Proterial Group's Response to Climate Change

Disclosure Based on TCFD Recommendations (September 30, 2025)

1. Response to TCFD Recommendations

As countries around the world intensify their efforts to address climate change in accordance with the Paris Agreement, the Japanese government announced in October 2020 its policy goal of reducing emissions of greenhouse gases, as typified by carbon dioxide (CO_2), to virtually zero by 2050.
In February 2025, Japan submitted its new nationally determined contributions (NDCs) for fiscal years 2035 and 2040 to the United Nations Framework Climate Change Secretariat. Companies are expected to be more proactive than ever in their efforts to transition to a decarbonized society.
The Group considers the impact of climate change on its business as one of the most important management issues, and we believe that enhanced disclosure of climate-change-related information is essential to building a relationship of trust with our stakeholders. Accordingly, in June 2021, we registered our support of the TCFD* Recommendations, and in accordance with the TCFD Recommendations, the Group will continue to enhance our disclosure of information on the impact of climate change on our business activities. Going forward, we will also continue to respond to the disclosure standards of the International Sustainability Standards Board (ISSB) and the Sustainability Standards Board of Japan (SSBJ).

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

* The Task Force on Climate-related Financial Disclosures (TCFD) was established by the Financial Stability Board (FSB) in 2015 in response to requests from the G20 for climate-related disclosures. The TCFD published its final report in June 2017, in which it recommends companies to disclose items related to climate change-related risks and opportunities.

2. Governance

In April 2010, the Proterial Group established the Group Basic Policy on Environmental Preservation to clarify the Group's unified approach to environmental management. In June 2021, we registered our support for the TCFD Recommendations, and in August of that year, following a report to the Board of Directors, we established a new environmental policy named "Aiming for Green Growth While Taking Risk as Opportunity."

Within our Environmental Promotion Structure, which includes climate change countermeasures, we have formed the Group Environmental Committee, which is chaired by the Environment Executive, and whose executive office is the Environmental Strategy Department, Manufacturing & Engineering Division. Activities are promoted in collaboration with the environmental managers of each business division and the environmental managers at business sites and group companies. The Group Environmental Committee is responsible for developing environment-related regulations, setting targets for reducing environmental impact, and confirming that activities are appropriate and effective.

