

Woven Planet Bonds

Report

January
2023



Toyota Motor Corporation has collectively named bonds the proceeds of which are to be used for projects that contribute to solving environmental and social issues as “Woven Planet Bonds.” In March 2021, Toyota has developed the Woven Planet Bond Framework (Sustainability Bond Framework) (the “Framework”) specifically to issue Woven Planet Bonds which are sustainability bonds.

The Framework has obtained a second party opinion from Moody’s ESG Solutions (formerly known as Vigeo Eiris) — an independent entity — that the Framework is aligned with the Green Bond Principles (GBP) 2018, Social Bond Principles (SBP) 2020, and Sustainability Bond Guidelines (SBG) 2018 as administered by the International Capital Market Association (ICMA).

Toyota intends to issue other bonds outside this Framework which will also be titled Woven Planet Bonds, the proceeds of which will mainly be allocated to a wide range of initiatives related to the U.N. Sustainable Development Goals (SDGs). When used herein, the phrase “Woven Planet Bonds” refers to those Woven Planet Bonds issued in May 2022 under the Framework.

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Approach to Woven Planet



Through the issuance of Woven Planet Bonds, we hope that many people around the world can deepen their understanding towards Toyota's "Woven Planet" initiatives.

The "Woven" of Woven Planet stems from the founding spirit that Sakichi Toyoda, Toyota Group's founder, had of "wanting to make his mother's work easier" when he invented the Toyoda Automatic Loom that led to the establishment of Toyota. The drive to serve others and make their work easier — was a core value of Toyota carried on to today. "Woven Planet" initiatives represent the Company's determination to move step by step toward the future in this Toyota's founding spirit and the SDGs spirit of "leaving no one behind."

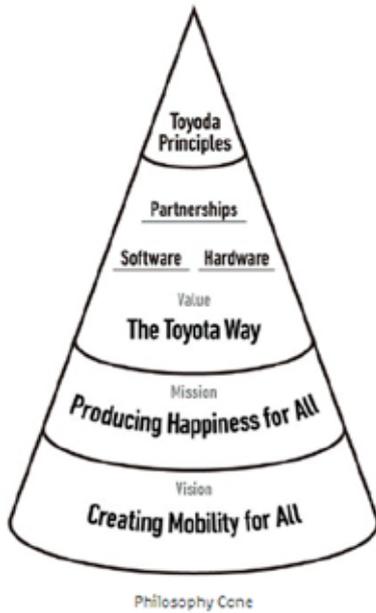
It also means to "weave" together the "streets" that are necessary to support the development and implementation of autonomous driving and mobility services. Toyota will aim to create new services and products by connecting goods, information, and cities through software and connected technology centered on people.

Meanwhile, the "Planet" of Woven Planet comes from the ambition to leave a beautiful home for the next generation, which embodies the global perspective that Earth is our "home planet," similar to our hometown and home country. To contribute to the future, instead of conflicts, if each individual were united with the simple idea of "wanting to use one's strength for others", Toyota believe this would contribute to achievement of the SDGs.

[LINK](#) [Woven Planet Bonds Framework](#) 



Toyota Philosophy



MISSION	<p>Producing Happiness for All</p> <p>We make the happiness of others our first priority. We make better products more affordable. We value every second and every cent. We give all our effort and offer all our ingenuity. We look forward, not backward. We believe the impossible is possible.</p>			
VISION	<p>Creating Mobility for All</p> <p>In a diverse and uncertain world, Toyota strives to raise the quality and availability of mobility. We wish to create new possibilities for all humankind and support a sustainable relationship with our planet.</p>			
VALUE	<p>The Toyota Way</p> <p>Combining software, hardware and partnerships to create unique value that comes from the Toyota Way</p> <table border="1" style="width: 100%;"> <tr> <td style="vertical-align: top;"> <p>Software</p> <p>Applying imagination to improve society through a people-first design philosophy. Practicing Genchi Genbutsu to understand operations at their essence.</p> </td> <td style="vertical-align: top;"> <p>Hardware</p> <p>Creating a physical platform to enable the mobility of people and things. A flexible system that changes with the software.</p> </td> <td style="vertical-align: top;"> <p>Partnership</p> <p>Expending our abilities by uniting the strength of partners, communities, customers and employees to produce mobility and happiness for all.</p> </td> </tr> </table>	<p>Software</p> <p>Applying imagination to improve society through a people-first design philosophy. Practicing Genchi Genbutsu to understand operations at their essence.</p>	<p>Hardware</p> <p>Creating a physical platform to enable the mobility of people and things. A flexible system that changes with the software.</p>	<p>Partnership</p> <p>Expending our abilities by uniting the strength of partners, communities, customers and employees to produce mobility and happiness for all.</p>
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The automobile industry is entering a once-in-a-century transformational period. In such times when the future is difficult to be foreseen, we have formulated the “Toyota Philosophy” as a signpost, for our employees worldwide and their families as well as for the next generation that will support the future of Toyota.

