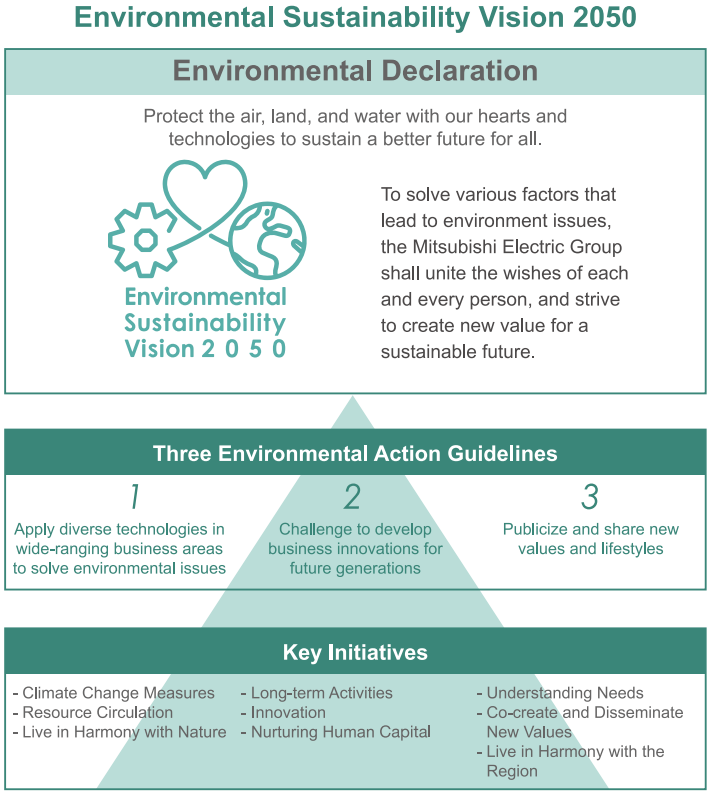
Environment

Basic Policy

The Mitsubishi Electric Group has set forth the clear course of action it will take through the year 2050 in its Environmental Sustainability Vision 2050. The Group is working hard to contribute to the sustainability of the global environment based on an environmental policy that outlines how the Group will contribute to the environment.

Environmental Sustainability Vision 2050

The Mitsubishi Electric Group's new Environmental Sustainability Vision 2050 defines environmental protection as an even greater corporate priority and stipulates increased initiatives toward this end. It establishes Mitsubishi Electric's future course toward 2050 in the form of the Environmental Declaration, Three Environmental Action Guidelines, and Key Initiatives.



Environmental Sustainability Vision 2050

Environmental Policy

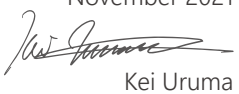
Based on its Purpose, "We, the Mitsubishi Electric Group, will contribute to the realization of a vibrant and sustainable society through continuous technological innovation and ceaseless creativity," the Mitsubishi Electric Group clearly states its contribution to the realization of sustainability as one of its key management policies. Our aim is to realize both a sustainable global environment and a safe, secure, and comfortable society. To find solutions to environmental problems such as climate change, resource depletion, and the loss of biodiversity, contributing to the protection of the environment is positioned as one of the most important issues that the Group must address.

Utilizing our accumulated and newly developed state-of-the-art technologies, and in accordance with "Environmental Vision 2050," we will provide products and services through a wide variety of businesses that contribute to resolving climate change issues and creating a recycling-based society. At the same time, we will draw on strengths, both within and outside of the Group, and with the passion of all employees, focus on creating innovative technologies, products and services while proposing new values that will support future generations. Particularly, in view of the global trend towards rapid decarbonization, we are addressing the reduction of greenhouse gas emissions throughout our value chain while also promoting the recycling of resources globally and making efforts to preserve biodiversity.

As a good corporate citizen, the Group will continue to work with its employees, their families, and local communities to foster environmental awareness and expand the sphere of its activities that are contributing to society. We will actively disseminate information on our environmental initiatives in an effort to promote a mutual understanding with society. In doing so, we will comply with laws and social norms, change the ways we think and act with a keen sensitivity to changes in society, and always conduct business activities while giving continuous consideration to protecting the environment.

Under the Environmental Declaration, "Protect the air, land, and water with our hearts and technologies to sustain a better future for all," all employees of the Mitsubishi Electric Group will contribute with pride and passion to enrich people's lives and improve the global environment.

November 2021



Kei Uruma
President & CEO

Climate Change Initiatives (Disclosure Based on TCFD)

The Mitsubishi Electric Group has expressed its support for the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) and, as such, the Group promotes efforts and discloses information in line with these recommendations.

Governance

Promotional System

In fiscal 2023, the Mitsubishi Electric Group positioned the realization of sustainability at the cornerstone of its management policy. Since the beginning of fiscal 2024, we have been working to further strengthen governance to achieve "value creation" and "foundation enhancement" through various initiatives, including addressing climate change.

For our efforts to address climate change, we have established a Carbon Neutrality Subcommittee under the Sustainability Committee to discuss issues such as targets for carbon neutrality in our own group and throughout the value chain. The analysis of short-term and medium-term risks, opportunities, and their financial impact has been transferred from the TCFD Working Group (ended in June 2024), which had been established under the Sustainability Committee, to the Sustainability Innovation Group.

Policy for Initiatives

Under our long-term environmental management vision through 2050, titled Environmental Sustainability Vision 2050, we aim to reduce greenhouse gas emissions from factories and offices to net-zero by fiscal 2031 and to reduce greenhouse gas emissions throughout the entire value chain to net-zero by fiscal 2051. In February 2024, we updated our short-term plan, Environmental Plan 2025 (FY2025–2026), based on the Environmental Sustainability Vision 2050, aiming to achieve even higher targets than those certified by the SBT Initiative.

Strategy

The Mitsubishi Electric Group views the transition to a decarbonized society not as a business risk but as an opportunity common to all its businesses. Based on this recognition, we are integrating initiatives related to Environmental Sustainability Vision 2050, Environmental Plan 2025, and SBTs into our business strategies and advancing technological and business development accordingly.

Business Strategy

Among the wide range of businesses, the Mitsubishi Electric Group operates, we consider electrification, promotion of renewable energy adoption, energy conservation, energy management, and smart control as key factors in society's move toward decarbonization.

Climate Change Risks and Opportunities in the Short, Medium, and Long Terms

The Mitsubishi Electric Group assesses the impact of climate-related risks and opportunities that are expected to affect each of its businesses in the short-term, medium-term, and long-term, referring to climate scenarios presented by external organizations (such as the IEA) and economic development projections for each country and region.

Periods

Short-term:	Period through fiscal 2026 (period of the Environmental Plan 2025 and the medium-term management plan)
Medium-term:	Period through fiscal 2031
Long-term:	Period through fiscal 2051 (final year of the Environmental Sustainability Vision 2050)

Magnitude of Impact

Under the supervision of the Executive Officer in charge of Sustainability, the executive officers and heads of relevant business divisions determine whether the anticipated events in each business qualify as significant risks (high impact). This is also confirmed in Mitsubishi Electric Group's comprehensive risk management process.

Risks Related to Climate Change

Climate-related risks can be broadly divided into risks associated with the transition to a decarbonized society (transition risks) and risks associated with the physical impacts of global warming (physical risks). These risks can result in increased costs (for production, internal management, financing, etc.) and decreased revenues.

If the transition to a decarbonized society, which is the premise of the Group's business strategy, progresses, it is expected that there will be an increase in social demand for reducing greenhouse gas emissions in all products and services, changes in energy supply and demand, changes in the energy mix due to increased power generation from renewable energy sources, and the progress of the electrification of automobiles (shift to EVs). Moreover, in this case, transition risks such as the tightening of regulations on greenhouse gas emissions, increased burden of technological development, and delays in technological development could exceed physical risks.

To address transition risks, the Mitsubishi Electric Group is already working to reduce greenhouse gas emissions by implementing its environmental plan and setting SBTs. So, for example, even if regulations on greenhouse gas emissions are tightened, we believe that the impact will be minor. We estimate that, even if material prices soar, the impact can be minimized by more vigorously pursuing environmentally conscious design, which will in turn also support the global warming countermeasures, resource conservation, and recyclability that we are already working on. Moreover, in anticipation of the tightening of regulations such as air conditioner refrigerant regulations and the development competition for low-carbon and high-efficiency technologies, we are strategically combining short-term, medium-term, and long-term R&D investments for the development of new technologies. Additionally, we are also making capital investments in environmental activities, including global warming countermeasures such as energy conservation.

On the other hand, if economic development is prioritized over climate change countermeasures in countries around the world, it is predicted that there will be an increase in the frequency of heavy rains and floods, intensification of extreme weather events, and chronic temperature increases. In this case, physical risks such as the suspension of operations due to disasters and the disruption of supply chains could exceed transition risks. In response to physical risks such as floods, we have formulated a business continuity plan (BCP), which we review annually, and are decentralizing our production sites. In the supply chain, we are also striving to purchase from multiple companies and requesting our suppliers to operate multiple plants to avoid situations that could hinder production.

