

Hitachi Metals Group Response to Climate Change

Disclosure based on TCFD recommendations (October 31, 2022)

1. Response to TCFD Recommendations

In October 2020, amid accelerating efforts to address climate change worldwide under the Paris Agreement, the Japanese government announced a policy goal of net-zero emissions of greenhouse gases, which are typified by carbon dioxide (CO₂), by 2050. Companies are expected to be more aggressive than ever in their efforts to support the transition to a decarbonized society.

The Hitachi Metals Group views the impact of climate change on its business as a top priority issue for management. We believe that enhanced disclosure of climate change-related information is essential for building a relationship of trust with our stakeholders. For this reason, in June 2021, we expressed our endorsement of the TCFD* recommendations. Based on these recommendations, we will continue to enhance our disclosure of information on the impact of climate change on our business activities.



* TCFD (Task Force on Climate-related Financial Disclosures):

The Task Force on Climate-related Financial Disclosures launched by the Financial Stability Board (FSB) in 2015 in response to a request from the G20 concerning climate-related disclosure. The TCFD published its final report in June 2017, recommending that companies and others disclose items related to climate change-related risks and opportunities.

2. Governance

In April 2010, the Hitachi Metals Group established the Hitachi Metals Group Basic Environmental Protection Policies to clarify the Group's unified commitment to environmental management. In June 2021, we endorsed the TCFD. In August of the same year, following a report to the Board of Directors, we established a new environmental policy, "Turning Risks into Opportunities to Target Green Growth."

The Hitachi Metals Group Environmental Committee (hereinafter, the "Group Environmental Committee") has been established to provide a framework for promoting environmental activities, including climate change countermeasures. The committee is chaired by the executive officer in charge of technology, research & development and its secretariat is the Environmental Strategy Department, Technology, Research & Development Division. Its activities are conducted in cooperation with Chief environmental managers appointed in the business headquarters and environmental managers appointed in the works and Group companies. The Group Environmental Committee is responsible for maintaining environmental-related standards, setting goals for the reduction of the environmental burden, and ensuring that activities are conducted properly and effectively.

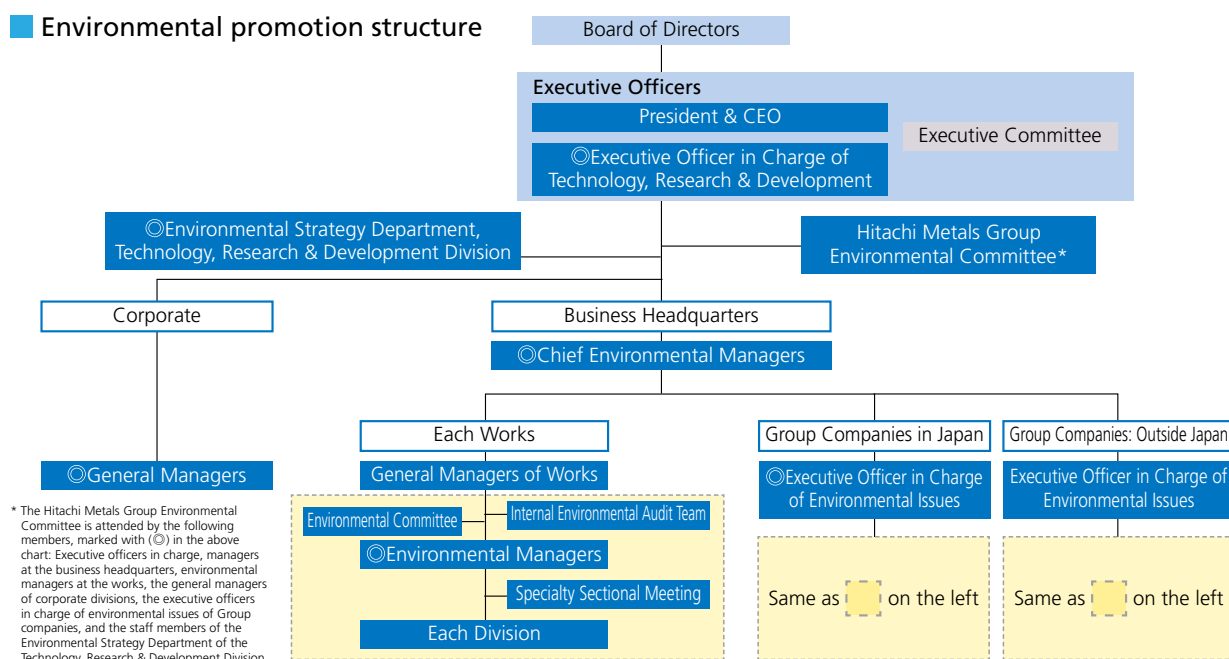
The Group Environmental Committee deliberates and decides on policies and targets related to environmental activities in the form of the medium-term and annual Environmental Action Plans. As for measures against climate change, this Environmental Action Plan defines targets for reducing CO₂ emissions within the Hitachi Metals Group. Based on these targets, energy-saving activities and the use of renewable energy are being advanced at each works. The status of CO₂ emission reductions is monitored on a regular basis. The Group Environmental Committee meets once a year to share updates such as the results of the previous year, numerical targets for the current year, and major initiatives, thereby promoting continuous improvement of activities.

