

Kawasaki Heavy Industries, Ltd.

# Kawasaki TCFD Report 2024

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# Disclosure in Line with the Recommendations of the Task Force on Climate-related Financial Disclosures

Under its Group Vision 2030, the Kawasaki Group will actively contribute to the realization of a society in which the average global temperature rise is held to 1.5°C above pre-industrial levels—the goal of the Paris Agreement—through its business, by advancing its hydrogen business, CCUS\* and other efforts. At the same time, the Group is moving forward with measures, based on risk analysis, to address increasingly severe natural disasters, including business continuity planning (BCP), supply chain resilience and others. We report climate change-related information based on TCFD recommendations, as set forth below.

\* Carbon dioxide Capture, Utilization and Storage

## Governance (Organizational governance of climate-related risks and rewards)

### Governance

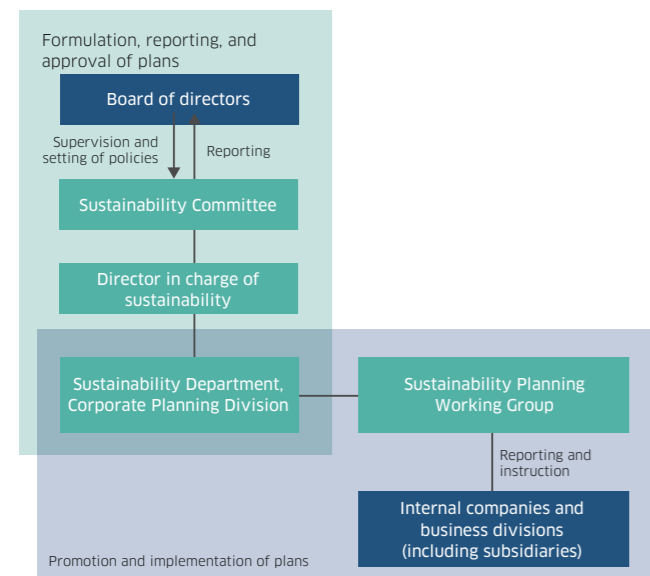
In the Kawasaki Group, the Board of Directors is the highest decision-making body that deliberates and decides fundamental sustainability policies and fundamental plans throughout the Group. The Sustainability Committee, under the supervision of the Board of Directors, determines those measures to be taken rooted in the basic plan the Board of Directors has decided and reports on their progress to the Board of Directors.

The Sustainability Committee deliberates and reports on the following items.

1. Measures contributing to realization of the sustainability of both society/environment and our Group and enhancement of our Group's corporate value, as well as their practice and state of achievement
2. Measures to understand, reduce, and eliminate the negative social and environmental impact of our Group's business activities, as well as their practice and state of achievement

In principle, the Committee meets at least two times per year. In fiscal 2023, it convened three times, as shown in the table to the right.

### Sustainability promotion system



The Committee is chaired by the President and is made up of internal company presidents, the presidents of Kawasaki Railcar Manufacturing Co., Ltd. and Kawasaki Motors, Ltd., the director in charge of sustainability, general managers of Head Office divisions, and other members. The Outside Directors also attend meetings from the perspective of incorporating outside insights and opinions into the Committee's decisions, and Directors who serve as Audit & Supervisory Committee Members attend from the perspective of auditing business execution. In addition, the Sustainability Committee holds lectures conducted by outside experts as well as dialogues with outside experts from time to time for the purposes of understanding the latest trends and promoting the Company's measures.

The resolution matters of the Committee are disseminated to companies and divisions through the Sustainability Planning Working Group, and the Working Group monitors the status of progress and reports to the Sustainability Promotion Department.

Sustainability Committee agenda (FY2023 results)	
1st meeting (June)	<ul style="list-style-type: none"> <li>Confirmation of TCFD progress status</li> <li>Revision of policies on tax affairs and human rights</li> <li>ESG assessment</li> </ul>
2nd meeting (November)	<ul style="list-style-type: none"> <li>Initiatives to reduce Scope 3 (Category (i)) emissions</li> <li>Progress report on TNFD* initiatives</li> <li>Human rights due diligence</li> <li>ESG assessment</li> </ul>
3rd meeting (February)	<ul style="list-style-type: none"> <li>Lecture by sustainability expert (sustainability management)</li> </ul>

\* TNFD: Taskforce on Nature-related Financial Disclosures

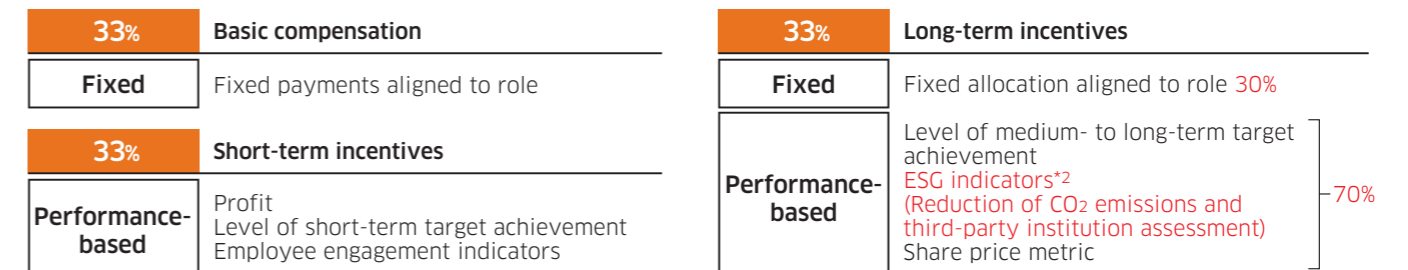
### Revision of the Executive Compensation System

We revised the system for the compensation of Directors and Executive Officers in May 2024. Responses to climate change are one of the core elements of the Group Vision 2030, and accordingly, reductions in CO<sub>2</sub> emissions and a third-party institutional assessment (the Dow Jones Sustainability Index) were adopted as ESG indicators. The degree of achievement of those indicators is now reflected in the long-term incentives that are part of the total compensation of Directors\* and executive officers. Long-term incentives are provided in the form of stock. Initiatives for achieving each indicator undertaken in fiscal 2024 will be evaluated and reflected in fiscal 2025 compensation.

\* Excluding Directors who are Audit & Supervisory Committee Members and Outside Directors.

Visual model of executive compensation (Following revision)

### Composition of compensation\*1



\*1 In the case that the target levels for the Group's consolidated operating performance and each indicator in the preceding fiscal year were achieved and each Executive's degree of achievement of targets set for the preceding fiscal year is 100%. Note also that the composition of respective items is based on the example of the CEO, and long-term incentives were calculated based on the share price level at the time of the system's adoption under the existing system, and are calculated at the most recent share price level under the revised system.

\*2 CO<sub>2</sub> emissions reductions as part of the Company's business activities; contributions to reductions in global CO<sub>2</sub> reductions through the provision of solutions to realize carbon neutrality; and a third-party institution assessment (the Dow Jones Sustainability Index) are taken as the three indicators.

## Risk Management (Methods for identifying, assessing and managing climate-related risks)

The identification and assessment of risks related to sustainability including climate change are conducted by the Sustainability Committee. Changes in the business environment and in the demands and expectations from stakeholders are evaluated from a risk management perspective, and deliberated and reported on as necessary responses. With respect to regular reviews of materiality, too, risk assessments regarding various issues are conducted based on the results of these scenario analyses.