Climate-related risks and opportunities in the short, medium, and long-terms

Major Category	Item	Short-term	Medium-term	Long-term	Risks	Opportunities	Impact on Business	Impact on Strategy	Impact on Financial Plan	Magnitude *1	Frequency *2
Policy/Regulation	Carbon tax	○	◎	◎	Additional costs incurred for operations, raw materials, procurement, etc.	Providing products and services that contribute to decarbonization	Increased business costs, fluctuations in sales	Early response based on CN transition plan	Investment in CN technology development	Medium	High
	Refrigerant regulations	○	◎	○	Decreased sales due to inability to comply with regulations	Increased sales by complying with regulations and selling high-performance products	Fluctuations in sales	Early and advanced response to regulations and technology development Gain advantage over competitors	Investment in refrigerant technology development	Large	High
Industry/Market	Soaring material prices	○	○	◎	Raw material costs, etc., soar due to the impact of climate change	Successful material procurement through multiple sourcing, etc.	Increased business costs	Securing multiple suppliers, strengthening SCM	Investment in strengthening SCM	Medium	Medium
	Decarbonization of transportation	○	○	◎	Soaring transportation costs for aircraft, ships, etc.	Increased demand for social system business (railway-related)	Increased business costs, fluctuations in sales	Development of CN solutions with competitive advantage	Investment in CN technology development	Medium	Medium
	Changes in energy mix and energy demand trends	○	◎	◎	Market shrinks due to the introduction of renewable energy and delays in global electrification	Increased sales of various equipment due to expanded electricity demand	Fluctuations in sales	Early and advanced response to regulations and technology development Gain advantage over competitors	Investment in CN technology development	Large	High
	Fluctuations in EV demand	○	◎	◎	SiC demand does not increase due to slow growth in EV demand	SiC demand expands and SiC becomes widespread due to increased EV demand	Significant increase/ slowdown in profits	Expansion of SiC production/expansion of production of conventional products such as Si	New construction/ downsizing of SiC factories	Large	Medium
	Fluctuations in air conditioning demand	○	○	◎	Decreased sales due to failure in technology development	Increased sales due to climate change adaptation demand and sales of energy-saving and high-performance products	Fluctuations in sales	Early and advanced response to regulations and technology development Gain advantage over competitors	Investment in technology development	Large	High
	Spread of low-carbon technologies, products, and services	◎	◎	◎	Lagging behind competitors in technology development and commercialization in all business areas	Increased sales by selling low-carbon and high-efficiency products and services in all business areas	Fluctuations in sales	Early and advanced response to regulations and technology development Gain advantage over competitors	Investment in technology development	Large	High
Technology	Development of CO_2 utilization technology	○	○	◎	Not achieving self-CN if unable to develop	Achieving self-CN by 2050, selling technology	Future increase in costs for CN credits	Medium- to long-term development of CCUS and carbon chemical recycling technology	Investment in CO_2 utilization technology development	Medium	High
Reputation	SBT 1.5°C target certification	◎	—	—	Lagging behind competitors if certification fails	Status as an excellent company if certification succeeds	Fluctuations in sales	Obtaining SBT 1.5°C target certification one year ahead of schedule	No specific impact	Medium	High
Physical Risks (Acute)	Intensification of abnormal weather	◎	◎	◎	Business activities suspended due to typhoons, localized heavy rain, etc.	Providing disaster prevention and mitigation solution business	Losses due to business suspension, fluctuations in sales	Strengthening and reviewing BCP	Capital investment related to BCP strengthening	Large	Medium

◎: Main period when the impact materializes. ○: Period related to the manifestation of the impact.
*1: Magnitude of the overall impact on the business, comprehensively evaluated from the perspectives of business, strategy, and financial planning.
*2: Frequency at which the business is affected by the risk or opportunity.

Opportunities Related to Climate Change

Regarding climate-related opportunities, the Mitsubishi Electric Group has a wide range of businesses and considers it a strength to be able to provide a wide range of products, services, and solutions that contribute to solving social issues caused by climate change. Therefore, we believe that we have sustainable growth opportunities from the short term to the long terms.

Whether the world prioritizes transitioning to a decarbonized society or pursues economic development over climate change countermeasures, it is predicted that the needs for solving social issues caused by climate change will become more apparent.

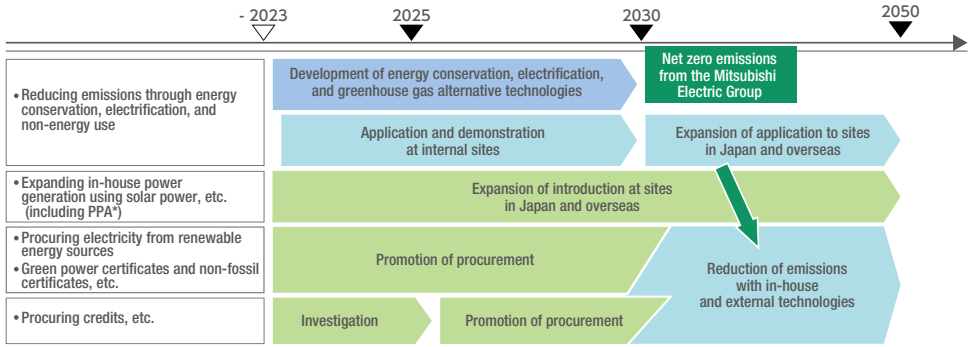
The Mitsubishi Electric Group provides large energy storage systems, smart medium- and low-voltage direct current distribution network systems, distributed power source operation systems/virtual power plant (VPP) systems, and multi-region digital energy management systems (multi-region EMS) to prepare for the diversification of power supply required by the trend toward a decarbonized society. These products meet the needs for effective use of electricity and system stabilization arising with the expansion of renewable energy and the decentralization of power sources. In addition, the increase in demand for electrified products, driven by the progress of the electrification of automobiles (shift to EVs), will lead to an expansion of demand for silicon carbide (SiC), high-efficiency power semiconductors in the Semiconductors & Devices business, and a reduction in their manufacturing costs. The expansion of SiC applications in the fields of electric railways, electric power, industry, and consumer products is anticipated.

Even if economic development is prioritized over climate change countermeasures, it is expected that revenue opportunities will expand as we contribute to the realization of a decarbonized society by providing highly energy-efficient products, services, and solutions in the air conditioning business and other areas, in response to the increase in demand due to the development of the global economy and the increase in purchasing power, as well as the increase in demand for adaptation to climate change.

Carbon Neutrality Transition Plan

The Mitsubishi Electric Group has formulated and is implementing a plan to transition to carbon neutrality targeting "net zero greenhouse gas emissions in the entire value chain by fiscal 2051" and "net zero greenhouse gas emissions from factories and offices by fiscal 2031."

Roadmap for reducing emissions from factories and offices

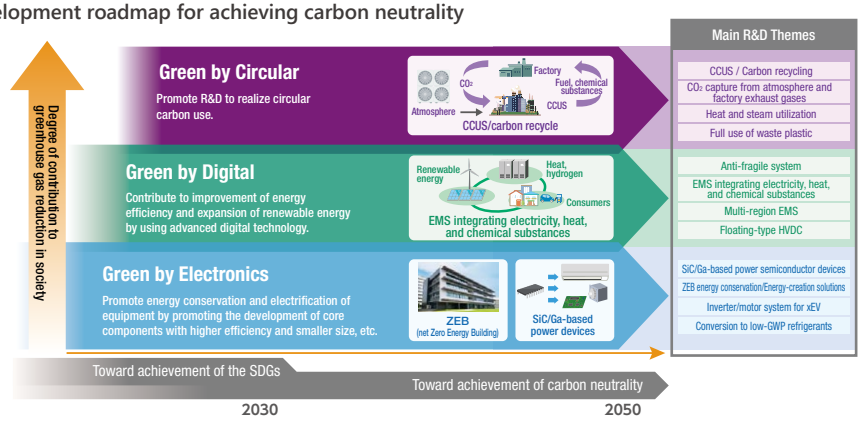


* Power purchase agreement

We are implementing a number of initiatives to reduce emissions at factories and offices: (1) reducing emissions through energy conservation, electrification, and non-energy use; (2) expanding in-house power generation using solar power, etc. (including PPA); (3) procuring electricity from renewable energy sources; (4) green power certificates and non-fossil certificates, etc.; and (5) procuring credits, etc. With these and other initiatives in place, we aim to achieve the above goals.

In addition, as a development strategy for achieving our targets for 2050, to create and grow businesses that contribute to the realization of carbon neutrality throughout the value chain and society as a whole, we will accelerate R&D in three innovation areas: Green by Electronics, Green by Digital, and Green by Circular.

Development roadmap for achieving carbon neutrality



In Green by Electronics, we will advance R&D to improve the efficiency and reduce the size of power electronics and motors, the core components that are Mitsubishi Electric's strengths, contributing to energy conservation and electrification of FA equipment, air conditioning, and other products. We will also advance R&D on net Zero Energy Buildings (ZEB), air conditioning and refrigeration systems using refrigerants with low global warming potential, and power devices using new materials.

In Green by Digital, we will use advanced digital technologies to improve energy efficiency and expand the use of renewable energy. We will advance R&D, such as demonstrating an energy management system (EMS) in Europe that balances power supply and demand between power generation using renewable energy sources and power consumption by heat pumps for air conditioning and water heating. Through these activities, we will contribute to reducing greenhouse gas emissions throughout the entire value chain.

In Green by Circular, we will advance R&D focusing on resource circulation, such as CO_2 capture, utilization, and storage (CCUS) and carbon recycling. We will advance R&D to expand the range of recyclable plastics, including those that have been difficult to recycle, such as composite materials, not only from Mitsubishi Electric products but also from other sources, contributing to the circular use of carbon.

To create and expand businesses in these green-related fields, we plan to allocate approximately 900 billion yen over the seven years from fiscal 2025 to fiscal 2031 to green-related R&D investments.

Resilience to Climate Change Based on Scenario Analysis

Overview

The Mitsubishi Electric Group has conducted scenario analysis considering long-term future uncertainties based on two scenarios: one in which the world moves toward a decarbonized society as assumed in our business strategy (2°C or lower scenario*1), and another in which economic development is prioritized over climate change countermeasures (4°C scenario*2). We set fiscal 2041 as a point in an uncertain future and analyzed the financial impact of transitioning to the 4°C scenario, with the baseline (extension of our business plan) as the 2°C or lower scenario.

*1 The demand for decarbonization technologies increases and development competition intensifies due to stricter regulations. As the electrification of society progresses, total electricity demand increases, and the percentage of renewable energy also rises.

Referenced public scenarios
- International Energy Agency (IEA) World Energy Outlook 2023, Announced Pledges Scenario (APS)
- Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report (AR6), Shared Socioeconomic Pathway (SSP1), compared to SSP2 as the current situation

*2 Physical risks materialize due to decarbonization activities being at or below the current level. Consumer purchasing power increases compared to the 2°C or lower scenario. On the other hand, extreme weather events such as heavy rain and floods intensify.