We have defined our mission as “Producing Happiness for All” in our Toyota Philosophy. Sakichi Toyoda invented an automatic loom and Kiichiro Toyoda took on the challenge of domestic car-making, which many at the time said was impossible. However, we believe that what they truly wanted to create was a sense of happiness for any customer who used their products, as well as happiness for all the people involved in creating it. We believe that even if we change what we produce, our pursuit of producing happiness will never change. We have also placed great importance on delivering our products at a “good quality and low price” to as many people as possible. “Mass Production” is what Toyota needs to do to be Toyota. Therefore, we will continue to focus on “Mass Production” and bringing “happiness for all.”

Next, to realize our mission, we defined our vision as “Create Mobility for All.” We use the word “mobility” with an added meaning, that “each person should take action.” We believe what’s required for us is that each Toyota person, as a businessperson, and before that, as an individual, should take actions that lead to the happiness of humankind, including actions concerning the global environment.

Finally, we will continue to create irreplaceable value with various partners by both doing things the “Toyota Way,” which is to relentlessly commit towards *monozukuri* (manufacturing), and by valuing imagination for people and society.

The Toyota Philosophy, which is a continuation of the Toyoda Precepts, is the very spirit of the SDGs of “leaving no one behind.” We believe that management based on this philosophy will lead to sustainable efforts toward achieving these goals along with the aim of international society to “make a better world.”



Approach to Safety

Toward achieving a safe mobility society, Toyota believes it is important to promote an “Integrated Three Part Initiative,” involving people, vehicles and traffic environment, and pursue “Real-world Safety” by learning from actual accidents and incorporating that knowledge into vehicle development. Toyota has also defined its Integrated Safety Management Concept as the basic philosophy behind technologies toward achieving zero casualties from traffic accidents and is moving forward with developing safe vehicles.

To be more specific, at Toyota, we are working on installing the Toyota Safety Sense system that packages multiple active safety systems, including collision damage mitigation braking, in almost all our passenger vehicle models (in Japan, the United States, and Europe). We are also working on developing the Intelligent Clearance Sonar (ICS) (Parking Support Brakes [Stationary Objects]), which helps prevent accidents caused by pressing the wrong pedal led out of Japan. We have also developed a new sudden acceleration suppression system to help prevent accidents caused by pressing the wrong pedal in a road condition with no obstacles, which will be installed in subsequent Toyota vehicles.

In real traffic environments, installation of the ICS in cars has reduced the number of accidents caused by pedal misapplication by about 70 percent. It has also been confirmed that the ICS in combination with Toyota Safety Sense has reduced rear-end collisions by about 90 percent (Japan, Toyota comparison).

In addition, Toyota’s passive safety technology combines a body structure that absorbs collision energy with devices that efficiently protect vehicle occupants to minimize collision damage. In 1995, Toyota set up unique, stringent internal goals related to passive safety performance called “Global Outstanding Assessment (GOA)” in the pursuit of world-leading safety levels and developed a collision-safety body and passenger protection devices. Since then, to maintain leadership in this field, Toyota has continued to advance GOA, improving the real-world safety performance of its vehicles with respect to a wide variety of accidents.

To help achieve zero casualties from traffic accidents, Toyota has been conducting research and development on automated driving technologies since the 1990s. Toyota’s unique approach to automated driving, called the “Mobility Teammate Concept,” seeks out a relationship between people and vehicles so that they can communicate and mutually improve one another as companions would. Based on this philosophy, Toyota is aiming to help build a world in which every person, including the elderly and the physically challenged, can enjoy mobility safely, easily and freely. The Lexus Teammate and Toyota Teammate are advanced drive support technologies developed based on the Mobility Teammate Concept. With the functions of Advanced Drive for drive support on motor highways and Advanced Park for parking support in parking lots, these technologies enable the driver and the car to collaborate in raising the safety level and drive with the sense of a high level of security while providing less tiring, comfortable travel through the destination.





