Environmental Vision/Basic Environmental Policies

The Hitachi Metals Group promotes a “Decarbonized Society,” “Resource Efficient Society,” and “Ecosystem Conservation” as the three key pillars of its Environmental Vision. We aim to realize higher-quality lifestyles and a sustainable society by resolving environmental issues through collaboration with our stakeholders.

Hitachi Metals Group Basic Environmental Protection Policies

Philosophy	Aiming to pass on the common assets of humankind in a sound state to future generations, Hitachi Metals Group considers environmental issues as an important management priority while we will strive to actively preserve global and local environments.
Slogans	• With a deep awareness that environmental protection is a major issue for all humanity, we will fulfill our social responsibilities by striving to establish a sustainable society in harmony with the environment regarding it as one of the essential aspects of corporate activity. • We will contribute to society by developing highly reliable technologies and products in response to needs for environmental protection and the limited natural resources.

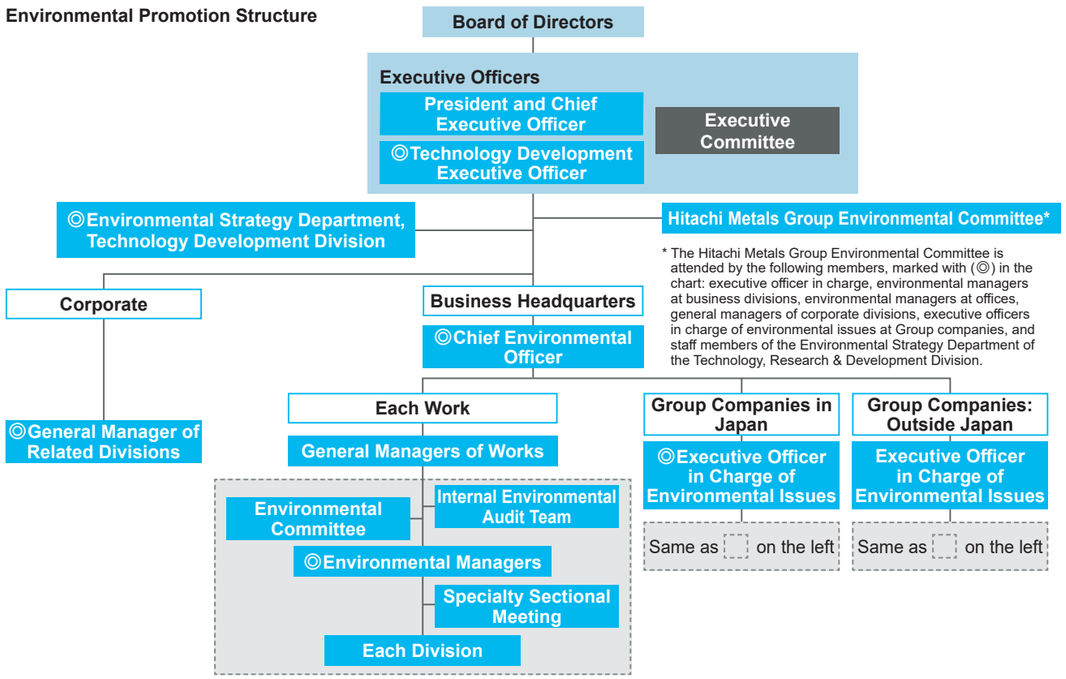
■Action plans

Hitachi Metals Group promotes activities on the basis of our medium-term environmental plan. The plan for implementation measures from fiscal years 2021 to 2022 and the results of implementation measures for fiscal year 2021 are described as follows.

In fiscal 2021, owing to a drop in product demand following the COVID-19 (a novel coronavirus) pandemic, the impact of the decrease in production volume and other factors was more significant than the results of our load-reduction activities, and we fell short of our plan for prioritizing environmentally friendly products and reducing our rate of CO_2 emission. On the contrary, we achieved our plan for the reducing our rate of water consumption, waste generation per unit of production, and ratio of waste used for landfill.

Regarding the reduction of energy consumption per unit as stipulated in the Act on the Rational Use of Energy (Energy Efficiency Act), in fiscal 2021, we reduced our energy consumption by 10.2% compared to the previous fiscal year or by 13.9% compared to the base year. In conjunction with these reductions in energy consumption, we increased sales revenue by 23.8% compared to the previous fiscal year. From fiscal year 2022 onward, we aim to reduce energy consumption by 1% or more per year (compared to the average over the previous five years) by fiscal year 2023 by formulating and promoting energy-conservation plans that include carbon neutrality.

