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Promotion of Strategic Environmental Management

Policy

The Meiden Group ensures that each employee contributes to the protection of the global environment and the creation of a prosperous society through their day-to-day work according to the President's Environmental Policy, and promotes sustainability management to achieve sustainable growth of society and improved corporate value.

Basic Policy

The Meiden Group aims to engage in sustainability management and achieve corporate growth based on the corporate philosophies of "Illuminating a more affluent tomorrow" and "For customer peace of mind and satisfaction" by tackling the issues of adapting to and mitigating climate change, recycling resources, and preserving biodiversity, in order to realize a sustainable society.

Action Guidelines

1. We promote the development of new products and innovative technologies that contribute to the global environment and strive to develop, design, and manufacture environmentally conscious products by conducting environmental impact evaluation for the entire lifecycle of our products, from initial material procurement to final disposal.

2. We strive:
   To reduce the environmental impacts from our business activities at home and abroad
   To reduce greenhouse gas emissions with the aim of becoming carbon neutral
   To implement renewable energy and promote energy conservation
   To reduce and properly manage hazardous substances
   To promote the resource recycling of waste
   To conserve water resources

3. We strive to comply with the related environmental laws, regulations, rules and other required matters and establish our internal guidelines. We strive to prevent the pollutions from our operations at home and abroad and make efforts to protect the environment.

4. While promoting sustainability management, we strive to maintain and improve it through the PDCA (Plan-Do-Check-Act) Cycle and we aim to improve our environmental performance.

5. We strive to improve all our employees' understanding of sustainability management and invigorate and promote active participation in environmental contribution activities through environmental education.

Revised April 1, 2024

Environmental Vision

The Meiden Group is working to reduce the environmental impact of its business activities in four areas: Power Infrastructures, Public, Industrial & Commercial Sector Business, Mobility & Electrical Components Business, and Field Service Engineering.

Specifically, we provide value in the form of "realizing green, safe, and stable electricity provision" in the field of Power Infrastructures; "contributing to building sustainable infrastructure" in the area of Public, Industrial & Commercial Sector Business; "contributing to the realization of cutting-edge technology and technological innovation for mobility" in the area of Mobility & Electrical Components Business; and "realizing a secure and safe society through maintenance services" in the area of Field Service Engineering Business.

The Environmental Vision identifies realization of "a carbon-free society," "a circulating society," and "a society in harmony with nature" as the missions of a 21st-century company, and lists them as goals. We are working to conduct sustainability management with "human resources and communication"at its core.

Activities to Realize Our Environmental Vision

A. Working Toward the Realization of a Carbon-free Society

<Reducing greenhouse gas emissions>

- Reduce greenhouse gas emissions from business activities

- Contribute to customers' efforts to become carbon-free through our products and services

B. Working Toward the Realization of a Recycling Society

<Promoting the 3Rs>

- Promote re-use of resources and water in business activities
- Contribute to construction of sustainable infrastructure through business

C. Working Toward the Realization of a Society in Harmony with Nature

<Conservation of natural resources>

- Use land in an environmentally considerate manner, minimize impact on ecosystems, and preserve biodiversity
- Prevent contamination by harmful chemicals and ensure water safety

D. HR and Communication

<Professional development and communication>

- Improve environmental literacy to promote research, development, and manufacturing
- Promote two-way communication and collaboration with stakeholders

Strategy

The Meiden Group's Medium to Long-term Environmental Targets

FY2030 Greenhouse Gas Emissions Reduction Targets (Second Meiden Environmental Vision)

The Meiden Group aims for Carbon Neutrality by 2050. As an interim step, we upwardly revised our FY2030 greenhouse gas emission reduction targets. As the Second Meiden Environmental Vision, we aim for a 30% reduction of emissions from business activities (scope 1+2), and a 15% reduction of emissions from product use (scope 3, category 11) by FY2030 compared to FY2019 levels. These targets received SBT certification as they were recognized by the Science Based Targets (SBT) initiative[*1] as being consistent with the Paris Agreement[*2].

FY2030 greenhouse gas emissions reduction targets	First Meiden Environmental Vision (Released in May 2018)	Second Meiden Environmental Vision (From April 2021)
Emissions from business activities (scope 1+2)	30% reduction (compared to FY2017)	30% reduction (compared to FY2019)
Emissions from product use (scope 3, category 11)	NA	15% reduction (compared to FY2019)

*1 SBT Initiative: An international initiative by the United Nations Global Compact (UNGC), the Worldwide Fund for Nature (WWF), the CDP, and the World Resources Institute (WRI).

*2 Paris Agreement: An international framework "to limit average global temperature rise to well below 2°C compared to pre-industrial levels and to strive to limit it to 1.5°C," which was adopted at COP21 in 2015.

SBT certification（PDF:132KB）

Currently, we are considering setting even higher targets.

Major Initiatives to Achieve Greenhouse Gas Emission Reduction Targets

◆Main Measures to Cut Greenhouse Gas Emissions

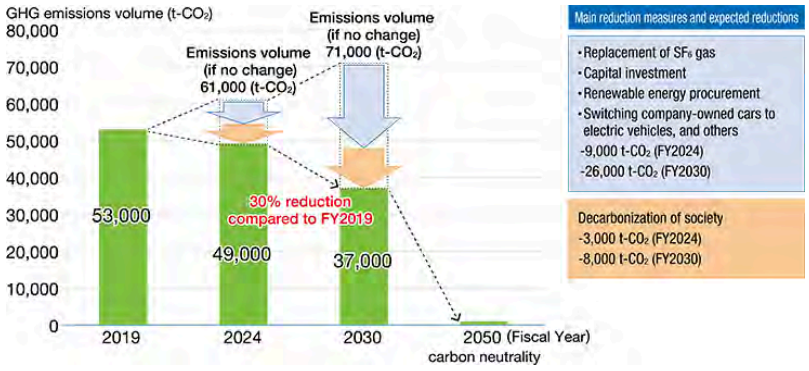
FY2030greenhouse gas emissions reduction targets	Reduction measures (extract)
Emissions from business activities (scope 1+2) 30% reduction (compared to FY2019)	• Replacing SF_6 gas (replacing with dry air, etc.) • Capital investment (replacing aging equipment, introducing high-efficiency equipment, replacing gas with electricity, etc.) • Procurement of renewable energy power (non-fossil fuel certificate, power menus, etc.) • Switching company-owned cars to electric vehicles
Emissions from product use (scope 3, category 11) 15% reduction (compared to FY2019)	• Eco-friendly product design (eliminating use of SF_6 gas, and downsizing products and making them more efficient) • Revising business portfolio (increasing ratio of low carbon emissions per unit of sales such as EV, maintenance services, and small- and medium-sized hydropower generation, etc.)
Overall	• Generating innovation • Introducing internal carbon pricing

In particular, with regard to reducing GHG emissions at the product use stage (Scope 3 Category 11), we will increase the ratio of low-carbon businesses with low emissions per unit of sales, including EV-related products and maintenance services, for which demand is expected to grow. By making our business portfolio low-carbon through these measures, we pursue both increased sales and reduced emissions.

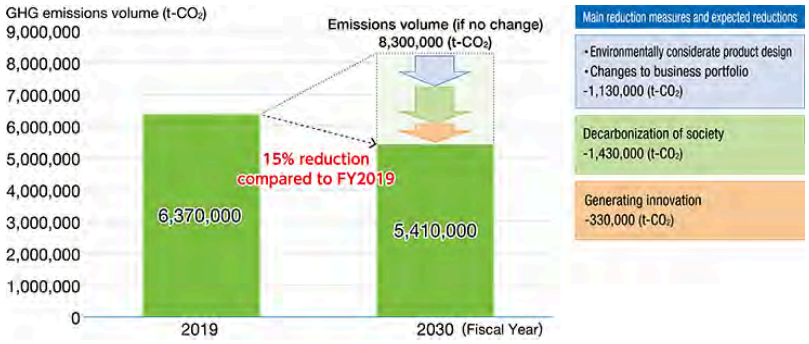
◆Transition plan for becoming carbon neutral

Emissions category	Greenhouse gas reduction measures	FY2021	FY2022	FY2023	FY2024	FY2025 - FY2030
Emissions from business activities (Scope 1 + 2)	Replacing SF_6 gas (replacement with dry air, etc.)	Electrical testing	Evaluate replacement gases for SF_6			Replace SF_6 gas
	Capital investment	Update older equipment	Use LED lighting, update air conditioning & production equipment			
			Implement high-efficiency equipment	Use leading transformers		
						Replace gas with electricity
	Renewable energy procurement (non-fossil fuel certificate, power menu, etc.)	Procure renewable energy at R&D Center/Osaki Kaikan Hall, Ota Works				
			Procure renewable energy at Kofu			
				Procure renewable energy at Numazu, Head Office		
						Nagoya
		Procure renewable energy in Germany, use solar in India, partially use solar in USA, Vietnam, Thailand				
						Overseas
	Switching company-owned cars to electric vehicles	Gradually acquire EVs/hybrids (as fleet is updated)				Entire fleet EVs/hybrid
Emissions from product use (Scope 3, Category 11)	Environmentally friendly product design	Compact, high-efficiency				
		SF_6 gas-free				
		Three elements of green products (reduce GHGs, promote the 3Rs, and eliminate hazardous substances)				
	Revising business portfolio	Increase percentage of EV-related, maintenance services, small to medium hydroelectric systems, etc.				

◆Scope 1 and 2 reduction measures and results



◆Scope 3, category 11 reduction measures and results



Promotion of Ongoing Activities

We have developed an action plan for each Medium-term Management Plan and we are continuously working to conduct reforms in order to realize the environmental vision.

Deployment to the Action Plans

Medium-term Management Pl an, an Action Plan for FY2021-FY2024

Strategic Target	Actions	Corresponding Environmental Vision
1. Contribute to environment through products and services	1) Expand businesses that contribute to the environment	A. A Carbon-free Society
	2) Promote environmentally conscious design	A. A Carbon-free Society B. A Circulating Society C. A Society in Harmony with Nature
	3) Manage chemicals in products	C. A Society in Harmony with Nature
	4) Promote the 3Rs of product components	B. A Circulating Society
2. Reduce the environment impact of business operation	1) Reduce greenhouse gas emissions	A. A Carbon-free Society
	2) Manage chemicals properly	C. A Society in Harmony with Nature
	3) Promote the 3Rs (reduce, reuse, recycle)	B. A Circulating Society
	4) Maintain water resources	B. A Circulating Society C. A Society in Harmony with Nature
	5) Conserving biodiversity	C. A Society in Harmony with Nature
3. Promote environmental communication	1) Disclose information, conduct PR	A. A Carbon-free Society B. A Circulating Society C. A Society in Harmony with Nature D. Human Resources and Communication
	2) Contribute to sustainable society	A. A Carbon-free Society B. A Circulating Society C. A Society in Harmony with Nature D. Human Resources and Communication
4. Promote environmental management	1) Strengthen management of Meiden Group companies	D. Human Resources and Communication
	2) Strengthen value chain management	D. Human Resources and Communication
5. Reform environmental awareness	1) Develop environmental management personnel	D. Human Resources and Communication
	2) Strengthen environmental training and awareness-raising activities	D. Human Resources and Communication

Results Data

FY2023 Environmental Targets and Results

Targets and level of achievement for FY2023, which is the second year of Medium-term Management Plan 2024, are as follows.

Please refer to the corresponding page for details of each item.

Achievement of FY2023 Environmental Targets

Rating: ☆☆☆ = target achieved, ☆☆ = improvement over previous year, ☆ = work in progress

Strategic Targets	Actions	FY2023 Environmental Targets (Japan)	FY2023 Results	Rating
Contribute to environment through products and services	Promote environmentally conscious design	GHG reduction contribution by ECBs: 9,000,000 tons	9,370,000 tons	☆☆☆
		Promote scope 3, category 11 reductions (transition to low-carbon business)	Revised product environmental assessments, extended LCAs of existing products	☆☆☆
Reduce the environmental impact of business operations	Reduce greenhouse gas emissions	Japan: Total emissions (Scope 1+2): -8% (compared to FY2019)	17%(compared to FY2019)	☆☆☆
		Overseas*1: Total emissions (scope 1+2): -3% (compared to FY2019)	+8% (compared to FY2019)	☆
	Manage chemicals properly	VOC emissions: 75 tons or less	66 tons	☆☆☆
	Promote the 3Rs	Total waste: -6% (compared to FY2017) All sites in Japan (excludes Construction Service Business Units)	+10% (compared to FY2017)	☆
		Zero waste emissions*2 at 10 sites*3: Maintain recycling rate at about 90% : 1% or less final waste emissions	Recycling rate: 91.5% Final disposal rate: 1.9%	☆☆
	Conserve water resources	Promotion of efficient water use: : 4 main manufacturing sites*4	Considered redevelopment of wastewater facilities	☆
	Conserve biodiversity	Conservation of ecosystems in green spaces: 4 main manufacturing sites*4	Removed introduced species, conducted red pine conservation activities, tree-planting activities, and river and beach cleanup	☆☆☆
Promote environmental management	Strengthen value chain management	Green procurement rate (own standards): 90% or greater	91%	☆☆☆

*1 Main overseas production sites

*2 The Meiden Group's definition of zero waste emissions: Recycle at least 99% of total output (excluding construction sludge) of waste, etc. (industrial waste, ordinary waste, and valuables).

*3 Scope of zero waste emissions initiatives: manufacturing sites in Japan [Numazu Works, Ota Works, Nagoya Works, KOFU MEIDENSHA ELECTRIC MFG. CO., LTD., MEIDEN CHEMICAL CO., LTD. (Sagami Works), MEIDEN HOKUTO CORPORATION (Atsugi Works)], EAML Engineering CO., LTD., Engineering Service Business Units and two Construction Service Business Units

*4 Four main sites: Numazu Works, Ota Works Development and Laboratory, Nagoya Works, and KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.