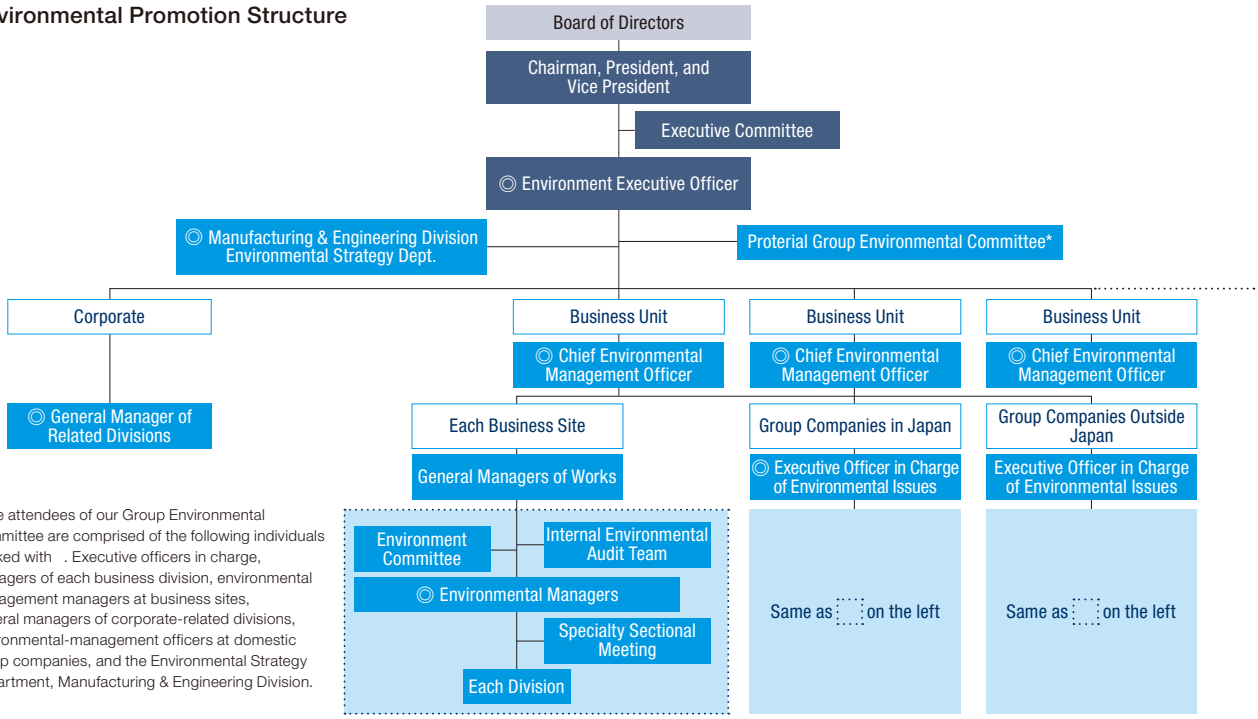
The Group Environmental Committee sets policies and targets for environmental activities in each fiscal year, and deliberates and decides on the Environmental Action Plan. Regarding climate change countermeasures, we have set CO_2 emission reduction targets within the Group and are promoting energy conservation activities and the use of renewable energy at each manufacturing site based on our Environmental Action Plan. We also monitor the status of CO_2 emission reductions by regularly compiling energy activity data. The Group Environmental Committee meets once a year to share the results of the previous fiscal year's environmental activities, the status of numerical targets for the current fiscal year, and major initiatives to promote continuous improvement of activities.

In addition, the status of efforts toward environmental issues, including climate-change measures, are reported twice a year to both the Executive Committee and the Board of Directors, where important issues related to climate change are also deliberated and decided.

Status of decision-making on important climate-change-related items in fiscal year 2024

Month/Year	Important issues related to climate change	Meeting body
May, June 2024	Environmental strategy and status of initiatives • Revision of company regulations (review of responsibilities of officers in charge of environmental issues, etc.) • TCFD information disclosure (expanding scenario analysis including overseas businesses) • Third-party certification (GHG Protocol, GX League compliant)	Executive Committee, Board of Directors
November, December 2024	Environmental strategy and status of initiatives • Status of FY2024 initiatives and third party certifications	Executive Committee, Board of Directors

Environmental Promotion Structure



* The attendees of our Group Environmental Committee are comprised of the following individuals marked with . Executive officers in charge, managers of each business division, environmental management managers at business sites, general managers of corporate-related divisions, environmental-management officers at domestic group companies, and the Environmental Strategy Department, Manufacturing & Engineering Division.

Roles in the Promotion Structure

■ Environment Executive Officer ◎
The executive in charge of manufacturing and technology is in charge as an Environment Executive who is well acquainted with environment-related issues and exercises overall control through the Group Environmental Committee.

■ Proterial Group Environmental Committee
Deliberates and determines policies, targets, etc. related to environmental management activities within the Group.

■ Chief Environmental Management Officer
Oversees environmental management activities within the business units.

■ Environment Committee
Deliberates and determines policies, targets, etc. related to environmental management activities at each business site.

■ Environmental Managers
Take responsibility for and promote environmental-management activities of each business site.