Environmental Promotion Structure



Roles in the Promotion Structure

Executive Officer in ChargeCharge	The Technology Development Executive Officer is in charge of the environment and exercises overall control through the Group Environmental Committee.
Hitachi Metals Group Environmental Committee	Deliberate and determine policies, targets, etc. related to environmental activities within the Hitachi Metals Group.
Chief Environmental Management Officer	Oversee environmental management activities within business headquarters.
Environment Committee Members	Deliberate and determine policies, targets, etc. related to environmental activities at each business site.
Environmental managers	Take responsibility for and promote environmental-management activities at each business site.

Addressing Climate Change Disclosure in accordance with TCFD Recommendations (July 22, 2022)

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. Accordingly, companies are expected to be more proactive than ever in their efforts to transition to a decarbonized society.

Hitachi Metals Group considers the impact of climate change on its business as one of our most-important management issues, and we believe that enhanced disclosure of climate-change-related information is a key factor in building a relationship of trust with our stakeholders. Accordingly, in June 2021, we registered our support for the TCFD Recommendations, according to which we made our first disclosure in May 2022. And we joined the TCFD Consortium in July 2022. Hitachi Metals Group will continue to enhance our disclosure of information on the impact of climate change on our business activities in accordance with the TCFD Recommendations.

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES

TCFD Consortium

■Governance

In April 2010, Hitachi Metals Group established the Hitachi Metals 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.”

The Hitachi Metals Group Environmental Committee (Group Environmental Committee, hereafter) has been established as a framework for promoting environmental activities such as climate-change countermeasures. The Group Environmental Committee is chaired by the Technology Development Executive Officer, and its executive office is the Environmental Strategy Department, Technology Development Division. Its activities are promoted in cooperation with the environmental-management managers of each business division, business sites, and group companies (see organizational chart on the left). 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.

Policies and targets concerning environmental activities are discussed and set by the Group Environmental Committee as mid-term and annual environmental-action plans. With regard to climate-change countermeasures, the Environmental Action Plan sets targets for reducing CO2 emissions within the Hitachi Metals Group. On the basis of those targets, energy-saving activities and the use of renewable energy are being promoted at each manufacturing site. The status of reductions in CO2 emissions is monitored regularly, and the Group Environmental Committee meets once a year to share the results of the previous year, the status of numerical targets for the current year, and major initiatives to promote continuous improvement of activities.

Since fiscal year 2021, the Technology Development Executive Officer, who chairs the Group Environmental Committee, reports to the Executive Committee and the Board of Directors twice a year on the status of efforts, including climate-change measures, to address environmental issues.

Status of important decisions on climate change in fiscal year 021

Month/Year	Decisions on important issues related to climate change	Meeting body
June 2021	Endorsement of TCFD	Executive Committee
August 2021	New Environmental Action Policy “Aiming for Green Growth by Taking Risks as Opportunities”	Board of Directors
October 2021	Introduction of “Internal Carbon Price” Internal rules on capital investment stipulate that the effect of CO_2 reduction by capital investment must be calculated as profit on the basis of the “internal carbon price” and incorporated into profit plans.	Executive Committee

■Strategy

Hitachi Metals Group has begun “scenario analysis” to clarify the risks and opportunities posed by future climate change and to develop business strategies to reduce risks and expand opportunities. While we recognize that scenario analysis should cover the entire group, including the supply chain, in fiscal year 2021, we limited our analysis to a limited number of scenarios and scope of coverage. In fiscal year 2022, we plan to complete the analysis regarding domestic business and from fiscal year 2023 onward, we will promote scenario analysis including overseas operations.

Scenario-analysis Process

Scenario analysis—consisting of the four steps shown in Figure 1—aims to assess (i) financial and business impacts under different scenarios and (ii) resilience of the Hitachi Metals Group strategy in regard to climate-related risks and opportunities.

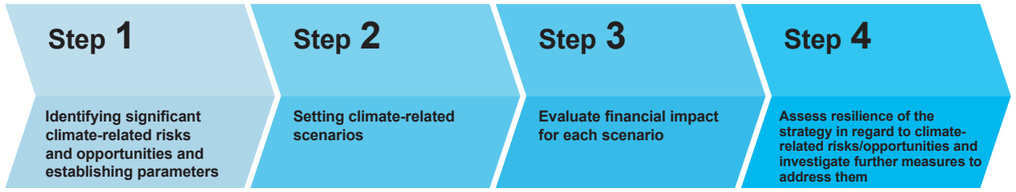
Assumptions for scenario analysis (FY2021)

Scenario	Refer to “Below-2°C scenario” for risks and opportunities excluding physical risks, and refer to “4°C scenario” for physical risks.
Target businesses	Advanced Metals Division (domestic sites)
Target year	Impact as of 2030

Reference scenario

Classification	Main reference scenario
Less-than 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

Steps of scenario analysis



Risks and Opportunities Posed by Climate Change (Results of FY2021 Study)