Targets

FY2024 Environmental Targets

At the Meiden Group, we formulated Medium-term Management Plan 2024 to cover the four years from fiscal 2021 and we are working to implement sustainability management.

In particular, we have developed greenhouse gas emissions reduction targets for the next four years by back-casting based on the fiscal 2030 greenhouse gas emissions reduction targets in the Second Meiden Environmental Vision.

The environmental targets for FY2024 are as follows. For the target of zero waste emissions, we are changing the standard to a final disposal rate of 1.0% or less.

FY2024 Environmental Targets

Strategic Targets	Actions	FY2024 Environmental Targets (Japan)
Contribute to environment through products and services	Promote environmentally conscious design	10.0 million-ton reduction in GHG emissions by Environment-Contributing Businesses*1
		Total scope 3, category 11: -6% (compared to FY2019)
Reduce the environmental impact of business operations	Reduce greenhouse gas emissions	Japan: Total emissions (scope 1+2): -10% (compared to FY2019)
		Overseas: Total emissions (scope 1+2): -4% (compared to FY2019)
	Manage chemicals properly	VOC emissions: 70 tons or less
	Promote the 3Rs	Total waste: -1% (compared to previous fiscal year): All sites in Japan (excluding Construction Business Unit)
		Recycling rate: Maintain at about 90% Final disposal rate 1.0% or less: Main sites in Japan *2 Main manufacturing sites (Japan) *2
	Conserve water resources	Reduce water withdrawals 1% (compared to previous FY)
	Conserve biodiversity	Conservation of ecosystems in green spaces (reduced agricultural chemicals, elimination of introduced species, certification of sites as coexisting with nature, etc.): 4 main manufacturing sites*3
Promote environmental management	Strengthen value chain management	Green procurement rate (own standards): 90% or greater

*1 Direct or indirect GHG reductions (estimated) from replacing standard products and services with the Meiden Group's products and services (revised calculation method from FY2022)

*2 Main manufacturing sites (Japan): Numazu Works, Ota Works, Nagoya Works, Plant Construction & Engineering Business Group, KOFU MEIDENSHA ELECTRIC MFG. CO., LTD., MEIDEN CHEMICAL CO., LTD., MEIDEN HOKUTO CORPORATION, MEIDEN ENGINEERING CORPORATION, MEIDEN PLANT SYSTEMS CORPORATION, EAML Engineering CO., LTD.

*3 Four main manufacturing sites: Numazu Works, Ota Works, Nagoya Works, and KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.

Environmental Management

Policy

The Meiden Group is promoting environmental management that brings together business strategy and environmental activities.

We continually improve our environmental management system as we evaluate its adaptability and effectiveness.

Organization

Environmental Management Promotion Organization

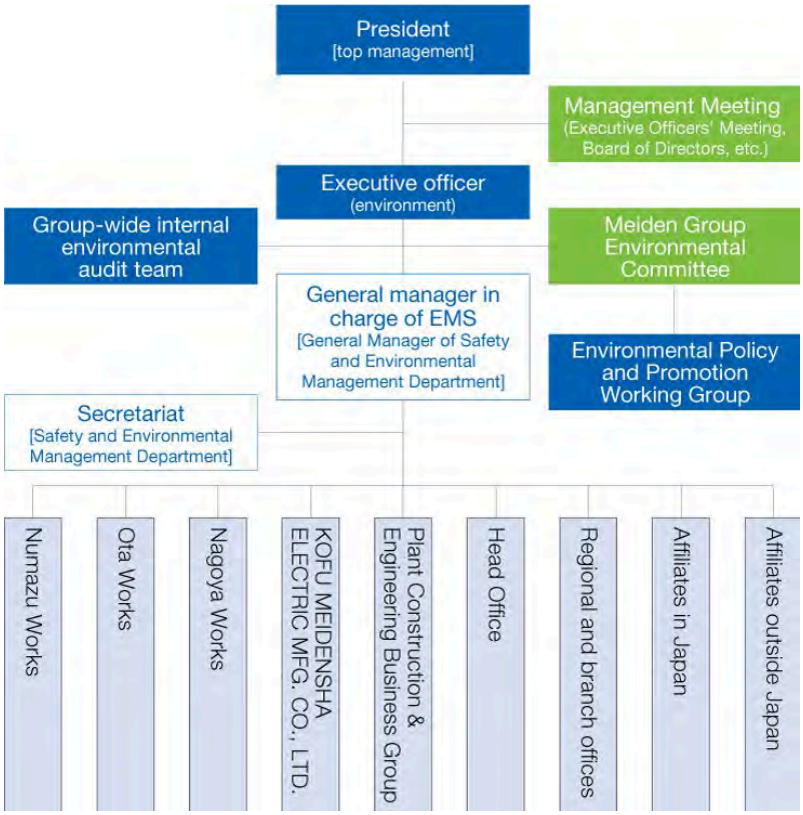
Under the leadership of the President, who is our chief executive officer, the executive officer (environment) oversees the environment management of the Meiden Group overall, while the general manager (GM) in charge of EMS works to maintain and improve the environmental management system (EMS).

In addition, our Group-Wide internal environmental audit team, an independent organization, audits environmental management initiatives, legal compliance, EMS effectiveness, and more, and offers ideas for improvement.

The executive officer (environment) chairs the Meiden Group Environmental Committee (MGEC), our highest decision-making body for environmental initiatives. The MGEC identifies issues to address, including risks relating to climate change and the like, sets environmental targets and formulates action plans, conducts management reviews, responds to emergency situations, reviews and reports on environmental measures and working groups (WGs), and sets environmental management policy directions.

For the most important issues, the executive officer (environment) and GM in charge of EMS consult with the Executive Officers' Meeting, Board of Directors, and the like as needed and then act as decided by top management.

Meiden Group Environmental Management Promotion Organization



Council	Objective/overview
Management Meeting	Taking account of internal and external issues, it sets the business direction and strategy of the Meiden Group as a medium-term management plan and annual profit plan.
Meiden Group Environmental Committee	Its objective is to set a unified environmental management policy for the Meiden Group overall and smoothly operate an environmental management system, following the Meiden Group Environmental Health and Safety Management System Manual.
Environmental Policy and Promotion Working Group	It establishes working groups to conduct a detailed review of individual environmental issues.

Responding to Environmental Risks and Opportunities

Phenomena (issues) related to environment		Risks	Opportunities	Carrying out initiatives
Government (political) Laws and Regulations	• Carbon neutrality and mitigation and adaptability to climate change • GX growth strategy • Maintaining energy supply • Support for prior investment by Japanese government, and carbon pricing • Strengthening partnerships with municipal governments, etc.	• Bearing the cost of emissions trading • Sudden jumps in fuel and material prices • Energy supply and demand failure • Emergence of competitors • Effects of cooperation throughout the value chain	• Increased demand for eco-friendly products • Increased competitiveness in GX-related products and businesses • New energy, renewable energy, and VPP market expansion • Proposals for urban development and business expansion	• Increasing contribution of products and services to the environment • Reducing the environmental impact of business activities • Promoting environmental management
Economy	• Automobile electrification and digitalization • Fluctuating energy prices	• Sudden jumps in fuel and material prices • Decrease in profit due to inflation	• Expanded EV motor/inverter market • Trust and recognition from stakeholders	• Expanding products' contribution to the environment • Countermeasures to procurement risks

Phenomena (issues) related to environment		Risks	Opportunities	Carrying out initiatives
	• Weakening of Japanese yen • Compliance with CDP, SBT, EU taxonomy, etc. • Medium- to long-term economic growth of developing countries	• Withdrawal of investment if perceived as reluctant to decarbonize • Reduced investment in environmental management • Compliance at overseas locations • Zero value chain CO_2 emissions in the future	• Investment in growth (overseas markets) • Increased international competitiveness • Increased corporate value through information disclosure • Capital investment to conserve energy • Accelerating improvement of operational efficiency	• Coordination of environmental initiatives at overseas production sites • Promoting environmental communication • Promoting environmental management • Reducing the environmental impact of business activities
Society	• Adoption of Sustainable Development Goals (SDGs) • Responding to resource circulation • Environmental initiatives directed at value chain • Disclosure of information on water risk countermeasures • Lifestyle changes (ecology-oriented)	• Decline of corporate value • Decline of employee awareness • Increasing reputation risk, risk of lawsuits • Value chain risk (legal violations, use of prohibited chemicals, etc.) • Increased costs due to utilization of recycled materials • Increased flooding, water shortages, water pollution	• Increased corporate sustainability • Increased employee awareness, employees facing the same direction • Trust and recognition from stakeholders • Reduced costs due to decreased reliance on scarce resources, and reduced emissions	• Building an appealing company image • Transforming environmental awareness • Promoting environmentally considerate design • Promoting environmental communication • Strengthening value chain management • Conservation of water resources • Diversification of recruitment methods • Responding to compact cities
Technology	• Making eco-friendly products more compact and efficient • Advancement of ICT and IoT technologies, acceleration of DX • High-efficiency power transformer technology	• Increased new players (IT companies)	• Increased demand for eco-friendly products • Utilizing ICT and IoT and strengthening system technologies and product capabilities • Enhanced rollout of one-stop services	• Expanding products' contribution to the environment
Legal Restrictions	• Failure to comply with overseas laws • Tightened overseas environmental regulations • Chemical regulations based on autonomous management • Promoting 3Rs with products • Fourth basic recycling plan	• Penalties and loss of reputation due to non-compliance with overseas laws • Work environment deterioration and occupational illnesses due to incomplete risk management • Increased cost of virgin materials	• Utilization of recycled materials • Thorough chemical risk assessment • Utilization of recycled materials	• Promoting environmental management • Coordination of environmental initiatives with overseas locations • Stronger management of chemicals in products • Proper management of chemicals • Communicating information on hazards and toxicity, conducting risk assessments, managing concentration standards, using protective eyewear, protective gloves, etc. • Promoting environmentally considerate design
Natural Environment	• Large-scale disasters • Ecosystem abnormalities	• Business continuity • Increasing reputation risk, risk of lawsuits	• Expanding sales of products as countermeasures for locally heavy rainfall	• Promoting environmental communication • Promoting environmentally considerate design

Phenomena (issues) related to environment	Risks	Opportunities	Carrying out initiatives
• Temperature and precipitation volume changes, abnormal weather • Depletion of resources • Microplastics issues • Occurrence of disasters • Promoting 3Rs with products	• Utilization of biodegradable plastics • Disrupted value chain due to flood, etc.	• Conducting community contribution initiatives, enhancing corporate value • Increasing demand in water business due to water risks • Utilization of recycled materials and promotion of the 3Rs for products	• Contributing to environment through products and services

ISO 14001 Certification Status (as of March 31, 2024)

We are expanding the scope of bodies certified under ISO 14001, the international standard for environmental management systems. All 22 manufacturing sites in Japan and overseas have finished earning certification.

Certification Status in Japan (numbers in parentheses indicate the number of manufacturing sites)

	Company Name	Date of Certification Acquisition
1	MEIDENSHA CORPORATION* (3)	February 24, 1998
2	MEIDEN SHOJI CO., LTD.	
3	KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.* (1)	
4	MEIDEN SYSTEM MANUFACTURING CORPORATION* (1)	
5	MEIDEN KIDEN KOGYO CO., LTD.* (1)	
6	MEIDEN KOHSAN CO., LTD.	
7	MEIDEN SYSTEM SOLUTIONS CORPORATION	
8	MEIDEN PLANT SYSTEMS CORPORATION* (1)	
9	M WINDS CO., LTD.	
10	MEIDEN UNIVERSAL SERVICE LTD.	
11	MEIDEN AQUA BUSINESS COMPANY	
12	MEIDEN TECHNO SYSTEMS CO., LTD.* (1)	
13	MEIDEN MASTER PARTNERS CORPORATION	
14	MEIDEN ENGINEERING CORPORATION	July 31, 2003
15	MEIDEN CHEMICAL CO., LTD.* (2)	November 20, 2012
16	MEIDEN FACILITY SERVICE CORPORATION	November 18, 2015
17	MEIDEN HOKUTO CORPORATION* (1)	October 3, 2013
18	EAML Engineering CO., LTD.* (1)	March 5, 2004
19	MEIDEN NANOPROCESS INNOVATIONS, INC.* (1)	January 12, 2022

* Companies with manufacturing plants

Certification Status Overseas (nine manufacturing sites only)

	Company Name	Area	Date of Certification Acquisition
1	MEIDEN ZHENGZHOU ELECTRIC CO., LTD.*	Zhengzhou, China	October 9, 2013
2	MEIDEN HANGZHOU DRIVE SYSTEMS CO., LTD.*	Hangzhou, China	April 7, 2008
3	MEIDEN (HANGZHOU) DRIVE TECHNOLOGY CO., LTD.*	Hangzhou, China	November 14, 2023
4	MEIDEN T&D(INDIA) LIMITED*	India	January 26, 2015
5	MEIDEN METAL ENGINEERING SDN. BHD.*	Malaysia	October 9, 2014
6	MEIDEN SINGAPORE PTE. LTD.*	Singapore	February 8, 2010
7	VIETSTAR MEIDEN CORPORATION*	Vietnam	February 4, 2023
8	TRIDELTA MEIDENSHA GmbH*	Germany	July 13, 2015
9	MEIDEN AMERICA SWICHGEAR, INC.*	USA	September 29, 2021

* Company with manufacturing plants

Subject locations within Group and percentage of those certified

Number of certified companies in Japan

Number of certified companies overseas

Initiatives

Internal Environmental Audits

We conduct internal environmental audits separate from the external audits we get from ISO 14001 registrars. Internal audits confirm the state of improvement on concerns pointed out in external audits and check up on audit items that are marked as priorities for that fiscal year.