Since fiscal 2021, the executive officer in charge of technology, research & development, who chairs the Group Environmental Committee, reports to the Executive Committee and the Board of Directors twice a year on the status of efforts to address environmental issues including climate change countermeasures.

■ Status of decisions on key issues related to climate change in fiscal 2021

Period	Decisions on key issues related to climate change	Meeting body
June 2021	Endorsement of TCFD	Executive Committee
August 2021	New Environmental Action Policy “Turning Risks into Opportunities to Target Green Growth”	Board of Directors
October 2021	Introduced Internal Carbon Price Introduced internal rules on capital investment requiring that the CO ₂ reduction effect of capital investment be calculated as profit using the internal carbon price and incorporated into the profit plan	Executive Committee

■ Environmental promotion structure



Roles in the Promotion Structure

Executive officer in charge

The executive officer in charge of technology, research & development control overall activities through the Group Environmental Committee as an officer in charge of environment issues.

Group Environmental Committee

Deliberates and decides on policies, targets, etc. related to environmental activities within the Hitachi Metals Group

Chief Environmental Manager

Heads environmental management activities within the business headquarters

Environmental Committee

Deliberates and decides on policies, targets, etc. related to environmental activities at the works

Environmental Manager

Is responsible for advancing environmental management activities within the works

3. Strategy

The Hitachi Metals Group has started scenario analysis to clarify the risks and opportunities posed by future climate change. We are developing business strategies for mitigating risks and expanding opportunities. While we recognize that the scenario analysis needs to cover the entire Group, including the supply chain, in fiscal 2021 we conducted the analysis, limiting the scenario and the scope. In fiscal 2022, we plan to complete our analysis of our domestic operations. In addition, from fiscal 2023 onward, we will promote scenario analysis that includes overseas operations.

Scenario analysis process

Our scenario analysis follows the steps in Figure 1. Its purpose is to assess financial and business impact under different scenarios, and to assess the resilience of the Hitachi Metals Group’s strategy to climate-related risks and opportunities.

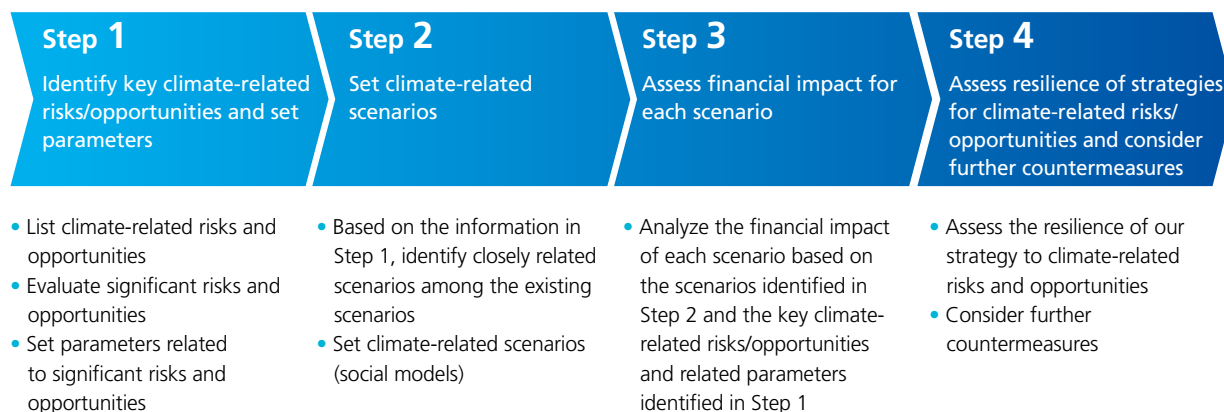
Assumptions of scenario analysis

Scenarios: See the below 2°C scenario for risks and opportunities excluding physical risks, and the 4°C scenario for physical risks
Subject business: FY2021: Advanced Metals Headquarters (works in Japan)
 FY2022: Advanced Components and Materials Division (works in Japan)
 Advanced Metals Headquarters (works in Japan)
Subject year: Impact as of FY2030