Referenced public scenarios
- IEA World Energy Outlook 2023, Stated Policies Scenario (STEPS)
- IPCC 6th Assessment Report, SSP5 (compared to SSP2 as the current situation)

Scenario Analysis Results

The Mitsubishi Electric Group has examined climate-related risks and opportunities in all its business segments. Regarding transition risks, we evaluated that three businesses, Energy Systems, Semiconductors & Devices, and Automotive Equipment, would be significantly affected by climate change in the 4°C scenario relatively, and we quantitatively estimated the financial impact.

On the other hand, for physical risks, we estimated the financial impact on the Group's major manufacturing bases across all business segments, taking the intensification of extreme weather events as an inevitable risk due to the increased frequency of extreme weather events.

The main transition risks that would affect finances due to the transition to the 4 °C scenario are changes in the energy mix, changes in energy demand trends, and delay in shift to EVs.

The Energy Systems business is directly affected by changes in the energy mix and changes in energy demand trends, and is expected to see a decrease in profits due to the slow spread of renewable energy and sluggish growth in total electricity demand caused by delays in electrification. The Semiconductors & Devices and Automotive Equipment businesses would experience some concerns such as the delay in the shift to EVs leading to reduced demand for EV-related automotive equipment and the failure of SiC manufacturing costs to decrease, stagnating its widespread use in other fields. However, the impact of these concerns is expected to be minimal.

Although these three businesses would be affected by reduced opportunities under the 4°C scenario, climate change is seen as more of an opportunity than a risk in all of the Mitsubishi Electric Group's businesses. In the case of the 4°C scenario, compared with the case of the 2°C or lower scenario, each country will adopt economy-first measures, and as a result, high-performance products and services will be selected and demand will increase vigorously. For example, in the Air Conditioning Systems & Home Products

business, performance requirements for reducing greenhouse gas emissions and energy consumption would not decrease, and increased demand for adapting to climate change can be expected.

Moreover, we estimate the financial impact of the intensification of extreme weather events, a physical risk, to be smaller than the impact of transition risks.

Based on this analysis, we expect a decrease in profit due to transition risks in the Energy Systems business, as well as physical risks in all businesses. However, the opportunities presented by climate change in many businesses, including the Air Conditioning Systems & Home Products business, are also expected to bring an increase in profit. As a result, the impact on the Mitsubishi Electric Group is within the assumed range that can occur in normal business operations and is estimated to amount to a minor change in the direction of profit growth. For this reason, we do not foresee a significant financial impact even with a shift from the 2°C or lower scenario to the 4°C scenario.

Financial impact on the Mitsubishi Electric Group when society progresses to the 4°C scenario (impact on operating profit)

	Business	Content	Impact on Operating Profit
Transition risks	Energy Systems	◆Changes in energy mix and changes in energy demand trends ・The market size for core network products and distributed network products shrinks due to the slowdown in the introduction of renewable energy and the progress of electrification.	→
	Semiconductors & Devices, Automotive Equipment	◆Delay in shift to EVs ・Slowdown in the price reduction of SiC products, and stagnation in their spread to non-automotive applications. ・Reduced demand for EV-related automotive equipment.	→
Physical risks	All Businesses	・Disruption of supply chains and increased damage to facilities due to the intensification of extreme weather events such as typhoons, heavy rains, and floods.	→
Opportunities	A/C System & Home Products	・Increased demand due to the development of the global economy under relatively relaxed regulatory conditions. ・Optimization of annual R&D investment in line with the gradual progress of refrigerant regulation requirements in each region.	→
Total (transition risks + physical risks + opportunities)			→

Risk Management

Processes for Addressing Climate Change-Related Risks and Opportunities

The Mitsubishi Electric Group uses its own business strategy decision-making process and a comprehensive risk management process to identify, assess, and manage risks and opportunities related to the global environment, including climate change.

Each of Mitsubishi Electric's departments (business groups and corporate divisions) and associated companies in Japan and overseas identify climate change-related risks that are relevant to them, consider how to respond to such risks and turn them into opportunities, and proactively incorporate them into their business and divisional strategies.

At the same time, as part of the Mitsubishi Electric Group's comprehensive risk management process, we identify, assess, and properly manage issues that have significant impacts on management in various risk areas, including risk management related to climate change.

Mitsubishi Electric Group Risk Management System and Positioning of Global Environmental Risks

The Mitsubishi Electric Group's global environmental and other risks, including those related to climate change, are primarily managed by each division of Mitsubishi Electric and its associated companies in Japan and overseas. In addition, at the direction of the Chief Risk Management Officer (CRO), the corporate division (i.e., the division responsible for the risk) identifies, assesses, and manages risks based on its knowledge in each area of expertise.

Risks in each specialty area identified and assessed by the divisions responsible for such risks are consolidated by the Corporate Legal Risk Management Group, and their impacts on group management are evaluated through relative comparisons among each risk, etc. The Risk Management and Compliance Committee, chaired by the CRO, makes management decisions.

Risks comprehensively assessed through the above process are shared with relevant parties, including management. The Group considers global environmental risks, including climate change, to be highly material because they have significant impacts on the realization of a sustainable global environment, one of the Group's materialities.

Management Process for Risks Related to the Global Environment

Global environmental risks, including climate change, are identified, assessed, and managed by the Executive Officer in charge of Sustainability and the Sustainability Innovation Group, the department in charge of risk, under the direction of the CRO, in accordance with the Mitsubishi Electric Group risk management system described above.

Based on the results of such comprehensive risk assessment, the Executive Officer in charge of Sustainability and the Sustainability Innovation Group identify and assess risks by subdividing global environmental risks into smaller risks, taking into account legal trends, technological trends, market trends, external evaluations, and other factors. Based on the results, the Executive Officer and the Department formulate an environmental plan as a medium-term risk management measure and an environmental implementation plan as a one-year measure.

Each group organization (business group, associated company, etc.) formulates its own annual environmental implementation plan based on these plans and reports the results to the Executive Officer in charge of Sustainability and the Sustainability Innovation Group.

The Executive Officer in charge of Sustainability and the Sustainability Innovation Group then review the results of the identifying and assessing of global environmental risks, taking into account the results of each organization and social trends, and in turn report the results to the Corporate Legal and Risk Management Division and, if necessary, revise the environmental plan and reflect the results in the environmental implementation plan for the following fiscal year.

Metrics and Targets

The Mitsubishi Electric Group calculates and tracks greenhouse gas emissions (Scope 1, 2 and 3) in its value chain. For calculation and assessment, we refer to the GHG Protocol and the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain published by Japan's Ministry of the Environment.

Long-Term Target

In our long-term environmental management vision through 2050, Environmental Sustainability Vision 2050, the Mitsubishi Electric Group has set a target to reduce greenhouse gas emissions throughout the entire value chain to net-zero by 2050.

Mid-Term Target

The Mitsubishi Electric Group set a target of "reducing greenhouse gas emissions from factories and offices to net-zero by fiscal 2031" and is conducting initiatives to reduce greenhouse gas emissions by a certain percentage each year.

Mitsubishi Electric Group's Reduction Targets after Receiving Certification from the Science Based Targets (SBT) Initiative

We have updated the Group's greenhouse gas emission reduction targets for fiscal 2031 as follows, and received certification from the Science Based Targets (SBT) initiative in January 2024. These new targets have been recognized as science-based targets for achieving the Paris Agreement's "1.5°C target." The Scope 1 and Scope 2 targets have been certified as being at a level that "limits temperature rise to 1.5°C," while the Scope 3 target has been certified as being at a level "well below 2°C."

- Scope 1 and 2: Reduce greenhouse gas emissions by 42% by fiscal 2031 compared to fiscal 2022 levels
- Scope 3:* Reduce greenhouse gas emissions by 30% by fiscal 2031 compared to fiscal 2019 levels

* The scope of Scope 3 has been expanded from the previous category 11 (use of sold products) to all categories.

Short-Term Target

Based on the action guidelines of Environmental Sustainability Vision 2050, the Mitsubishi Electric Group formulated an Environmental Plan that sets out specific activity targets. We pursued various activities in line with the current Environmental Plan 2023 (FY2022–2024) which sets out indicators and targets in four areas, namely: "environmental contribution through products and services," "reducing the environmental impact of business activities," "pursuing business innovations," and "publicizing and sharing new values and lifestyles."

In fiscal 2025, we newly formulated the Environmental Plan 2025 (FY2025–2026). In addition to setting greenhouse gas emission reduction targets for fiscal 2026 to achieve the aforementioned medium-term targets, the Environmental Plan 2025 also set targets for simple calculation of LC-CO_2*1 emissions that contribute to carbon neutrality and a circular economy, as well as targets in the nature positive domain that contribute to the realization of "30by30"*2 as advocated by the Japanese government.

*1 Life Cycle CO_2. All CO_2 emissions throughout the entire product life cycle
*2 A target to effectively conserve at least 30% of land and sea as healthy ecosystems by 2030

Progress

Among greenhouse gas emissions, the Company's calculated figures for Scope 1 and 2 in fiscal 2024 are listed in the table below.

Location-based emissions increased from fiscal 2023 to 1,071 kt due to expansion of Group's production scale and other factors. However, emissions were down by approximately 25% from the 1,430 kt emitted in fiscal 2014, the base year set in the Environmental Plan 2025. In our efforts to reduce greenhouse gas emissions, we continue to work toward our target set in the Environment Plan 2025 of a 53% reduction compared with fiscal 2014 at the end of fiscal 2026.

Market-based emissions are being reduced with the increasing use of renewable energy sources.

Scope 1 and 2 Greenhouse Gas Emissions (Mitsubishi Electric Group) (Unit: kt-CO_2)

		FY2022	FY2023	FY2024
Total of Scope 1 and 2	Location-based	1,161	1,046	1,071
	Market-based	1,095	951	910

Third-Party Verification

The Mitsubishi Electric Group has set targets for its greenhouse gas emissions (Scopes 1, 2 and 3*) and amount of water intake and drainage. These targets have been verified by a third party in compliance with ISO 14064-3 to ensure reliability of the data.

* The scope of third-party verification for Scope 3 emissions includes Category 1 (purchased goods and services) and Category 11 (use of sold products).