In FY2023, our audits prioritized “environmental factors and evaluating environmental impact,” “matters related to the establishment, analysis, and evaluation of environmental targets,” “checks of compliance obligation initiatives,” “improving human resources,” and “legal requirements (laws on waste disposal and public cleansing and laws on curbing fluorocarbon emissions).” We determined that the Group was conforming to ISO 14001:2015 requirements overall and functioning effectively.

Additionally, we are planning a survey to examine environmental improvement measures at our overseas manufacturing sites.

If any concerns are pointed out during internal environmental audits, we take them as an opportunity for improvement and incorporate them into further improvement initiatives.

Environmental Information Management System

The Meiden Group uses an “environmental information management system” that we put in place to manage and analyze environmental impact in our business activities.

The system collects and centrally manages information on environmental impact of business activities (such as automotive fuel, energy, waste, chemical substances, and water use) at Meiden Group manufacturing sites and offices, even those outside Japan.

The information so collected is used as basic data for efforts to lower environmental impact. It is also useful to ensure proper filings of information as required by the Act on Rationalizing Energy Use and Shifting to Non-fossil Energy, Act on Promotion of Global Warming Countermeasures, the electrical and electronic equipment industry’s “Carbon Neutrality Action Plan,” and Japanese PRTR system for reporting chemical releases and transfers.

Analysis of environmental impact with environmental information management system

Compliance with Environmental Regulations

Each Meiden Group work site and affiliated company sets and follows voluntary standards stricter than applicable laws and regulations. This ensures we remain in legal compliance. If a legal violation or incident does occur, our rules state that management shall be notified.

In FY2023, there were two incidents involving standards being exceeded, one incident involving oil leaking to a river, and one incident where there was a failure to submit documents. There were no serious violations of environmental laws or regulations (including water intake, wastewater, other waste, and harmful chemicals). We did not receive any complaints regarding noise or odor.

Results Data

Incidents relating to voluntary standards cases

	Date	Location	Content	Response measures, etc.
1	June 2023	Head Office area	At the Meiden R&D Center, wastewater analysis results in June showed that lead concentrations exceeded our voluntary standard and zinc concentrations exceeded the national standard.	We removed sludge and did cleaning, disposed of the removed sludge, confirmed that wastewater was within our voluntary standard, and reported the results to the relevant agencies. We continue to conduct periodic inspections and will remove and clean sludge if the voluntary standard is exceeded.
2	July 2023	Numazu Works	The works had installed a scrubber to remove dust and contaminants from the manufacturing process exhaust gas, but an analysis of the circulating water effluent inside the scrubber showed that the concentration of fluorine ions exceeded our voluntary control standard. The agreed value was also exceeded for the works' combined outflows.	After an abnormality in wastewater concentration is confirmed, we manually stop the discharge to prevent external outflow. All process water (including circulating water in the scrubber) is processed as waste. Since then, we have confirmed that the wastewater discharged from the factory outlet and the combined outflow from the plant are within the voluntary control standard and agreed value and have reported the results to the relevant agencies.
3	February 2024	Nagoya Works	The works handled more than one ton/year of PRTR substances starting in 2021, but had not reported this for either 2021 or 2022.	We reported our failure to file PRTR reports to the relevant agencies. It was confirmed that it would be acceptable to report on our past years' report response during the next reporting period (April-June 2024), when we would report FY2023 results. Following this guidance, we reported the data that was previously unreported (for FY2021-2022) at the time of our next report. We also checked the amount of other PRTR substances and confirmed that the amount did not exceed one ton/year, including in past years.
4	March 2024	KOFU MEIDENSHA	An adjacent company reported that there was an oil-like substance floating near the confluence of wastewater streams. They asked us to check if it was a spill from a waste storage area.	Based on the location of the oil found, KOFU MEIDENSHA decided to take action, since it appeared likely that the oil leaked from cars going in and out of the company's site. ① Oil-absorbing sheets were used to remove oil from the wastewater drain ② An outside contractor analyzed the water quality and confirmed that it was not hazardous (results were within prefectural standards) ③ We notified the relevant agencies of the spill We also reported this information to the adjacent company that brought the spill to our attention.

Breaches of Environmental Laws (Record)

FY2021	FY2022	FY2023
0	0	1

Environmental Fines (Record)

FY2021	FY2022	FY2023
0	0	0

Environmental Accounting (FY2023)

We quantify costs, etc., relating to environmental activities, with reference to the Ministry of the Environment's "Environmental Accounting Guidelines 2005."

Environmental Protection Costs

		Investment (million yen)
Business area costs	Implementation of new energy-saving devices, etc.	1,072
R&D costs	R&D costs for environmentally conscious products, etc.	9,667

* Scope of calculation: Meidensha (non-consolidated); period covered: April 2023–March 2024

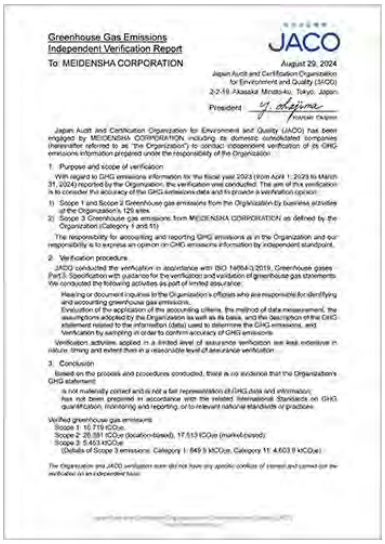
Environmental Liabilities

		Liabilities (millions of yen)
PCB waste processing costs	Costs associated with processing PCB waste held by Meidensha	250

* Scope: Meidensha (non-consolidated); period: April 2023–March 2024
* We have established a reserve fund for anticipated future environmental liabilities in an amount that can be reasonably estimated as of March 31, 2024.

Third-Party Verification

In order to ensure the release of more accurate and reliable environmental performance data for FY2023, we have been examined by the Japan Audit and Certification Organization for Environment and Quality.



Greenhouse Gas Emissions
Independent Verification Report

JACO

To: MEIDENSHA CORPORATION

August 29, 2024

Japan Audit and Certification Organization for Environment and Quality (JACO)
2-2-16 Akasaka Minato-ku, Tokyo, Japan

President

Environmental Performance Data
Independent Verification Report

JACO

To: MEIDENSHA CORPORATION

August 29, 2024

Japan Audit and Certification Organization for Environment and Quality (JACO)
2-2-16 Akasaka Minato-ku, Tokyo, Japan

President

Click pics to enlarge.

Target Items

Amount of greenhouse gas emissions			Scope of calculation
Scope 1		16,719 t-CO_2e	Scope 1 and 2 greenhouse gas emissions from the business activities of Meidensha and domestic Group companies during the period from April 1, 2023 to March 31, 2024.
Scope 2		26,381 t-CO_2e (location basis)	
		17,513 t-CO_2e (market basis)	
Scope 3	(Category 1)	849.5 kt-CO_2e	Category 1 emissions (scope of calculation is based on Meidensha's determination) from the business activities of Meidensha during the period from April 1, 2023 to March 31, 2024.
	(Category 11)	4,603.8 kt-CO_2e	Category 11 emissions (scope of calculation is based on Meidensha's determination) from the products and services of Meidensha during the period from April 1, 2023 to March 31, 2024.
Water	Usage volume (Amount of water purchased and water intake)	1.6928 million m^3	Water usage volume (amount purchased and amount collected) from the business activities of Meidensha and domestic Group companies during the period from April 1, 2023 to March 31, 2024.
	Discharged water volume	1.5587 million m^3	Discharged water volume from the business activities of Meidensha and domestic Group companies during the period from April 1, 2023 to March 31, 2024.

Assessment Standards

JACO certification standards based on ISO 14064-3 and ISAE 3000

ISAE3000: International Standard on Assurance Engagements (ISAE) 3000

ISO14064-3: Specification with guidance for the validation and verification of greenhouse gas assertions

Product and Service Initiatives (Expand businesses that contribute to the environment)

Policy

We are actively promoting initiatives that contribute to the environment in order to “realize a more affluent future” by leveraging our technology and experience honed over many years.

Performance Data

Contributions to the Mitigation of Climate Change by Reducing Product and Service GHG Emissions

The Meiden Group aims to contribute the environment through its products and services by utilizing renewable energy sources such as solar, wind and hydroelectric power, by improving the efficiency of its products to save energy, and by optimizing customers’ equipment through maintenance and servicing.

We set a GHG reduction contribution target of 9 million tons/year in FY2023. We achieved the target, having reduced emissions by 9,370,000 tons/year thanks to robust orders and a stronger production management system. Applicable products and services include the wind power sales business, photovoltaic power generating systems, hydroelectric power generation equipment, and electrical vehicle drive systems.

Choshi Shiosai　Wind Farm

Photovoltaic PCS

Integrated motor/inverter/gear box drive unit

GHG Reduction Contribution Volume (Former Environmental Contribution Volume)

Subject products / businesses	GHG reduction contribution in FY2023 (10,000 t-CO_2)	Approach to calculating GHG reduction contribution
Wind power sales business*	3.5	Emissions curbed if grid power replaced by renewable energy generation
Photovoltaic generation systems	13.5	
Hydro turbine generators (Meidensha)	570.3	
Hydro turbine generators (EAML Engineering)	3.8	
Electric vehicle drive unit	141.0	Emissions curbed if replacing gasoline vehicle of same grade

Subject products / businesses	GHG reduction contribution in FY2023 (10,000 t-CO_2)	Approach to calculating GHG reduction contribution
Control equipment and motors for electric forklifts	201.8	
Cubicle-type dry air insulated switchgear (Eco C-GIS)	0.1	Emissions curbed by not using SF_6 gas
Ecotank type vacuum circuit breakers	3.0	
Total	937.0	

* Calculated by multiplying the difference in volume of GHG emissions at the point of use, by the expected life and annual sales volume. However, wind power generation is calculated based on annual power generation performance.

Initiatives

Wind Power Sales Business

M WINDS Co., Ltd. and its affiliates operate a wind power sales business and supply renewable energy from three locations* in Japan (30 wind turbines with a generating capacity of 51,000 kW).
They conduct environmental assessments when constructing and installing wind power generators, investigating, predicting, and evaluating impacts from various perspectives, such as that on ecosystems, and implement environmental protection measures as appropriate while considering the opinions of local governments and residents.

* Hachiryu Wind Farm (Akita Prefecture): 18 wind turbines with a generating capacity of 28,000 kW
Wajima Community Wind Farm (Ishikawa Prefecture): 10 wind turbines with a generating capacity of 20,000 kW
Choshi Shiosai Wind Farm (Chiba Prefecture): 2 wind turbines with a generating capacity of 3,000kW


Hachiryu Wind Farm

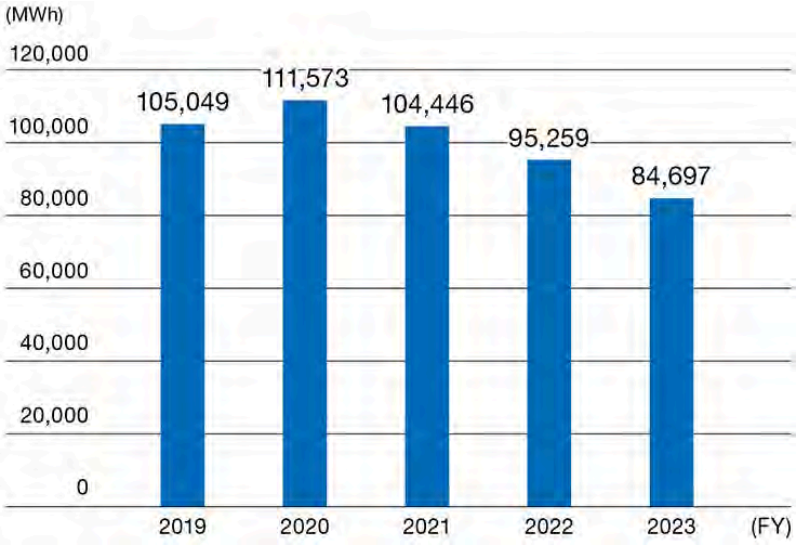

Wajima Community Wind Farm


Choshi Shiosai Wind Farm

Aiming for increased utilization of wind power

In FY2023, the amount of electricity generated was 84,697 MWh, partly due to wind conditions and the Noto earthquake. We aim to further improve the operating rate in order to increase the GHG reduction contribution in future.

Transition of Total Power Generation Performance



Power Conditioner System for Photovoltaic Generation

Power conditioners system (PCS) is the most essential part of photovoltaic generation systems. We have consistently supplied transformer-in PCS with a built-in commercial frequency isolation transformer that emphasizes safety and security so far. PCS with 500kW output has the highest conversion efficiency of 98.7% in the world. Container type and outdoor storage cubicle type packaged with a set of equipment are also available.

Hydroelectric Power Generation Equipment

Hydroelectric power is a form of renewable energy that enables steady generation of electricity throughout the year. Meidensha has delivered many small, medium, and large generators to customers in Japan and overseas.

Many of the hydroelectric power generation facilities are aging due to many years of operation. It is effective to renovate in the most suitable way for each power facility. Renovation is expected to improve efficiency/save energy, improve reliability/maintainability, and be environmentally friendly. We investigate the current status of the power facility and propose the most appropriate renovations using the latest technology for each facility.

Hydroelectric power generation equipment

Electric Vehicle Drive Unit

Meidensha supplies motors and inverters installed in electric vehicles, which are becoming more common throughout the world. We promote the development of technology and products for EV and HEV drive systems. We have developed a high-voltage electric vehicle drive unit to accommodate the expanding adoption of rapid charging. Furthermore, we are aiming to miniaturize and increase the efficiency of electric vehicle drive units smaller and more efficient by applying SiC (silicon carbide), a next-generation device.