3. Strategy

A scenario analysis was conducted by the Group to clarify the risks and opportunities of the various projected environmental changes that future climate change will bring, and to formulate a business strategy to reduce the risks and expand opportunities. Scenario analysis—consisting of the four scenario analysis steps—aims to assess (i) financial and business impacts under multiple scenarios and (ii) resilience of the Group strategy in regard to climate-related risks and opportunities. In order to address risks and opportunities, we have set a goal of reducing CO_2 emissions by 38% by fiscal year 2030 compared to the base year of fiscal year 2015 and achieving net-zero emissions by 2050, and is promoting the implementation of measures to achieve this goal. Specifically, we are expanding capital investment in areas such as promoting energy conservation, fuel conversion, and introducing renewable energy, improving manufacturing processes, increasing the use of scrap in order to emit less CO_2 through raw materials, and developing new suppliers. We are also working to develop various materials and products that contribute to the electrification of automobiles and to energy conservation, fuel efficiency, and longer lifespans, and expand sales.

We will also strive to improve our production systems to account for abnormal weather conditions, while enhancing the BCP system and refining our action manual for emergencies.

■Assumptions for scenario analysis

We considered policy and regulatory risks and market risks based on the WB2 scenario, and took the opportunity to assess the market impact of our environmentally friendly products, which are expected to contribute to a decarbonized society. We also plan to assess the gap with the 1.5°C scenario target and evaluate countermeasures.

Scenarios: Refer to the “below 2°C scenario” for risks and opportunities other than physical risk, and the “4°C scenario” for physical risks.
Target businesses: All 7 business units (domestic and major overseas offices)
Target Fiscal Year: Impact by 2030

■Reference scenario

Classification	Main reference scenario
Below 2°C scenario	• IEA World Energy Outlook 2020. Sustainable Development Scenario • IPCC RCP2.6
4°C scenario	• IEA World Energy Outlook 2020. Stated Policy Scenario • IPCC RCP8.5

■Scenario-analysis steps

Step 1
Identify significant climate-related risks/opportunities

- Identify climate-related risks/opportunities
- Assess most significant risks/opportunities
- Set parameters related to the most significant risks/opportunities

Step 2
Establish climate-related scenarios

- On the basis of the information in Step 1, identify the most relevant scenarios among the existing scenarios.
- Establish climate-related scenarios (societal vision)

Step 3
Assess the financial impact of each scenario

- Analyze the financial impact of each scenario on the basis of the scenarios identified in Step 2 and the significant climate-related risks/opportunities and related parameters identified in Step 1.

Step 4
Assess the resilience of strategies against climate-related risks and opportunities and consider further countermeasures

- Assess the resilience of our strategy for climate-related risks and opportunities
- Consider further countermeasures

The following table shows the results of our review of the risks and opportunities posed by climate change

Classification		Type	Content	Business/financial impact			Our response
				Specialty Steel	Roll	Automotive castings	
Risk	Transition	Policy/ regulations	Increased production and operating costs due to tighter regulations on carbon pricing (CP), including carbon taxes, taxes on fuel and energy consumption, and emissions trading.	Medium	Medium	Medium	Currently, we are working towards improving energy consumption per unit of production by 1% or more per year by promoting various energy-saving measures (LED lighting, replacement and introduction of high-efficiency equipment) and productivity improvement measures. Aiming to become carbon neutral by 2050, we plan to actively promote fuel conversion and introduction of renewable-energy facilities (installation of solar panels) as additional measures to achieve the 2030 CO_2 reduction target.
			Increased procurement risk due to strengthened CP regulations for raw materials.	Medium	Small	Small	As for principle raw materials, we will strengthen surcharges and cultivate new suppliers. From the perspective of life-cycle assessment (LCA), we will increase the utilization ratio of scrap (which generates low CO_2 emissions) and nurture new suppliers
		Technology	Increase in operating costs due to capital investment involved in the introduction of manufacturing processes (electrification and alternative fuels) to meet decarbonization requirements.	Small	Small	Large	When introducing new manufacturing processes, we will examine equipment specifications with the aim of reducing its impact on operating costs
		Market	Decreased demand for peripheral components of internal combustion engines owing to the expansion of xEVs and decrease in sales due to excessive competition with competing xEV suppliers.	Midium	Small	Large	As for capturing demand for components of automotive internal-combustion engines, we will target the commercial-vehicle and agricultural/ construction-equipment fields.
			Decrease in sales due to delays in responding to customer requests for decarbonization and lost opportunities to expand new sales.	Small	Small	Medium	As for reducing CO_2 emissions from manufacturing processes, we will continue to promote both energy conservation and renewable energy, and we will focus on how to respond to customer requests for decarbonization.
	Physical	Acute and chronic	Orders and sales decreased owing to delays in delivery accompanying the suspension of operations caused by natural disasters due to abnormal weather.	Small	Small	Large	We will systematically improve our production systems in anticipation of extreme weather events. We will expand the BCP system and refine the action manual for emergencies.