Risks affecting the entire company such as those related to the BCP are managed centrally by departments charged

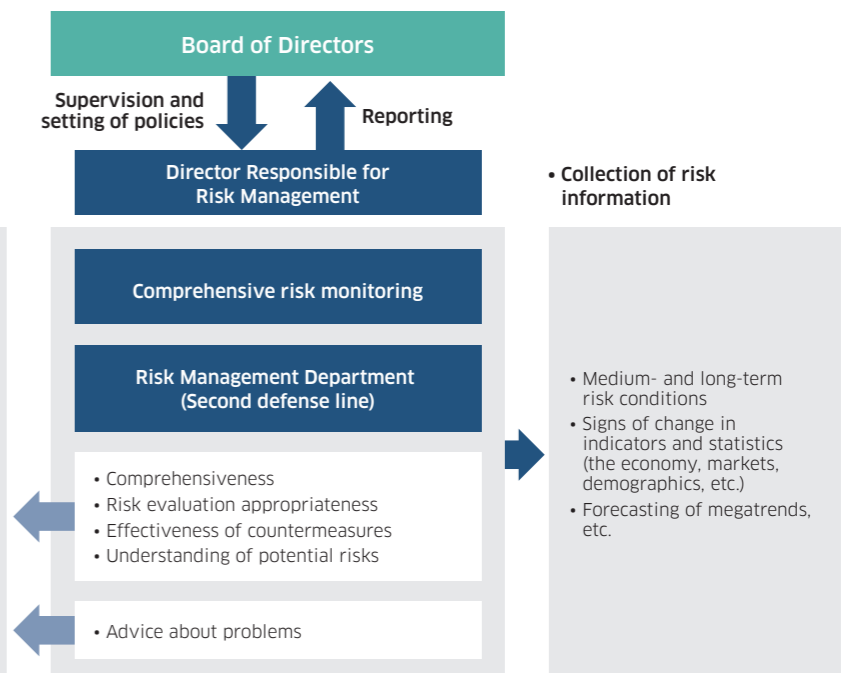
with risk management. They continuously assess and monitor risks with respect to items related to sustainability, particularly those items related to a global environment aimed at achieving carbon neutrality and a circular society, and items related to human capital that aim to strengthen the human capital and organizations responsible for delivering new value.

The results of these risk assessments and the identified risks are reported to the Board of Directors which, based on their deliberations over the approach to addressing them, provide the necessary feedback to those departments subject to those risks.

### Risk management system

#### Deliberation of risks at the responsible committees (First defense line)

Company-wide level	Management Committee Management Strategy Meeting Major Project Committee Sustainability Committee Company-wide Compliance Committee, etc.
By function	Technology Committee Corporate Environment Committee Meeting of managers in charge of manufacturing Company-wide Quality Committee, etc.
Internal companies	Management Committee QCD-related committees, etc.



The third defense line is implemented by the Auditing Department.

## Metrics and Targets

(Indicators and targets employed when assessing and managing climate-related risks and opportunities)

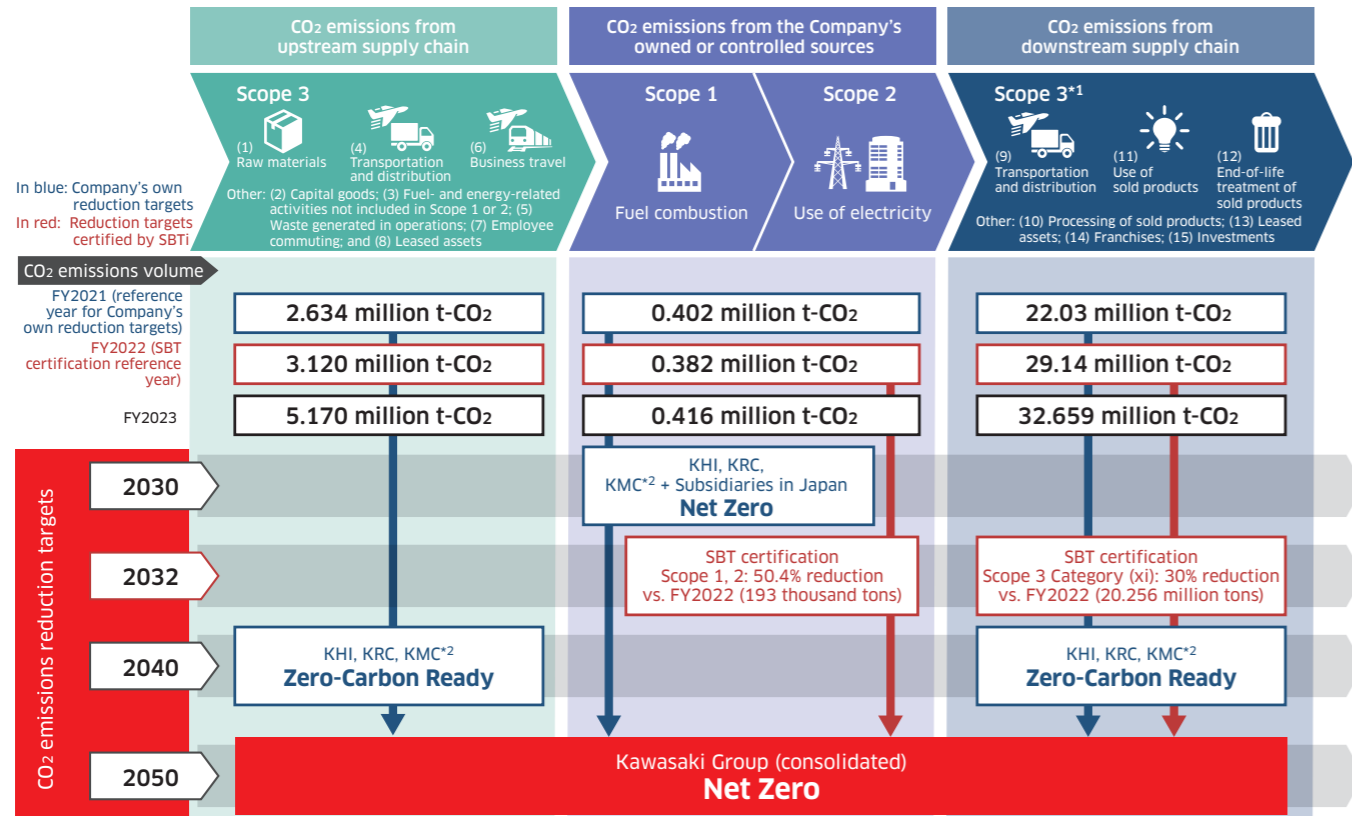
### Carbon neutrality targets

In August 2024, Kawasaki received certification of its greenhouse gas reduction targets from the Science Based Targets initiative (SBTi)\*1, an international climate change initiative. The certified targets include two types based on fiscal 2022: a short-term target (NEAR-TERM) and a long-term target (NET-ZERO). The short-term target aims to reduce Scope 1 and 2 emissions by 50.4% compared to fiscal 2022 by fiscal 2032, and Scope 3 Category (xi) emissions by 30% compared to fiscal 2022. The long-term target aims to achieve net-zero greenhouse gas emissions across the entire value chain by fiscal 2049.

