

## Carbon Neutrality Roadmap

# CN Roadmap 2030

Uniting the strength of five teams  
to help our customers, business partners,  
and society become carbon-free.



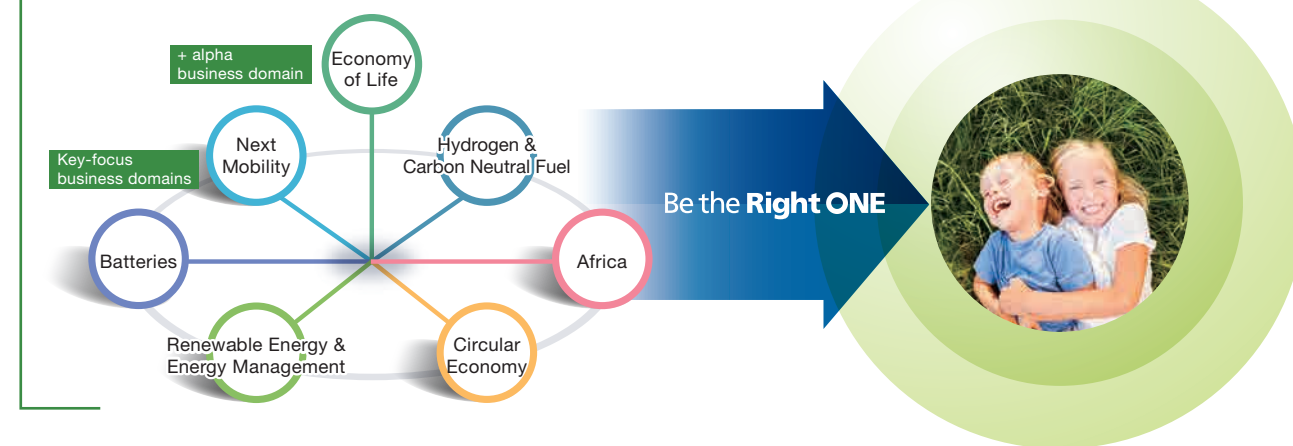
## Mission

# Passing on a better global environment to the children of the future

Our Corporate Philosophy

We will aim to achieve our mission in accordance with our principle of “Living and prospering together with people, society, and the planet, we aim to be a value-generating corporation that contributes to the creation of prosperous societies.”