Classification		Type	Content	Business/financial impact				Our response
				Magnetic materials	Power electronics	Electric wires	Automotive components	
Risk	Transition	Policy/ regulations	Increased production and operating costs due to tighter regulations on carbon pricing (CP), including carbon taxes, taxes on fuel and energy consumption, and emissions trading.	Medium	Large	Small	Medium	We are reducing CO_2 emissions by promoting various energy-saving measures (e.g., LED lighting and renewal/introduction of high-efficiency equipment) and measures to improve productivity. From now onwards, aiming to achieve our CO_2 reduction target for 2030, we will actively promote fuel conversion and purchase of renewable electricity as well as the introduction of renewable energy (i.e., installation of solar panels).
			Increased procurement risk due to strengthened CP regulations for raw materials.	Small	Medium	Medium	Small	As for principle raw materials, we will work to strengthen surcharges and cultivate new suppliers. In the magnet business, we will continue to develop materials that use fewer heavy rare earth elements and introduce them to the market. In the electric wire business, we will reduce the amount of copper used by improving productivity, develop and commercialize aluminum alloy conductor cables, and further expand the ratio of recycled copper.
		Technology	Increase in operating costs due to capital investment involved in the introduction of manufacturing processes (electrification and alternative fuels) to meet decarbonization requirements.	Small	Small	Small	Small	When introducing new manufacturing processes (e.g., introduction of the latest energy-saving technologies), we will examine equipment specifications with the aim of reducing their impact on operating costs. And the increased costs will be passed on to sales prices.
		Market	Decreased demand for peripheral components of internal combustion engines owing to the expansion of xEVs and decrease in sales due to excessive competition with competing xEV suppliers.	Small	Large	Small	Small	We will reduce costs by introducing high-efficiency equipment, improving productivity, and procuring parts locally.
			Decrease in sales due to delays in responding to customer requests for decarbonization and lost opportunities to expand new sales.	Small	Large	Small	Large	We will improve the ratio of renewable energy use by promoting the introduction of renewable energy and selecting electric power companies with a high renewable energy power-generation ratio.
	Physical	Acute and chronic	Orders and sales decreased owing to delays in delivery accompanying the suspension of operations caused by natural disasters due to abnormal weather.	Small	Medium	Medium	Large	We will systematically improve our production systems in anticipation of extreme weather events. We will expand the BCP system and refine the action manual for emergencies.

Classification	Type	Content	Business/financial impact			Our response
			Specialty Steel	Roll	Automotive castings	
Opportunity	Resource efficiency	We will increase sales by increasing product value through efficient production and efficient use of materials and energy.	Small	Small	Small	To achieve the 2030 CO_2 reduction target, we plan to promote energy-saving measures through fuel conversion for industrial furnaces and boilers, introduction of high-efficiency equipment and waste heat utilization, and actively promote further introduction of solar power generation facilities.
	Source of energy	We will increase sales by improving customers' supplier selection evaluation through decarbonization efforts.	Small	Small	Small	We will promote CO_2 reduction by introducing renewable energy and switching to carbon-neutral fuels.
	Products/ Services	We will increase sales by developing and launching environmentally friendly products onto the market.	Large	Small	Small	We will promote new orders and increase market share of target products by shortening development lead times and reducing costs of environmentally friendly products. We will continue to expand sales of environmentally friendly products, which are expected to be in greater demand in the future. • Mold materials that provide longer service life • Materials for various industrial machinery, undercarriage parts, and exhaust-gas filters that contribute to improved fuel efficiency and reduced emissions by cars • Aerospace products that contribute to the fuel efficiency of airplanes. • Battery materials (clad products) and power-semiconductor materials for use in batteries and other products