Reference scenarios

Classification	Main reference scenarios
Below 2°C scenario	<ul style="list-style-type: none"> • IEA World Energy Outlook 2020. Sustainable Development Scenario • IPCC RCP2.6
4°C scenario	<ul style="list-style-type: none"> • IEA World Energy Outlook 2020. Stated Policy Scenario • IPCC RCP8.5

Scenario analysis steps (figure 1)



The results of the study of the risks and opportunities posed by climate change are as follows.

■ Business/financial impact and responses assumed for 2030 [Advanced Metals Headquarters (works in Japan)]

Classification	Type	Details	Business/ financial impact	Our response	
Risk	Transition	Policy/ Regulations	Higher production and operating costs due to regulatory tightening such as the introduction of carbon pricing ("CP"; CP refers to carbon taxes, taxes on fuel and energy consumption, emissions trading, etc.).	Moderate	Currently, we are working to reduce CO ₂ emissions by promoting various energy-saving measures (switching to LED lighting, upgrading and introducing high-efficiency equipment) and improving productivity. Going forward, we plan to actively promote the shift to alternative fuels and introduce renewable energy (the installation of solar panels) as we work to achieve our 2030 reduction target.
			Higher procurement costs for raw materials including rare metals and auxiliary materials such as direct supplementary materials due to stricter CP and other regulations.	Moderate	For our main raw materials, we will strengthen surcharges (sliding price scale), while considering and implementing efforts to find new suppliers. From the perspective of life cycle assessment (LCA), we will increase our usage ratio of scrap with low CO ₂ emissions and find new suppliers.
		Technology	Increase in operating costs associated with the introduction of manufacturing processes (electrification, alternative fuels) for meeting decarbonization requirements.	Moderate	When introducing a new manufacturing process, we will examine equipment specifications with a view to reducing the impact on business costs.
	Market		Decrease in sales of internal combustion engine peripheral components due to the expansion of xEVs.	Moderate	For in-vehicle internal combustion components, we will aim to capture demand by targeting the commercial vehicle and agricultural/construction equipment fields.
			Decrease in sales due to changes in customer procurement standards (RE100 and other response requirements) due to decarbonization.	Minor	We will promote the reduction of CO ₂ generated in the manufacturing process, both in terms of energy conservation and renewable energy. We will actively consider how to respond to customers' requests for decarbonization.
			Increased cost of developing new products for a decarbonized society.	Minor	We will promote the development of environmentally friendly products and launch them on the market sequentially, going beyond the established approach of being restricted by business area.
			Increased procurement risk due to enhanced demand for raw materials.	Minor	We will develop processes for using overseas alloy scrap and low-grade raw materials, as well as processes that reduce the use of rare metals.
		Reputation	Decrease in sales due to lower customer evaluations resulting from delays in the development and market launch of environmentally friendly products.	Moderate	We will strengthen cooperation between our sales and R&D divisions to develop environmentally friendly products as the top priority for the entire company.
	Physical risk	Acute/ Chronic	Decrease in orders and sales due to delays in deliveries caused by the suspension of operations owing to natural disasters resulting from extreme weather conditions.	Major	We will systematically improve our production system in anticipation of extreme weather events. We will expand our business continuity plan (BCP) system and refine our action manuals for emergency situations.
			Increased operating costs due to higher insurance costs.	Minor	In areas where disasters such as tidal waves and floods are anticipated based on the precedents of past disasters, we will systematically implement disaster preparedness measures such as relocating factories and product warehouses, protecting production lines, etc.