The Group has set its own CO<sub>2</sub> emission reduction targets in advance of obtaining SBT certification. In particular, for Scope 1 and 2, we have established ambitious targets that exceed SBT certification standards. Through

voluntary initiatives centered on hydrogen power generation, we aim to achieve net zero domestically by 2030. To address Scope 3 emissions, we will decarbonize products and services with hydrogenation, electrification, green power grid, alternative fuels, and CCUS\*2 as our keywords and strive to achieve by 2040 a status where customers select our Zero-Carbon Ready decarbonization solutions. The target for Scope 3 Category (xi), already SBT-certified, is positioned as an intermediate goal for 2040. Ultimately, we aim to achieve net zero across our entire value chain by 2050, in line with the long-term goals of SBT certification. We will expand our decarbonization solutions together with our business partners and customers, contributing to the early realization of carbon neutrality.

\*1 Science Based Targets initiative (SBTi): An international initiative jointly established in 2015 by CDP, the United Nations Global Compact, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF). It defines and promotes best practices for science-based target setting and independently evaluates corporate targets.  
\*2 CCUS: Capture CO<sub>2</sub> emissions + Store underground + Utilize CO<sub>2</sub>



\*1 Regarding Scope 3, the calculation method has changed and the scope of aggregation expanded in recent years to ensure more accurate emissions data. For more details, refer to ESG Data in the Sustainability section of our website.

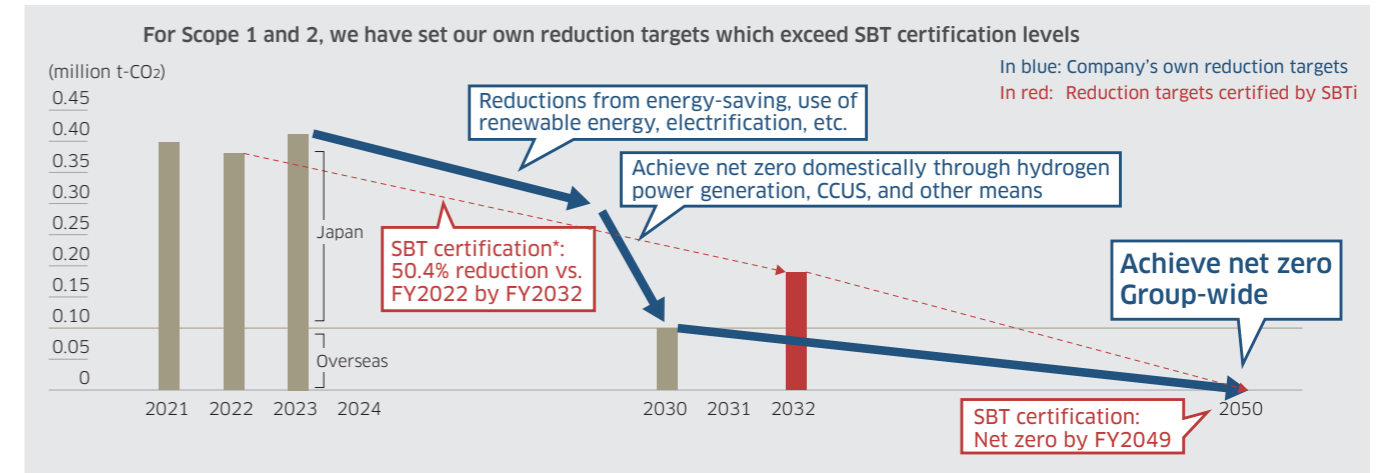
\*2 KHI: Kawasaki Heavy Industries, Ltd. (The Company, i.e., non-consolidated)  
KRC: Kawasaki Railcar Manufacturing, Co., Ltd.  
KMC: Kawasaki Motors, Ltd.

### Scope 1 & 2 targets

Regarding Scope 1 and 2 emissions, total domestic annual CO<sub>2</sub> emissions are approximately 300,000 tons, accounting for approximately three-quarters of the KHI Group's annual total of 400,000 tons. By focusing on in-house hydrogen power generation systems and combining them with waste-to-energy, renewable energy, and other energy

sources, we will achieve carbon neutrality. Later, we will proceed to expand implementation to overseas subsidiaries and move forward with the introduction of hydrogen energy at existing power generation facilities that we previously delivered to customers and other facilities.

### CO<sub>2</sub> emissions and reduction targets (Scope 1 and 2)



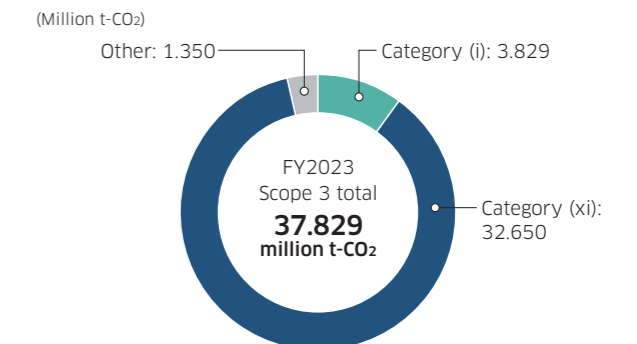
\* Information on SBT (Science Based Targets) certification is on page 5.

### Scope 3 Targets

Within the breakdown of Scope 3 emissions, categories (i) and (xi) account for a substantial portion, more than 90% of the total, and we have established targets for 2040 for these main categories.

Our goal is zero CO<sub>2</sub> emissions across the Group as a whole by 2050, in line with the CO<sub>2</sub>-free target set out in the Kawasaki Global Environmental Vision 2050.

### Scope 3 breakdown by category



### Scope 3 CO<sub>2</sub> emissions reduction targets

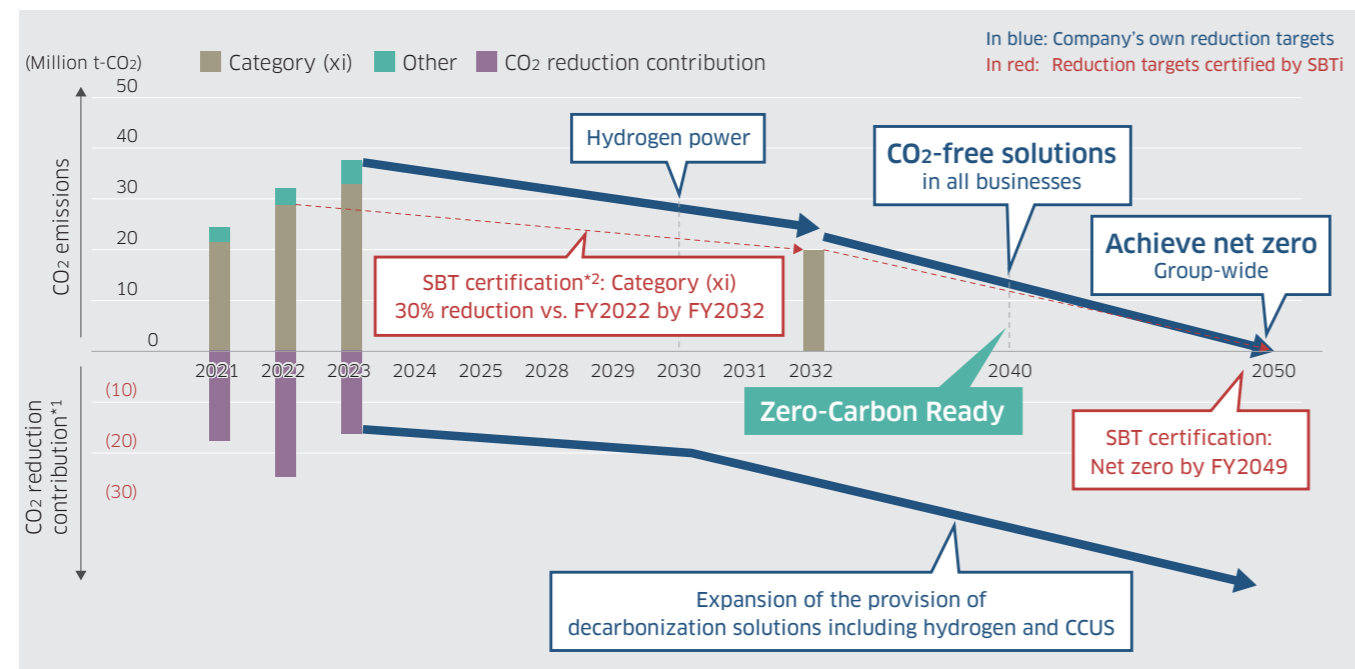
#### 2040 Zero-Carbon Ready (KHI, KRC, KMC\*)