Classification	Type	Content	Business/financial impact				Our response
			Magnetic materials	Power electronics	Electric wires	Automotive components	
Opportunity	Resource efficiency	We will increase sales by increasing product value through efficient production and efficient use of materials and energy.	Small	Medium	Small	Medium	To achieve the 2030 CO_2 reduction target, we plan to promote various energy-saving measures (LED lighting, renewal and introduction of high-efficiency equipment, etc.) and productivity-improvement measures while promoting fuel conversion and introduction of renewable energy (i.e., installation of solar panels). We will also disclose these initiatives and their results.
	Source of energy	We will increase sales by improving customers' supplier selection evaluation through decarbonization efforts.	Small	Small	Small	Small	We will reduce electricity consumption by improving productivity and increase the utilization rate of renewable energy.
	Products/ Services	We will increase sales by developing and launching environmentally friendly products onto the market.	Small	Large	Small	Medium	We aim to expand sales by developing products that contribute to a low-carbon society. • Various products for xEVs (high-performance magnets, SiN, SiC, magnet wires, automotive electrical components, etc.) • Amorphous alloy (MaDC-A) that contributes to higher efficiency of transformers

xEV: A collective term for electric vehicles (EV), hybrid electric vehicles (HEV), and plug-in hybrid electric vehicles (PHEV).

Definition of business/financial impact assessment
Large: Cost or effect is equal to or greater than 5% of sales of target businesses.
Medium: Cost or effect is equal to at least 1% but less than 5% of sales of target businesses.
Small: Cost or effect is less than 1% of sales of target businesses.

After examining the financial impact assessment regarding risks and opportunities and the responses thereto for each business as described above, we have determined that our environmental strategy is resilient. We believe we can minimize the risks associated with climate change, increase corporate value related to contributing to a low-carbon society, and generate growth opportunities by making group-wide efforts to achieve our 2030 CO_2 reduction targets and strategically developing environmentally friendly products in each business field.

