreversible impacts for people and ecosystems. Surface temperature is projected to rise over the 21st century under all assessed emission scenarios. It is very likely that heat waves will occur more often and last longer, and that extreme precipitation and storm events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise.

The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) concludes climate risk can only be limited by substantial and sustained reductions in GHG emissions, together with adaptation measures.

In December 2015 at the UN Climate Conference in Paris (known as COP21), 196 nations agreed to the Paris Agreement, a pact that commits to reducing greenhouse gas emissions in order to keep warming "well below 2° Celsius," and to pursue efforts to limit warming to 1.5° Celsius. On October 5, 2016, the threshold for entry into force of the Paris Agreement was reached and the Agreement entered into force on November 4, 2016.

In October 2018, the IPCC issued a special report on the impacts of global warming of 1.5°C. According to the United Nations:

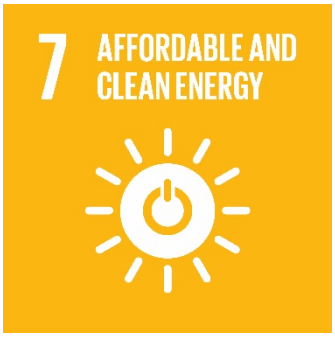
> "With clear benefits to people and natural ecosystems, the report found that limiting global warming to 1.5°C compared to 2°C could go hand in hand with ensuring a more sustainable and equitable society. While previous estimates focused on estimating the damage if average temperatures were to rise by 2°C, this report shows that many of the adverse impacts of climate change will come at the 1.5°C mark.
>
> The report also highlights a number of climate change impacts that could be avoided by limiting global warming to 1.5°C compared to 2°C, or more. For instance, by 2100, global sea level rise would be 10 cm lower with global warming of 1.5°C compared with 2°C. The likelihood of an Arctic Ocean free of sea ice in summer would be once per century with global warming of 1.5°C, compared with at least once per decade with 2°C. Coral reefs would decline by 70-90 percent with global warming of 1.5°C, whereas virtually all (> 99 percent) would be lost with 2°C.
>
> The report finds that limiting global warming to 1.5°C would require 'rapid and far-reaching' transitions in land, energy, industry, buildings, transport, and cities. Global net human-caused emissions of carbon dioxide (CO_2) would need to fall by about 45 percent from 2010 levels by 2030, reaching 'net zero' around 2050. This means that any remaining emissions would need to be balanced by removing CO2 from the air."[2]

[1] Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) "Climate Change 2014: Synthesis Report"

[2] https://www.un.org/en/sections/issues-depth/climate-change/index.html

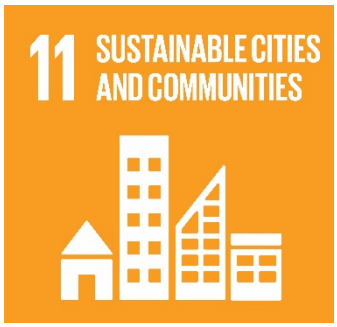
In September 2015, the UN announced its 2030 Agenda for Sustainable Development, a plan of action for people, planet and prosperity that establishes 17 Sustainable Development Goals (SDGs) and 169 targets. These goals and targets, agreed to by 193 countries, will stimulate action through 2030 in areas of critical importance for humanity and the planet. Businesses are expected to play a significant role in achieving the bold and transformative steps urgently needed to shift the world onto a sustainable and resilient path.

The UN SDGs recognize climate change as an area of critical importance.



UN Sustainable Development Goal 7: Affordable and Clean Energy for All

3 targets to ensure universal access to energy, substantially increase the share of renewable energy globally, and double the rate of improvement in energy efficiency



UN Sustainable Development Goal 11: Sustainable Cities and Communities

7 targets to ensure access to safe and affordable housing; access to safe, affordable, accessible and sustainable transport systems; enhance inclusive and sustainable urbanization; protect the world's cultural and natural heritage; significantly reduce deaths from disasters; reduce the adverse per capita environmental impact of cities; and provide universal access to green and public places

UN Sustainable Development Goal 13: Combat Climate Change Impacts

3 targets to strengthen resilience and adaptive capacity, integrate climate change measures into national policies and planning, and improve education and awareness

Toyota's Challenges 1, 2 and 3 align with the UN's 7th, 11th and 13th Sustainable Development Goals.