## Seven priority domains

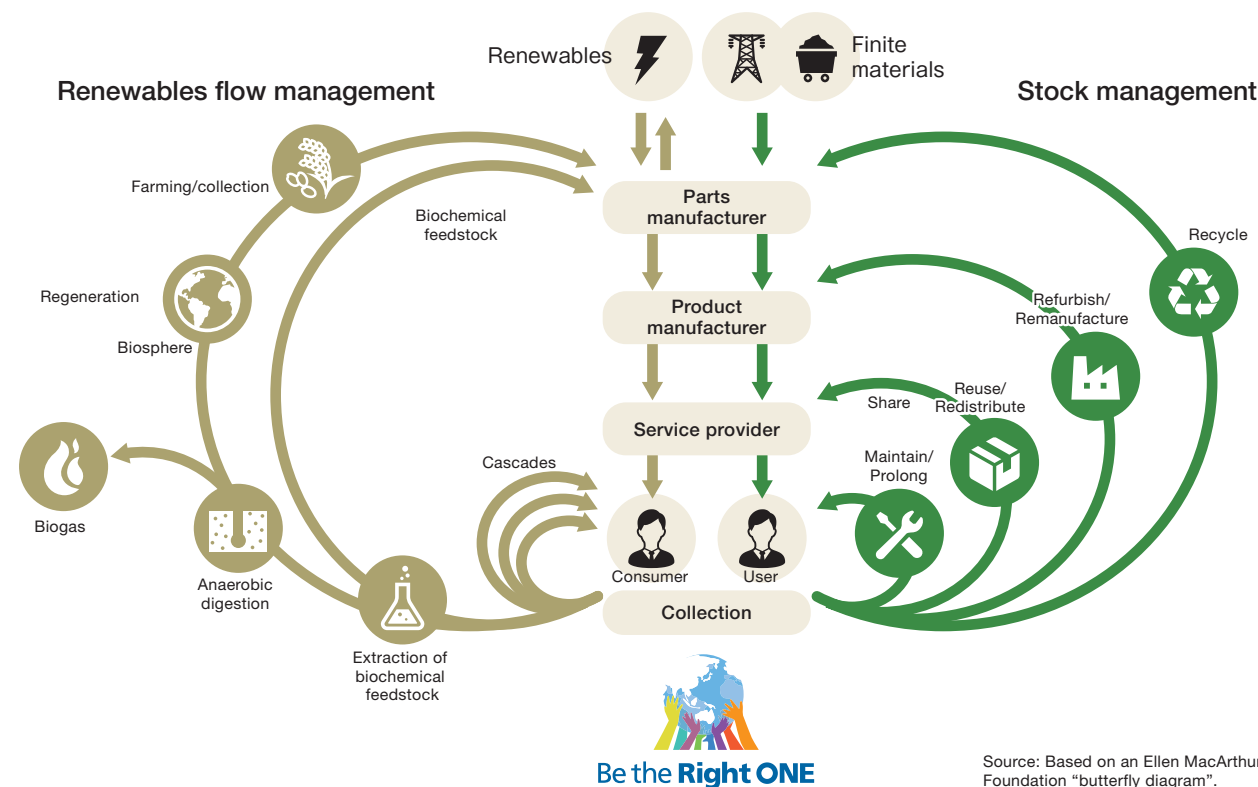


## Vision (Ideal Image)

# Leading circular economy\* provider

Toward achieving carbon neutrality, we will break through the center as the top runner and expand our frontline to span the entirety of a circular economy.

\*An economy that maximizes added value through efficient and recycling-oriented use of resources at all stages.

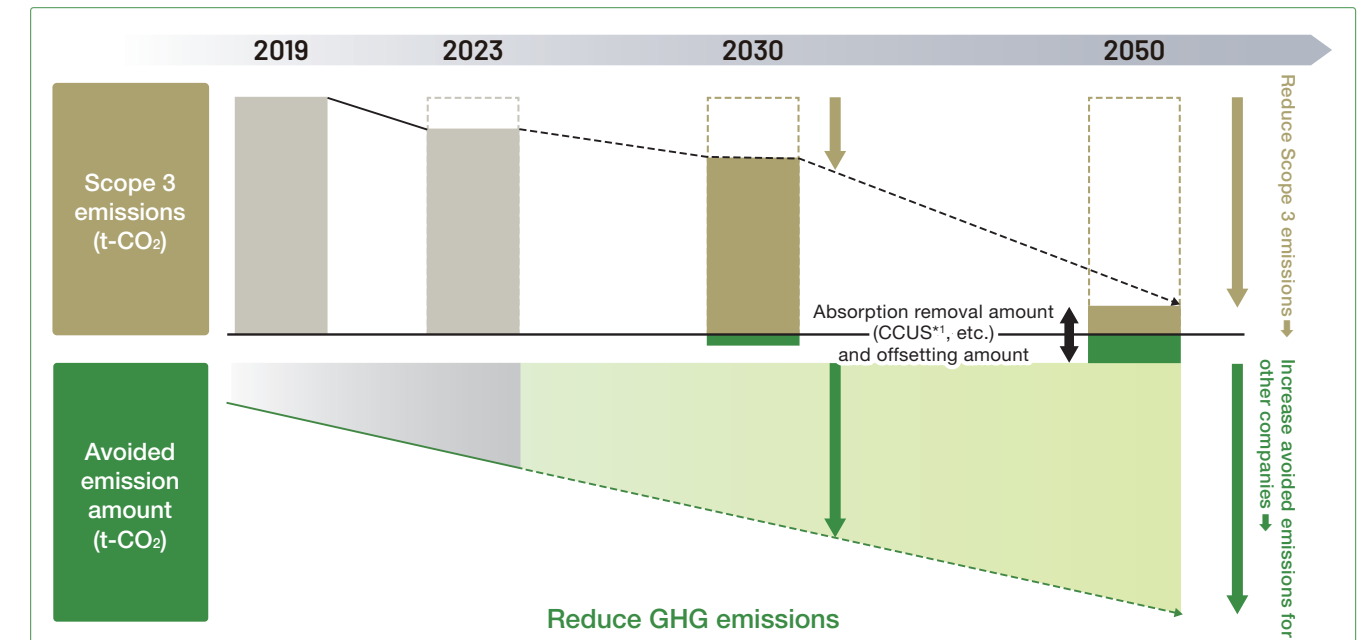


Source: Based on an Ellen MacArthur Foundation “butterfly diagram”.