Third-Party Verification Report (Environmental Disclosure of 5 items)

Environmental Management System

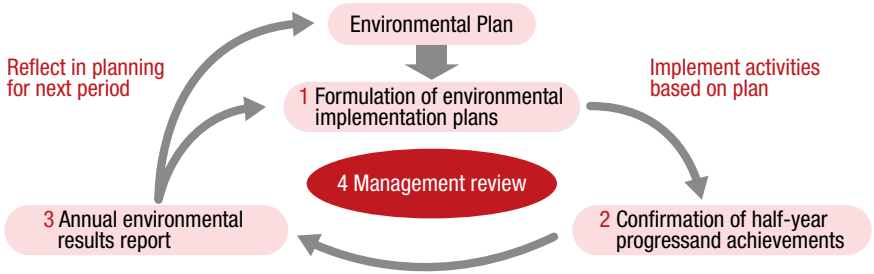
Scope of Environmental Management

The Mitsubishi Electric Group operates an ISO 14001:2015 compliant environmental management system that covers Mitsubishi Electric and its major associated companies.

PDCA Cycle for Environment-Related Targets and Measures

The Mitsubishi Electric Group formulates an environmental plan comprised of targets and measures for realizing its Environmental Sustainability Vision 2050. To achieve the targets of this environmental plan, each organization* formulates and acts on a yearly environmental implementation plan.

* The Mitsubishi Electric Group appoints environmental managers for each department in the head office area, each base such as manufacturing plants and branches outside the head office area, and each affiliated company in Japan and overseas. These entities are also responsible for formulating their respective environmental implementation plans.



PDCA cycle for environment-related targets and measures

(1) Formulation of environmental implementation plans

Based on the environmental plan, objectives and action plans are determined for that fiscal year.

(2) Confirmation of progress and achievements – (3) Annual environmental results report

The Sustainability Planning Division, which oversees environmental management at the Mitsubishi Electric Group, compiles environmental performance data and other relevant information and reports them to the Vice President of the Sustainability Innovation Group, who is responsible for environmental management. The Vice President of the Sustainability Innovation Group then conducts a review and modifies the environmental plan as necessary (e.g., when any significant change occurs in the business environment related to the Group).

(4) Management review

The Vice President of the Sustainability Innovation Group carries out the review of activity results and reconsiders environmental plans and/or the environmental plan for the next fiscal year if necessary.

Each organization works to enhance the activity level by checking on progress throughout the fiscal year and reconsidering the environmental plans as needed.

Sharing Information with Environmental Managers in Each Organization

The Mitsubishi Electric Group has appointed environmental managers responsible for promoting environmental practices at each Mitsubishi Electric business site, as well as at associated companies in Japan and overseas. These managers work on providing information and raising awareness about priority themes and policies. In addition, these managers also share useful information such as best practices from each other's experiences and key points to consider on a regular basis to help improve overall management levels.

ISO Certification

Mitsubishi Electric has obtained company-wide multi-site ISO 14001:2015 certification in order to strengthen compliance by the company as a whole and to further strengthen its contribution to the environment by ensuring that business operations are based on environmental plans.

Among all Group companies within the scope of this report, roughly 50% have acquired ISO 14001 certification.

ISO 14001 Certificate of Registration (Scope: Mitsubishi Electric)

Environmental Audits

The Mitsubishi Electric Group combines the multiple types of environmental auditing shown below in order to carry out checks from various perspectives. These audits are performed at each business site to confirm their compliance with laws and regulations, the operational status of the environmental management system, and the progress of environmental implementation plans.

Overview of the four types of environmental audits

	Internal auditing at business sites	Mutual auditing between business sites	Auditing of associated companies	Auditing by the audit division
Implementing body	All Mitsubishi Electric business sites (head office, branches, works and R&D centers) and associated companies	All Mitsubishi Electric business sites (head office, branches, works and R&D centers)	Mitsubishi Electric (head office and works)	Mitsubishi Electric (head office audit division)
Subject	Other organizations within the same business site	Other business sites	Associated companies	Mitsubishi Electric and associated companies
Frequency	Once a year	Once a year	Once every two to three years	Once every three years

Preventing Environmental Incidents

Preventing Environmental Incidents through Information-Sharing and Equipment Inspections

The Mitsubishi Electric Group takes the following steps to prevent environmental incidents both in Japan and overseas, such as the leakage of substances that may result in water or soil pollution or have a negative impact upon the environment.

Mitsubishi Electric revises company rules to reflect updates in the relevant laws and regulations and ensures that its entire workforce is fully familiar with such updates through e-learning and other methods. In the case of a problem (e.g., minor oversight) occurring, Mitsubishi Electric shares the cause and countermeasures throughout the entire Group to prevent it from recurring. Aiming to increase the awareness of environmental risk management, e-learning programs are provided to Group companies in Japan, introducing examples of problems and the establishment and renewal of important laws. This serves to firmly instill awareness of environmental management issues across a wider range of occupational levels. In addition, periodic equipment inspections are carried out at all Group bases, the results of which are compiled into necessary measures from time to time and utilized.

Environmental audits are also conducted in an effort to uncover and prevent environmental risks.

Owing to its efforts, the Group received no administrative punishments or penalties for any environmental violation in fiscal 2024.

Responding to Soil and Groundwater Pollution

As stated in our internal rules, the Mitsubishi Electric Group's business sites (works, R&D centers, etc.) conduct environmental assessments such as when there is a change in land characteristics. These assessments are based on a survey method that complies with relevant laws and regulations, and the necessary countermeasures or solutions are implemented in accordance with the state of pollution.

In fiscal 2024, we assessed survey results and countermeasures regarding the condition of soil and groundwater due to land utilization for a total of 17 cases and have confirmed that all cases were handled appropriately.

Regarding areas that were recognized as having groundwater or soil pollution problems in the past, we purify the land using methods compliant with laws and regulations, and continue to regularly report the results of our monitoring to relevant government organizations.

Appropriate Storage and Processing of PCB Waste and Devices Containing PCBs

The Mitsubishi Electric Group conducts inspections at all bases in Japan that store PCB waste (waste containing polychlorinated biphenyl) and/or handle devices containing PCBs at least once a year to confirm the status of PCB storage and usage.

With respect to low-concentration PCB waste and devices containing PCBs, Mitsubishi Electric disposed of approximately 17 tons of devices and 260 tons of contaminated soil in fiscal 2024, while its associated companies collectively disposed of approximately 10 tons of devices.

Customers can confirm whether or not an electrical device manufactured by a Mitsubishi Electric Group company in Japan contains PCB by referring to a list available on the corporate website.

PCB-related information (in Japanese)

Training of Environmental Personnel

Developing Personnel to Proactively Engage in Environmental Activities

The Mitsubishi Electric Group recognizes "nurturing human capital" as one of its key activities in accordance with the action guideline to "challenge to develop business innovations for future generations," as set forth in the environmental management vision, "Environmental Sustainability Vision 2050."

We strive to foster a corporate culture in which each Mitsubishi Electric Group employee takes the initiative to create a new lifestyle in harmony with nature as an ordinary citizen. To this end, all employees participate in an annual e-learning program, "Mitsubishi Electric Group Environmental Management." We also develop human resources who possess a high degree of expertise and who accept diverse values and proactively tackle environmental issues, on a continual basis. Furthermore, in order to provide effective training, we employ various educational curricula in accordance with each employee's role and expertise.

Environmental education system

Target	Lecture Name
Employees Having Environmental Responsibilities	• Environmental Manager Training • Environmental Section Manager Training • New Environmental Section Manager Training • MELCO Seminar*1
General Employees	• e-Learning for All Group Employees,*2 Mitsubishi Electric Group Environmental Management • Training for Specific Ranks • Training for New Section Chiefs • Common Basic Training for New Employees • Environmental Course for Employees Dispatched Overseas • Initiatives to Live in Harmony with Nature and Foster Environmental Awareness • Preserving Biodiversity at Business Sites • *Satoyama* Woodland Preservation Project • Mitsubishi Electric Outdoor Classroom • Outdoor Classroom Leader Development/ Promotion meetings for *Satoyama* Woodland Preservation Project and Mitsubishi Electric Outdoor Classroom

*1 A measure for supporting skills development for employees who want to improve their own specialties and would like to contribute to management

*2 Executives and all employees who have a contract of employment with the Mitsubishi Electric Group are eligible

Environmental Plan

Environmental Plan 2023

Environmental Plan 2023 (FY2022–2024) is the first environmental plan formulated based on Environmental Sustainability Vision 2050. In order to achieve "carbon neutrality" and a "circular economy," we will promote innovation in development and accelerate the reduction of our products' environmental impact through their entire lifecycles. Since implementing this plan, we have also started to track progress towards the target rate of effective use of plastic waste.

The targets of Environmental Plan 2023 and the results for fiscal 2024 are as shown in the chart below.

Although the usage rate of recycled plastics fell short of the target, we will continue to make improvements by internally sharing examples of products made with recycled plastic waste. All other targets were achieved.

Environmental Plan 2023: Targets and results

Activity	KPIs	Target set in Environmental Plan 2023	FY2024 result
Environmental contribution through products and services			
Expanding our contribution to CO_2 emission reduction with new products	Improvement rate of new products over previous models	1% or more in FY2024	2.5%
Improving the usage rate of recycled plastics	Usage rate of recycled plastic (molding materials)	10% or more in FY2024	8.3%
Reduction of the environmental impact of our business activities			
Reducing CO_2 emitted from the Group	CO_2 emission (Scopes 1 and 2)	Reduction of 30% or more compared to FY2014	36% reduction
Improving the effective usage rate of plastic waste	Effective usage rate of plastic waste (in Japan)	90% or more	95%
Using water effectively	Water consumption per unit of sales in high-risk sites	Reduction of 4% or more compared to FY2020	34% reduction
Publicizing and sharing new values and lifestyles			
Promoting the Mitsubishi Electric Outdoor Classroom and *Satoyama* Woodland Preservation Project	Number of areas where activities are held	39 areas	39 areas

Environmental Plan 2025

Environmental Plan 2025, covering the fiscal 2025–2026 period, sets greenhouse gas emissions reduction targets for the period ending March 31, 2026 to achieve the Group's net-zero target at factories and offices by March 31, 2031. In addition, it specifies simplified calculations for LC-CO_2*1 emissions contributing to both carbon neutrality and the circular economy, which are social issues Mitsubishi Electric is focusing on, as well as nature-positive targets*3 contributing to the "30by30"*2 initiative.