Business and Financial Impacts and Responses under the assumption of the year 2030 [Advanced Metals Division (domestic business sites)]

Classification		Type	Content	Business/ financial impact	Our response
Risk	Transition	Policy/ regulations	Increased production and operating costs owing to stricter regulations, such as the introduction of carbon pricing (CP), which includes carbon taxes, taxes on fuel and energy consumption, and emissions trading.	**Medium**	Currently, we are working to reduce CO_2 emissions by promoting various energy-saving measures (e.g., LED lighting and renewal and introduction of high-efficiency equipment) and measures to improve productivity. From now onwards, we will actively promote fuel conversion and the introduction of renewable energy (i.e., installation of solar panels) so as to achieve our CO2-reduction target for 2030.
			Higher procurement costs for raw materials (including rare metals and auxiliary materials such as direct complementary materials) due to stricter CP and other regulations.	**Medium**	As for principle raw materials, we will work to strengthen surcharges (price sliding-scale system) and cultivate of new suppliers. From the perspective of life-cycle assessment (LCA), we will increase the utilization ratio of scrap generating low CO_2 emissions and nurture new suppliers.
		Technology	Increased operating costs associated with the introduction of manufacturing processes (based on electrification and alternative fuels) to meet decarbonization requirements.	**Medium**	When introducing new manufacturing processes, we will examine equipment specifications with the aim of reducing its impact on operating costs.
		Market	Decreased sales of peripheral components of internal combustion engines owing to the expansion of xEVs.	**Medium**	As for capturing demand for components of automotive internal-combustion engines, we will target the commercial-vehicle and agricultural/construction-equipment fields.
			Decreased sales due to changes in customer procurement standards (RE100 and other compliance requirements) in accordance with decarbonization.	**Small**	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.
			Increased costs of developing new products for a decarbonized society.	**Small**	We will develop environmentally friendly products and launch them onto the market sequentially while not being restricted to our conventional business areas.
			Increased procurement risk due to increased demand for raw materials.	**Small**	We will develop processes that utilize overseas scrap alloys and low-grade raw materials as well as processes for reducing the use of rare metals.
		Reputation	Decreased sales due to lower customer evaluations resulting from delays in the development and launch of environmentally friendly products onto the market.	**Medium**	We will strengthen cooperation between the sales departments and the research and development departments with the aim of developing environmentally friendly products, and we will make strengthening that cooperation a company-wide top priority.
	Physical risk	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.	**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.
			Increased business costs due to rising insurance costs.	**Small**	In areas where disasters such as tidal waves and floods are anticipated on the basis of examples of past disaster, we will systematically implement disaster preparedness measures such as relocation of factories and product warehouses, protection of production lines, etc.
Chance		Resource efficiency	We will increase sales by increasing product value through efficient production and efficient use of materials and energy.	**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). Naturally, we will publicize our efforts and achievements.
		Source of energy	We will increase sales by improving the customer's evaluation of supplier selection by working on decarbonization.	**Medium**	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 environment-friendly products onto the market.	**Large**	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 more demand in the future. Examples: ・Mold materials that provide longer service life ・Materials for various industrial machinery, aluminum castings, undercarriage parts, and exhaust-gas filters that contribute to improved fuel efficiency and reduced emissions by cars Aerospace products that are expected to improve fuel efficiency of airplanes Battery materials (clad products) and power-semiconductor materials for use in batteries and other products Mass-flow controllers that enable semiconductor manufacturing equipment to save energy
		Market	We will increase sales by expanding sales into new global markets with increased demand for environmentally friendly products.	**Medium**	As decarbonization progresses, products are expected to become smaller, more powerful, and lighter; accordingly, we will develop new applications with various alloys that can take advantage of different material properties.
			We will increase sales by expanding into xEV market.	**Medium**	Many of our products, including cladding materials, are used in lithium-ion rechargeable batteries, for which demand is increasing with the expanding xEV market, so we expect sales to increase.

Definition of assessment of business/financial impact

Large: cost or effect equal to or greater than 5% of sales*1
Medium: cost or effect equal to at least 1% but less than 5% of sales*1
Small: cost or effect equal to less than 1% of sales*1

*1 Net sales of target businesses

As described above, the scenario analysis of the business areas of the Advanced Metals Division (domestic offices) verified the response to each risk and opportunity with respect to the strategy for each business, and the analysis results confirmed that our strategy is resilient.