Reduce CO<sub>2</sub> at least 100% in real terms by engaging in the CCUS business

- Category (i): 80% reduction (compared with fiscal 2021)
- Category (xi): Develop a lineup of CO<sub>2</sub>-free standard solutions and facilitate global CO<sub>2</sub> reductions

\* KHI: Kawasaki Heavy Industries, Ltd. (The Company, i.e., non-consolidated)  
KRC: Kawasaki Railcar Manufacturing, Co., Ltd.  
KMC: Kawasaki Motors, Ltd.

## CO<sub>2</sub> emissions and reduction targets (Scope 3)



\*1 CO<sub>2</sub> reduction contribution: Equal to the difference between greenhouse gas emissions volumes of earlier products and services and new products and services. A quantification of the contribution to the mitigation (impact) of climate change throughout society as a whole through the provision of products and services.  
\*2 Information on SBT (Science Based Targets) certification is set forth below.

### SBT certification

We acquired Science Based Targets (SBT) certification (acquired on August 15, 2024) with the aim of keeping temperature increase to no more than 1.5°C, the target of the Paris Agreement.



### Reduction targets that have received SBT certification

Targets	Reduction targets receiving certification
Short-term target NEAR-TERM	Scope 1 By fiscal 2032, reduce greenhouse gas emissions by 50.4% versus fiscal 2022 levels (aligned with the 1.5°C target)
	Scope 2
	Scope 3 By fiscal 2032, reduce use in products sold (Category (xi)) by 30% versus fiscal 2022 levels (well below 2°C target)
Long-term target NET-ZERO	Scope 1, 2, 3 Bring greenhouse gas emissions to net zero (NET-ZERO) across the Group's value chain by fiscal 2049

## Kawasaki Group CO<sub>2</sub> emissions reduction targets and results

	Targets	CO <sub>2</sub> Emissions (Result in FY2023)*1	Responses
Scope 1	2030: Net Zero (The Company and its domestic consolidated subsidiaries)	0.134 million t-CO <sub>2</sub> /year (KHI, 44 domestic consolidated subsidiaries, and 56 overseas consolidated subsidiaries)	By focusing on in-house hydrogen power generation systems and combining them with waste-to-energy, renewable energy, and other energy sources, we will achieve zero-emissions plants.
Scope 2	2030: Net Zero (The Company and its domestic consolidated subsidiaries)	0.281 million t-CO <sub>2</sub> /year (KHI, 44 domestic consolidated subsidiaries, and 56 overseas consolidated subsidiaries)	
Scope 3	2040: Zero-Carbon Ready (The Company, Kawasaki Railcar Manufacturing Co., Ltd., Kawasaki Motors, Ltd.) 2050: Net Zero (The Company and its consolidated subsidiaries)	37.829 million t-CO <sub>2</sub> /year (The Company, Kawasaki Railcar Manufacturing Co., Ltd., Kawasaki Motors, Ltd.)	We will implement the measures described below to address categories (i) and (xi), which account for the majority of Scope 3 emissions.
Category (i)	2040: 80% reduction compared with fiscal 2021 (The Company, Kawasaki Railcar Manufacturing Co., Ltd., Kawasaki Motors, Ltd.)	3.829 million t-CO <sub>2</sub> /year (The Company, Kawasaki Railcar Manufacturing Co., Ltd., Kawasaki Motors, Ltd.)	<ul style="list-style-type: none"> <li>Reinforce collaboration, including sharing information on emissions, with business partners that supply materials and components</li> <li>Supply CO<sub>2</sub>-free energy with a focus on hydrogen from the Group to business partners as well</li> </ul>
Category (xi)	2040: Zero-Carbon Ready*2 (The Company, Kawasaki Railcar Manufacturing Co., Ltd., Kawasaki Motors, Ltd.)	32.650 million t-CO <sub>2</sub> /year (Kawasaki Group)	<ul style="list-style-type: none"> <li>Provide hydrogen-related solutions for the development of a hydrogen-based society</li> <li>Prepare electrification and CO<sub>2</sub>-free fuel compatible products as options for customers that use our solutions, such as various types of mobility and robots</li> <li>Promote CCUS initiatives</li> </ul>

\*1 CO<sub>2</sub> emissions have been verified by KPMG AZSA Sustainability Co., Ltd.

\*2 Zero-Carbon Ready is a term coined by the Company to indicate initiatives described in the countermeasures for addressing category (xi).

### Sustainable finance targets and KPI

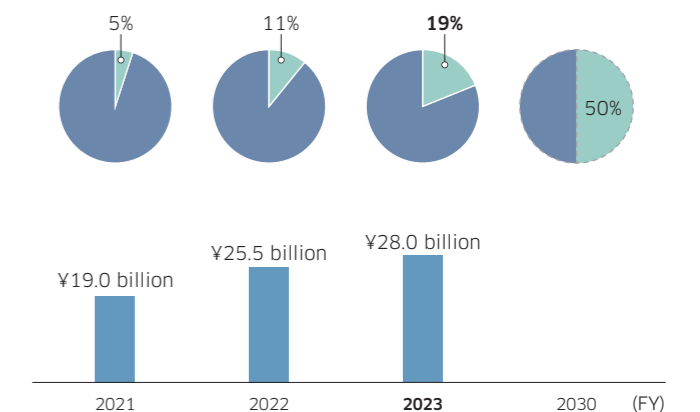
To achieve our future CO<sub>2</sub> emissions reduction targets, in relation to finance, we have been conducting capital procurement that contributes to environmental and social sustainability (i.e., sustainable finance) since fiscal 2021, and we have been using funds for climate change countermeasures with a focus on building hydrogen supply chains and other areas.

In fiscal 2022, we formulated the frameworks of sustainability linked loans and positive impact finance. This is the first example in Japan of an attempt to use the same frameworks to conclude individual loan agreements with multiple financial institutions.

In fiscal 2023, we issued transition bonds, a first for the Company. Funds raised in the domestic market, through a public offering based on the Sustainable Finance Master Framework formulated in November 2023, will be allocated towards projects to build a clean hydrogen supply chain, an essential component in the achievement of global carbon neutrality.

We seek to procure half of the balance of long-term debt until 2030 and the entire balance of long-term debt until 2050 through sustainable finance and are working to solve social issues including climate change.