Approach to Environment

Toyota has been continuously following public opinions and trends and considering what issues should be focused upon, and working on environmental issues with new ideas and technologies in anticipation of future issues. However, there are still many global environmental issues to be addressed including climate change, water shortages, resource depletion and loss of biodiversity. We announced the Toyota Environmental Challenge 2050 in October 2015 so that each one of us can face these issues and continue to tackle challenges from a long-term perspective of the world 20 and 30 years ahead. Based on the six challenges, we are taking measures with the aim of achieving zero CO₂ emissions and a net positive environmental impact, and will contribute to the realization of a sustainable society.



<p style="text-align: center;">Achieve Zero CO₂ Emissions</p> <p style="text-align: center;">Life Cycle Zero CO₂ Emissions Challenge</p> <p>Challenge CO₂ 0 Completely eliminate all CO₂ emissions throughout the entire vehicle life cycle</p> <p style="text-align: center;">New Vehicle Zero CO₂ Emissions Challenge</p> <p>Challenge CO₂ 0 Reduce global*1 average CO₂ emissions (TtW*2) from new vehicles by 90 percent compared to Toyota's 2010 levels by 2050</p> <p style="text-align: center;">Plant Zero CO₂ Emissions Challenge</p> <p>Challenge CO₂ 0 Achieve zero CO₂ emissions at global plants by 2050</p>	<p style="text-align: center;">Achieve a Net Positive Environmental Impact</p> <p style="text-align: center;">Challenge of Minimizing and Optimizing Water Usage</p> <p>Challenge Minimize water usage and implement water discharge management according to individual local conditions</p> <p style="text-align: center;">Challenge of Establishing a Recycling-based Society and Systems</p> <p>Challenge Promote global deployment of End-of-life vehicle treatment and recycling technologies and systems developed in Japan</p> <p style="text-align: center;">Challenge of Establishing a Future Society in Harmony with Nature</p> <p>Challenge Connect the reach of nature conservation activities among communities, with the world, to the future</p>
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*1 Japan, U.S., Europe, China, Canada, Brazil, Saudi Arabia, India, Australia, Taiwan, Thailand and Indonesia

*2 Tank to Wheel: CO₂ emissions during driving (CO₂ emissions during the production stage of the fuel and electricity are not included; TtW emissions are zero in the case of battery electric vehicles and fuel cell electric vehicles)

In April 2021, Toyota proclaimed that it would address global-scale challenges to achieve carbon neutrality by 2050.

When undertaking its business activities globally, Toyota will coordinate with national governments to establish environmental infrastructure for promoting electrification while implementing electrified vehicle strategies that contribute to reducing CO₂ throughout the entire life cycle.

Toyota has sold a cumulative total of over 20.3 million electrified vehicles worldwide. As one of the first companies to respond to climate change risks, we have achieved a CO₂ emissions reduction of over 160 million tons.

Going forward, with regard to battery electric vehicles (BEVs), we intend to introduce models with dedicated platforms starting in 2022. In consideration of region-specific electric power conditions, we are promoting electrification from all directions, including hybrid electric vehicles (HEVs), plug-in hybrid vehicles (PHEVs), and fuel cell electric vehicles (FCEVs) in addition to BEVs.

We will continue to respond to market changes and adjust our BEV sales forecasts accordingly. In this way, we plan to continue to promote the acceleration of the expansion of electrified vehicle adoption. In the production field, we announced that we aim to achieve carbon neutrality at our plants by 2035.



Woven City

Toyota announced the outline for the “Connected City” project at CES 2020 held in Las Vegas, Nevada, United States in January 2020. This project will expand the use of the site of Toyota Motor East Japan, Inc.’s Higashi-Fuji Factory to create a concept city where technologies such as autonomous driving, MaaS (Mobility as a Service), personal mobility, robotics, smart home technology and AI will be introduced and tested in a real world environment where people live. With a view toward an era of connected goods and services that support people’s lives, the project aims to continue creating value and business models by rotating swiftly between developments and testing of technologies and services in the city. Toyota named the city “Woven City” based on the concept of interwoven mesh of roads laid throughout the city. Woven City will be a “Ever-evolving City” where the shape of the city is constantly changing and improving, by adopting Toyota’s *Kaizen* approach. — thinking that there is always a better way.