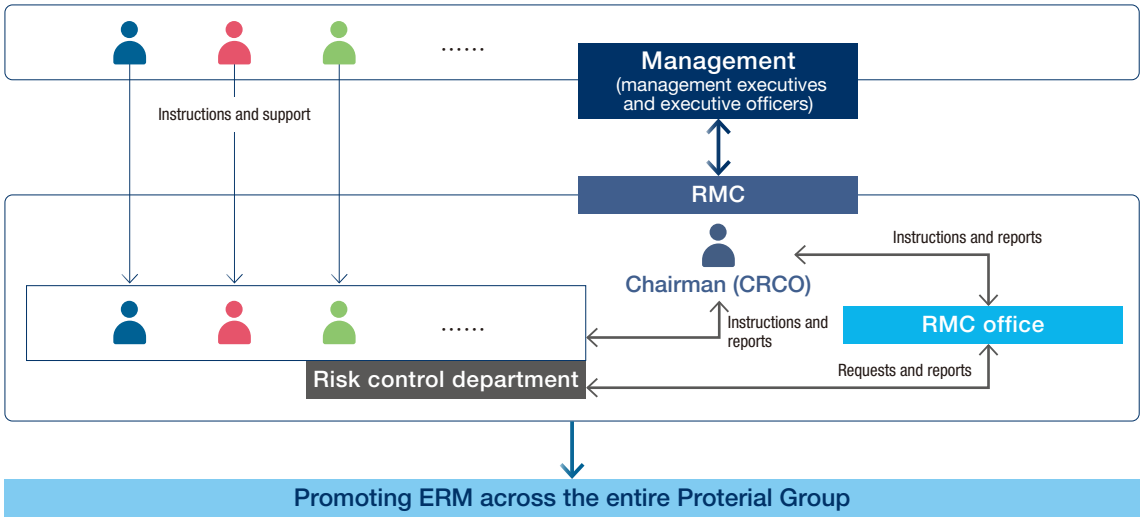
4. Risk Management

In addition to a bottom-up approach, the Group has established an Enterprise Risk Management (ERM) system in which management (management executives and executive officers) uses a top-down approach to identify and control cross-sectional and medium- to long-term risks from a management perspective. The Risk Management Committee (RMC), chaired by the Chief Risk Control Officer (CRCO), implements ERM processes such as risk identification, assessment, and prioritization, and promotes ERM throughout the Group. Risks are classed and defined as strategic risks, operational risks, and company-wide risks, and the extracted risks are evaluated on a four-level scale based on their impact and likelihood of occurrence. A risk map is created based on the assessment results, and priority risks are selected from the risks positioned in the "high" zone, taking into account their importance and urgency, and are managed by implementing countermeasures and monitoring through RMC. Risks related to climate change identified by the Group Environmental Committee, corporate departments, and business divisions are considered to be risks related to environmental regulations, etc., and are monitored by the RMC as target risks for ERM, along with other risks. The RMC shares the status of risk responses and related monitoring results, and reports to management.

■Risk management structure

ERM process

ERM structure

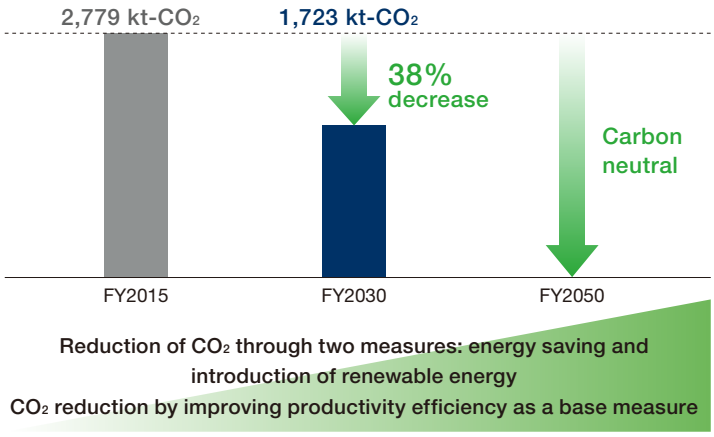


5. Indicators and Targets

■ About Scopes 1 and 2

The Group has set the Scopes 1 and 2[*1] targets for CO_2 emissions as shown in the illustration below. In promoting carbon neutrality, we will continue our conventional energy-saving activities while striving to improve processes such as capital investment, convert to alternative fuels for melting furnaces, heating furnaces, and other manufacturing processes, develop technologies based on carbon-free fuel, and introduce renewable energy.

Target for CO_2 emissions (whole Group)



*1 Scope 1: Direct emissions of greenhouse gases by business operators themselves (fuel burning and industrial processes)
Scope 2: Indirect emissions associated with use of electricity, heat, and steam supplied by other companies

Group-wide Scope 1 and 2 results[*2]

(kt-CO_2)

Target	FY2022	FY2023[*3]	FY2024
Scope 1	818	234	213
Scope 2	1,096	828	785
Scope 1 + Scope 2	1,914	1,062	997

*2 Emissions (Scopes 1 and 2) have been certified by a third party. Totals may not match depending on the display format.
*3 Impact in fiscal year 2023 was a significant decrease compared to the previous fiscal year, due to the effects of a review of the business portfolio and other factors.