*1 Life cycle CO_2: All CO_2 emissions throughout the entire life cycle of products and services
*2 A target to effectively conserve at least 30% of land and sea as healthy ecosystems by 2030
*3 To halt and reverse biodiversity loss

Environmental Plan 2025: KPIs and targets

Areas	KPIs	Targets
Carbon neutrality	Greenhouse gas emissions (Scope 1 and 2)	Reduction of 53% or more compared to FY2014*4
	Greenhouse gas emissions (Scope 3)	Reduction of 17.5% or more compared to FY2019
Circular economy	Simple LC-CO_2 emissions calculation	Calculation of Mitsubishi Electric's new models (final products) for FY2025–2026
	Effective usage rate of plastic waste (in Japan)	92% or more
Nature positivity	Water consumption per unit of sales sites in high-risk	Reduction of 6% or more compared to FY2020
	Contributing to nature positivity	Registration of functional greenery*5 at production sites in Japan as symbiosis sites*6

*4 Calculation including carbon offset
*5 Functional greenery at Mitsubishi Electric
*6 Japan's 30by30 Roadmap (Ministry of the Environment)

Helping to Build a Green Society

Carbon Neutrality and Circular Economy Measures

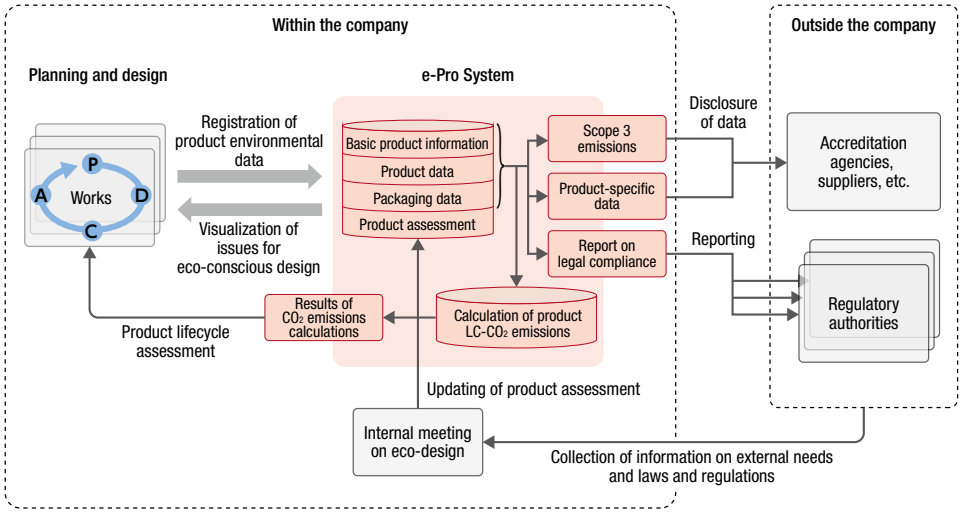
Management of Product-Related Environmental Data

There is a wide range of environmental work related to products. Such work includes the collection of environmental data (power consumption, greenhouse gas emissions, mass of products and packaging by material, etc.), the calculation and disclosure of greenhouse gas emissions and resource inputs based on that data, product assessments, and the promotion of eco-conscious design through evaluation of CO_2 emissions over the entire life cycle.

The Mitsubishi Electric Group has established the e-Pro System, which centrally manages environmental data related to products, in order to carry out the work of collecting, calculating, and disclosing data efficiently to meet requirements from outside the company for disclosure of a variety of environmental data. The e-Pro System uses data such as annual power consumption, destinations, and the mass of products and packaging materials to easily calculate LC-CO_2* emissions. We have also set targets related to carbon neutrality and the circular economy for each product group and aim to visualize issues and promote eco-conscious design by feeding back the input information to design departments.

* Life cycle CO_2: All CO_2 emissions throughout the entire life cycle of products and services

Overview of e-Pro System



Thorough Efforts to Improve Energy Efficiency in Buildings and Facilities

We have established internal guidelines in accordance with Japan's Act on the Improvement of Energy Consumption Performance of Buildings for planning the construction of new buildings and building renovations. Additionally, we have implemented our own guidelines in accordance with the Act on Rationalization of Energy Use and Shift to Non-fossil Energy for introducing new production facilities at our works. These guidelines are strictly followed.

Expanding the Introduction of Renewable Energy

We will expand the introduction of renewable energy using the following two approaches.

(1) Examine the best means for each region, including the installation of solar power generation systems, examination of other renewable energy sources, and utilization of the green electricity certificate, and identify issues.

(2) Examine how to effectively utilize any surplus electricity from solar power generation, including the use of self-consignment systems.

Effective Use of Plastic Waste

Aiming to achieve 100% effective use of waste plastics by fiscal 2036, each business site is promoting the visibility of waste sources and the quantitative management of plastic waste by setting target values. To further improve the effective usage rate, we will promote collaboration with companies that possess the necessary recycling technologies.

Nature-Positive Initiatives

The Earth's ecosystem is made up of diverse living organisms. All aspects of human civilization benefit from this ecosystem, but at the same time, people affect it in both direct and indirect ways. Today, damage to the ecosystem is said to be driving many species to extinction and otherwise eroding biodiversity. The Mitsubishi Electric Group engages in nature-positive initiatives based on its awareness of this issue. We are working toward registration of the functional greenery currently being maintained at Mitsubishi Electric's works as Natural Symbiosis Sites under the initiative by the Ministry of the Environment.

We are enhancing our interaction with and contribution to local communities by conducting the *Satoyama* Woodland Preservation Project and Mitsubishi Electric Outdoor Classroom. We also focus on environmental activities such as the cleaning of local areas, which helps raise awareness about plastic pollution in the world's seas and oceans. The outcomes of our initiatives, both in Japan and overseas, are published as needed, making the Group's contribution to environmental improvement visible.

Satoyama Woodland Preservation Project
Mitsubishi Electric Outdoor Classroom

Environmental Considerations in Value Chain Management

Mitsubishi Electric implements a range of initiatives that give consideration to the environment throughout the value chain, from the development of products through their use and recycling.

Development → Production → Transportation → Use and recycling

Implementation of Environmentally Conscious Design —Utilization of e-Pro System

Development

The Mitsubishi Electric Group utilizes e-Pro System (product environmental information collection system) to centrally manage product environmental data such as CO_2 emissions from product use and raw materials and packaging materials used. This system conforms to customer requirements to provide product data and is used in environmentally conscious design, by enabling environmental assessment and LC-CO_2 to be implemented and fed back to design departments.

Additionally, to strengthen product designs that address social needs for decarbonization, internal subcommittee meetings are held to share information on laws and regulations in each country and best practices on environmentally conscious designs. These meetings also examine the validity of LC-CO_2 calculations and product assessment items.

Resource Recycling Initiatives —Improving the Usage Rate of Recycled Plastics

Development

As a part of its efforts to recycle plastic materials that have a high environmental impact, the Mitsubishi Electric Group facilitates use of recycled plastic for our product parts through environmentally conscious design.

As an example of our efforts in fiscal 2024, we have developed technology to recycle PC/ABS* collected through the recycling of home appliances into recycled PC/ABS with stable quality, high durability, and fire retardance for wireless communication terminals for sensors used in gas meter systems and other applications. This has enabled reductions of approximately 70% in the volume of new plastic used in these components and 57% in CO_2 emissions compared to manufacturing PC/ABS from new raw materials. In addition, we are working to expand the use of recycled plastics to other applications, such as plastic boxes for wire EDM machines and home appliances.

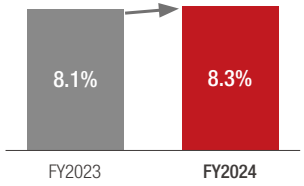
* A plastic which is a blend of polycarbonate (PC) and acrylonitrile butadiene styrene (ABS)

Mitsubishi Electric Uses Recycled Plastic Collected in Recycling of Home Appliances in Wireless Communication Terminals for Sensors for the First Time (in Japanese)

The Mitsubishi Electric Group manages and evaluates its usage rate of recycled plastics, which was 8.3% in fiscal 2024.

$$\text{Usage rate of recycled plastics (\%)} = \frac{\text{Procurement volume of recycled plastics*}}{\text{Procurement volume of plastics*}} \times 100$$

* Procurement volume at main sites



Usage rate of recycled plastics

Reducing Greenhouse Gas Emissions from Plants and Offices

Production

The Mitsubishi Electric Group is working to realize Environmental Sustainability Vision 2050 by promoting activities to reduce the emission of greenhouse gases (CO_2 originating from energy use, SF_6, HFCs, PFCs) from plants and offices.

Under the Environmental Plan 2023 (FY2022–2024), we aimed to reduce greenhouse gas emissions by more than 30% by fiscal 2024 compared to fiscal 2014. Toward achieving this target, we stepped up our efforts to thoroughly save energy and to expand the use of renewable energy in our plants and offices.

In fiscal 2024, greenhouse gas emissions decreased to a CO_2-equivalent of 910 kt, down 41 kt from fiscal 2023. This reduction was the result of several factors: increased procurement of electricity from renewable energy sources; adoption of power purchase agreements (PPAs); and the facilitation of electrification of equipment and vehicles (company cars, forklifts, etc.). Additionally, production termination at one location due to business restructuring contributed to the decrease. In addition to establishing and operating energy-saving guidelines for buildings and production facilities, and promoting thorough energy saving in plants and offices, Mitsubishi Electric is also focusing on utilizing renewable energy. Going forward, we will flesh out further details of the road map for greenhouse gas emissions reduction and promote measures for even greater reduction, working steadily to achieve our targets.

Roadmap for reducing emissions from factories and offices

Initiatives to Reduce CO_2 Emissions Originating from Energy Use and Their Results

Working to reduce CO_2 emissions originating from energy use, we systematically introduce and update high-efficiency and energy-saving equipment, improve operations, and extend energy conservation measures to production lines. In fiscal 2024, use of renewable energy and other measures in addition to these energy-saving measures reduced emissions by 12 kt from the previous fiscal year to 803 kt.