By centering around people and imagining the life of each individual and demonstrating future technologies in both the virtual and real worlds, we believe that it will be possible to maximize the potential of connecting people, buildings, vehicles and other goods and services in the city through information. We will work with various partner companies and researchers to create the new city in our quest to create an even-better way of life and mobility for all.

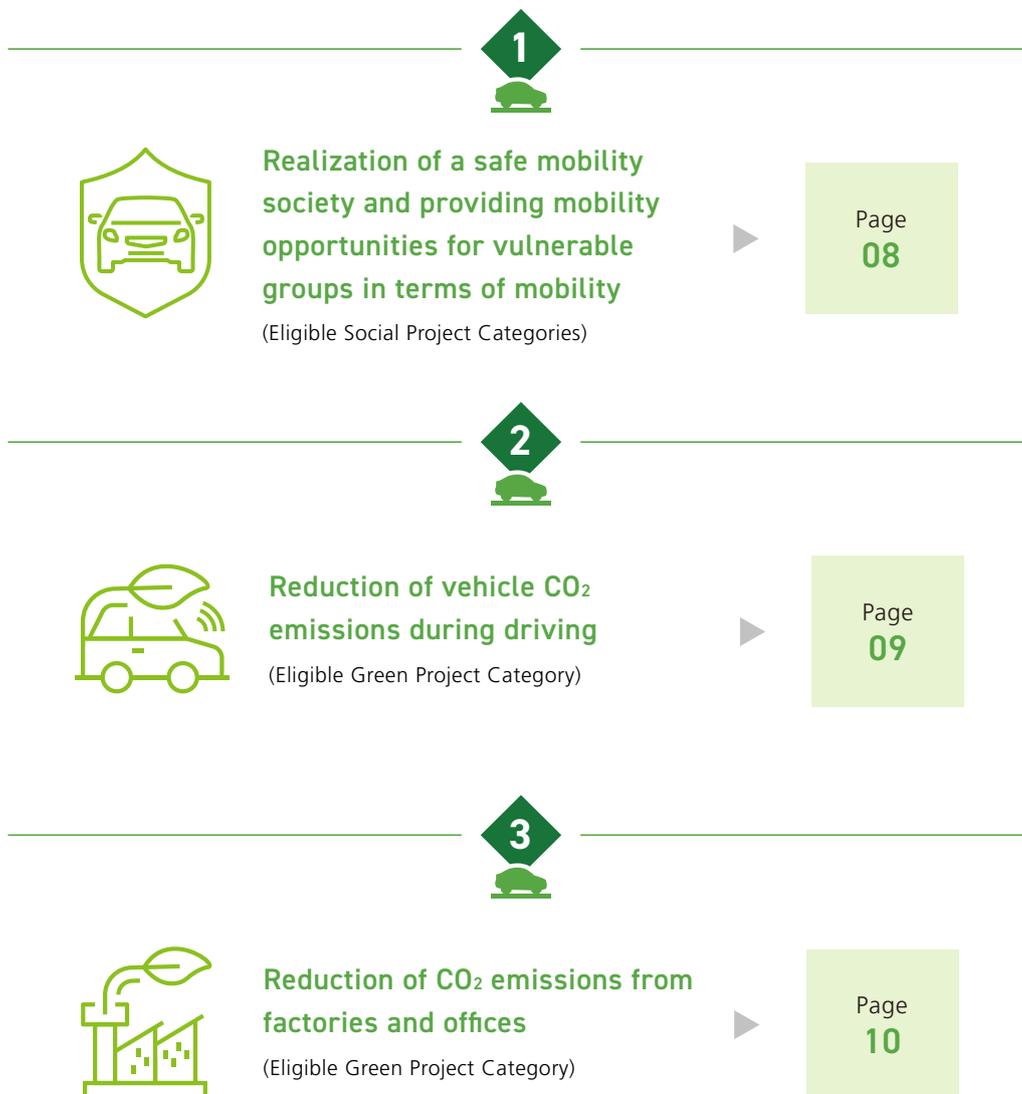
Woven City plays a major role in our effort towards “Woven Planet.” We believe that if everybody involved in Woven City plays his/her roles, we will become closer to achieving a mobility society that brings happiness around the world. Together with people everywhere, we would like to advance towards a better future one step at a time.