TOYOTA'S GLOBAL POSITION

Toyota Environmental Challenge 2050: CO_2

Through Challenges 1, 2 and 3 of the Toyota Environmental Challenge 2050, Toyota views climate change as a global priority management issue. To combat climate change and help keep temperature rise below 2° Celsius, Toyota set three carbon goals for 2050 as part of the Toyota Environmental Challenge 2050: 1) Reduce CO_2 emissions from new vehicles by 90 percent from 2010 levels, 2) Reduce life cycle CO_2 emissions to zero, and 3) Reduce CO_2 emissions from operations to zero.

Challenge 1: In addition to improving the fuel efficiency of conventional gasoline vehicles, Toyota will promote the development and acceptance of next-generation vehicles with low or zero CO_2 emissions—hybrid, plug-in hybrid, electric and fuel cell vehicles. Toyota will also cooperate with relevant stakeholders to provide support toward the development of infrastructure for alternative fuels.

Challenge 2: Toyota will undertake efforts to eliminate CO_2 emissions from traveling and manufacturing as well as all CO_2 emissions from materials production and vehicle disposal and recycling. We will promote environmentally preferable design by choosing appropriate materials. We will develop and expand the use of materials with lower CO_2 emissions during production and will reduce the quantity of materials and number of parts used in a vehicle. We will also adopt more recycling and biological materials for vehicle production and enhance easy-to-dismantle design.

Challenge 3: The two main pillars of our strategy to achieve zero CO_2 emissions at our plants are improving manufacturing technology and switching to different forms of energy. We will simplify and rationalize the manufacturing process to shorten it and reduce time, thus cutting CO_2 emissions. We will reduce CO_2 emissions in all process types. We will cut CO_2 emissions by adopting renewable energy sources such as solar and wind power, and by utilizing hydrogen energy.

Through our commitment to respect for the planet, we aim to meet our 2050 goals by engaging the talent and passion of our people, who believe there is always a better way. Toyota will lead the way to the future of mobility and enrich lives around the world by implementing steady initiatives to attain sustainable development. Toyota will go beyond zero environmental impact to help create net positive value for society.

TMNA CONTEXT

Risks & Opportunities in North America

Toyota recognizes a number of **risks** related to climate change that could impact our operations in North America:

- Toyota may be adversely affected by natural calamities, fuel shortages or interruptions in social infrastructure including energy and fuel supply, transportation systems, gas, water or communication systems. Should the major markets that supply materials, parts and components for the manufacture of Toyota products or in which Toyota's products are produced, distributed or sold be affected by any of these events, it may result in disruptions and delays in the operations of Toyota's business. Should significant or prolonged disruptions or delays related to Toyota's business operations occur, it may adversely affect Toyota's financial condition and results of operations.[3]
- Laws and regulations related to climate change currently affect both our products and operations. New laws or changes to existing laws may subject Toyota to additional expenses, which may adversely affect Toyota's financial condition.
- Lagging in actions to address climate change may negatively impact our reputation/brand image, which could impact sales and our ability to hire and retain qualified team members.
- Toyota Motor North America (TMNA) expects energy rates to continue to rise.

By offering solutions to climate change, Toyota can become an automotive leader in greenhouse gas reduction. **Opportunities** related to climate change mitigation and adaptation include:

- Enhanced reputation, which can lead to increased market share and better relationships with stakeholders, including NGOs and local communities.
- Minimizing life cycle CO_2 emissions by using sustainable materials in vehicle interiors (e.g., ECO plastics, kenaf, soy, etc.), which could replace parts that have a larger carbon footprint. (The use of alternative materials including those with recycled content must meet quality, safety and cost goals.)
- Cost savings, for example, from reduced energy consumption.

[3] http://www.toyota-global.com/pages/contents/investors/ir_library/sec/pdf/20-F_201703_final.pdf

North American Perspective

The following factors place TMNA in a key position to lead Toyota to achieve the 1st, 2nd and 3rd global Environmental Challenge 2050 goals:

- North America (U.S., Canada, Mexico) is one of the world's largest auto markets and the second largest auto producing region. North America is also the world's second largest GHG emitting region. According to the U.S. Environmental Protection Agency (EPA), the transportation sector is responsible for 29 percent of U.S. GHG emissions.[4]
- North America is Toyota's largest sales market by volume and Toyota's second largest production region. Toyota Motor Manufacturing, Kentucky (TMMK) is currently Toyota's largest plant in the world in terms of production.
- The U.S. has one of the most sophisticated and dynamic clean air regulatory frameworks in the world, and Canada and Mexico tend to adopt these requirements.

Toyota's model mix, as with the model mix of every auto manufacturer, is largely driven by consumer demand. The challenge is to design and build vehicles that reduce tailpipe emissions including GHGs without compromising what customers want.

4 U.S. Environmental Protection Agency (2019). Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017