Half of this major achievement was due to the introduction of high-efficiency machinery, while cross-organizational activities for improving energy-efficient technologies also contributed solid results. These activities also focus on visualizing and reducing the wasteful use of utilities and production equipment.

In the classification system (SABC assessment) based on Japan's Act on Rationalizing Energy Use, 11 out of 20 specific Group companies in Japan, including Mitsubishi Electric, have been recognized as excellent business operators (S Class) in terms of energy conservation.

Initiatives to Reduce SF_6, HFCs and PFCs, and the Results

Three types of non-CO_2 greenhouse gases are emitted by the Mitsubishi Electric Group in its business activities: SF_6 (sulfur hexafluoride), HFCs (hydrofluorocarbons), and PFCs (perfluorocarbons).

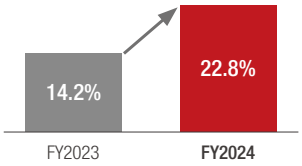
SF_6 is used inside gas-insulated switchgear for electrical insulation, as well as in the etching process during semiconductor and liquid-crystal display production. HFCs are used as refrigerants in air conditioners and refrigerators, while PFCs are used during the etching process in production of semiconductors and liquid-crystal displays.

In fiscal 2024, emissions were reduced by 29 kt year on year to 110 kt due to the switch to lower GWP* refrigerants, operational improvements, continued gas recovery and capture, and termination of operations at one location resulting from business restructuring.

* Global warming potential: A coefficient that indicates how many times stronger or weaker the effect of a greenhouse gas is compared to carbon dioxide.

Adoption of Renewable Energy

The Mitsubishi Electric Group is expanding its adoption of renewable energy. The share of renewables in the Group's total power consumption increased from 14.2% in fiscal 2023 to 22.8% in fiscal 2024.



Renewable energy usage rate

Effective Use of Plastic Waste

Production

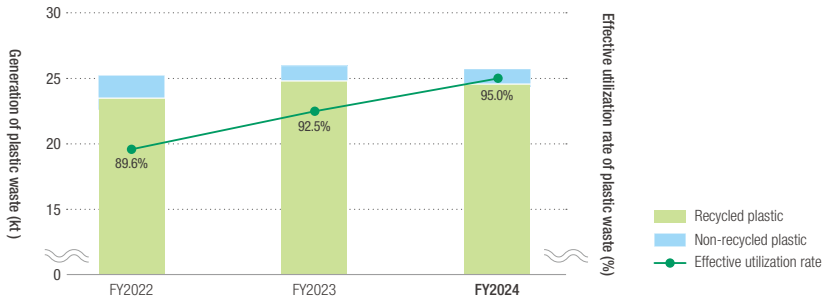
Based on Japan's Resource Circulation Strategy for Plastics, the Mitsubishi Electric Group is focused on effective use of plastic waste from its production sites, with a medium-term target of achieving 100% effective use of waste plastics by fiscal 2036.

Status of Initiatives by the Mitsubishi Electric Group (in Japan)

To improve the effective utilization rate of plastic waste emitted from our business operations, we conducted a survey of the present state of plastic waste at our production sites in fiscal 2022, and we are considering ways to enforce proper sorting and to conduct a review of plastic recycling companies.

In fiscal 2024, 26 kt of plastic waste were generated, which was unchanged from the previous year (26 kt), but the effective utilization rate of plastic waste significantly increased to 95.0%, achieving the target for fiscal 2024.

Going forward, we will endeavor to further control plastic waste output by promoting sharing of information on recycling companies among our production sites and visualization of plastic waste. We will also work to improve the material recycling rate of plastic waste.



Status of Initiatives by the Mitsubishi Electric Group (Overseas)

Overseas laws, regulations, and waste treatment situations vary according to country and region. We work to assess the actual state of waste emissions and the status of recycling in order to establish targets suitable for each local situation, and we undertake various efforts to achieve those targets.

Specification and Disposal of Hazardous Wastes

Production

The Mitsubishi Electric Group specifies hazardous wastes as shown below. The Group monitors their output and appropriately disposes of them in compliance with the laws and regulations of the regions in which its facilities are located. We also carry out material recycling and thermal recycling where we can in order to reduce final disposal (landfill) volume.

- Mitsubishi Electric Group in Japan: "Specially-controlled industrial wastes" specified by the Japanese Act on Waste Management and Public Cleaning
- Overseas associated companies: Hazardous wastes as defined by local laws and regulations

In fiscal 2024, total hazardous waste emissions of Mitsubishi Electric Group companies in Japan amounted to 1,432 tons, of which 436 tons were recycled. That of overseas associated companies totaled 5,311 tons, of which 2,689 tons were recycled.

Wastes containing polychlorinated biphenyl (PCB) are managed separately based on Japan's Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes.

Preventing Environmental Incidents

Reducing Water Usage

Production

Managing Water Risk

Water risk is increasing worldwide with ever-more serious water shortages and pollution, as well as abnormal weather caused by climate change. This also affects the production of both raw materials and products, making corporate water risk management more important.

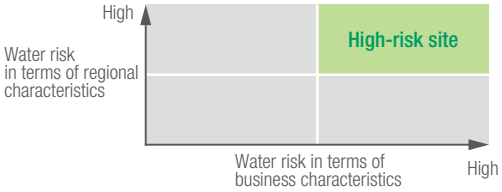
Water risk within the Mitsubishi Electric Group is evaluated as part of our corporate risk management framework. In fiscal 2024, in addition to assessing water stress and quality using Aqueduct*1 and Water Risk Filter*2 at approximately 170 production sites, including those of associated companies, we conducted assessments of species extinction risk using IBAT*3 (STAR). We then ranked the risk at each production site based on the results of these risk assessments and the business characteristics of each site (such as principal products and water usage accompanying production activities). We will consider setting water-related targets for high-risk sites, taking into account the circumstances of their watershed. We will also take measures to minimize any impact on the surrounding environment, such as ensuring compliance with wastewater standards in each region. In addition, during product development, we will strive to minimize the environmental impact of products, for instance, by evaluating product impact on water sources and assessing product lifecycles.

*1 Water risk assessment tool developed by the World Resources Institute (WRI). Conducted assessment of "baseline water stress" and "coastal eutrophication potential."
*2 Water risk analysis tool developed and operated by the World Wide Fund for Nature (WWF). Conducted assessment of "baseline water depletion," "blue water scarcity," and "surface water quality index."
*3 Integrated Biodiversity Assessment Tool. Conducted assessment of Species Threat Abatement and Restoration Metric (STAR).

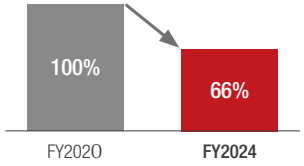
Response to High-Risk Sites

In fiscal 2020, the Mitsubishi Electric Group used Aqueduct to assess water risk, including water stress, and examined business characteristics at business sites in Japan and overseas. Sites with particularly high water risks are being managed as high-risk sites (total of five sites*4). To reduce water usage in high-risk sites, Environmental Plan 2025 sets forth a target of "reducing water usage per unit of sales by 6% or more by fiscal 2026 compared to fiscal 2020." The five high-risk sites together account for roughly 7% of total water intake by the Mitsubishi Electric Group as a whole and roughly 9% of total sales.

After confirming the status of water conservation and reuse at water-using facilities in high-risk sites, we replaced water faucets with water-saving faucets and promoted the use of recycled water. As a result, water usage per unit of sales was 34% lower in fiscal 2024 than in fiscal 2020. We will continue to co-exist in harmony with local communities by implementing effective water risk measures in consideration of regional characteristics and circumstances at each production site, with a focus on high-risk sites.



Conceptual diagram of water risk analysis



Water usage per unit of sales in reference to fiscal 2020 (five high-risk sites)

Status of Water Usage, Intake, Drainage, and Reuse

Status of Water Usage

The water usage of the Mitsubishi Electric Group in fiscal 2024 was 13,151,000 m³, of which 3,375,000 m³ was reused. The amount per unit of sales was 2.5 m³/million yen.
In Japan, we promoted recycle and reuse of water in production processes and use of purified wastewater for purposes such as toilet flushing and supply water for cooling towers. We also worked on reducing groundwater consumption through rainwater harvesting. Overseas, we also expanded the scale of water reuse and graywater utilization at our production sites.

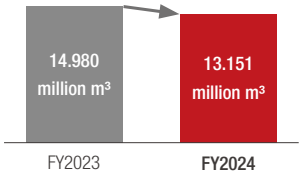
Water usage details (Material balance)

Status of Water Intake

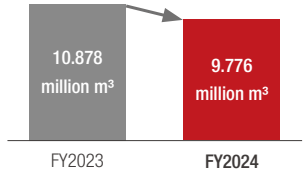
At production sites of the Mitsubishi Electric Group, water is taken to be used mainly for cooling, cleaning and adjusting the concentration of water-based paints, and as a solvent, an additive to materials and a heat medium. In fiscal 2024, the termination of operations at an LCD production site with high water usage brought the Group's water intake down to 9,776,000 m³, a decrease of approximately 1,000,000 m³ compared to the previous fiscal year.

Status of Water Drainage

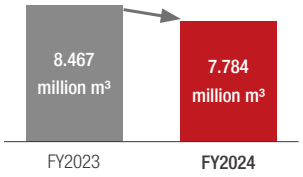
To avoid exceeding legal standard values set for each drainage point, the Mitsubishi Electric Group's production sites have established voluntary standards, and they carefully manage water quality. When there is a certain drainage standard in place according to properties specific to the water area, such a standard is also incorporated into our standards.



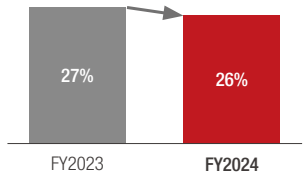
Water usage (Mitsubishi Electric Group)



Water intake (Mitsubishi Electric Group)



Water drainage (Mitsubishi Electric Group)



Water reuse ratio (Mitsubishi Electric Group)

*4 Following manufacturing companies located in Thailand:
- Mitsubishi Electric Consumer Products (Thailand) Co., Ltd.
- Siam Compressor Industry Co., Ltd.
- Mitsubishi Electric Automation (Thailand) Co., Ltd.
- Mitsubishi Elevator Asia Co., Ltd.
- Mitsubishi Electric Thai Auto-Parts Co., Ltd.