### Share of long-term debt accounted for by sustainable finance and procurement amounts



## Strategy

(Actual and potential impact of climate-related risks and opportunities on business, strategy and financial planning)

In energy and environmental solutions, one of three focal fields defined in the Group Vision 2030, the Group is actively advancing business aimed at realizing a decarbonized society through the hydrogen business, CCUS and other efforts.

Recorded below is the scenario analysis process conducted in the formulation of Kawasaki's climate change strategy.

### Scenario Analysis Process

Scenario analysis is conducted through a process that entails (1) Selection of target businesses, (2) Evaluations of risk severity, (3) Definition of scenario groups, (4) Evaluations of business impact, and (5) Definition of responses to be made. Periodic reviews are also implemented.

#### (1) Selection of target businesses

The Group engages in highly varied business, and each business has different opportunities and risks. Because of this, we assessed the degree of impact from climate change and conducted scenario analysis for those businesses for which the degree of impact is expected to be large. The degree of impact from climate change was comprehensively assessed from the following perspectives: 1. Assessment by industry, 2. CO<sub>2</sub> emissions, 3. Business size and future growth potential, and 4. Climate change-related opportunities and risks.

As a result, the Energy Solution & Marine Engineering segment, Aerospace Systems segment, and Motorcycle & Engine segment (currently the Powersports & Engine segment) were added to the target businesses in fiscal 2021, as were the Precision Machinery & Robot segment and Rolling Stock segment in fiscal 2022. The target businesses are indicated on pages 15 and 16.

#### (2) Evaluations of risk severity

For each target business, specific opportunities and risks were identified by making reference to items presented as examples in the TCFD framework, based on assumptions of the main product groups. The severity of business impact in the case that opportunities or risks become a reality was then qualitatively assessed as "large," "medium," or "small." Those opportunities and risks assessed to be "large" are disclosed and considered as subjects for (3) Definition of scenario groups and after.

For those opportunities and risks assessed as "large" that are not thought to be business specific but rather as shared throughout the Group, the subsequent processes ((4) Evaluations of business impact and (5) Definition of responses to be made) were carried out from the perspective of the Group as a whole.

#### (3) Definition of scenario groups

Taking into consideration consistency with the Group Vision 2030, the year 2030 was set as the target year, and the 1.5°C and 4°C scenarios were adopted.

The 1.5°C scenario was defined based mainly on the IPCC RCP1.9 and IEA Net Zero Emissions by 2050 Scenario (NZE Scenario), and the 4°C scenario was defined based mainly on the IPCC RCP 8.5.

#### (4) Evaluations of business impact (1.5°C scenario)

Business impact (financial impact) was calculated, primarily for those items with high-risk severity. Calculations were performed for the Energy Solution & Marine Engineering segment in fiscal 2021 and for other business segments in fiscal 2022 and later. As discussed above, the Group periodically reviews its scenario analyses. After disclosing our carbon neutrality-related revenue target including hydrogen of ¥600 billion in fiscal 2023, based on the hydrogen strategies of Japan and other countries, we revised the target upward to ¥650 billion to reflect the Direct Air Capture (DAC) business revenue target and disclosed the revision in fiscal 2024 (in this Report).

We also investigated responses to opportunities and risks based on the business impacts discussed above. Among these, the hydrogen supply chain, hydrogen-related products in that supply chain, the electrification of motorcycles, and so on will be targeted in the short term (around 2030) based on the business environment. Other items relating to hydrogen aircraft, rolling stocks that use hydrogen for fuel, and so on are assumed for the medium to long term (2040 and later).

#### (4°C scenario)

Damage to production sites caused by natural disasters under the 4°C scenario was identified as an item with high-risk severity among those risks common to the entire Group. We assessed the financial impact of these risks and investigated countermeasures.

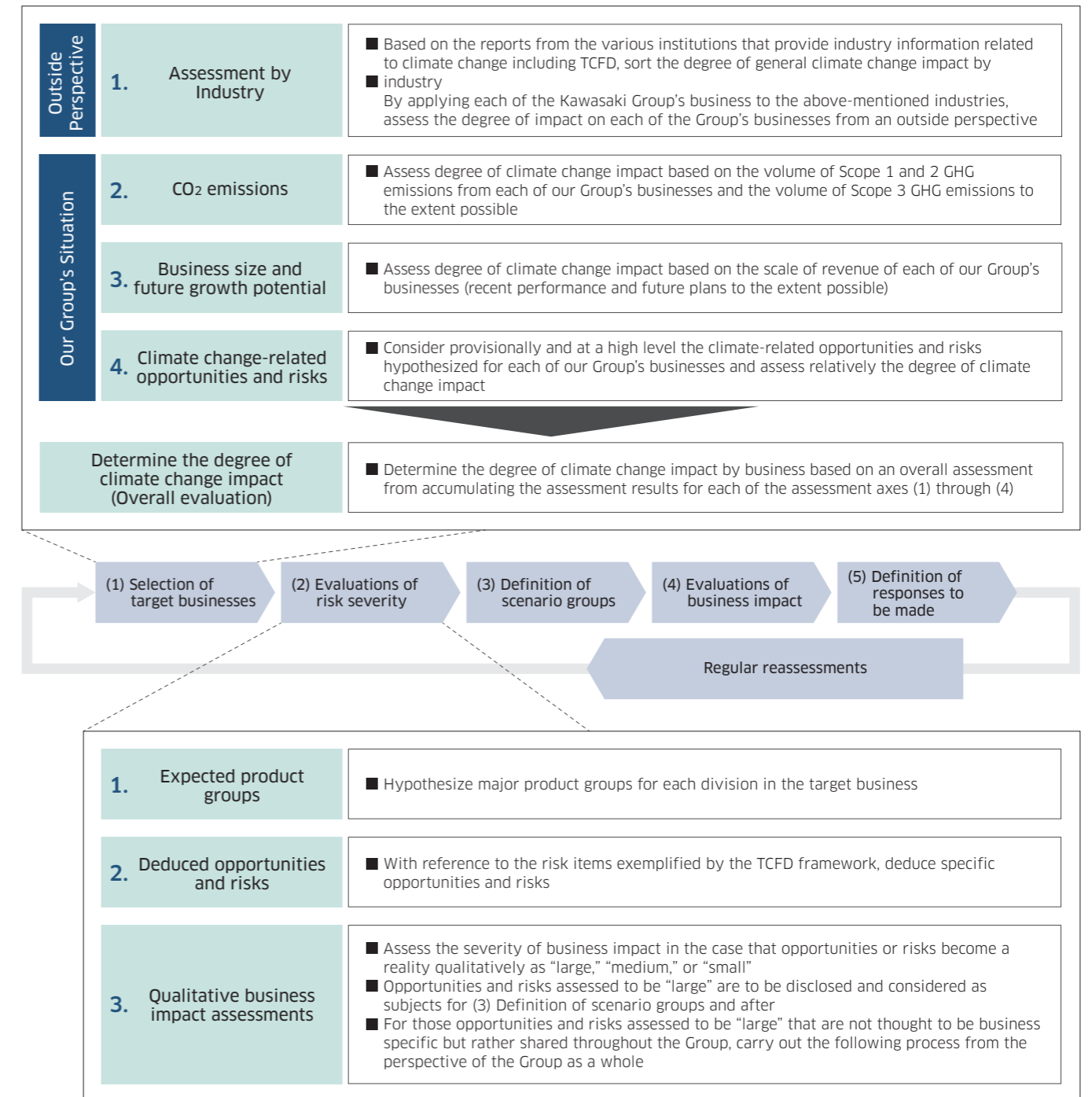
Among our production sites (26 domestic and 16 overseas), we used various hazard maps and past damage reports to identify high-risk sites and calculated expected damages for 2030. At the Kobe Works, which was identified as a high-risk site, we raised the siting of electric facilities as a countermeasure against flooding.