## Strategy

# Growth strategy as a decarbonization trading company

Scope 3 reduction activities and avoided emission businesses are our areas of expertise



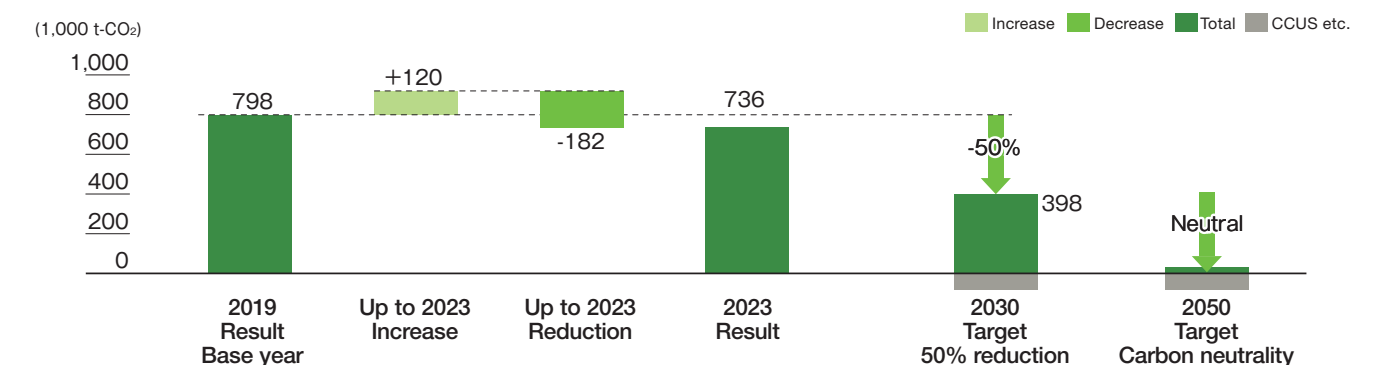
Working on emission reductions by leveraging our strengths is, in itself, a business opportunity for us



\*1 Carbon dioxide Capture, Utilization and Storage: Technology to capture, store, and effectively utilize CO<sub>2</sub>.  
\*2 The number of circles represents the number of 5WG (Refer to the next page) and new Scope 3 emission reduction activities, and the size indicates the scale of the business.

## Commitment

# Scope 1 and Scope 2 Emissions Reduction



# Domains of strength and 5WG\*

As part of our efforts to contribute to the transition to a carbon-free society, our corporate group is engaged in businesses that support a circular economy at each stage of the industrial life cycle, comprising energy creation, energy collection and coordination, the manufacture, transport, and use of goods, waste treatment, and reuse and recycling.

From the fiscal year 2024, we aim to form the “Toyotsu CN Ecosystem” by organically linking the functions of each WG as shown in Phase 2 in the diagram on the right.