Classification	Type	Details	Business/ financial impact	Our response	
Opportunity	Resource efficiency	Increase in sales due to higher product value as a result of efficient production and effective use of materials and energy.	Moderate	To achieve our 2030 reduction target, we plan to promote various energy-saving measures (the use of LED lighting and the replacement and introduction of high-efficiency equipment), take measures to improve productivity, actively promote the shift to alternative fuels and introduce renewable energy (installation of solar panels). We will also publicize our efforts and achievements.	
	Energy source	Increase in sales due to higher evaluation in customers' selection of suppliers as a result of decarbonization efforts.	Moderate	We will actively promote CO ₂ reduction by introducing renewable energy and switching to carbon-neutral fuels.	
	Products/ services	Increase in sales as a result of promoting development and launching environmentally friendly products.	Major	We will promote new orders and increase market share of our environmentally friendly products by shortening development lead time and reducing costs. We will continue to expand sales of environmentally friendly products, in which we can expect further growth going forward. Examples: <ul style="list-style-type: none"> • Die materials that enable increased longevity • Materials for various industrial machinery, undercarriage parts, and exhaust gas filters that help improve fuel efficiency and reduce emissions of automobiles. • Aerospace products with the potential to improve the fuel efficiency of aircraft. • Battery materials (clad products) for batteries and other applications, power semiconductor materials • Mass flow controller that can enable energy saving in semiconductor manufacturing equipment 	
	Market		Increase in sales due to sales expansion into new global markets with increased demand for environmentally friendly products.	Moderate	Decarbonization is expected to drive advances in the miniaturization, increased performance, and lightweighting of products. We will develop new applications with various alloy materials that exploit different material properties.
			Increase in sales due to the expansion of the xEV market.	Moderate	Many of our products, including clad materials, are used in lithium-ion secondary batteries. We expect sales to increase on growing demand for such batteries due to the expansion of the xEV market.

■ Business/financial impact and responses assumed for 2030 [Advanced Components and Materials Division (works in Japan)]

Classification	Type	Details	Business/ financial impact	Our response	
Risk	Transition	Policy/ Regulations	Higher production and operating costs due to regulatory tightening such as the introduction of carbon pricing ("CP"; CP refers to carbon taxes, taxes on fuel and energy consumption, emissions trading, etc.).	Moderate	Currently, we are working to reduce CO ₂ emissions by promoting various energy-saving measures (switching to LED lighting, upgrading and introducing high-efficiency equipment) and improving productivity. Going forward, we plan to actively promote the shift to alternative fuels, purchase renewable energy electricity and introduce renewable energy facilities (the installation of solar panels) as we work to achieve our 2030 reduction target.
			Higher procurement costs for raw materials including rare metals and auxiliary materials such as direct supplementary materials due to stricter CP and other regulations.	Major	For our main raw materials, we will reduce the use of heavy rare earths and lower procurement cost by developing and bringing heavy rare earth-saving materials into a market in the magnet business, in addition to strengthening surcharges while considering and implementing efforts to find new suppliers.
		Technology	Increase in operating costs associated with capital investment (electrification, alternative fuels) for meeting decarbonization requirements.	Minor	When introducing a new manufacturing process, we will examine equipment specifications to reduce the impact on business costs by such as the introduction of the latest energy-saving technologies. We will also promote the transfer of increased costs to sales prices.
	Market		Decrease in sales due to the fall in price and the number of orders caused by the fueled competition with competing suppliers in the xEV market.	Minor	Cost reductions will be promoted through such as the introduction of high-efficiency equipment, productivity improvement and local procurement of parts.
			Decrease in sales due to the impact of reduced operations caused by the crunch in procurement of main raw materials resulting from the increased demand for copper.	Moderate	We will work to reduce copper consumption by improving productivity and securing multiple procurement routes by securing new suppliers.
			Decrease in sales due to delays in responding to demand for decarbonized products in existing products or lost opportunities in expanding new sales (RE100 and others).	Moderate	We will work to increase the ratio of electricity generated from renewable energy sources by promoting the introduction of renewable energy sources and selecting electric power companies that generate a high percentage of their electricity from renewable energy sources.
	Physical risk	Acute/ Chronic	Decrease in orders and sales due to such as the suspension of operations owing to natural disasters resulting from extreme weather conditions.	Moderate	We will systematically improve our production system in anticipation of extreme weather events. We will expand our business continuity plan (BCP) system and refine our action manuals for emergency situations.