Ecotank Type Vacuum Circuit Breakers (VCB)

In 2004, Meidensha succeeded in developing a 72-kV-class tank- type vacuum circuit breaker that uses no sulfur hexafluoride (SF_6) gas, which has more than 20,000 times the greenhouse properties of CO_2, and has a record of delivering more than 2,000 units to domestic and overseas electricity companies, etc. In 2020, we developed a 145-kV-class model to meet high-voltage requirements. This is the world's first dry air insulation tank type vacuum circuit breaker of this voltage class. In October 2021, the first unit was shipped to a power company in the US state of Alaska.

In 2022, we received the 2022 Environment Minister's Commendation for Global Warming Prevention Activity.

* SF_6 gas: A chemically stable, non-toxic, odorless, colorless, non-flammable gas with three times the ability to withstand voltage of air at the same pressure. However, it has 23,500times the effect on global warming of CO_2 and was listed as a controlled gas in the Kyoto Protocol to prevent global warming.

145kV tank type VCB

Field Engineering Business (Maintenance and Servicing)

Field engineering is a business that contributes to the solution of customer issues by providing support through the entire life-cycle of a product, from delivery through trial runs upon installation, subsequent proposal and implementation of operation and maintenance plans, maintenance and management of installation locations, remaining life assessment of aging equipment, measures to prolong life, replacement proposals, and disposal.

In addition to regular inspection of equipment, we make proposals to achieve stable operation and life-cycle cost reduction through compliance that may be overlooked such as handling of small quantities of PCBs by the deadline, mercury arc lamps, conserving energy, and conducting environmental analysis and deterioration analysis through thermal imaging, etc., through walk-through activities where we walk through sites with our customers and investigate and assess their equipment.

Thermal imaging analysis at walk through

Replacement of equipment

Promoting Environmentally Conscious Design

Policy

Promote environmentally conscious design

The Meiden Group is promoting development of environmentally conscious products that reduce our impact on the environment.

Product environmental assessment

Any time we develop a new product, we evaluate it for energy and resource conservation, recyclability, environmental safety, and more, based on our Product Environmental Assessment Standard. If a product meets those standards, we certify it as a Meidensha Green Product.

To create products that are even more environmentally conscious and contribute to the decarbonization of society, we have also introduced and begun operating a system of “super green products,” which are even better than green products.

For the evaluation item “consideration of lifecycle,” we calculate CO_2 emissions according to a life cycle assessment (LCA), and we encourage environmentally conscious design in order to reduce CO_2 emissions.

Initiatives

Life cycle assessment (LCA) initiatives

The Meiden Group conducts an assessment of the environmental impact of a product throughout its life cycle, from procurement of components through to disposal, in accordance with our Guidelines for Environmental Action. We use the LCA method to quantify the environmental impact of products and services, which helps us to improve environmental performance at the design and development stage and to conduct product explanations to customers and PR, etc.

Environment label (type Ⅱ) indicating conformity with Meidensha Green Product standards

Product environmental assessment standards

Classification	Items
Product volume reduction	• Weight reduction • External dimensions and capacity • Reduction of number of components
Energy and resource conservation	• Reduction of power consumption • Water saving • Reduction of consumables • Reduction of packaging volume (reduction of plastic packaging)
3R	• Use of recycled materials • Separability of materials • Ease of collection and transport
Long-term usability	• Maintainability • Reliability and durability
Prohibited substances	• Environmental friendliness
Life cycle consideration	• Reduction of life cycle environmental impact • Disclosure of information concerning evaluation of environmental impact
Environmental safety	• Danger of fire or explosion • Danger at time of dismantlement • Environmental measures
Other	• Entered contests for national-level awards • Top runner products (compared to other companies)

Green Products Previously Registered

[FY2022] Names of Registered Green Products

[Product] Smart Maintenance System for Railway Operators (a product using an IoT controller)	
Product overview	In response to the shortage of new engineers due to the declining birthrate and aging population, railway operators are increasingly practicing CBM (Condition Based Maintenance) and labor-saving patrols and inspections. The purpose is to perform facility maintenance as efficiently as possible. To meet this need, we have developed a maintenance system that collects and stores information from sensors and meters attached to power receiving and transforming facilities and transmits it to higher-level equipment. This solution uses our IoT controller, which consumes less power than conventional products.
Photo	
How it is eco-friendly	The following are features of this product, with comparisons to an earlier Meiden product. ・ 13% less energy consumption ・ Lifecycle CO_2 emissions reduced 46% thanks to maintenance efficiencies, such as labor-saving patrols and inspections
LCA estimate results	**Lifecycle CO_2 emissions** 

For related products and details, click here.

[FY2020] Names of Registered Green Products

[Product] Drive Robot	
Product overview	An autonomous driving system for finished vehicles on a chassis dynamometer. An electric actuator operates the accelerator, clutch, transmission, brakes, and ignition key in the same way a human driver would. The main body of the drive robot has a single-body construction that is now made of carbon fiber reinforced plastic (CFRP) instead of the conventional metal.
写真	

[Product] Drive Robot	
How it is eco-friendly	The following are features of this product, with comparisons to an earlier Meiden product (a conventional seat-mounted drive robot). • CFRP single-body construction is 55% lighter and 58% more compact • Improved robot drive system reduces energy consumption by 22%
LCA estimate results	**Life cycle CO_2 emissions** 
Awards won	Winner of FY2021 Good Design Award(Only Japanese) › Winner of 2022 Red Dot Design Award › reddot winner 2024 Winner of iF DESIGN AWARD 2024 › DESIGN AWARD 2024

For related products and details, click here. ›

[FY2019] Names of Registered Green Products

[Product] High-Capacity, High-Speed PM Motor/Drive System	
Product overview	A high-capacity, high-speed PM motor (permanent magnet synchronous motor) operating at speeds of 10,000 RPM or more and inverter capable of high-frequency output. It achieves high-speed drive thanks to high-capacity, high-speed rotation technology and optimal inverter design.

[Product] High-Capacity, High-Speed PM Motor/Drive System	
Photo	 High-capacity, high-speed PM motor  High-voltage high-frequency inverter THYFREC VT731PM
How it is eco-friendly	The following are features of this product, with comparisons to an earlier Meiden product (gear-increasing induction motor drive). • With its high speed, motor volume is reduced to just one-fifth that of the conventional motor for smaller size and space savings • PM motor and high-speed drive reduce energy consumption by 20% as a system
LCA estimate results	**Life cycle CO_2 emissions** 

For related products and details, click here. ›

[Product] Simple IP-TC EC4-TC	
Product overview	Remote monitoring and control equipment using built-in PC for hydroelectric power plants. Runs on Linux 64-bit OS and connects to PLCs* from four manufacturers. Static electric discharge noise conforms to B-402 electric power standard. * PLC: Programmable Logic Controller
Photo	
How it is eco-friendly	The following are features of this product, with comparisons to an earlier Meiden product (EC101D). • Optimal design reduces energy consumption by 33% • Changes to unit structure facilitate maintenance
LCA estimate results	**Life cycle CO_2 emissions** 

Product Initiatives (Management of chemical substances in products)

Initiatives

Management of chemical substances in products

We operate an “Environmental BOM[*1] Management System” that collects and communicates information concerning chemical substances contained in products.

We work to share information with suppliers of components, materials, etc., through explanatory sessions, individual consultations, etc., using chemSHERPA[*3] operated by JAMP[*2]. We register the chemSHERPA, etc. provided by our suppliers with the Environmental BOM Management System to determine the aggregation of chemical substances contained in each product and compliance with regulations.

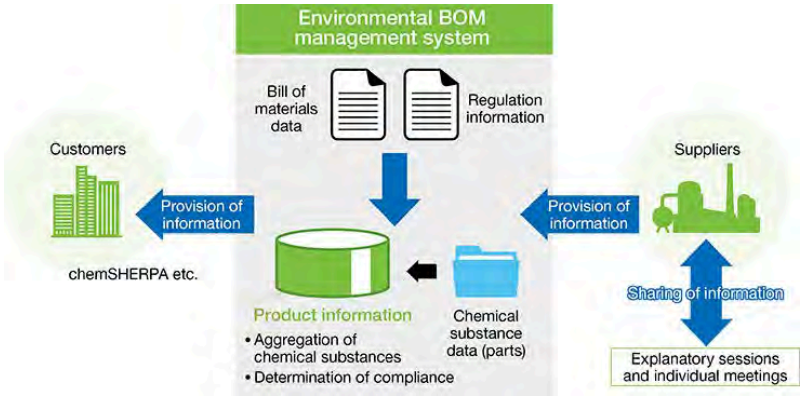
*1 BOM: Bill of Materials

*2 JAMP: Joint Article Management Promotion Consortium. JAMP aims to appropriately manage information about chemical substances, etc., in products, and create and spread specific mechanisms for smooth disclosure and communication within the supply chain.

*3 chemSHERPA: A joint information transfer scheme that facilitates the disclosure/communication of chemical substances information in products, which is maintained and managed by JAMP

Meidensha is a member of JAMP.

Diagram of Environmental BOM



Climate Change

Awareness

Since its establishment in 1897, Meidensha has produced a range of technologies, products, and services and contributed to the development of a sustainable society in its role as a manufacturing company. In particular, we are deeply involved with decarbonization and reduction of carbon through power generation systems that utilize renewable energy sources such as solar, wind, and small to medium hydroelectric, as well as energy solution services such as smart grids. Through these eco-friendly products and services, we aim to achieve a sustainable society and are working to reduce greenhouse gas emissions from business activities.

Governance

Monitoring of Climate Change by the Board of Directors

Monitoring of the Risks and Opportunities Created by Climate Change at the Level of the Board of Directors

As the highest decision-making body with regard to environmental activities, the Meiden Group Environmental Committee, which is chaired by the Executive Officer (Environment), identifies issues including risks posed by climate change and deliberates concerning environmental targets, action plans, and emergency response, etc., as well as determining environmental management direction. As part of its role, the Environmental Committee refers important matters to the Executive Officers' Meeting and the Board of Directors, etc., to initiate activities based on executive-level decision-making.

EMS Promotion Organizations >

Indicators

Amount of Greenhouse Gas Emissions

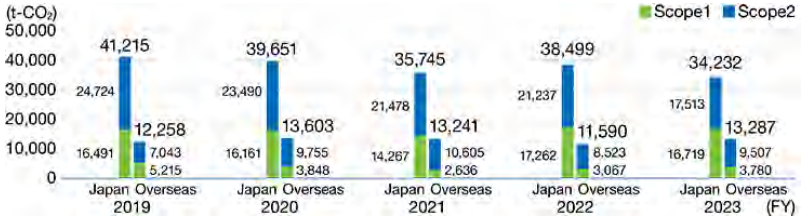
Scope 1 and Scope 2 emissions

To enhance our activities for mitigating environmental impact, we use internal carbon pricing and source CO_2-free electricity (in FY2023, sites that sourced CO_2-free electricity were Numazu Works, Head Office's ThinkPark Tower, and others). As a result, Scope 2 emissions fell even as production increased. However, Scope 1 rose due to growing SF_6 gas emissions resulting from greater production of power equipment products and because of increased use of drying furnaces. We will continue working to control Scope 1 and 2 emissions, for example by eliminating SF_6 gas and electrifying our drying furnaces.

($t\text{-}CO_2$)

		FY2019		FY2020		FY2021		Y2022		FY2023	
		Japan	Overseas	Japan	Overseas	Japan	Overseas	Japan	Overseas	Japan	Overseas
Scope1 Direct emissions from in-house use of fuel, etc.		16,491	5,215	16,161	3,848	14,267	2,636	17,262	3,067	16,719	3,780
Scope2 Indirect emissions from power or heat purchased from an outside source	Location basis	24,980	7,043	24,479	9,755	25,160	10,605	25,737	8,523	26,381	9,507
	Market basis	24,724	-	23,490	-	21,478	-	21,237	-	17,513	-

Amount of Greenhouse Gas Emissions (Scope 1 and 2) – Emissions from Business Activities



Scope 1: Direct Emissions

Combustion of fuel (town gas and oil, etc.) and release of greenhouse gasses ($SF_6$and CFCs, etc.)

Scope 2: Indirect Emissions

Combustion of fossil fuel to generate electricity (electricity company) that is consumed by the company

* Renewable energy produces zero emissions

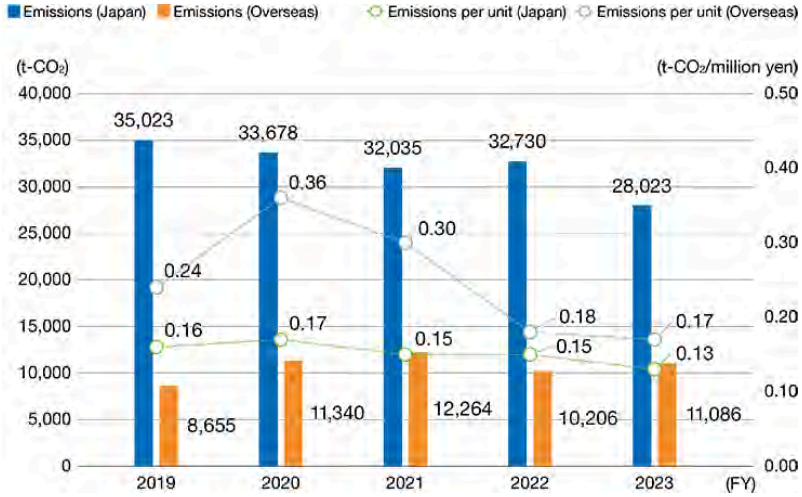
Results Data

Amount of CO_2 Emissions from Energy Sources

The Meiden Group had record sales in FY2023 and lowered its CO_2 emissions per unit of sales.

We also drove down CO_2 emissions by starting to use renewable energy at Numazu Works, the Group's largest production site in Japan.