Managing Chemical Substances

Production

The Mitsubishi Electric Group manages chemical substances by classifying those released from business sites and those contained in products into three levels, as stipulated in its Green Procurement Inspection Target Chemical Substance.

Managing Chemical Substances Released from Business Sites

Mitsubishi Electric utilizes an internal system to manage the release and transfer of chemical substances regulated by the PRTR Law*1 (PRTR*2 system) and volatile organic compounds (VOCs) that are released from its production sites in Japan. In fiscal 2024, we updated the system in accordance with the revision of the PRTR Law. In fiscal 2024, the Mitsubishi Electric Group (Japan) used 3,382 tons of chemical substances.

Details on the release and transfer of chemical substances (Material balance)

Managing the Chemical Substances Contained in Products

In order to comply with EU RoHS Directive,*3 EU REACH Regulation,*4 and other regulations, we register information on chemical substances contained in purchased materials and parts in our internal system in order to manage them.

*1 Act on the Assessment of Releases of Specified Chemical Substances in the Environment and the Promotion of Management Improvement
*2 Pollutant Release and Transfer Register. A system under which companies track the quantity of substances potentially harmful to human health or the ecosystem which are released into the environment or transferred outside a business establishment through waste materials, and report this data to government authorities. The authorities then use these reports and other statistics to produce estimates on release and transfer, and announce them publicly.
*3 Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment
*4 Regulation on registration, evaluation, authorisation and restriction of chemicals

Environmental Considerations in Logistics

Transportation

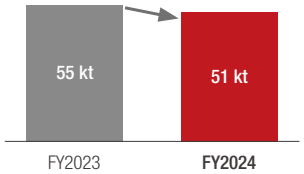
The Mitsubishi Electric Group strives to improve transport efficiency and economy by visualizing logistics operations through quantitative evaluation and eliminating irrational irregular and, wasted efforts in operations, with the goal of realizing Economy & Ecology Logistics (Eco-Logistics) with little environmental impact.

Reducing the Use of Disposable Packaging Materials

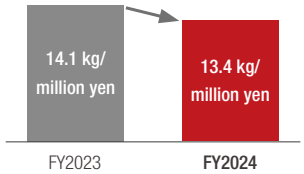
The Mitsubishi Electric Group practices the 3Rs in packaging: reduce (simplify packaging), reuse (more returnable containers and packaging), and recycle (recycling of used packaging material).

In Japan, the Group's total amount of packaging materials used in fiscal 2024 was 51 kt, and the amount per unit of sales was 13.4 kg/million yen. The Group continues to expand adoption of simpler packaging and the use of returnable containers and packaging.

The amount of packaging materials used by our 20 overseas associated companies was 53 kt, and the amount per unit of sales was 48.5 kg/million yen.



Usage of packaging materials
(Mitsubishi Electric Group companies in Japan)



Packaging materials used per unit of sales
(Mitsubishi Electric Group companies in Japan)

Details of the usage of packaging materials (Material balance)

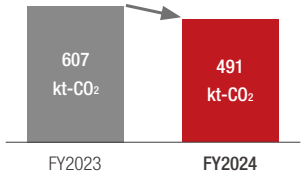
Reducing CO_2 Emissions from Logistics

At Mitsubishi Electric Group companies in Japan, the following measures continue to be implemented in efforts to reduce CO_2 emissions.

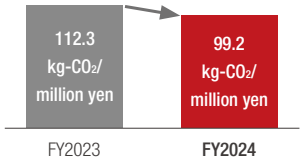
- Reviewing transportation routes
- Switching from truck transportation to rail transportation (modal shift)
- Reducing the number of trucks by improving load ratios (including Container Round Use)

In addition, overseas associated companies also reduced CO_2 emissions by pursuing the optimal logistics based on the circumstances of each country.

As a result, the CO_2 emissions of the Mitsubishi Electric Group totaled 491 kt-CO_2, and the amount per unit of sales was 99.2 kg-CO_2/million yen.



CO_2 emissions from distribution
(Mitsubishi Electric Group)



CO_2 emissions per unit of sales from distribution
(Mitsubishi Electric Group)

Details of CO_2 emissions from distribution (Material balance)

Contribution to Reducing CO_2 Emissions from Product Usage

Use and recycling

As more CO_2 is emitted during product usage than during production, the Mitsubishi Electric Group has identified "reducing CO_2 emissions from product usage" and "contributing to reducing CO_2 emissions by product usage" as priority issues and is working to improve its products.

Evaluation of Reducing CO_2 Emissions from Product Usage

Power consumed during product use is viewed as corresponding to the amount of CO_2 emissions resulting from generating that power. Increasing product energy efficiency can lead to a reduction of CO_2 emissions from product use.

The Mitsubishi Electric Group promotes initiatives to increase product energy efficiency by evaluating improvements in product energy efficiency using the new indicator shown below, beginning with models that are newly developed in fiscal 2022.

$$\text{Improvement rate over previous models (\%)} = \frac{\text{(Annual power consumption of previous models} - \text{Annual power consumption of newly developed models)}}{\text{Annual power consumption of previous models}} \times 100$$

Evaluation of Our Contribution to Reducing CO_2 Emissions by Product Usage

Among products of the Mitsubishi Electric Group, there are some that can help customers reduce CO_2 during use. For example, using the Group's heat pump system has greater potential to reduce CO_2 emissions compared to using combustion-type heating and hot water systems. The Group's inverters and power devices, as well, can reduce CO_2 emissions during use, since they contribute to enhancing the energy efficiency of the final products they are embedded in.

Contribution to reducing CO_2 emissions is calculated by comparing the use of a relevant product with the use of an alternative product that would likely be used if the relevant product did not exist. It is based on the following formula, with the alternative product as the reference product.

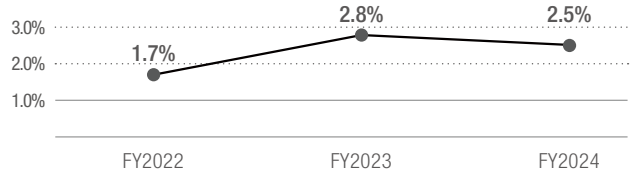
$$\text{Contribution to reducing } CO_2 = (CO_2 \text{ emission from using a "reference product")} - (CO_2 \text{ emission from using the relevant product})$$

Beginning with models newly developed in fiscal 2022, the improvement in contribution to reducing CO_2 emissions when a customer chooses to use a Mitsubishi Electric product is calculated using the new indicator shown below.

$$\text{Improvement rate over previous model (\%)} = \frac{\text{(Contribution to reducing } CO_2 \text{ by newly developed model} - \text{Contribution to reducing } CO_2 \text{ by previous model)}}{\text{Contribution to reducing } CO_2 \text{ by previous model}} \times 100$$

In fiscal 2024, we achieved an average improvement rate of 2.5% compared to the previous model thanks to improvements in a variety of products, including air conditioning fans and automotive equipment control products. We will continue our efforts to pursue greater energy efficiency and the contribution to reducing CO_2 emissions as we develop new product models.

Improvement rate of newly developed models compared to previous models *



* Average improvement rate of annual power consumption and contribution to CO_2 reduction compared to previous models

Breakdown of products relevant to "reducing CO_2 emissions from product usage" and "contribution to reducing CO_2 emissions by product usage"

Evaluation item	Product examples	Indicator used to evaluate improvement rate over previous models
Reducing CO_2 emissions from product usage	Monitoring, control, and protection devices for power generation plants and systems, railcar air-conditioning systems, electrical equipment for railcars, movable platform gates, vacuum circuit breakers, elevators, escalators, intelligent transport systems (ITS; ETC, smart interchanges), air conditioners, refrigerators, ventilation fans, electric fans, processing machines, LED light bulbs, residential lighting fixtures, etc.	Reduction in annual energy consumed during product usage
	Turbine generators	Improvement of power conversion efficiency
	Optical communication network systems, wireless communication systems	Reduction in annual energy consumed per product performance
	Automotive equipment control products	Reduction from the incorporation of products with power energy use, proportionally divided by weight
Contribution to reducing CO_2 emissions by product usage	Water heating systems (heat pump electric water heaters, electric water heaters)	Improvement of the contribution to reducing CO_2 emissions by using heat pumps, in reference to combustion-type heating and hot water systems
	Inverters, power devices (power modules, high power devices)	Improvement in the contribution to reducing CO_2 emissions gained by the incorporation of products with lower power loss
	Total heat exchanging ventilation equipment, electrical equipment for railcars (control devices)	Improvement in the contribution to reducing CO_2 emissions expected from the introduction of said products

Recovery/Recycling of Used Home Appliances at a Specialized Recycling Plant

Use and recycling

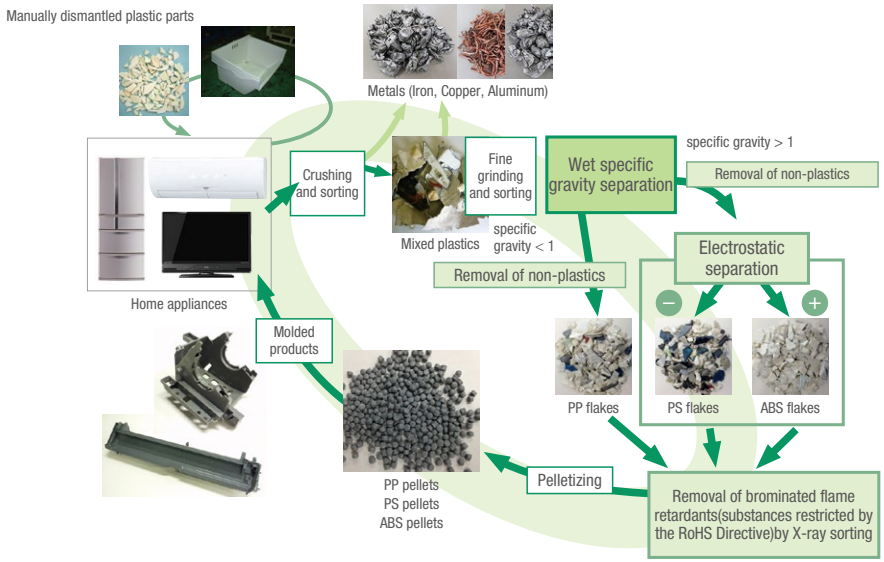
Hyper Cycle Systems Corporation, a member of the Mitsubishi Electric Group, has commercialized resource recovering and recycling from used home appliances and electronics. Information obtained from this plant is fed back to product designs to enhance the recyclability of products.