Classification	Type	Details	Business/ financial impact	Our response
Opportunity	Resource efficiency	Increase in sales due to higher product value as a result of efficient production and effective use of materials and energy.	Minor	To achieve our 2030 reduction target, we plan to promote various energy-saving measures (the use of LED lighting, replacement and introduction of high-efficiency equipment), take measures to improve productivity, actively promote the shift to alternative fuels and introduce renewable energy facilities (the installation of solar panels).
	Energy source	Increase in sales due to higher evaluation in customers' selection of suppliers as a result of decarbonization efforts.	Minor	We will continue to reduce electricity consumption through improving productivity and increasing the utilization rate of renewable energy electricity.
	Products/ services	Increase in sales as a result of promoting development and launching environmentally friendly products.	Major	We will develop environmentally friendly products that contribute to a low-carbon society and aim to expand sales. <ul style="list-style-type: none"> ■ Products contributing to higher efficiency of xEVs. <ul style="list-style-type: none"> • Motor materials (rare earth magnets, ferrite magnets, magnet wires and bus bar) • Materials for power semiconductors (silicon nitride, silicon carbide) • Automotive electrical components such as harnesses ■ Amorphous alloys that contribute to higher efficiency in transformers.
	Market	Increase in sales of heavy rare earth magnets and ferrite magnets due to higher prices of heavy rare earths and increased procurement risk.	Major	We aim to expand sales by developing and launching heavy rare earth magnets and high-performance ferrite magnets for customers who are considering to replace rare earth magnets that contain a large amount of heavy rare earths.

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

RE100: Abbreviation for 100% Renewable Energy. An international initiative to achieve 100% renewable energy for electricity used in business operations.

Definitions used to assess business/financial impact

Major: The negative or positive impact of an amount equivalent to 5% or more of net sales*¹.

Moderate: The negative or positive impact of an amount equivalent to 1% or more but less than 5% of net sales*¹.

Minor: The negative or positive impact of an amount equivalent to less than 1% of net sales*¹.