Amount of CO_2 emissions from energy sources/CO_2 emissions per sales unit



* Japanese emissions: The amounts of fuel oil and fuel gas are calculated referring to the "List of Calculation Methods and Emission Factors in the Calculation, Reporting and Publication System" for the relevant fiscal year pub

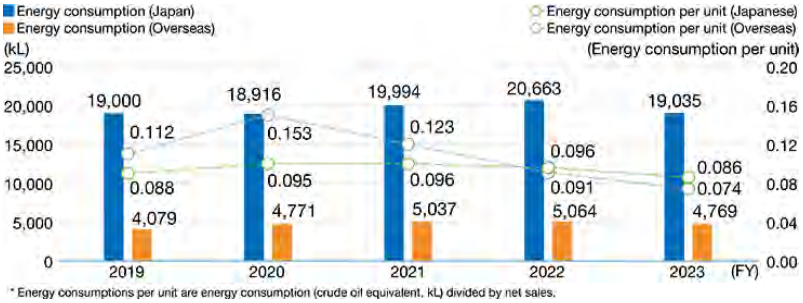
* lished by the Ministry of the Environment. The amount of electric power is calculated referring to the "Emission Factor List by Electricity Power Company" published by the Ministry of the Environment.

* Overseas emissions: The amounts of fuel oil and fuel gas are calculated referring to the emission factors by country published by the GHG protocol. The amount of electric power is calculated referring to the average emission factors by country in 2010-2012 published by the International Energy Agency (IEA). Since FY2022, we have used the 2018 average emission factors by country.

* Energy consumptions per unit are emissions (t-CO_2) divided by net sales (million yen).

Energy Consumption (crude oil equivalent)

Energy consumption/energy consumption per unit of sales



Initiatives

Reduction of CO_2 Emissions from Business Activities

Introduction of Renewable Energy

In recent years, we have procured electricity from renewable sources in an effort to reduce CO_2 emissions from business activities.

Since FY2019, we have been working on sourcing electricity with non-fossil certificates and purchasing power from renewable sources.

In FY2024, we signed an offsite physical corporate PPA* on April 1. This arrangement uses electric power from renewable energy of Choshi Shiosai Wind Farm owned and operated by M WINDS Co., Ltd., a Meiden Group company.

* A corporate PPA (power purchase agreement) is a contract wherein a company purchases renewable power from a power producer at a fixed price over a long period. This arrangement for sourcing energy is gaining attention because companies can help reduce CO_2 emissions through it. An offsite PPA is a PPA in which electricity is sourced from a distant power plant through the general transmission and distribution network. Meanwhile, a physical PPA is a PPA wherein the power producer supplies both electricity and environmental value to consumers through a retail electric utility.

FY2019	November: Began sourcing CO_2-free electricity from wind power through non-fossil certificates with tracking information at the Meiden R&D Center and Osaki Kaikan Hall.
FY2020	November: Signed power contract (special contract for renewable energy) at EAML Engineering CO., LTD. and began sourcing CO_2-free electricity, mainly from hydroelectric power.
FY2021	April: Signed power contract (Gunma Hydroelectric Power Source Plan) at Ota Works and began sourcing CO_2-free electricity from hydroelectric power. January: Signed power contract (Carbon F Plan) at Chiba R&D location of MEIDEN NANOPROCESS INNOVATIONS, INC. and began sourcing CO_2-free electricity from hydroelectric power.
FY2022	May: Signed power contract (Green Basic Plan) at KOFU MEIDENSHA ELECTRIC MFG. CO., LTD. and began sourcing 30% of the power it uses in the form of CO_2-free electricity from solar and wind power. May: Began sourcing CO_2-free wind power at headquarters of MEIDEN KOHSAN CO., LTD. using non-fossil certificates with tracking information.
FY2023	July: Signed power contract at Meidensha's Numazu Works (Green Basic Plan) and began sourcing 20% of the power it uses in the form of CO_2-free electricity from solar and wind power. July: Signed power contract (Green Basic Plan) at Meidensha's Headquarters (ThinkPark Tower) and began sourcing CO_2-free electricity from solar and wind power, etc.
FY2024	April: • Signed contract to source CO_2-free electricity for 100% of the power used at three Group sites in the Tokyo area (R&D Center, Osaki Kaikan Hall, and MEIDEN KOHSAN CO., LTD.) (86% under Green Basic Plan contract, 14% under offsite physical corporate PPA). • Meidensha's Numazu Works gets 34% of its power from CO_2-free electricity, while KOFU MEIDENSHA ELECTRIC MFG. CO., LTD. gets 44% (in addition to previous sources, it procures 14% under an offsite physical corporate PPA) • Meidensha's Ota Works switched from the Gunma Hydro Plan to the Green Basic Plan and now sources CO_2-free electricity derived from solar, wind, and other forms of energy for 100% of its power

TOPICS

Promoting Internal Carbon Pricing

Internal carbon pricing is a mechanism to promote investment in equipment with a significant CO_2 reduction benefit. It works by setting a carbon price within a company and using it to calculate the cost of greenhouse gas emissions.

Meidensha introduced the internal carbon pricing system in April 2021. We will convert carbon emissions from capital investment plans to expenses using an internal carbon price through the system. It will be a tool to make investment decisions. At Meidensha, we initially set ¥3,000/t-CO_2 as the internal carbon price. However, after considering the Ministry of the Environment guidelines and the carbon price under the IEA's 1.5°C scenario, we raised our internal price to ¥15,000/t-CO_2, which applies to capital investment starting in FY2023. We will continue to promote reductions in greenhouse gas emissions in our business activities by considering environmental impact mitigation along with safety and productivity when making equipment investment decisions.

- Internal carbon price: 15,000 yen/t- CO_2
- Subject to application: Proposed equipment for FY2023 and beyond

Activity Results

There were 10 cases in FY2023 in which we applied internal carbon pricing. For example, we introduced equipment that is expected to significantly lower CO_2 emissions, such as replacing lighting in the elevator halls at Head Office with LED bulbs and replacing testing equipment, compressors, and air-conditioning equipment at production plants.

Equipment subject to internal carbon pricing (FY2023)	277 (million yen)
Reduction due to internal carbon pricing*	987 (t-CO_2)

* Reduction is calculated based on the lifecycle (statutory useful life) of equipment.

Offsite Physical Corporate PPA Signed, Using Wind Farm Operated by Meiden Group

On April 1, 2024, Meidensha, M WINDS Co., Ltd., and TEPCO Energy Partner, Incorporated ("TEPCO EP") entered into an offsite physical corporate PPA ("the PPA"). This arrangement uses electric power from renewable energy ("the renewable power"[*1]) from Choshi Shiosai Wind Farm ("the power plant") owned and operated by M WINDS, a wholly owned subsidiary of Meidensha.

Under the PPA, a portion of the electricity used at five Meiden Group business sites is now renewable power from the power plant.

More than 20 years have passed since the plant started operating in December 2003, and the FIT period (October 2012 - March 2024) has now elapsed. The three companies concluded the PPA to maximize the value of the wind power plant owned by the Meiden Group and enhance corporate value.

For the three businesses, this is a first-time experiment with a PPA using a wind farm that has moved past the FIT program.

*1 Renewable power refers to electricity generated from renewable energy sources combined with non-fossil certificates derived from renewable energy sources. Therefore, the electricity used by the consumer can be regarded as renewable energy.

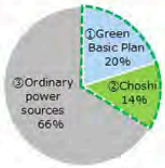
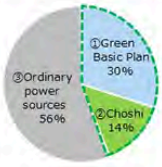
1. Overview of the PPA

Concerning the renewable power generated with the plant, the previous arrangement used FIT non-fossil certificates*2 with tracking information by TEPCO EP to provide only environmental value to three Tokyo area sites of the Meiden Group (R&D Center, Osaki Kaikan Hall, and Meiko Bldg.) using the Green Basic Plan.*3

Now that the PPA has been concluded, both the power generated at the plant and the environmental value will be provided, in addition to the Green Basic Plan that TEPCO EP was already offering. With the addition of Meidensha's Numazu Works and KOFU MEIDENSHA ELECTRIC MFG. CO., LTD. ("KOFU MEIDENSHA"), a total of five locations will be supplied. Another advantage is that the Meiden Group can use the PPA to stabilize the cost of sourcing some of its electricity, regardless of changes in fuel prices.

*2 The Ministry of Economy, Trade and Industry issues certificates that certify the environmental value of power such as renewable energy generated without emitting CO_2. Trading of certificates began on the Japan Electric Power Exchange in May 2018. Tracking information (information indicating the type of power source and location) for the power plant can be added to the certificate.

*3 The Green Basic Plan is effectively a renewable power option offered by TEPCO EP. It combines the average power from all power sources with FIT non-fossil certificates (with tracking information) and non-FIT non-fossil certificates with renewable energy designation (with power source attribute information).

Meiden Group					
Subject site	R&D Center (Meidensha Corporation)	Osaki Kaikan Hall (Meidensha Corporation)	Meiko Bldg. (MEIDEN KOHSAN CO., LTD.)	Numazu Works (Meidensha Corporation)	KOFU MEIDENSHA (KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.)
Location	2-8-1 Osaki, Shinagawa-ku, Tokyo	2-5-35 Osaki, Shinagawa-ku, Tokyo	5-5-5 Osaki, Shinagawa-ku, Tokyo	515 Kaminakamizo-aza, Higashimakado, Numazu, Shizuoka	825 Nakadate, Chuo, Yamanashi
Role	Research center for new technologies to seed product development and new businesses	A place for communication with internal and external parties, e.g., meetings with customers and internal meetings	Head office for affiliates in Japan	Main plant producing substation equipment, control systems, electronic equipment, etc.	Primarily manufactures medium- and small-capacity motors
View from the outside					
Power supply breakdown					

① Green Basic Plan: Effectively a renewable power option offered by TEPCO EP, which combines the average power from all power sources with FIT non-fossil certificates (with tracking information) and non-FIT non-fossil certificates with renewable energy designation (with power source attribute information)

② Choshi: Renewable power with attribute information that is actually generated at Choshi Shiosai Wind Farm and supplied directly to Meiden Group locations

③ Ordinary power sources: Power sources consisting of thermal power, FIT electricity, renewable power, wholesale power exchanges, hydroelectric power, etc.

Winner of Excellence Prize at Zero Carbon Challenge Cup 2023

Meidensha Corporation took the Excellence Prize at Zero Carbon Challenge Cup 2023, sponsored by the Japan Network for Climate Change Actions.

The Zero Carbon Challenge Cup is a Japan-wide competition that honors outstanding local decarbonization efforts by schools, organizations, companies, local governments, and others seeking to prevent global warming. Judges review documentation and presentations from entrants to decide the winners. The purpose is to share expertise and information on excellent initiatives across the country, creating momentum for further activities and collaborations through a program of awards for decarbonization initiatives by various entities across Japan.

In this running of the event, after the document review, 29 of the 199 organizations that applied were chosen to give presentations.

Meidensha gave a presentation titled “Contributing to Carbon Neutrality throughout the Entire Meiden Group’s Value Chain.” It described our project to rebuild the Meiko Bldg., where Group companies MEIDEN KOHSAN CO., LTD. and MEIDEN ENGINEERING CORPORATION have their head offices. The project was carried out according to the concept of creating a cutting-edge office that can contribute to environmental protection, work-style reform, disaster prevention, and coexistence with the local community.

The new office building was designed and built with consideration given to environmental factors. As a result, it received the “ZEB Ready”*1 rating as defined by the Ministry of Economy, Trade and Industry, and a five-star rating in the Building-housing Energy-efficiency Labeling System (BELS). The office has also introduced ABW*2 as part of efforts to achieve workstyle reform. Additionally, the building introduced a self-consumption type solar power generator on the roof and a multifunctional power conditioning system (PCS)*3 to improve the Group companies’ business continuity plan.

Meidensha is also helping achieve carbon neutrality by using non-fossil certificates with tracking information in sourcing power generated at a wind farm owned by Group company M WINDS CO., LTD.

*1: ZEB Ready means that a building has reduced energy consumption, excluding that of renewable energy, by more than 50 percent over standard primary energy consumption.

*2: Activity-Based Working. It refers to a workstyle that allows employees to choose working hours and locations that suit their particular job.

*3: Power conditioning system. A device to convert power generated by solar panels, etc., into power for the utility grid.

Meiden wins excellence prize at Zero Carbon Challenge Cup 2023（PDF:280KB）

Using Energy More Efficiently

The Meiden Group makes capital investment systematically, such as introducing internal carbon pricing and replacing lighting and air-conditioning with high-efficiency equipment, to lower greenhouse gas emissions caused by energy consumption. We are in addition visualizing our power consumption and improving equipment operations, especially by practicing strict energy consumption control, such as cutting standby energy consumption on holidays and at night. To use energy more efficiently, expand energy conservation awareness, and reduce energy costs, each works and unit is endeavoring to save energy. Energy conservation rankings, showing energy use reductions, are posted on digital signage to foster awareness of energy conservation.

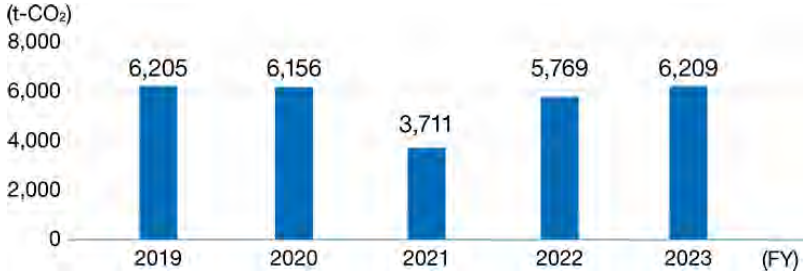
Initiatives and Results Data

Reducing Emissions of Greenhouse Gasses Other than CO_2

The Meiden Group's emissions of greenhouse gasses other than CO_2 include SF_6 gas, which is used for lightning arresters and circuit breakers, etc., and CFCs, which are used as refrigerants in air conditioners.