Closed-Loop Recycling of Plastic

Green Cycle Systems Corporation, a member of the Mitsubishi Electric Group, utilizes Mitsubishi Electric's original technology for sorting of crushed mixed plastics into polypropylene (PP), polystyrene (PS), and acrylonitrile butadiene styrene (ABS) to recycle them into high-purity plastics that are equivalent to virgin materials. The Mitsubishi Electric Group is promoting closed-loop recycling using these recycled plastics again in Mitsubishi Electric home appliances.

Plastic Recycling Comes of Age

Flow chart of Mitsubishi Electric Group closed-loop plastic recycling



The mixed plastic after crushing waste home appliances is recovered in high purity for each type of plastic through sorting processes such as specific gravity separation, electrostatic separation, and X-ray sorting, and is used again for new home appliances.

By utilizing our advanced plastics sorting technology cultivated over many years in the field of home appliance recycling, Mitsubishi Electric is promoting efforts to solve the problem of waste plastics in collaboration with companies in a variety of industries.

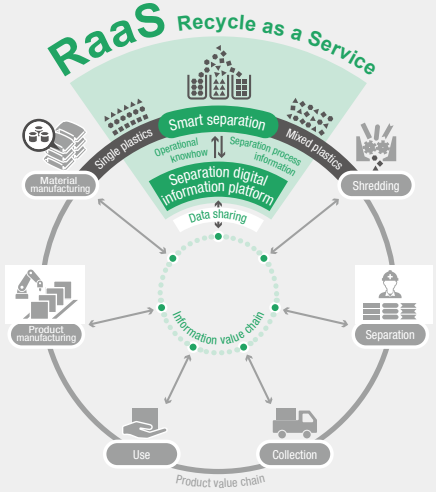
Joining the Clean Ocean Material Alliance (CLOMA) (in Japanese)

Topics

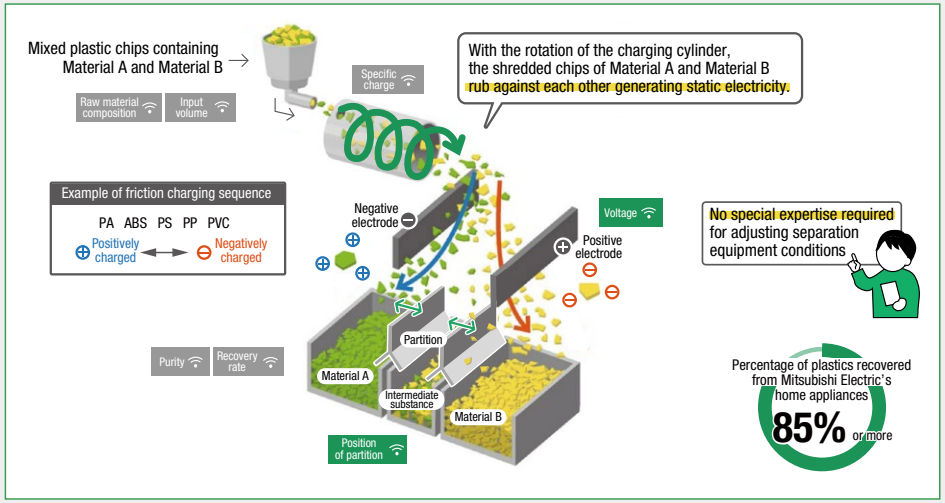
Creating a Service in the Recycling Business

Leveraging technology cultivated in the home appliance recycling business, the Mitsubishi Electric Group plans to offer its Smart Plastic Separation DX Solution RaaS*1 to enable utilization of its advanced plastics separation technology using static electricity (electrostatic separation) in the plastics recycling of customers.

The RaaS solution uses sensors to collect data on factors that affect electrostatic separation (raw material composition of the shredded plastic chips and input volume, etc.) and the results of separation, which is then analyzed using AI to automatically control the position of partitions and the voltage in the receptacles that collect the separated plastic. Such use of digital and smart technologies in electrostatic separation makes it possible to separate a variety of mixed plastics in a stable manner, thereby contributing to the production of high-quality recycled plastic materials. The Mitsubishi Electric Group will expand the circle of resource circulation with the aim of realizing a circular economy by offering the RaaS solution to customers in a variety of industries beyond the home appliance industry.



Position of RaaS in the value chain



Smart Plastic Separation DX Solution RaaS*1

*1 Recycle as a service

Biodiversity Preservation Activities

Biodiversity Action Guidelines

The Mitsubishi Electric Group has established Biodiversity Action Guidelines which define the role its business activities will play in preserving biodiversity. We are committed to taking action to help build a sustainable world.

Biodiversity Action Guidelines

Biodiversity Preservation Measures at Business Sites

The Mitsubishi Electric Group has set forth three courses of action as guidelines for its business sites. They are: (1) reducing negative impact on living creatures; (2) aiming for more fruitful symbiosis with living creatures; and (3) restoring the relationship between employees and nature in the working environment. At each business site, action plans provide for the preservation of local indigenous species, control of alien species, and development of green space in consideration of the surrounding ecosystem, to ensure these initiatives are steadily addressed in all businesses.

Three courses of action

Courses of Action	Examples	
A Reducing negative impact on living creatures	1. Control development pressure*1 and alien species pressure*2, *3	(1) Assessment of impacts on living creatures
		(2) Alien species control
	2. Call attention to and preserve rare species and endemic species	(1) Disclosure of list of living creatures on premises
		(2) Preservation of rare species and endemic species
		(3) Cooperation regarding conservation issues for surrounding areas
	3. Manage pesticide impacts, preserve greenery and natural resources	(1) Control of the killing/harming of living creatures
		(2) Consideration to natural resources, such as water and soil
B Aiming for more fruitful symbiosis with other living creatures	4. Set up functional greenery	(1) System to manage green space
		(2) Management of land used by flying organisms
		(3) Development of priority land for greenery and living creatures
		(4) Provision of continuity of greenery with areas surrounding business sites
		(5) Contribution to biodiversity preservation activities in areas surrounding business sites
	5. Break away from agricultural orientations such as simplifying/ specifying greenery	(1) Diversification/multi-stratification of vegetation
		(2) Management of greenery that accords with the characteristics of plants, etc.
		(3) Contribution/consideration to regions
C Restoring the relationship between employees and nature in the working environment	6. Proactively utilize ecosystem services in the workplace (break rooms, individual floors)	(1) Provision and utilization of opportunities for cultural services
		(2) Provision and utilization of opportunities for supply services
	7. Change situation from everyone being disinterested and unrelated to everyone being involved	(1) Education for understanding and promoting action
		(2) Creation of relationships through the workplace or work duties

*1 The potential impact on biodiversity from the construction of a new business site and development (including that in the supply chain) for natural resource extraction. One such example is when the use of water by operations affects the surrounding area, the source of water, and subsequently the habitats of living creatures.

*2 When greenery around buildings and hedges is created using trees or plants sourced from outside the region, non-native species of insects, vegetation, and other organisms may be introduced. The unintentional transfer of living creatures could pose a threat to the habitats of indigenous species or trigger genetic pollution.

*3 Activities are carried out pursuant to the regulation on raising, planting, storing, carrying, or other handling of specified IAS in the Invasive Alien Species Act.

Quantitative Assessment Based on the Biodiversity Guidelines (Check Sheet)

In March 2020, Mitsubishi Electric formulated the Biodiversity Guidelines (Check Sheet) to quantitatively assess the status of biodiversity initiatives at its business sites. The guidelines promote the quantitative assessment of activity implementation levels based on five mandatory items for all business sites and 186 promotional items categorized into seven areas (medium items) based on the above-mentioned courses of action. This check sheet is used by personnel in charge at each business site to self-assess the status of biodiversity initiatives and identify strengths and issues in order to steadily improve their efforts.

Five mandatory items for all business sites

- A person in charge, the department in charge, and specific operations for promoting biodiversity initiatives have been identified.
- There is a medium-term plan for conducting biodiversity preservation activities.
- Biological surveys are conducted.
- Environmental education on biodiversity is provided every year.
- Feedback is given regarding the medium-term plan.

Seven areas based on courses of action

1. Control development pressure and alien species pressure
2. Call attention to and preserve rare species and endemic species
3. Manage pesticides, preserve greenery and natural resources
4. Set up functional greenery
5. Break away from agricultural orientations such as simplifying/specifying greenery
6. Proactively utilize ecosystem services in the workplace (break rooms, individual floors)
7. Change situation from everyone being disinterested and unrelated to everyone being involved

Assessment Result for Fiscal 2024

We defined the ratio of the score to the base year (fiscal 2020) as the improvement rate* and evaluated the level of implementation of activities in each field in fiscal 2024. As a result, the company-wide average for each field is shown in the radar chart below, and the average improvement rate for all fields increased from 1.35 in fiscal 2023 to 1.42.

Fiscal 2024 improvement rate*
(Average of improvement rates for seven areas)

1.42

0.07 points improvement
from 1.35 in fiscal 2023

Regarding the seven areas for which improvement rates are calculated in the Biodiversity Guidelines, the improvement rate increased in all areas this year, just like last year. In particular, the improvement rate for "7. Change the situation from everyone being disinterested and indifferent to everyone being involved" was 0.11 points, the highest increase rate ever. This rise suggests that the importance of biodiversity preservation activities has become more widely understood among employees. It also proves that this change in awareness can be attributed to each business site's education and information dissemination to raise the profile of biodiversity preservation activities among employees.

Using the Biodiversity Guidelines, we will continue our efforts to vitalize and elevate our biodiversity preservation activities to an even higher level.

* Improvement rate is calculated by dividing the score of the year being evaluated by the score of the base year (fiscal 2020).