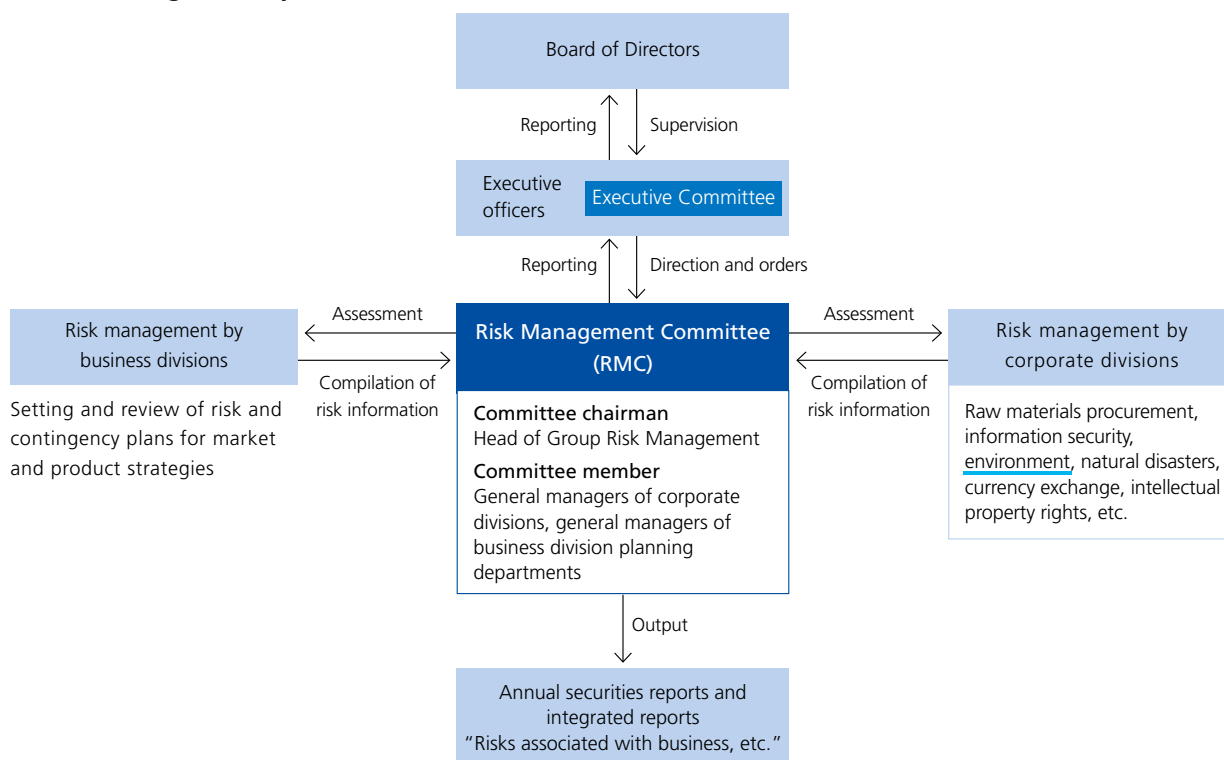
*¹ Net sales of subject business

As described above, we conducted a scenario analysis of the business area of Advanced Components and Materials Division in addition to the disclosure of Advanced Metals Headquarters (domestic works) dated May 26, 2022, to assess our preparedness to adapt our business strategy in response to risks and opportunities. We confirmed our strategy is resilient.

4. Risk Management

In April 2022, the Hitachi Metals Group established the Company-wide Risk Management Committee (RMC) under the supervision of the executive officer responsible for Group risk management and is working to strengthen the risk management capabilities of the Group. This committee compiles information on the various business risks surrounding the Group and contingency plans for those risks. It then assesses this information in terms of its comprehensiveness and weighting. Climate change-related risks identified by the Group Environmental Committee, corporate divisions, and business divisions are reported to the RMC along with other risks as a risk related to environmental regulations. The RMC is scheduled to meet twice a year. The results of the interim and year-end risk management assessments at the RMC are reported to and reviewed by the Executive Committee and the Board of Directors.

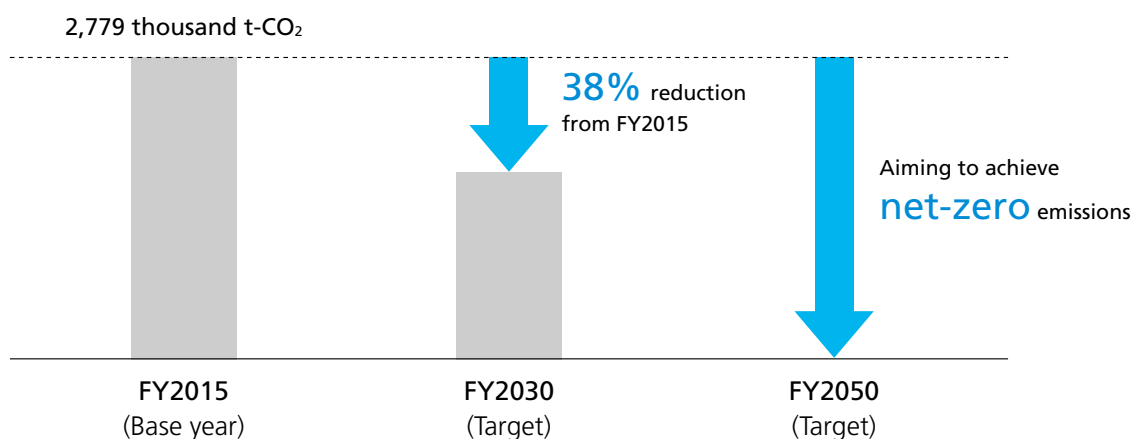
Risk management system



5. Indicators and Targets

The Group has set the following CO₂ emissions reduction targets*. To promote carbon neutrality, in addition to conventional energy-saving activities, we will work on process improvements including capital investment, switching to alternative fuels for melting furnaces and heating furnaces, technological development of carbon-free fuel use, and adopting renewable energy.

■ CO₂ emissions reduction target



*Scope 1 (direct emissions of CO₂ by the Company)
 Absolute amount of Scope 2 (indirect emissions from the use of electricity, heat, and steam supplied by other companies)

■ Scope 1 and 2 actual (thousand t-CO₂)

Item	FY2019	FY2020	FY2021
Scope 1 and 2	2,319	1,995	2,216

Compensation of officers

Compensation of officers in the Hitachi Metals Group is determined based on the achievement of annual target figures. From fiscal 2021, we will add our progress against our CO₂ emissions reduction targets to these indicators as an item for assessing our climate change response.

Internal carbon price

To promote reduction in CO₂ emissions, we have added the concept of internal carbon pricing to our internal regulations for capital investment. In this system, which is now in operation, a carbon price (8,000 yen/t CO₂) is set based on the total amount of CO₂ emissions after capital investment. The CO₂ emissions reduction effect of the capital investment is calculated as profit. (October 2021)