\*Working group

RdRE (Road Renewable Energy)  
**Renewable Energy & Energy Management WG**

Investment:  
1,000 billion yen

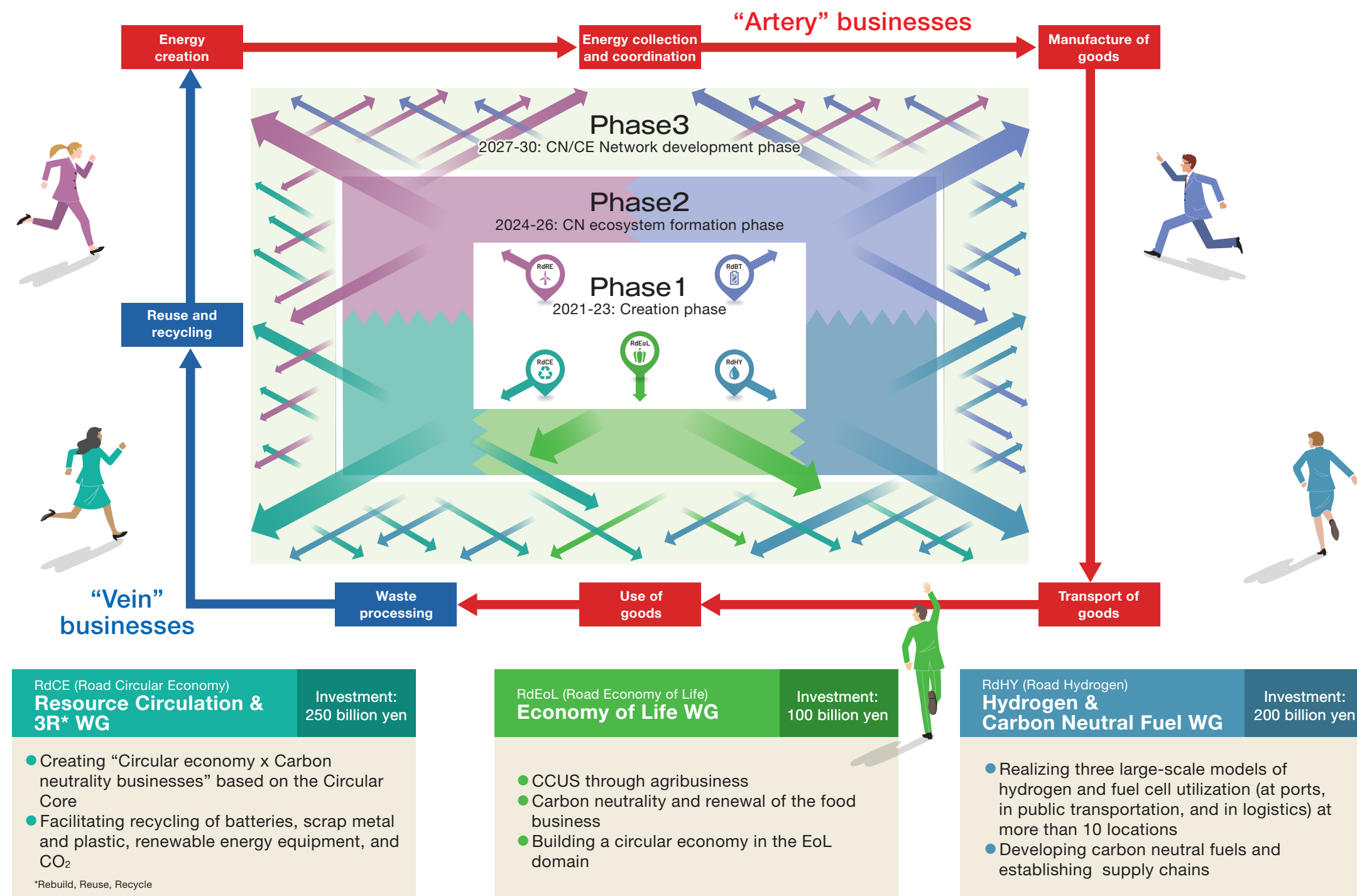
- Having renewable energy account for 50% of our power consumption
- Contributing to meeting the renewable energy needs of major customers
- Expanding the introduction of renewable energy power generation

RdBT (Road Battery)  
**Battery WG**

Investment:  
450 billion yen

- Stably securing rare resources such as lithium
- Commercializing raw materials and parts manufacturing
- Entering the battery manufacturing business
- Creating rebuild, reuse, and recycle mechanism

## CN Strategy Map



**Investment for the realization of a decarbonized society: Approx. 2 trillion yen by 2030**

The investment amount is the total for the 10 years from 2021 to 2030 (including actual results)