In FY2023, emissions from leaks of SF_6 gas increased due to rising production of equipment such as circuit breakers. We will continue our efforts to curb emissions and perform technical studies and verification of alternatives to SF6 gas. To curb CFC emissions, moreover, we are strengthening management of air-conditioning equipment and updating facilities.

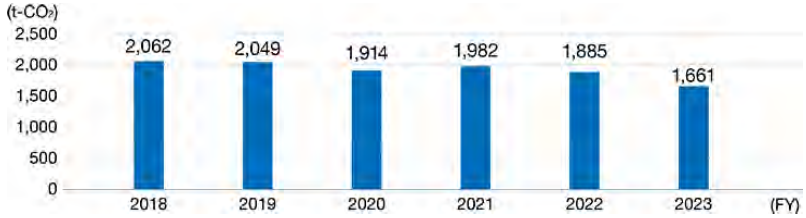
Emissions of Greenhouse Gasses Other than CO_2 (Japan)



Reduction of CO_2 Emissions from Product Transport

The transport division is working to reduce CO_2 emissions by practicing cargo consolidation, modal shift, and efficient transport, such as using JR containers and switching from trailer transport to ship transport from nearby ports.

CO_2 Emissions from Product Transport (Japan)



Calculation of Greenhouse Gas Emissions in the Supply Chain

Meidensha is working to calculate greenhouse gas emissions, including indirect emissions in the upstream and downstream supply chain in addition to those produced in the course of its business activities.

Meidensha is facing the issue of producing a large proportion of its emissions from “use of sold products” (scope 3, category 11) and “purchased goods and services” (scope 3, category 1). We are promoting environmental measures throughout the entire supply chain, including reducing downstream greenhouse emissions through environmentally considerate product design and reducing upstream impact through green procurement.

Meidensha’s Greenhouse Gas Emissions in the Supply Chain (Scope 3)

We calculate for our supply chain with reference to the Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain, published by the Ministry of the Environment and the Ministry of Economy, Trade and Industry, etc.

In developing the Second Meiden Environmental Vision, which set new medium-to-long-term environmental targets and launched in FY2021, we completely reviewed Scope 3 calculation methods. We transitioned from calculating the non-consolidated value of Meidensha to calculating the consolidated value of the Meiden Group, and conducted review of units for our FY2021 record. For Category 11, we increased precision by conducting more detailed calculation of emissions per unit of production for each product group. For categories calculated on a monetary basis, we also reviewed part of our standards going back to FY2019. Thus, data values disclosed up to FY2021 lack continuity; however, going forward we intend to trace these values using this calculation method and revise them as necessary.

Category	Calculation Method	
	Amount of Activity	Basic Unit
1. Purchased goods and services	Purchase amount (materials, consumables, services, etc.)	Ministry of the Environment Basic Unit - DB
2. Capital goods	Amount invested in fixed assets	Ministry of the Environment Basic Unit - DB
3. Fuel and energy related activities not included in Scopes 1 or 2	Amount of energy consumption (electricity, etc.)	Ministry of the Environment Basic Unit - DB
4. Upstream transportation and distribution	Transportation cost	Ministry of the Environment Basic Unit - DB
5. Waste generated in operations	Emissions of each type of waste	Ministry of the Environment Basic Unit - DB
6. Business travel	Transportation expenses provided (travel allowance, etc.)	Ministry of the Environment Basic Unit - DB
7. Employee commuting	Transportation expenses provided (travel allowance, etc.)	Ministry of the Environment Basic Unit - DB
8. Upstream leased assets	Rent (Leased items, etc.)	Ministry of the Environment Basic Unit - DB
9. Downstream transportation and distribution	Not applicable because this is not a major source of emissions and is sufficiently lower than “transportation and delivery (upstream)”	—

Category	Calculation Method	
	Amount of Activity	Basic Unit
10. Processing of sold products	Not applicable as Meidensha's products include many formed items	—
11. Use of sold products	Calculated based on the specifications of the Company's products and operating conditions	Ministry of the Environment Basic Unit - DB
12. End-of-life treatment of sold products	Assumed disposal cost of sold products	Ministry of the Environment Basic Unit - DB
13. Downstream leased assets	Energy usage at leased real estate	Ministry of the Environment Basic Unit - DB
14. Franchises	Not applicable as outside of the scope of the Company's business	—
15. Investments	Not applicable as shares held by the Company are not for the purpose of investment	—
Other	Excluded from the scope of calculation as this item is optional	—

($t\text{-}CO_2$)

Category	FY2019	FY2020	FY2021	FY2022	FY2023
1. Purchased goods and services[*1]	916,059	790,749	944,989	1,161,608	1,326,731
2. Capital goods[*1]	44,023	56,146	31,329	24,862[*5]	27,951[*5]
3. Fuel- and energy-related activities not included in Scopes 1 or 2	1,882	1,893	3,425	3,472[*6]	3,187[*6]
4. Upstream transportation and delivery[*2]	13,901	15,184	16,914	21,694	23,526
5. Waste generated in operations	1,587	2,004	1,645	1,925[*7]	1,692[*7]
6. Business travel	3,192	1,007	2,160	4,770	6,734
7. Employee commuting	1,152	940	1,182	1,401	1,211
8. Upstream leased assets[*1]	2,491	2,336	2,287	2,756	2,727
9. Downstream transportation and distribution[*3]	—	—	—	—	—
10. Processing of sold products	—	—	—	—	—
11. Use of sold products	6,370,000	6,050,000	5,922,573	5,745,708	5,891,693
12. End-of-life treatment of sold products[*1]	6,591	5,960	6,573	7,025	7,420
13. Downstream leased assets[*4]	8,856	8,047	7,769	7,849	8,223
14. Franchises	—	—	—	—	—
15. Investments	—	—	—	—	—
Other	—	—	—	—	—
Total	7,369,736	6,934,266	6,940,845	6,983,070	7,301,094

*1 Up through FY2021, results were calculated by multiplying the monetary value exclusive of consumption tax by the emissions intensity, but since FY2022, we include the monetary value including the consumption tax.
Therefore, we recalculated emissions for FY2019 through FY2021 using that approach.

*2 Amount of GHG emissions from procurement logistics and sales logistics

*3 Excluded from calculations because it is less significant than "upstream transportation and distribution"

*4 Calculated by allocating 50/50 to World Trade Center Building and Meidensha based on our investment ratio

*5 Figures since FY2022 have been revised according to the description of emissions from disposal and processing by parties other than the reporting company of wastes generated from the reporting company's business activities (excluding wastes sold for compensation), as found in Basic Guidelines on Accounting for Greenhouse Gas Emissions Throughout the Supply Chain, Ministry of the Environment and Ministry of Economy, Trade and Industry.

Disclosure based on TCFD recommendations

Attitude

For many years, the Meiden Group has been aware of the major problem of climate change, and has worked to solve this problem through business. With regard to TCFD*, we endorsed the TCFD recommendations in June 2019, we began considering risks and opportunities according to the TCFD framework in 2020, and we are promoting the incorporation of this in our strategies.

As society places more emphasis on the issue of climate change, in Medium-term Management Plan 2024, which was released in FY2021, we pledged to “promote sustainability management,” and we aim to accelerate promotion of management and development of businesses to realize a carbon-free society.

* TCFD: Task Force on Climate-related Financial Disclosure established by the Financial Stability Board (FSB) .

Governance/risk management

Governance

The Sustainability Management Strategy Committee and the Sustainability Management Promotion Committee handle all general matters involving sustainability and these two committees explore potential strategies to enact for decarbonization. The manager in charge of promoting sustainability and the Sustainability Management Promotion Division both report on the content of these meetings twice annually to the Board of Directors and the Executive Officers’ Meeting. Alongside these efforts and as a way of managing the promotion of environmental activities within the Group, the Meiden Group Environmental Committee, which is chaired by a production manager, meets quarterly to uncover issues within the Company, set environmental goals, devise action plans, and discuss emergency responses in order to promote and monitor the deployment of concrete policies for environmental management.

Sustainability Management >

Risk Management

To manage sustainability-related risks, the Sustainability Management Promotion Division , which is charged with promoting sustainability management, operates centrally with relevant departments to extract risks. The details of those risks are incorporated into all the risks managed by the Governance Headquarters, which simultaneously manages a variety of risks, including those related to climate change.

Risk Management >

Strategy

Analysis of Climate Change Scenarios

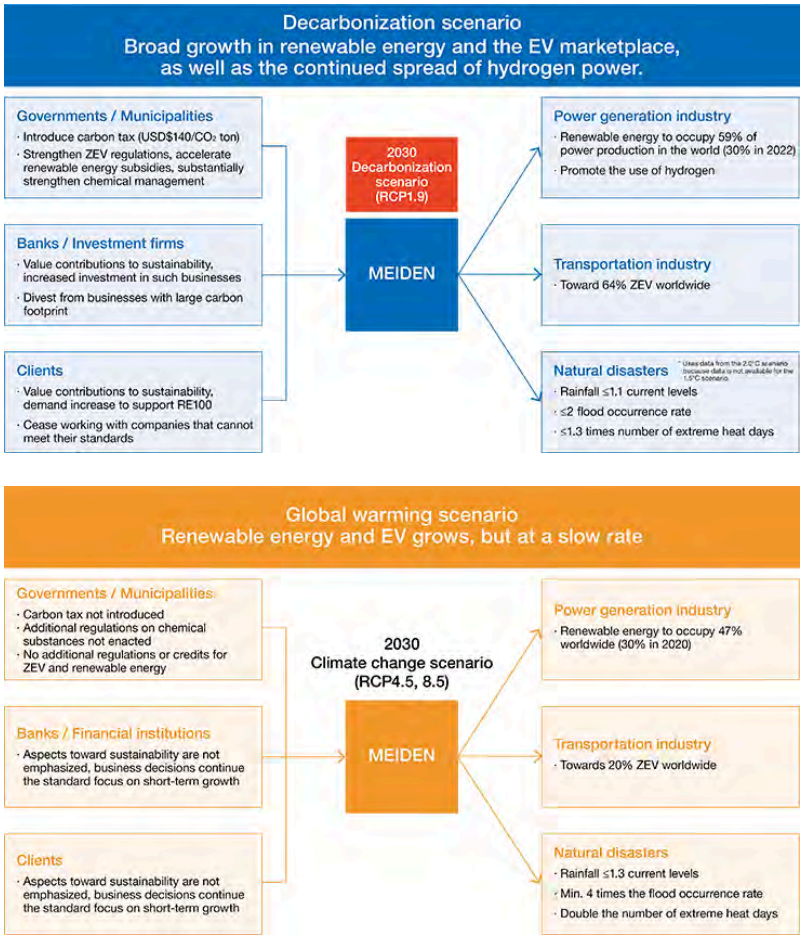
The Sustainability Management Promotion Division analyzes climate change scenarios in conjunction with relevant departments. The scenario analysis examination process is divided into four parts, with analysis and evaluations conducted annually. At the same time, major factors that could impact business are identified, and identified risks, opportunities, and evaluations are reflected in our business strategy.

Step 1: Defining Scenario Types

As recommended by TCFD, we identified scenarios at multiple levels of warming, including a scenario of less than 2°C, and conducted analysis accordingly. Based on the two scenarios of decarbonization (RCP1.9) and global warming (RCP4.5 and RCP8.5), we have compiled and evaluated global outlooks for 2030 to accommodate each scenario using management frameworks such as five forces analysis, based on international published data from the IEA, IPCC, etc., as well as numerical data published by Japanese government institutions, etc.

	Temperature range	Relevant scenario	Provider
Decarbonization scenario	Less than 1.5°C	NZE2050	IEA
		RCP1.9	IPCC
Global warming scenario	2.4～4.0°C	STEPS	IEA
		RCP4.5	IPCC
		RCP8.5	IPCC

Selected scenarios and outlooks are as follows.



Step 2: Evaluation of Importance of Climate Change-related Risks

We have set out factors for climate change risks and opportunities according to the outlook of each scenario, giving reference to the risks and opportunities in the TCFD recommendations.

* Examples of main scenarios

Factors for Risks and Opportunities	Societal Scenario	Opportunities and Risks for Meiden	Relevant Businesses
Opportunities to reduce GHG emissions Increased government subsidies	Decarbonization of the transport industry	Expanded EV-related business	EV business/Battery storage-related
Increased government subsidies Accelerated technological developments Transition to a decentralized society	Increased ratio of renewable energy	Expanded renewable energy business	Wind/Hydroelectric/Photovoltaic storage/Solar generation/Battery storage-related /Hydrogen-related
Increased regulations to reduce GHG emissions Electric companies shift toward decarbonization	Restrictions on chemical substances such as SF_6	Expanded Power T&D Business	Zero SF_6 products/Environmentally friendly products
Changing stakeholder mindset	Increased customer demand for being carbon-free	Increased demand for environmentally friendly products and services	Environmentally friendly products and services (including green products)
Opportunities to reduce GHG emissions Tightening of legal restrictions	Introduction of a carbon tax	Increased procurement and manufacturing costs	All companies

Factors for Risks and Opportunities	Societal Scenario	Opportunities and Risks for Meiden	Relevant Businesses
Opportunities to reduce GHG emissions	Rising prices from growing demand for EV and renewable energy components	Increased procurement and manufacturing costs	EV business/Renewable energy business
Increased frequency of extreme weather events	More water-related disasters	Suspension of operation/Collapse of supply chain Increased costs to respond to water-related disasters	Production sites
Opportunities to reduce GHG emissions Changing stakeholder mindset	Increased pressure on environmentally burdensome businesses	Reduced sales in relevant businesses	Diesel/Gas engine generators Ceramic membrane business
Rising average temperatures	Worsening working environments	Increased personnel expenses at sites	Manufacturing/Maintenance/Construction service business units
Increased proportion of renewable energy	Increased cost of industrial electricity	Increased power procurement costs	All companies

Step 3: Business Impact Evaluation

We are evaluating business impact through discussions with relevant parties within the Company, such as the Corporate Policy Planning Group , the Accounting & Financing Group , the Corporate Governance Management Group , and business units, based on the scenarios and outlooks set out in Step 1 and the opportunities and risks set out in Step 2.
In the course of this, we screened matters that have a particularly large impact on businesses by focusing on the two axes of “impact on operating income” and “likelihood of occurrence in an event” in FY2030, and conducted detailed analysis of these matters. We assessed pre-countermeasure outcomes based on the rate of market growth in each scenario for each large-impact item. These were quantitatively calculated using partial assumptions, and items with unachievable results were organized qualitatively.