About Scope 3

The Company calculated CO_2 amount for Scope 3 Categories 1 to 7 and 13 according to “Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain.”CO_2 emissions in fiscal year 2024 totaled 1,871 kt-CO_2, of which “Category 1: Purchased Goods and Services” accounted for the largest share (80.1%).

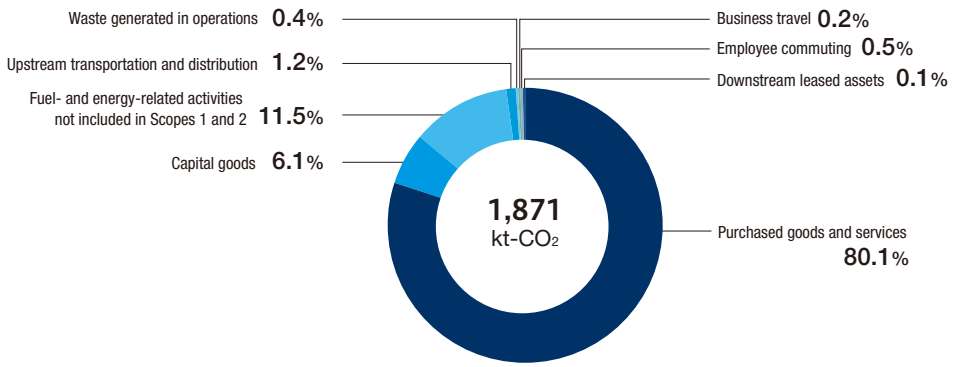
Group-wide Scope 3 aggregated results

Category	Category description	FY2022		FY2023		FY2024	
		Emissions [kt-CO_2]	Ratio [%]	Emissions [kt-CO_2]	Ratio [%]	Emissions [kt-CO_2]	Ratio [%]
1	Purchased goods and services	1,787	76.5	1,769	83.8	1,499	80.1
2	Capital goods	106	4.5	115	5.4	113	6.1
3	Fuel and energy related activities not included in Scopes 1 and 2	391	16.7	182	8.6	215	11.5
4	Upstream transportation and distribution	24	1.0	21	1.0	22	1.2
5	Waste generated in operations	11	0.5	7	0.4	7	0.4
6	Business travel	3	0.1	3	0.2	3	0.2
7	Employee commuting	12	0.5	11	0.5	9	0.5
13	Downstream leased assets	2	0.1	2	0.1	1	0.1
Total		2,336	100.0	2,111	100.0	1,871	100.0

*4 Scope 3 Category 1 has been certified by a third party. Totals may not match depending on the display format.

Scope of data: Categories 1 to 7 (excluding Category 4) and Category 13 are figures for the whole Group. Figures in Category 4 are based on domestic operations only.
Calculation method: FY2022: Ministry of the Environment DB3.1 and IDEA database Ver. 3.2 were used.
FY2023: Ministry of the Environment DB3.4 and IDEA database Ver. 3.3 were used.
FY2024: Ministry of the Environment DB3.4 and IDEA database Ver. 3.4 were used.

Scope 3 FY2024 results



Management compensation

Our management (management executives and executive officers) compensation is based upon the achievement of annual targets. From fiscal year 2022, we have added the Group’s CO_2 emissions reduction target as an evaluation item for climate-change response. We have also applied this indicator to management staff, and we are working on carbon-neutrality measures as an important issue facing our business operations.

Internal carbon price

To promote CO_2 reduction, we have added the concept of “internal carbon pricing” to our internal regulations related to capital investment. In detail, we set a carbon price (8,000 yen/t CO_2) based on the total amount of CO_2 emissions after capital investment, and the effect of the CO_2 reduction of the capital investment is calculated as profit. The concept has been implemented since October 2021, and as a result of the carbon price review, we have decided to maintain the price with reference to the carbon taxes, carbon credits, and procurement prices of renewable energy, both in Japan and overseas. We will continue to review the carbon price periodically.