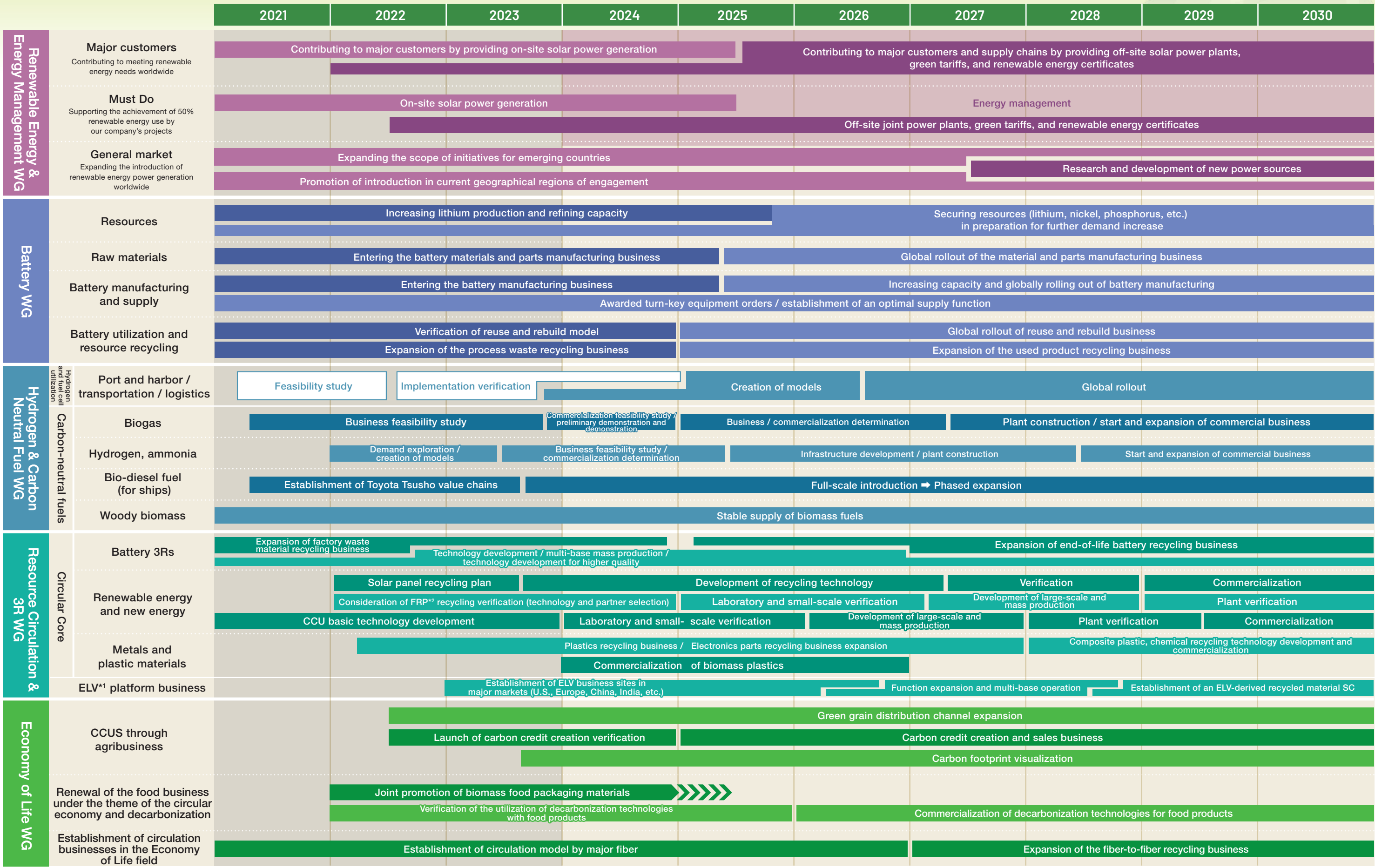
From the next page, the key measures for each WG by 2030 and details of Roadmap are introduced