■Risk Management

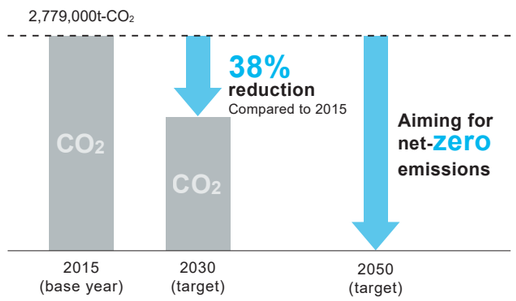
In April 2022, Hitachi Metals Group established a “Company-wide Risk Management Committee” (RMC) under the supervision of the Executive Officer responsible for group-risk management. The RMC summarizes various business risks surrounding the Group and contingency plans for those risk, and evaluates their coverage and weighting . Risks related to climate change identified by the Group Environmental Committee, corporate departments, and business divisions are reported to the RMC together with other risks as one of the risks related to environmental regulations. The RMC is scheduled to meet twice a year, and the results of the interim and year-end risk-management assessments of the RMC are reported to and reviewed by the Executive Committee and the Board of Directors.

Risk Management System

■Indicators and Targets

Hitachi Metals Group has set the targets for reduction of 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 manufacturing processes, develop technologies based on carbon-free fuel, and introduce renewable energy.

Target for reduction of CO_2 emissions



*Scope 1: direct CO_2 emissions by the company
Scope 2: Absolute amount of indirect emissions associated with the use of electricity, heat, and steam supplied by other companies

Actual achievements for Scopes 1 and 2 (1000t-CO_2)

Target	2019	2020	2021
Scope1・2	2,319	1,995	2,216

Executive compensation

Executive compensation in the Hitachi Metals Group is determined on the basis of the achievement of annual targets. Starting in 2022, the extent to which the targets for reduction of CO_2 emissions have been achieved will be added to the index as an evaluation item for our climate-change response.

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. (October 2021)

Colum

Topics 1

Reduction of CO_2 emissions by using alternative coke

Waupaca Foundry, Inc. (“Waupaca” hereafter) melts scrap metal, by primarily using cupola melting technology, to produce steel castings for fabricating components (such as automotive parts) in various industries. Approximately 50% of Waupaca’s CO_2 emissions come from coke used as fuel and carbon additive in cupolas.
To reduce CO_2 emissions, Waupaca implemented the addition of alternative coke as a measure to reduce coke usage. Alternative coke is a method of reducing coke usage by replacing some of the coke with a calorie-free carbon additive, while adjusting the amount of carbon in the cast iron product. Such “coke replacement” is a method of replacing some of the coke with a calorie-free carbon additive to reduce coke usage while adjusting the amount of carbon in the cast-iron product. By implementing this measure (coke replacement), in 2021, we reduced coke usage by 10,995 tons and CO_2 emissions by 31,616 tons. Waupaca also implemented CO_2-reduction measures such as reducing coke consumption by dehumidifying the blast air of the cupola furnace and recovering waste heat from the furnace, resulting in a total reduction of 41,087 tons of CO_2 emissions in 2021.
In addition implementing the above-described measures, Waupaca is considering introducing renewable-energy sources and other measures to actively reduce CO_2 emissions and eventually achieve carbon neutrality.

Topics 2

Cladding materials for rechargeable batteries of xEVs

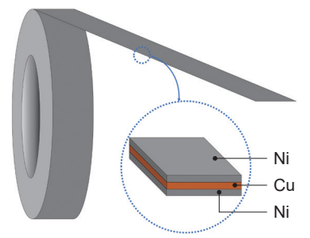
In recent years, demand for xEVs* has been increasing rapidly as people increasingly consider solving climate-change issues. In line with this trend, demand for lithium-ion batteries, which are mainly used in xEVs, has also increased significantly.

Hitachi Metals Neomaterials, Ltd. provides materials for the anode leads used in the lithium-ion batteries. The anode lead must have high electrical conductivity because it serves to extract electricity from the current-collecting foil. It must also have excellent weldability because it is incorporated into the battery after being welded to the current-collecting foil.

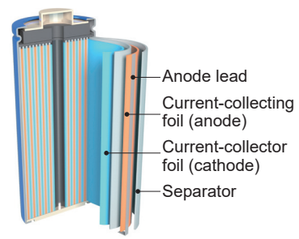
Hitachi Metals NeoMaterials has produced a number of clad materials that are made by joining two or more different metals, each with its own unique characteristics. To meet multiple requirements for anode leads, our Suita Plant has developed a three-layer clad material, consisting of nickel as the outer layers surface and copper as the inner layer, which is used in lithium-ion batteries for xEVs through various customers.

We have received many requests from customers to increase production, and we will strive to further improve production efficiency and contribute to solving environmental issues by providing materials for xEVs.

* xEV is a generic term for electric vehicles (EV), hybrid electric vehicles (HEV), and plug-in electric vehicles (PHEV).



Clad material for anode lead (Ni/Cu/Ni)



Anode lead for lithium-ion battery