#### (5) Definition of responses to be made

The business impact of the 1.5°C and 4°C scenarios and the results of the considerations on the measures to be taken are described on the tables on pages 11 to 14.

Going forward, we will regularly conduct reviews and advance the sophistication of the scenario analysis.

### Process for Scenario Analysis (1.5°C Scenario)



Process and Results for Scenario Analysis (4°C Scenario)

**Anticipated Risks**

- A natural disaster such as flooding occurs, (A) facilities at production sites are damaged, and (B) the supply chain is disrupted, leading to a halt in operations.

**(A) Damage to production sites**

- Identify high-risk sites based on the Ministry of Land, Infrastructure, Transport and Tourism hazard maps, the World Resources Institute "Aqueduct Water Risk Atlas," and past damage reports
  - Applies to 9 of the 20 domestic production sites
  - Applies to 8 of the 16 overseas production sites

Example of domestic production sites (20 sites)

**(B) Damage from a halt in operations due to supply chain disruptions**

- Based on the World Resources Institute's "Aqueduct Water Risk Atlas" and past damage reports, determine high-risk sites
  - Does not apply to domestic production sites owing to a lack of past damage reports
  - Applies to 4 of our 16 overseas production sites

Example of overseas production sites (16 sites)

**(4) Business impact evaluations**

**1. Identification of high-risk sites**

**2. Preliminary calculation of damage**

- Calculations of expected damages for 2030 at high-risk sites are below
- Rate of increase of harm to GDP is based on the World Resources Institute's "Aqueduct Global Flood Analyzer"
- Result: ¥4 billion

Hypothesized cost of damage at high-risk sites based on damage reports (fixed assets based on book value) × growth rate of damage to the GDP

- Calculations of expected damages for 2030 at high-risk sites are below
- Rate of increase of harm to GDP is based on the World Resources Institute's "Aqueduct Global Flood Analyzer"
- Result: ¥24 billion

Hypothesized cost of damage at high-risk sites based on damage reports (based on revenue) × growth rate of damage to the GDP

Figure Sources: Japan production sites: Map created using hazard map information from the Ministry of Land, Infrastructure, Transport and Tourism <https://disaportal.gsi.go.jp/hazardmap/maps/index.html>. Production sites outside of Japan: Map created using information from WRI Aqueduct Water Risk Atlas <https://www.wri.org/data/aqueduct-water-risk-atlas>.

Physical risk (mainly assessment of risks at production sites arising under the 4°C scenario)

List of domestic production site risk levels \* Risk level A is the lowest and E is the highest

		Flood risk				
		(a) Outside scope	(b) Water depth 0 - less than 0.5 m	(c) Water depth 0.5 - less than 3.0 m	(d) Water depth 3.0 - less than 5.0 m	(e) Water depth 5.0 m or more
Storm surge risk	(a) Outside scope	► Applies to 11 sites Risk level A		► Applies to 1 site		
	(b) Water depth 0 - less than 0.5 m		Risk level B	The risk level at 20 domestic production sites is C or lower		
	(c) Water depth 0.5 - less than 3.0 m	► Applies to 8 sites		Risk level C		
	(d) Water depth 3.0 - less than 5.0 m				Risk level D	
	(e) Water depth 5.0 m or more					Risk level E

List of overseas production site risk levels \* Risk level A is the lowest and E is the highest

The number of people in parentheses indicates the number of people expected to be affected.

		River flood risk				
		(a) Low (Up to 1 person per 1,000)	(b) Low - medium (Up to 2 people per 1,000)	(c) Medium - high (Up to 6 people per 1,000)	(d) High (Up to 1 person per 100)	(e) Extremely high (More than 1 person per 100)
Storm surge risk (coastal flood risk)	(a) Low (Up to 9 people per million)	► Applies to 4 sites Risk level A	► Applies to 4 sites	► Applies to 1 site	► Production sites in Thailand ► Production sites in China	
	(b) Low - medium (Up to 7 people per 100,000)		Risk level B	The risk level at 12 overseas production sites is C or lower		
	(c) Medium - high (Up to 3 people per 10,000)		► Applies to 2 sites	► Applies to 1 site Risk level C		► Production sites in Indonesia
	(d) High (Up to 2 people per 1,000)				Risk level D	
	(e) Extremely high (More than 2 people per 1,000)				► Production sites in China	Risk level E

# Climate Change Scenario Analysis

1.5°C Scenario (As of 2030) When the Group Vision 2030 policy is implemented

\*1 Financial impact ... ★: less than ¥10 billion; ★★: ¥10 billion or more, less than ¥100 billion; ★★★: ¥100 billion or more