Use of Proceeds and Projects

Toyota will allocate an amount equal to the net proceeds from the issuance of the Woven Planet Bonds to new or existing projects that meet at least one of the Eligibility Criteria set forth below (Eligible Projects). Eligible Projects are comprised of “Eligible Green Projects” and “Eligible Social Projects.” For allocation to existing projects, projects financed up to 36 months prior to the date of the bond issuance will be eligible.





Realization of a safe mobility society and providing mobility opportunities for vulnerable groups in terms of mobility

(Eligible Social Project Categories)

Eligible Category	Eligibility Criteria	Target Population
 <p>Safety Technology</p>	<p>Advanced Safety Technology and Advanced Driving Assistance Technology Research & development and manufacturing cost for the development/manufacturing of “advanced safety technology*3” and “advanced driving assistance technology*4” towards realizing zero casualties from traffic accidents including the following:</p> <ul style="list-style-type: none"> • Pre-Collision System (PCS), which helps prevent collision or mitigate the damage to a preceding car or pedestrian • Lane Departure Alert (LDA), which contributes to the prevention of accidents caused by unintentional lane departures • Automatic High Beams (AHB), which help secure forward visibility at night 	<p>Drivers / passengers / pedestrians (the general public including vulnerable groups in terms of mobility such as the elderly / children / people with disabilities)</p>
 <p>Assisted Mobility Vehicles</p>	<p>Assisted Mobility Vehicles Research & development and manufacturing cost for the development and manufacturing of assisted mobility vehicles designed to accommodate the elderly and people with disabilities (Welcab).</p>	<p>Drivers / passengers (the elderly and people with disabilities, who have limited accessibility to transportation)</p>

*3 Such as Toyota Safety Sense which has packaged functions considered effective in reducing serious traffic accidents causing death or injury.

*4 Developed towards a society where everyone including the elderly and people with disabilities are able to drive safely, smoothly, and freely based on Toyota's original “Mobility Teammate Concept”.

Active Safety Feature Package, “Toyota Safety Sense”

The Toyota Safety Sense system, effective in reducing serious traffic accidents causing death or injury, packages multiple active safety functions based around Pre-Collision Safety (PCS), which works to either help avoid collisions with cars ahead or pedestrians, Lane Departure Alert (LDA), which contributes to preventing accidents caused by leaving the lane, and Automatic High Beam (AHB), which helps ensure clear sight in front at night. Toyota Safety Sense is now available on nearly all passenger car models in the Japanese, United States, and European Markets. It has also been introduced in a total of 120 countries and regions in major markets including China and other selected Asian countries, the Near and Middle East, and Australia.



Packaging functions considered effective in reducing serious traffic accidents causing death or injury.

Assisted Mobility Vehicle, “Welcab”

Welcab needs to be designed as comfortable and safe car for the elderly and people with disabilities, as well as for the caregivers. We develop Welcab based on the most basic idea in development of assisted mobility vehicles, which is the car should be easy for anyone to use and drive. We support a comfortable and wonderful life for everyone through Welcab.



Provide “freedom of movement” to all through Welcab.



2 

Reduction of vehicle CO₂ emissions during driving

(Eligible Green Project Category)

Eligible Category	Eligibility Criteria	Environmental Objective
 <p>Clean transportation</p>	<p>Zero Emission Vehicles Research & development, investments in property plant and equipment (PP&E) and manufacturing cost for the development/manufacturing of vehicle and components for "Battery Electric Vehicle (BEV)" Research & development, investments in property plant and equipment (PP&E) and manufacturing cost for the development/manufacturing of vehicle and components for "Fuel Cell Vehicle (FCEV)"</p>	<p>Climate change mitigation</p>

Reduction of Vehicle CO₂ Emissions During Driving (Zero Emission Vehicle)

In May 2022, Toyota introduced bZ4X, which is medium size model segment SUV-type BEV, and it is the first model in the series. Centering on the Toyota bZ series, we plan to roll out 30 BEV models by 2030, offering a full lineup of BEVs. In addition, we aim to achieve global sales of 3.5 million BEVs per year.

FCEVs run on hydrogen, a fuel that can be produced from various energy sources and contributes to preservation of the global environment and reinforcing energy security. They are the ultimate eco-cars, offering long cruising ranges with a short refueling time and generating zero emissions. Toyota is the world leader in Hydrogen Fuel Cell technology. We announced our second generation Mirai. Including our first generation, we have sold more than 17,500 Mirai globally.