# Overview of the initiatives of the 5WG

Overview of Initiatives		Approach overview	
Renewable Energy & Energy Management WG	<div>Centerpiece of Carbon Neutrality</div> <div>We will contribute to the achievement of carbon neutrality by applying the knowledge that we have cultivated in developing renewable energy.</div> <div>To contribute toward the decarbonization of our major customers and the Toyota Tsusho Group, the Renewable Energy &amp; Energy Management Working Group will optimize the knowledge that Toyota Tsusho has developed in the area of renewable energy creation and will expand the scope of initiatives to the areas of collection and coordination and transport.</div> <div>Based on the systems and global market outlook, the working group will mainly promote on-site and off-site solar power generation, green tariffs, and trading of renewable energy certificates to not only have</div> <div>renewable energy account for 50% of our corporate group’s global energy consumption but also expand the scope of initiatives to major customers and the group’s supply chains and support the initiatives of companies toward decarbonization. In the general market, the working group will not only promote the introduction of renewable energy power generation in current regions of engagement but also aim to expand the introduction of renewable energy power generation on a global basis by expanding regions of engagement, especially in emerging countries, and developing of new types of power such as offshore wind energy.</div>	<div>Produce(renewable energy)</div> <div>Expanding the introduction of renewable energy(General market)</div> <div>Expanding the use of renewable energy</div> <div>Promote cost reductions</div> <div>Wind power generation</div> <div>Solar power generation</div> <div>Hydroelectric power generation</div> <div>Biomass power generation</div> <div>Manage (energy management)</div> <div>Electricity</div> <div>Supply</div> <div>Demand</div> <div>Electricity</div> <div>Promoting total decarbonization based on the systems and market outlook of each country</div> <div>On-site/off-site solar power</div> <div>In-house power generation, energy-efficient equipment</div> <div>Battery storage</div> <div>Electric vehicle</div> <div>Hydrogen</div> <div>Deliver</div> <div>Support major customers in achieving decarbonization</div> <div>Contributing to meeting the renewable energy needs of major customers</div> <div>Promotion of decarbonization of the Toyota Tsusho Group</div> <div>(Toyota Tsusho's projects)</div> <div>Power consumption worldwide by Toyota Tsusho To 50% renewable energy</div>	
Battery WG	<div>Carbon Neutrality Innovation Cycle</div> <div>We will take on a wide range of challenges from battery resource development to rebuilding, reusing, and recycling.</div> <div>The Battery Working Group works across divisions toward the slogan “Contributing to the achievement of carbon neutrality by solving issues in the field of batteries, which is the very key to success for electrification”.</div> <div>In anticipation of the rapid expansion of electrification, the working group is focusing on constructing battery supply chains for local production for local consumption on a global basis. Specifically, the working group is advancing initiatives such as:</div> <div>①Securing a stable supply of rare resources like lithium</div> <div>②Commercializing the manufacturing of battery materials like cathode and anode electrode materials and peripheral components</div> <div>③Participating in battery manufacturing businesses in regions like North America</div> <div>④Creating systems for rebuilding and reusing used batteries</div> <div>⑤Establishing battery recycling schemes Through these initiatives, the working group aims to address challenges and promote the widespread adoption of electrified vehicles.</div>	<div>Resource recycling</div> <div>Develop battery recycling schemes</div> <div>Resources</div> <div>Securing stable resources to meet growing demand</div> <div>Raw materials</div> <div>Establishing the optimal supply chain by starting material and parts businesses</div> <div>Battery manufacturing</div> <div>Entering the battery manufacturing business</div> <div>Battery supply</div> <div>Constructing optimal battery supply networks</div> <div>Battery utilization</div> <div>Building battery rebuilding and reusing mechanisms</div>	
Hydrogen & Carbon Neutral Fuel WG	<div>Path Toward Future Energy</div> <div>We will accelerate our efforts related to hydrogen and carbon neutral fuels, which are key for achieving carbon neutrality.</div> <div>The Hydrogen &amp; Carbon Neutral Fuel Working Group works across two broad business areas and focuses on promoting next-generation energy such as hydrogen and biofuels.</div> <div>The first area is the development of fuel cell* usage models that combine the adoption of fuel cells for various types of mobility with</div> <div>hydrogen manufacturing and supply.</div> <div>The second area is the building of a supply chain for CN fuels such as biofuels, hydrogen, and ammonia. Through these activities, we will contribute to stakeholders who are working toward CN and promote the Toyota Tsusho Group's CN initiatives.</div> <div>*Fuel Cell</div>	<div>Hydrogen and fuel cell utilization</div> <div>Creating a basic unit model for realizing a hydrogen- based society</div> <div>Realizing large-scale utilization models at more than 10 locations in three sectors</div> <div>Ports</div> <div>Public transportation</div> <div>Logistics</div> <div>FC external sales</div> <div>Becoming the No.1 market share for FC powertrains in the external sales market</div> <div>No.1</div> <div>Carbon-neutral fuel</div> <div>Development of carbon-neutral fuels and their supply chains</div> <div>Accelerating efforts with a focus on bio-derived materials, etc.</div> <div>Producing biomethane from waste</div> <div>Trading and offtake agreements</div> <div>Plant and industrial applications</div>	
Resource Circulation & 3R WG	<div>Toyota Tsusho as a leading venous business expert</div> <div>We will deepen our resource circulation efforts under the banner of “reduce CO<sub>2</sub>, eliminate CO<sub>2</sub>, and create from CO<sub>2</sub>.”</div> <div>Taking the trend of carbon neutrality as an opportunity while envisioning the society of the future, the Resource Circulation &amp; 3R Working Group will work on creating new value by using our experience in the resource recycling business—which we have been undertaking since the 1970s—as a strength. Our focus areas are: Vehicle battery 3R businesses, as vehicle batteries are increasing with electrification; recycling of renewable energy equipment such as solar panels, hydrogen tanks, and wind turbine blades, which are expected to be disposed of in large</div> <div>quantities in the future; and precious metal recovery from electronic waste and plastic material recycling, as electronic waste and plastic materials are directly linked to resource depletion and social issues. To undertake initiatives in these new areas, the working group is establishing the Circular Core which will explore advanced technologies related to the CE and develop business models— and taking on the challenge of creating a recycling-based society as the world’s leading CE provider.</div>	<div>Conducting resource circulation from a decarbonization perspective</div> <div>Taking up recycling challenges (Rare metals etc.)</div> <div>Development of secondary uses</div> <div>Creating new value through decarbonization</div> <div>Creation of new value</div> <div>Construction of a reverse supply chain business platform</div> <div>Reduce</div> <div>Eliminate</div> <div>Create</div> <div>Circular Core</div> <div>Capturing and utilizing CO<sub>2</sub></div> <div>Technology development and social implementation of CCU*</div> <div>Energy recovery from waste, Development of alternative materials</div> <div>*Carbon dioxide capture and utilization: A technology for capturing and using CO<sub>2</sub> before it is emitted into the atmosphere</div>	
Economy of Life WG	<div>For Smiles on the Faces of the Children of the Future</div> <div>We will work to reduce, absorb, and utilize GHG emissions in domains related to medicine, textiles, food, and housing.</div> <div>The first major initiative is carbon capture, utilization and storage (CCUS) through agribusiness, in which the Economy of Life Working Group will use our company’s network of agricultural suppliers in our grain collection business in Brazil to collect and sell green grain produced using sustainable farming methods that comply with our in-house standards. We will also seek to create and sell carbon credits through forest conservation.</div> <div>The second major initiative is food business renewal using the concepts of carbon neutrality and the circular economy, in which we focus on the manufacturing and sale of foods added with protein alternatives and promote the use of bioplastics in food packaging at the same time.</div> <div>The third major initiative is to build a circular economy in the EoL domain, in which we will aim to develop a recycling business in the field of apparel, as this field creates a tremendous amount of waste.</div>	<div>CCUS through agribusiness</div> <div>Leading the way to environmentally friendly agriculture (Sales of green grain*)</div> <div>Creation and sales of carbon credits in conjunction with afforestation and reforestation</div> <div>* Grains produced and collected in an environment- friendly manner</div> <div>Food business renewal and carbon neutrality</div> <div>Manufacturing and processing of plant-based meat</div> <div>Biomass plastics for food packaging</div> <div>Decarbonization of food processing with the use of new technologies</div> <div>Building a circular economy in the EoL domain</div> <div>Realization of a circular economy in apparel, which highly impacts the environment</div>	