Business Segment	Energy Solution & Marine Engineering Segment	Aerospace Systems Segment	Powersports & Engine Segment	Precision Machinery & Robot Segment	Rolling Stock Segment	
Assumptions	<ul style="list-style-type: none"> <li>Decarbonization of energy will progress rapidly worldwide, and energy conservation, energy conversion and the shift toward non-fossil fuels will advance in Japan as well.</li> <li>An international supply chain will be built for hydrogen and ammonia, power generation from these means will begin. Strategic placement of hydrogen stations advances.</li> <li>Energy security will become increasingly important in Japan.</li> </ul>					
	<ul style="list-style-type: none"> <li>At power plants and the like, carbon reduction and decarbonation (through the use of hydrogen fuels, biofuels, and e-fuels [i.e., synthetic fuels]) will advance.</li> </ul>	<ul style="list-style-type: none"> <li>Global air passenger traffic will increase as the middle class grows in emerging economies. The use of sustainable aviation fuel (SAF), such as biofuels, and hydrogen will advance.</li> </ul>	<ul style="list-style-type: none"> <li>For motorcycles and four-wheelers, electrification will advance, as does carbon reduction and decarbonation (through the use of hydrogen fuels, biofuels, and e-fuels [i.e., synthetic fuels]).</li> </ul>	<ul style="list-style-type: none"> <li>For construction machinery and industrial machinery, electrification will advance, as does carbon reduction and decarbonation (through the use of hydrogen fuels, biofuels, and e-fuels [i.e., synthetic fuels]).</li> </ul>	<ul style="list-style-type: none"> <li>For rolling stocks in non-electrified regions, carbon reduction and decarbonation (through the use of hydrogen fuels, biofuels, and e-fuels [i.e., synthetic fuels]) will advance.</li> <li>In keeping with the realization of a hydrogen-based society, the need for hydrogen transport using railroads will grow.</li> </ul>	
Opportunities	Hydrogen-related	<ul style="list-style-type: none"> <li>Demand will increase for liquefied hydrogen plants, liquefied hydrogen storage tanks, liquefied hydrogen carriers, hydrogen gas turbines, hydrogen gas engines and marine hydrogen engines, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Efforts to develop aircraft that use hydrogen as fuel will progress toward 2040.</li> </ul>	<ul style="list-style-type: none"> <li>Demand will increase for motorcycles and four-wheelers, etc. equipped with hydrogen engines.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for rolling stocks that use hydrogen for fuel will increase.</li> <li>Demand for liquefied hydrogen container freight cars as the means for transporting hydrogen will increase.</li> </ul>	
	CCUS, DAC, and alternative fuels	<ul style="list-style-type: none"> <li>Demand will increase for CO<sub>2</sub> recovery plants/equipment and use of CO<sub>2</sub>.</li> <li>Demand for DAC will increase.</li> <li>Demand for plants that use biomass will increase.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for sustainable aircraft fuel (SAF) will increase.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for motorcycles and four-wheelers, etc., that use biofuels and e-fuels (synthetic fuels) will increase.</li> </ul>	–	
	Electrification	<ul style="list-style-type: none"> <li>Demand will increase for marine electric propulsion systems and marine fuel cell and storage batteries.</li> </ul>	<ul style="list-style-type: none"> <li>Development of electric aircraft will advance.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for electric and hybrid motorcycles and four-wheelers will increase.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for the electrification of construction machinery will increase.</li> <li>Accompanying electrification, demand for semiconductor manufacturing robots will increase.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for rolling stocks powered by storage batteries will increase.</li> </ul>
	Other	<ul style="list-style-type: none"> <li>Demand will increase for reduced GHG vessels, marine LPG/LNG engines and ammonia transport.</li> </ul>	<ul style="list-style-type: none"> <li>Demand will increase for fuel efficient engines.</li> </ul>	<ul style="list-style-type: none"> <li>Demand will increase for fuel efficient engines.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for hydraulic advanced electronic control systems to improve fuel economy will increase.</li> </ul>	<ul style="list-style-type: none"> <li>Modal shift from internal combustion means of transportation (automobiles, aircraft, etc.) will advance particularly for freight traffic, and demand for electric locomotives will increase.</li> </ul>
<ul style="list-style-type: none"> <li>Demand for such solutions businesses as digitalization and robotics that improve the productivity and energy-saving performance of factories and facilities will increase.</li> </ul>						
Risks	Products and services	<ul style="list-style-type: none"> <li>Demand for LNG power generation facilities will decline.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for aircraft will decline (modal shift to rail cars, etc.).</li> </ul>	<ul style="list-style-type: none"> <li>Demand for gasoline-powered vehicles will decline.</li> </ul>	<ul style="list-style-type: none"> <li>Demand for diesel construction machinery will decline.</li> </ul>	–
	Development investment	<ul style="list-style-type: none"> <li>R&amp;D and capital investments related to hydrogen-based products and services will increase.</li> </ul>	<ul style="list-style-type: none"> <li>R&amp;D and capital investments in new types of aircraft and engines will increase.</li> </ul>	<ul style="list-style-type: none"> <li>R&amp;D and capital investments in EV/HEV will increase.</li> <li>R&amp;D and capital investments in solving battery issues (durability, output), e-fuel and use of hydrogen technology will increase.</li> </ul>	<ul style="list-style-type: none"> <li>R&amp;D and capital investments directed toward the use of hydrogen technologies and the development of hydrogen-related machinery will increase.</li> </ul>	<ul style="list-style-type: none"> <li>R&amp;D and capital investments toward hydrogen-powered rolling stocks and storage battery-powered rolling stocks will increase.</li> </ul>
	Other	<ul style="list-style-type: none"> <li>Due to delays in infrastructure development, etc. widespread adoption of hydrogen may fall behind our assumptions.</li> </ul>				
Financial Impact*	Revenue	<ul style="list-style-type: none"> <li>Carbon neutrality-related revenue, including hydrogen: ¥650 billion (FY2030)*<sup>1</sup></li> </ul>				
	Investment amounts	<ul style="list-style-type: none"> <li>Carbon neutrality-related investments: ¥350 billion (FY2020–FY2030)</li> </ul>				
Kawasaki's measures to address opportunities and risks	Hydrogen-related	<ul style="list-style-type: none"> <li>With an eye toward commercialization, we have promoted the GI Fund's commercialization demonstration projects to achieve greater scale at lower cost. We are actively promoting alliances with relevant companies to realize an international supply chain.</li> </ul>	<ul style="list-style-type: none"> <li>Kawasaki is also promoting R&amp;D in hydrogen aircraft core technology. We are advancing studies of airport infrastructure, etc. utilizing the hydrogen supply chain.</li> </ul>	<ul style="list-style-type: none"> <li>Stimulate demand by encouraging the development of mobility and general-purpose engines utilizing hydrogen engines.</li> </ul>	<ul style="list-style-type: none"> <li>Bring to market energy saving-type hydrogen compressors for hydrogen stations.</li> <li>Improve development efficiency and cut development costs by collaborating with other companies and moving to outsourcing on such projects as hydrogen supply systems.</li> </ul>	<ul style="list-style-type: none"> <li>Promote the development of hydrogen-powered rolling stocks.</li> <li>Promote the development of liquefied hydrogen tank container freight cars.</li> </ul>
	CCUS and alternative fuels	<ul style="list-style-type: none"> <li>Kawasaki has completed a demonstration of a CO<sub>2</sub> recovery plant under NEDO<sup>2</sup> and Ministry of the environment projects based on the strength of our submarine technology, and are advancing efforts to scale up and strengthen cost competitiveness of the plant toward commercialization. We are investigating a wide range of possibilities for utilization of CO<sub>2</sub>, including synthetic fuels.</li> <li>Expand sales of boilers compatible with a wide variety of biomass fuels.</li> </ul>	<ul style="list-style-type: none"> <li>Advance development of SAF-compatible engines.</li> </ul>	<ul style="list-style-type: none"> <li>Promote development of motorcycles, four-wheelers, etc., that e-fuel compatible.</li> </ul>	–	–
	Electrification	<ul style="list-style-type: none"> <li>Expand sales of hybrid/electric propulsion systems, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Advance development of electrification.</li> </ul>	<ul style="list-style-type: none"> <li>Deploy EV/HEV in at least 10 models by 2025, and replace major models with EV/HEV by 2035.</li> </ul>	<ul style="list-style-type: none"> <li>Advance responding to electrification, including with the K-Axle™ electric hydraulic pump unit.</li> <li>Develop and bring to market further low power consumption technologies for the robots we manufacture.</li> </ul>	<ul style="list-style-type: none"> <li>Promote the development of storage battery-powered rolling stocks.</li> </ul>
	Other	<ul style="list-style-type: none"> <li>In addition to meeting immediate transport demand with ammonia carriers, provide hydrogen engines and hydrogen supply systems for coastal vessels, which are the primary target ship types for our marine LNG gas engines.</li> <li>Meet demand for LNG power generation from an energy security perspective, while also promoting a conversion to hydrogen gas turbines and hydrogen gas engines.</li> </ul>	<ul style="list-style-type: none"> <li>Promote R&amp;D in composite materials and high-efficiency systems.</li> <li>To cope with rising research and equipment costs, promote R&amp;D in low-cost production technology using robot technology and IOT. Also increase development efficiency through alliances with other companies.</li> </ul>	<ul style="list-style-type: none"> <li>With regards to development costs and capital investments, we will control costs by standardizing components and outsourcing, including through collaboration with other companies.</li> </ul>	<ul style="list-style-type: none"> <li>Introduce energy-saving systems for construction machinery and expand the application of failure diagnostic systems for energy-saving purposes</li> <li>Provide operational energy estimates and real-time monitoring services for robot systems.</li> <li>Promote the development of surgical robot system and remote robot systems.</li> </ul>	<ul style="list-style-type: none"> <li>Improve our ability to respond to increased demand for electric locomotives.</li> </ul>

Note: GI Fund (Green Innovation Fund); EV (Electric Vehicle); HEV (Hybrid Electric Vehicle); GHG (Greenhouse Gas)

\*1 To reflect DAC business revenue target, the carbon neutrality-related revenue target including hydrogen for 2030 was revised upward from ¥600 billion to ¥650 billion.