To popularize BEVs, we strive to reduce costs via the integrated development of vehicles and batteries to provide BEVs at a reasonable price. In particular, evaluate the battery cell system based on actual vehicle driving data to improve the control system. Through this integrated development of vehicles and batteries, we aim to reduce the battery cost per vehicle by 50% compared to the Toyota bZ4X in the second half of the 2020s.



Starting with bZ4X, we plan to roll out 30 BEV models by 2030.



The all-new Mirai will be the departure point for creating a hydrogen-based society of the future.



Evaluate the battery cell system based on actual vehicle driving data.

LINK [Toyota to Launch All-New bZ4X BEV on May 12 in Japan](#) 

[Toyota Launches the New Mirai](#) 

[Media Briefing & Investors Briefing on Batteries and Carbon Neutrality](#) 



Reduction of CO₂ emissions from factories and offices

(Eligible Green Project Category)

Eligible Category	Eligibility Criteria	Environmental Objective
 <p>Renewable Energy</p>	<p>Increase Use of Renewable Energy</p> <ul style="list-style-type: none"> Investment in property plant and equipment (PP&E) towards renewable energy generation such as solar and wind Expenditures related to the purchase of renewable energy power etc.(including expenditures the purchase of renewable energy through PPA / VPPA*5) Investment for the purchase of renewable energy power supply, businesses which generate renewable energy and funds which invest in renewable energy businesses 	<p>Climate change mitigation</p>

*5 Power Purchase Agreement / Virtual Power Purchase Agreement

Introduction of Renewable Energy and Utilization of Hydrogen

Under the Plant Zero CO₂ Emissions Challenge, we are seeking zero CO₂ emissions in the vehicle manufacturing operations through the energy reduction initiatives such as the introduction of renewable energy and utilization of hydrogen, at all plants of Toyota and consolidated subsidiaries.

We achieved 100 percent renewable electricity introduction rate at all plants in Europe and South America, and installed wind power generators at the Tahara Plant.

In conjunction with the increased use of renewable electricity in recent years, hydrogen holds great promise as a means of suppressing supply and demand variation in energy and for energy storage and transport. With respect to the utilization of hydrogen at plants, we are installing hydrogen-fueled power generators at the Shimoyama Plant and conducting verification testing. Going forward, we will develop technologies for carbon capture and reuse and other technologies with the aim of achieving carbon neutrality at all global plants by 2035.



Wind power generators (22MW) under construction at the Tahara Plant.



Self-supporting stationary FC generator diverting on-board FC (Shimoyama Plant). Power generation using hydrogen is possible even in power outages.