# 5WG Roadmap toward 2030



\*1 ELV: End of Life Vehicle \*2 FRP: Fiber-reinforced plastics



Through the five working groups where our company has strengths, we aim to balance business expansion and the realization of a decarbonized society towards achieving carbon neutrality.

## Topics

### Various initiatives being advanced by each WG

Our 5WG, which are striving to contribute to the achievement of a decarbonized society, are accelerating various actions. Here are some examples of advances in new challenges on the world stage.

RM 2030

RM 2050

RdRE



Renewable Energy & Energy Management WG

#### Contributing to customers' carbon neutrality by utilizing renewable energy

**Eurus Energy**



Started the operation of Japan's largest wind power generation, transmission, and storage project in northern Hokkaido

**Terras Energy**



Acquired Terrace Energy Corporation, the largest solar power generation company in Japan, as a wholly owned subsidiary (photo: Terrace Energy Kumamoto Arao Solar Park)

RdBT



Battery WG

#### Expanding battery businesses, which are key in the popularization of electrified vehicles



Started production of lithium hydroxide, the main raw material for lithium-ion batteries, at Toyotsu Lithium Corporation for the first time in Japan



Established automotive battery manufacturing company TBMNC\*1 with TMNA\*2. The plant will start operation in 2025 to produce batteries for hybrid electric vehicles and battery electric vehicles

\*1 Toyota Motor North America, Inc.

\*2 Toyota Battery Manufacturing, North Carolina

RdHY



Hydrogen & Carbon Neutral Fuel WG

#### Accelerating the use of hydrogen and alternative fuels in port operations and logistics



Promoted the implementation and demonstration of a long-term operational hydrogen utilization model for port mobility at the Port of Los Angeles



Relocated and built new hydrogen stations in Aichi Prefecture to meet the growing demand for hydrogen for large FC vehicles

RdCE



Resource Circulation & 3R WG

#### Promoting reuse of recovered resources and proper disposal



Planic Co., Ltd. produces high-quality recycled plastic using the latest technologies in a Japan first, achieving car-to-car recycling\*1 using mixed plastics as raw material

\*1 The reuse of resources recovered from vehicles as materials for manufacturing vehicles



Maruti Suzuki Toyotsu India Private Limited contributes to the reduction of illegal dumping and the achievement of carbon neutrality and a circular economy through its ELV proper disposal business in India