\*2 New Energy and Industrial Technology Development Organization

## Climate Change Scenario Analysis

4°C Scenario (as of 2030) As shown below, the 4°C scenario will invite a worsening of the global economy, and so we will make every effort to contribute to the early realization of decarbonized society (Group Vision 2030).

Business Segment	Energy Solution & Marine Engineering Segment	Aerospace Systems Segment	Powersports & Engine Segment	Precision Machinery & Robot Segment	Rolling Stock Segment
Assumptions	<ul style="list-style-type: none"> <li>• Many countries withdraw from the Paris Agreement, and rising temperatures are left to take their course. Japan also fails to implement policies to reduce greenhouse gas emissions.</li> <li>• Typhoons, floods and other natural disasters chronically occur and intensify. Food shortages, water shortages and so forth due to climate change become chronic. This invites an increase in epidemics and a rise in death rates.</li> <li>• Owing to these factors, the destabilization of all countries' economies advances, and crime as well as international conflicts also increase.</li> </ul>				
Opportunities	-				
Risks	<ul style="list-style-type: none"> <li>• The frequent occurrence of natural disasters may increase damage to power generation and transmission equipment, and increase the occurrence of delays in parts procurement and delivery due to supply chain disruptions.</li> </ul>				
Financial impact (Revenue, physical losses)	<ul style="list-style-type: none"> <li>• FY2030 revenue: Negative impact will be large (the opportunity for ¥650 billion in carbon neutrality-related revenue including hydrogen as hypothesized in the 1.5°C scenario is lost).</li> <li>• Recovery of investments will be delayed (R&amp;D and capital investments related to hydrogen projects, hydrogen aircraft development, and EV/HEV motorcycles).</li> <li>• Physical losses: Substantial (The estimates on page 11 indicate that minimum losses will be ¥4 billion in damage at production sites (loss of fixed assets) and ¥24 billion in damage from a halt in operations due to supply chain disruptions (sales decrease).)</li> <li>• Food risks, water risks, economic instability, supply chain chaos, and other factors produced by temperature rise will have an enormous impact on operations.</li> </ul>				
Measures to address opportunities and risks	<ul style="list-style-type: none"> <li>• Work to deliver at an early date our decarbonation solutions, and by making the most of the Kawasaki Group's strengths, check the growth of damage due to increasingly serious natural disasters through, for example, distributed power sources, emergency power generators, disaster response helicopters and related systems, construction machinery, and robots.</li> <li>• To address physical losses that can become major losses, work to strengthen our supply chain and advance measures to raise the siting of electric facilities at all of our plants.</li> </ul>				

### Response measures (1.5°C scenario & 4°C scenario)

We are taking action relation to the 1.5°C scenario within our business strategies.

At the same time, we are also taking measures, including the following examples, to address physical losses under the 4°C scenario.

#### (1) Examples of measures to raise the siting of electric facilities at all plants

We are implementing measures to raise the elevation of electrical equipment with a focus on the Kobe and other Works. We set the elevation standard at or above the highest tide level in the history of Kobe Port and are taking action to make facilities more resilient against flood damage.



A substation at the Kobe Works



A power receiving station at the Kobe Works

#### (2) Examples of supply chain reinforcement (adoption of Movement by project44™)

Kawasaki has used the Movement by project44™ as a visualization solution for developing and providing a cutting-edge supply chain visualization platform since January 23, 2024. As we implement digital transformation (DX) strategies, we believe that better data infrastructure that can use and apply highly accurate supply chain visualization data is essential for streamlining supply chain operations and reinforcing supply chains in each region, particularly at Kawasaki Motors, Ltd., a subsidiary, and accordingly, we are employing project44.



Conceptual image of supply chain visualization



## / Product Groups in Target Businesses

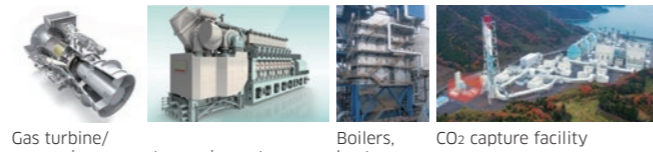
### Energy Solution & Marine Engineering Segment

#### Plants



Municipal waste incineration Low CO<sub>2</sub> fuels (use of CO<sub>2</sub>) Hydrogen

#### Energy



Gas turbine/gas engine generator equipment Boilers, heat exchanger CO<sub>2</sub> capture facility

#### Marine machinery



Marine engine products Hybrid/electric propulsion system products

#### Ship & offshore structures



Hydrogen carriers LPG/LNG carriers Other freight carriers

### Aerospace Systems Segment

#### Aerospace



• Commercial aircraft Boeing 787 Dreamliner (Jointly developed and produced aircraft)  
• Commercial helicopters BK117 (licensed production)

#### Aero engines



Trent series

### Powersports & Engine Segment

#### Motorcycles



• Ninja motorcycle for developed countries  
• BARAKO motorcycle for emerging countries  
• KX off-road motorcycle

#### General-purpose gasoline engines



#### Four wheel vehicles and PWC



• RUV: Recreational four-wheelers KRX1000, TERYX, and others  
• UV: Utility four-wheelers MULE and others  
• PWC: Personal watercraft



• FX820V EVO 4-stroke vertical-shaft V-Twin engine

### Precision Machinery & Robot Segment

Precision Machinery: Development into a solution business that achieves carbon-free, automation, and labor-saving

#### Hydraulic products for construction machinery



Electric control systems Systems compatible with automation

#### Hydraulic products for industrial machinery



Energy-saving hydraulic units

#### Hydrogen-related products



Hydrogen gas valves Hydrogen supply systems Hydrogen compressors

#### Marine machinery



Propulsion systems/Integrated control of mooring equipment Electric hydraulic steering gears

#### Robots

##### Robot digital platform



**Two roles of ROBO CROSS**  
(1) Increase the efficiency of robot system integration  
(2) Create new value through the use of data

##### Supporting the future Social robots



##### Supporting health The hinotori™ Surgical Robot System

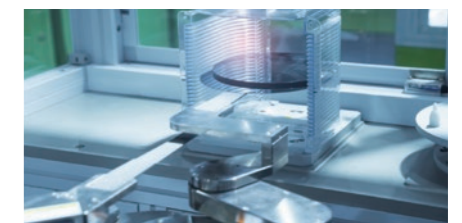


hinotori™

##### Supporting industry Industrial robots



##### Supporting progress Robots for semiconductor manufacturing machinery



### Rolling Stock Segment

#### Electric rolling stock (passenger cars and locomotives)



• E7 series/W7 series electric trains for East Japan Railway Company/ West Japan Railway Company  
• 8600 series electric trains for Shikoku Railway Company

#### Internal combustion rolling stock (passenger cars and locomotives)



• YC1 series hybrid diesel-electric rolling stock for Kyushu Railway Company  
• Electric-diesel locomotives for use on main lines and shunting