* The following values were calculated with a focus on the market growth rate and do not represent a designated target value for the Company.

Evaluation axes for selection of risks and opportunities (2030)

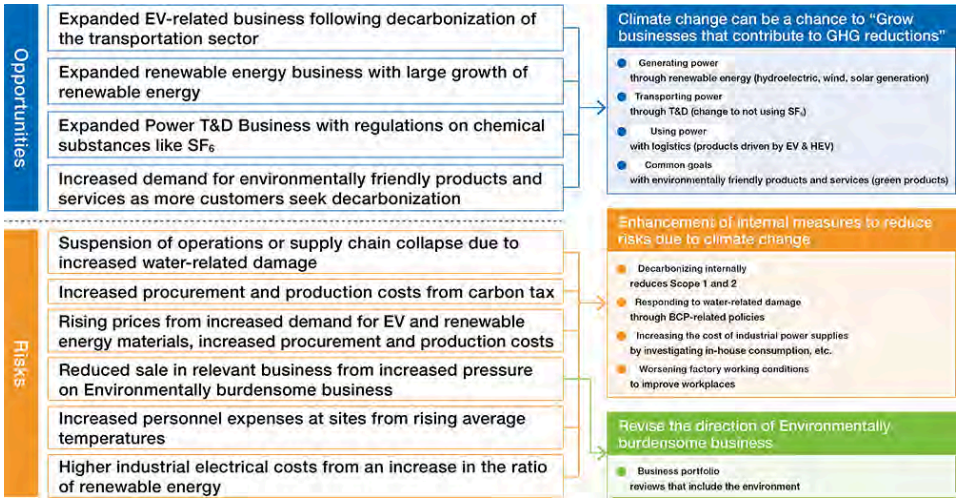
Impact on operating income (estimate)	Very large: ±10 billion yen or more Large: ±1 billion yen or more Medium: ±0.1 – 1 billion yen Small: ±less than 0.1 billion yen
likelihood of occurrence in an event in 2030	Large: High probability of occurrence Medium: Occurrence is possible, but cannot be predicted with confidence Small: Only occur in the scenarios

	Opportunities and risks for our Company	Relevant Businesses	Calculation formula	Impact on FY2030 operating income	
				Decarbonization scenario (RCP1.9)	Global warming scenario (RCP8.5, 8.5)
Decarbonization of the transport industry	Expanded EV-related business	EV business/Buttery storage-related	Recent average sales × ZEV stock growth ratio	Large	Medium
Increased ratio of renewable energy	Expanded renewable energy business	Wind/Hydroelectric/Photovoltaic storage/Solar generation/Battery storage-related/Hydrogen-related	Recent sales × growth rate of domestic renewable energy	Small	Small
Restrictions on chemical substances such as SF_6	Expanded Power T&D business	Zero SF_6 products/Environmentally friendly products	Recent sales of relevant products × VCB market growth rate	Medium	Medium
Increased customer demand for being carbon-free	Increased demand for environmentally friendly products and services	Environmentally friendly products and services (including green products)	* Cannot calculate at this time because green product standards are being revised	–	–
Introduction of a carbon tax	Increased procurement and manufacturing costs	All companies	2030 Scope 1, 2 emissions × carbon tax 2030 Scope 3 Category 1 emissions × carbon tax	9.6 billion	N/A
Rising prices from growing demand for EV and renewable energy components	Increased procurement and manufacturing costs	EV business/Renewable energy business	Cost of transitioning relevant business × rate of cost increases	Medium	Small
More water-related disasters	Suspension of operation/Collapse of supply chain Increased costs to respond to water-related disasters	Production sites	Assumed cost of each incident in 2030 using Ministry tools × occurrence rate in each scenario, etc.	Large	Large
Increased pressure on environmentally burdensome businesses	Reduced sales in relevant businesses	Diesel/Gas engine generators Ceramic membrane business	2030 business sales × state of each scenario	Medium	N/A
Worsening working environments	Increased personnel expenses at sites	Manufacturing/Maintenance/ Construction service business units	Number of site personnel in 2030 × medical and health-care costs	Small	Small
Increased cost of industrial electricity	Increased power procurement costs	All companies	Power usage in 2030 × rising cost of industrial power	Medium	Small

Rate of occurrence
Large Medium Small

Step 4: Consideration of Response Measures

We considered development of strategies to grasp opportunities and measures to mitigate risks according to the situation of the Company, based on the outcomes calculated in Step 3.



Metrics and Targets

We see changes due to climate change as business opportunities, and are implementing strategies to mitigate risks.

From a business perspective, we will particularly contribute to the creation of a carbon-free society through further expansion of the EV and Renewable Energy businesses. We also released the Second Meiden Environmental Vision as our environmental goals in FY2021, and we have disclosed 2030 GHG reduction targets for scopes 1, 2, and 3 in order to reduce internal risks. These goals have received SBT recognition. We will work with our suppliers to achieve our targets. In addition, we pledged to reach RE100 by 2040 and carbon neutrality by 2050, in November 2021, as our medium- to long-term targets.

Second Meiden Environmental Vision Targets
(Targets and results compared to FY2019 levels)

Each year vs FY2019		FY2023		FY2024	FY2030
		Plan	Actual	Plan	Plan
Emissions from business activities (Scope 1+2)	Japan	8% reduction	17% reduction	10% reduction	
	Overseas	3% reduction	8% increase	4% reduction	
	Total	5% reduction	11% reduction	6% reduction	30% reduction
Emissions from product use (Scope 3, Category 11)			7% reduction	6% reduction	15% reduction

* Second Meiden Environmental Vision including FY2030 targets has received SBT (science based targets) certification.

Meiden Group's medium- to long-term environmental targets >

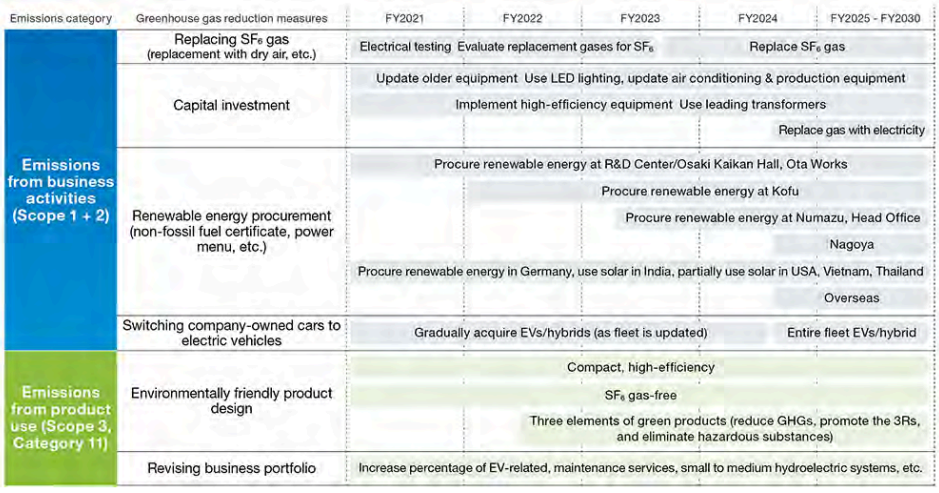
The carbon neutral transition plan

Meiden Group is taking the following actions to become carbon neutral by 2050.

1) Reducing emissions from business activities (Scope 1+2) Among our strategic facility investments such as switching from gas to electric power and making lighting, A/C equipment, and manufacturing equipment with more efficient fixtures, we are introducing internal carbon pricing (ICP) as a metric for determining investment within the Company. To accelerate our efforts to decarbonize in FY2023, we revised our price of carbon from 3,000 yen/t-CO_2 to 15,000 yen/t-CO_2. We also experienced power shortages last year and so redoubled our commitment to reducing energy consumption. We now have power-saving initiatives in place at all our offices and factories.
In addition to these efforts toward reducing the amount of energy we use, we also promote procuring renewable energy at multiple bases inside the Group, from Company factories through to the offices of Group affiliates.

2) Reducing emissions in the product use stage (Scope 3 Category 11)
The product use stage (Category 11) accounts for 80% of Meiden Group's Scope 3. We have drafted medium- and long-term targets for greenhouse gas emission levels in the product use stage (Category 11) and are tracking our levels of achievement. We have proposed plans to incorporate environmental considerations into our products (SF_6 gas-free, reducing product size, increasing efficiency, etc.) and updating our business portfolio (expanding low-carbon businesses) as ways to reduce emissions.

Transition plan for becoming carbon neutral



Promoting strategic environmental management >

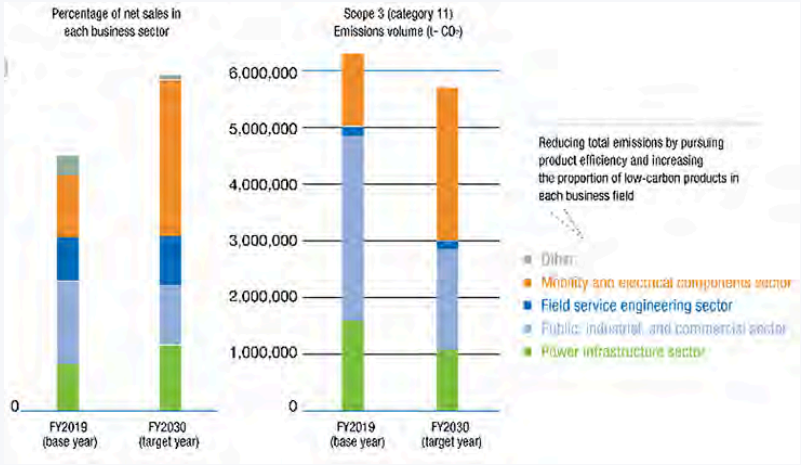
Future Path

Although we have identified the growth opportunities and risks facing the Meiden Group through analysis of scenarios based on the TCFD recommendations, in most instances, calculation of impact is merely a rough estimate, and further precision is needed. Furthermore, we are promoting response to climate-related metric categories across multiple industries in the TCFD recommendations, which require new disclosure. Along with this, we are considering establishing ESG (environment, social, and governance) metrics, incorporating them in our standards for calculating officers' remuneration, and further strengthening governance, in order to increase the effectiveness of sustainability management promotion.

TOPICS

Simulation of Business Portfolio Revision

During the formulation of the Meiden Group's FY2030 greenhouse gas emissions reduction targets, we conducted a simulation of net sales and emissions from a business portfolio revision regarding emissions in the product use stage (scope 3, category 11).



Meiden Group Scope 3, Category 11 Reduction Simulation

<Note: The above graph is an estimate from a simulation and does not amount to a commitment to a business plan>

We found that by increasing the ratio of low carbon businesses with low emissions per unit of sales such as EV, maintenance services, and small and medium-sized hydropower generation, and we had a potential to comfortably achieve both increased sales and reduced emissions.

TOPICS

Introducing Internal Carbon Pricing

Internal carbon pricing is a mechanism that creates an economic incentive to reduce emissions and promotes investment by setting a carbon price in the company and using it to calculate the cost of greenhouse gas emissions.

Meidensha introduced an internal carbon pricing system in April 2021. We will convert carbon emissions from capital investment plans to expenses using an internal carbon price through the system. It will be a tool to make investment decisions.

Combining reductions to our environmental burden with safety and productivity considerations when making investment decisions regarding the introduction of equipment will promote the reduction of greenhouse gas emissions across our various businesses.

- Internal carbon price: 15,000 yen/t- CO_2
- Subject to application: Capital proposals for FY2023 onwards

Prevention of Pollution and Effective Utilization of Resources

Policy

Commitment to Waste and Pollution Prevention

The Meiden Group is working to reduce the environmental impact of our domestic and overseas business activities, as well as reduce and properly manage hazardous substances, promote recycling of waste materials, and conserve water resources as stipulated in the President's Environmental Policy.
Furthermore, we will take steps to maintain a recycling rate of roughly 90% in line with the target in our voluntary action plan for the electrical and electronics industry.

Promotion of Strategic Environmental Management >

Initiatives

Targets for Measures to Combat Waste and Pollution

The Meiden Group set targets to reduce the environmental impact of our products, services, and business activities, namely reducing the total volume of waste (1% YoY),*1 maintaining a recycling rate of roughly 90%,*2 and reaching a final disposal rate of 1% or less.*2 Going forward, we will continue striving to promote recycling by promoting environmentally friendly design, product parts, and materials as well as the 3Rs of business-related waste.

*1 All domestic locations (except in construction divisions)

*2 Major production sites (domestic): Numazu Works, Ota Works, Nagoya Works, Plant Construction & Engineering Business Group, KOFU MEIDENSHA ELECTRIC MFG. CO., LTD., MEIDEN CHEMICAL CO., LTD., MEIDEN HOKUTO CORPORATION , MEIDEN ENGNIEERING CORPORATION, MEIDEN PLANT SYSTEMS CORPORATION, EAML Engineering, Co., Ltd.