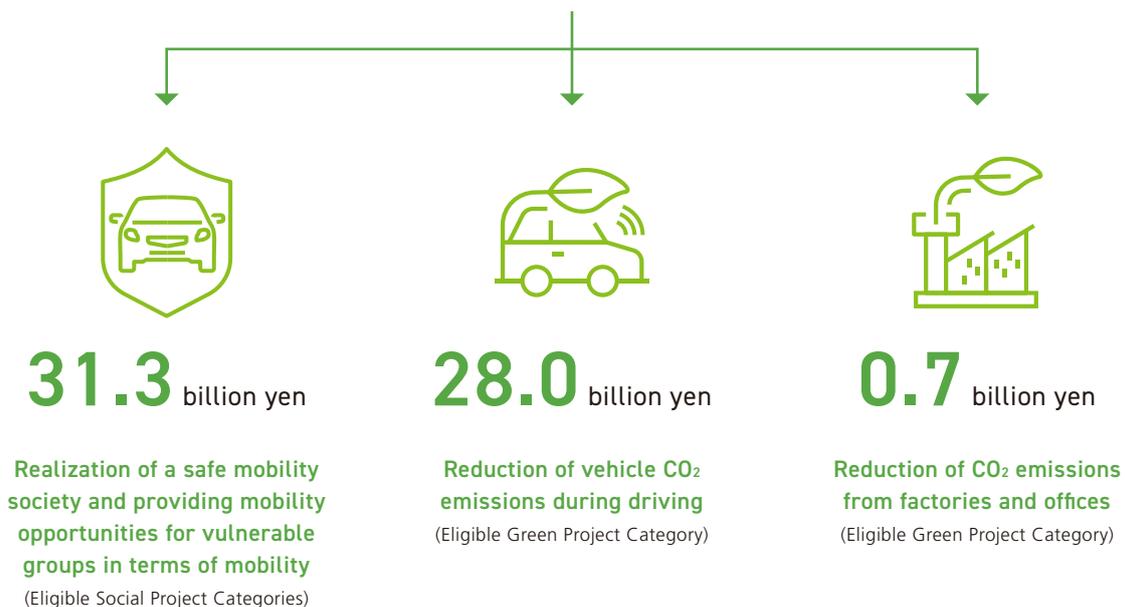


Allocation of Proceeds

Total Proceeds

60.0 billion yen

Woven Planet Bond		
Item	Yen-dominated bonds for individual investors	
Term	5 years	10 years
Amount of issue	40.0 billion yen	20.0 billion yen
Cash-in date	June 2, 2022	June 2, 2022
Maturity date	June 2, 2027	June 2, 2032



- Toyota issued Woven Planet Bonds based on the Woven Planet Bond Framework which is aligned the Green Bond Principles (GBP) 2018, Social Bond Principles (SBP) 2020, and Sustainability Bond Guidelines (SBG) 2018 and administered by the International Capital Market Association (ICMA).
- The proceeds of the issuance have been allocated to finance Eligible Projects with in the fiscal year ended March 2022.
- Capital Strategy Department, Finance Division, Sustainability Management Department, Environment Affairs and Engineering Management Division, R&D and Engineering Management Division, and Manufacturing Development Department cooperated and decided on the items for the Eligible Projects to which the net proceeds from the issuance of the Woven Planet Bonds were allocated. The items were specified based on the eligibility criteria.



Impact

Realization of a safe mobility society and providing mobility opportunities for vulnerable groups in terms of mobility

(Eligible Social Project Categories)

Number of vehicles produced with advanced safety technologies.

Number of vehicles produced with TSS (TOYOTA Safety Sense)



6,208,000

(FY2022)

Number of vehicles sold with advanced driving assistance technologies "Advanced Park"

Number of vehicles sold with Advanced Park*⁶



58,000

(FY2022)

*⁶ Advanced Park is one of the functions developed based on Toyota's original concept, "Mobility Teammate Concept," aiming for a society where all people including the elderly and people with disabilities move safely, smoothly, and freely. It assists the driver with parking by controlling the steering wheel, accelerator, and break operations.

Number of assisted mobility vehicles sold for the elderly and people with disabilities (Welcab) sold

Number of Welcab sold



11,000

(FY2022)



Reduction of vehicle CO₂ emissions during driving

(Eligible Green Project Category)

Number of zero-emission vehicles (BEV and FCV) sold

Number of BEV sold



16,347
(FY2022)

Number of FCEV sold



5,367
(FY2022)

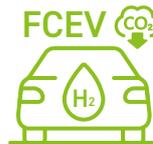
Total CO₂ emissions reduced by zero-emission vehicles (BEV and FCV)

Total CO₂ emissions reduced by BEV

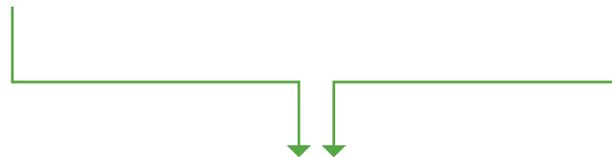


25,000 t-CO₂
(2021)

Total CO₂ emissions reduced by FCEV



48,000 t-CO₂
(2021)



Total **73,000** t-CO₂
(2021)



Reduction of CO₂ emissions from factories and offices

(Eligible Green Project Category)

Renewable Energy

Amount of renewable energy consumed*⁷

13 %
(2021)



Renewable energy use rate

3.5 PJ
(2021)

*⁷ All plants of Toyota Motor Corporation and consolidated subsidiaries

Reduction of CO₂ Emissions

CO₂ reduction amount per production unit for Scope 1 and Scope 2*⁸



-9 %
(from 2019)

CO₂ reduction amount per production unit



+1 %
(from 2019)

Reduction in CO ₂ emissions for Scope 1+2 in 2019	6.84 million t
Reduction in CO ₂ emissions for Scope 1+2 in 2020	5.87 million t
Reduction in CO ₂ emissions for Scope 1+2 in 2021	6.24 million t

2019	0.76 t-CO ₂ /unit
2020	0.79 t-CO ₂ /unit
2021	0.77 t-CO ₂ /unit

*⁸ Toyota Motor Corporation and consolidated subsidiaries



TOYOTA MOTOR CORPORATION

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<https://global.toyota/en/ir/library/sustainability-bond/>

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