RdEoL



Economy of Life WG

#### Promoting recycling and contributing to the creation of a recycling-based society

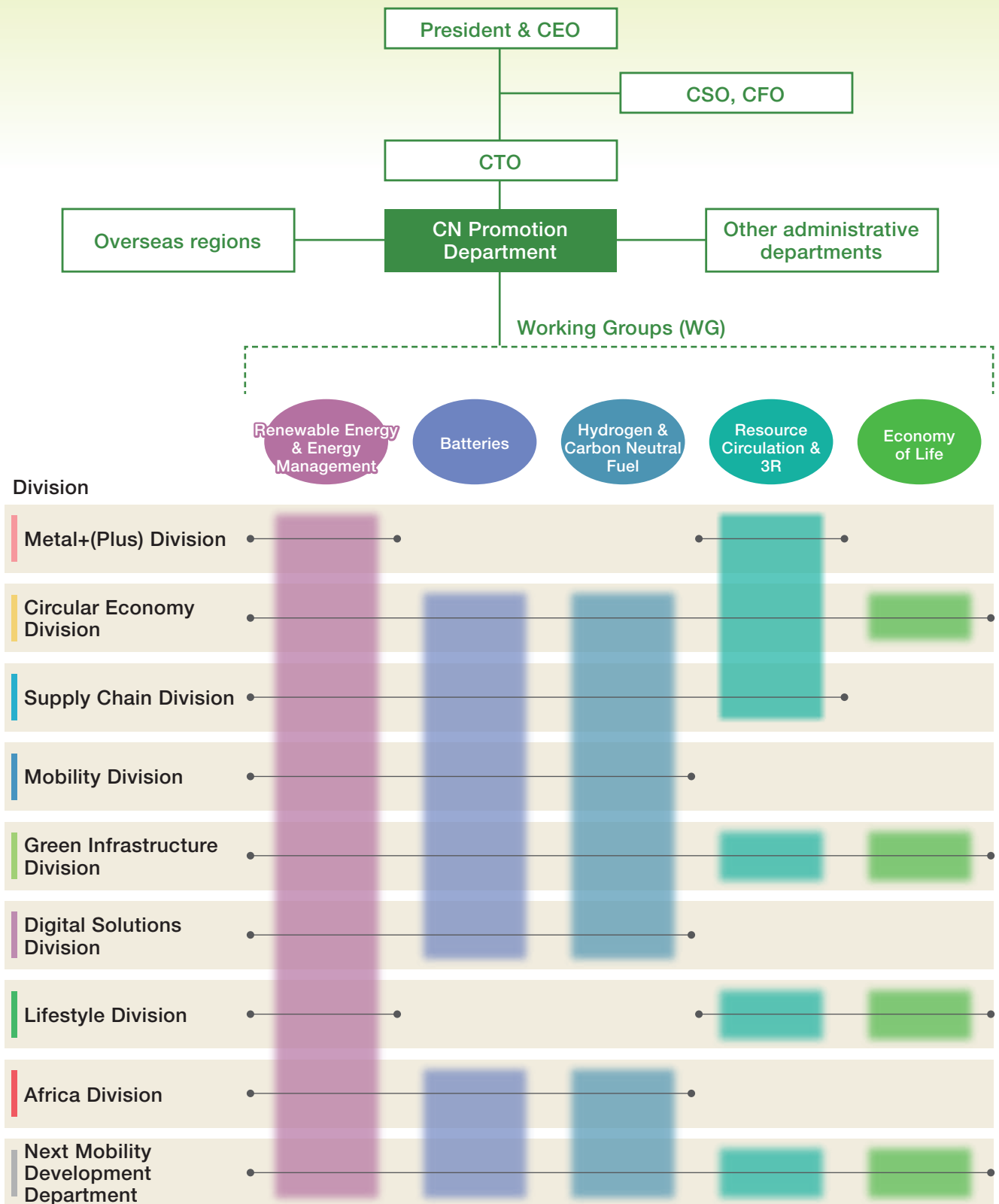


Started initiating efforts in Brazil to create carbon credits through forest conservation



Entered the textile recycling business of waste fishing nets, the main cause of marine plastic pollution, to work toward realizing nylon-to-nylon fiber recycling


# Toyota Tsusho Group CN (Carbon Neutrality) Promotion Structure



*Open mind.  
Envision the future.*



A better global environment  
to the children of the future.

 **TOYOTA TSUSHO**