Strategies, Initiatives, and Results Data

Targets and Initiatives for Reduction of Raw Material Usage

As a manufacturer that uses resources to provide our products and services, it is essential that we use those resources effectively.
At the Meiden Group, we practice eco-friendly procurement and work to mitigate the environmental impact of our domestic and overseas business activities and to design products that conserve and reuse resources.

Raw Material Input (Japan)

(ton)

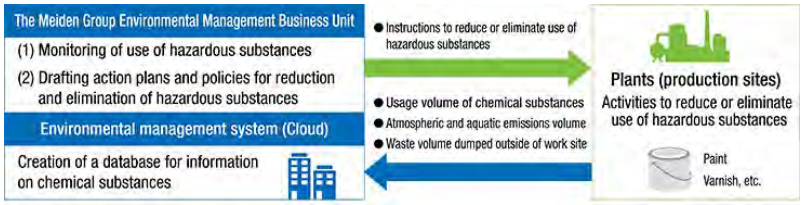
Raw Material	FY2020	FY2021	FY2022	FY2023
Iron	5,140	5,356	4,820	4,103
Copper	2,334	2,176	2,120	2,019
Plastic	781	789	864	805
Aluminum	226	223	266	217
Total	8,481	8,544	8,070	7,144

Tightening Management of Chemical Substances

We are working to conduct risk assessment of chemical substances used at production sites, etc., to improve the workplace environment, and reduce or substitute hazardous chemical substances with a substantial risk.

In order to prevent workplace accidents, health impairment, and fire or environmental pollution due to leakage or spillage of chemical substances, we routinely conduct patrols of sites where chemical substances are used to alert workers, and take corrective measures where the management status of chemical substances is found to be inappropriate.

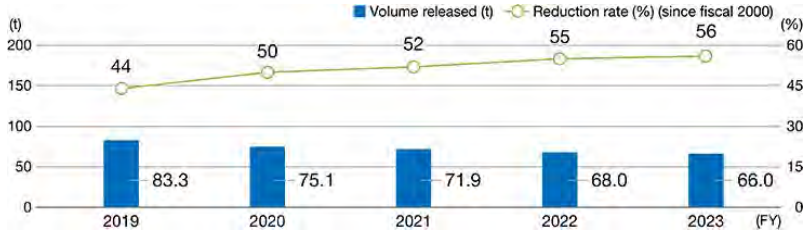
Tightening Management of Chemical Substances



Reduction of Volume of Volatile Organic Compounds (VOC) Released

In FY2023, we continued our replacement with low-VOC solvents, and we released 66 tons of VOC. Going forward, we will promote reduction of VOCs released through adoption of styrene-free varnishes, substitution with low VOC paint and solvents, introduction of airless spraying, and more.

Volume of VOCs Released and Reduction Rate (Japan)



Promotion of Disposal and Processing of Devices that Include PCBs

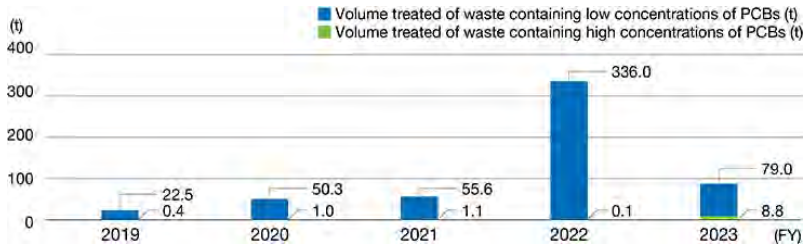
In accordance with the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes (PCB Special Measures Act), we are gradually disposing of devices that contain PCBs (polychlorinated biphenyls) such as transformers and condensers that were manufactured in the past and stored for nearly to 40 years.

In FY2023, we disposed of 8.8 tons of waste containing high concentrations of PCBs and treated 79.0 tons of waste containing trace amounts.

Since we began processing PCB waste in FY2007, through FY2023, we have disposed of approximately 114 tons of waste containing high concentrations of PCBs and treated about 813 tons of waste containing trace amounts. In FY2023, we finished the processing of registered waste containing high concentrations of PCBs.

Going forward, we will continue to work to comply with laws and treat PCB waste by the treatment deadline.

Volume Treated of Harmful Waste (Waste Containing PCBs)



Promoting the 3Rs for Waste (Reduce, Reuse, and Recycle)

Meidensha is working to recycle waste generated at production sites and offices.

In FY2023, although there was an increase in the amount of waste generated due to transient factors such as preparation for construction of a new main building at an affiliated company and organization of warehouses in the manufacturing division, the amount decreased slightly in the previous fiscal year due to a decrease in the amount of waste generated from on-site construction (debris and sludge).Going

forward, we will continue to work to reduce the amount of waste generated and improve the recycling rate by continuing to promote the 3Rs.

Trends in Generation of Waste, etc., and Recycling Rate (Japan)

* Construction sludge, etc., is excluded from the amount of waste, etc., generated.

* Since FY2019, we have revised aggregation methods to improve the precision of recycling rate calculation.

Breakdown of Waste Generated in FY2023 (Japan)

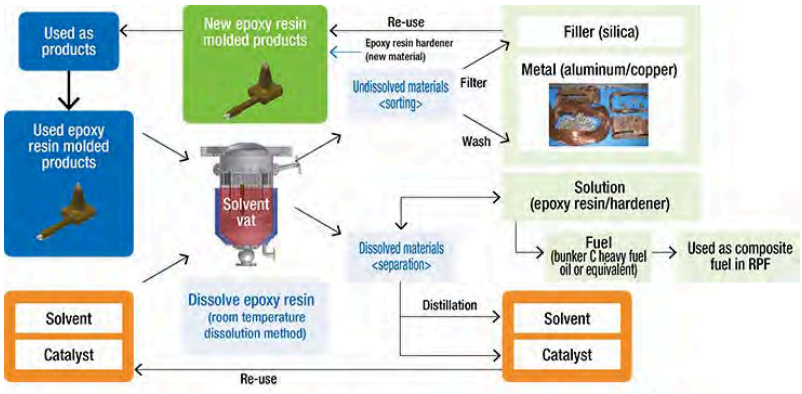
Collaboration with Other Companies to Reduce Waste and Resource Use

Recycling Epoxy Resin Molded Components

Meiden Chemical Co., Ltd., which is a group company involved with manufacture and sale of electrical insulators has realized the recycling of used epoxy resin molded components as raw materials by using a method of depolymerization under ordinary pressure, which separates the metal from the resin. Epoxy resin molded components are generally disposed of in landfill as they are considered difficult to recycle; however, Meiden Chemical Co., Ltd. has licensed the patented room temperature dissolution method from Showa Denko Materials Co., Ltd. (formerly Hitachi Chemical Co., Ltd.), which enables it to recycle 95% of existing components, as well as control cost than sending them to landfill. During recycling, we conduct lifecycle assessment (LCA) according to data obtained at the testing plant, which quantitatively assesses environmental impact if recycled and if not recycled.

In addition to insulating molded components, Meiden Chemical Co., Ltd. is working to roll out insulating material products as major flagships with features such as long-life resin for impregnation and environmentally friendly low-odor varnish.

Meiden Chemical Co., Ltd. is currently engaging in research such as extraction of rare metals by dissolving insulating varnish from superconducting coils and recycling of fiber-reinforced plastic to produce resources again.



Flow chart of dissolution recycling of epoxy resin molded components

Dissolution plant exterior

“Bottle to Bottle,” a Horizontal Recycling Initiative for PET Bottles

In October 2023, we launched the “Bottle to Bottle” initiative in collaboration with Coca-Cola Bottlers Japan Inc., Asahi Soft Drinks Co., Ltd., and National Vending Co., Ltd. to recycle used PET bottles from our head office and R&D Center into new PET bottles. The initiative is the first in Japan for which Coca-Cola Bottlers Japan and Asahi Soft Drinks are collaborating with an electronics manufacturer on horizontal PET bottle recycling.

Bottle to Bottle is a recycling system in which used PET bottles are collected, recycled, and reused repeatedly as PET bottles.

Used PET bottles from our head office and R&D Center are still collected by cleaning companies and beverage manufacturers and recycled into various products, but we have never been able to determine what they were ultimately recycled into. Under this new scheme, 100% will be recycled into beverage product containers in the future.

This should enable us to recycle more than 3 tons of used PET bottles annually, leading to a roughly 60% reduction of CO2 emissions compared with the same amount of PET bottles manufactured using new fossil-based raw materials.

We will continue to promote Bottle to Bottle activities within the Meiden Group.

An eco-station

A Coca-Cola Bottlers Japan vending machine with wrapping featuring a message to recycle, installed for this initiative

Water Resources

Policy

The Meiden Group will work on implementing measures to promote water resource conservation activities by utilizing water resources efficiently and respond to water risk that impacts business activities, as a step toward conservation of the global environment and realization of a sustainable society.

We will contribute to the solution of a range of social issues relating to the conservation of water resources through our businesses.

Plan and Targets

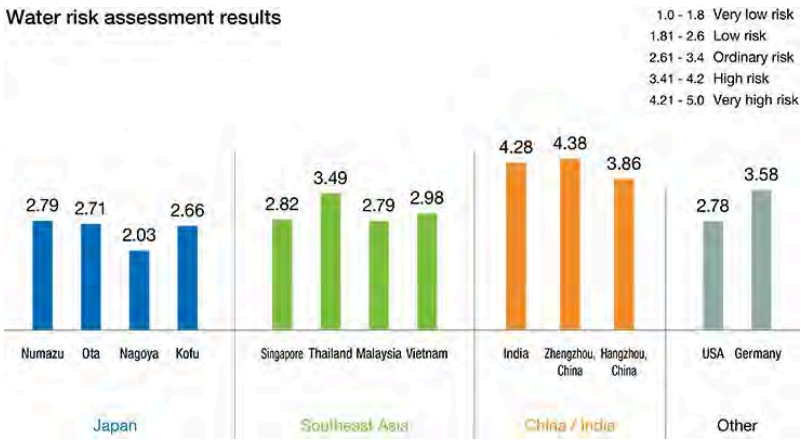
The Meiden Group includes “promotion of water reuse” and “water safety” as part of the medium- to long-term “Environmental Vision.” We will work to preserve water resources through water conservation and effective utilization of rainwater; take steps to respond to water risks such as water shortages, flood, and contamination; and improve sanitation.
The Meiden Group’s environmental target for FY2024 is to reduce water withdrawals in Japan by 1% from the previous year.

Risk Assessments

Water Risk Assessments

The Meiden Group conducts evaluation of water risk for initiatives to conserve water and comply with effluent standards. Using the Water Risk Filter, a water risk assessment tool distributed by the World Wide Fund for Nature, we assessed 14 production sites in 9 countries. We found that although domestic sites were within ordinary risk levels, more than half of overseas sites were located in high-risk areas. In particular, risks related to water quantity and quality assurance were found to be high. Some sites in India (Andhra Pradesh) and China (Zhengzhou) were found to be located in very high-risk areas. For these, we will take the optimal measures for each site based on assessment results.

Water Risk Assessment Results for Regions Where Production Bases are Located



Percentage of Production Sites and Volume of Water Withdrawn by Level of Water Risk (FY2023)

	Number of sites	Percentage of sites	Volume withdrawn (1,000 m^3)	Percentage of volume withdrawn
Very high risk	2	14%	39	2%
High risk	4	29%	17	1%
Ordinary risk	7	50%	1,693	96%
Low risk	1	7%	15	1%
Very low risk	0	0%	0	0%
Total	14	100%	1,765	100%

Achievements • Data

Water Withdrawals, by Source (Japan)

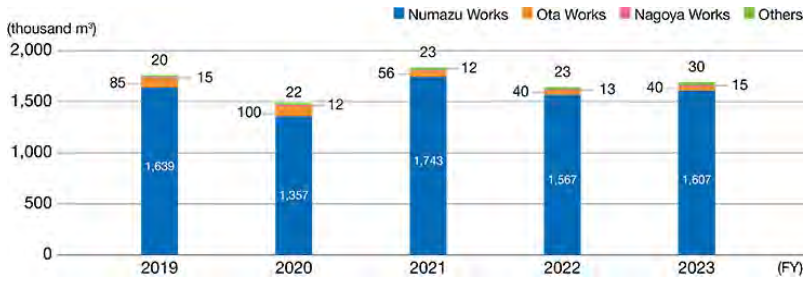
Water Withdrawals, by Source

	FY2019	FY 2020	FY 2021	FY 2022	FY 2023
Groundwater (1,000 m^3)	1,626	1,344	1,728	1,552	1,595
Industrial water (1,000 m^3)	70	87	43	22	27
Tap water (1,000 m^3)	63	59	63	69	71
Total (1,000 m^3)	1,759	1,490	1,834	1,643	1,693

* Water usage volume includes tap water, water for industrial use, and ground water.

* Measurement points were changed in fiscal 2021 in order to increase accuracy, there is no continuity with those in fiscal 2020 and before.

Water Withdrawals, by Production Site



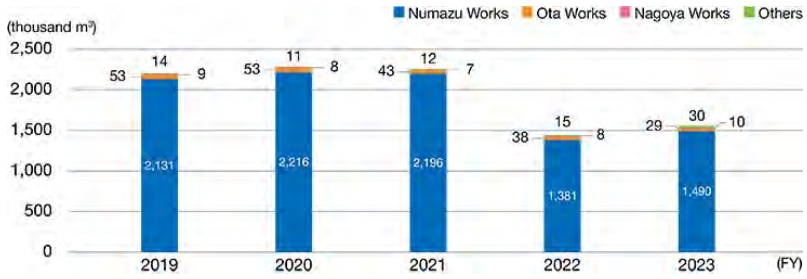
Trends in Effluent Volume (Japan)

We ensure legal compliance by establishing and applying at each site and subsidiary voluntary standards that are stricter than legal restrictions.

Effluent Volume, by Discharge Location

Discharge location	FY2019	FY2020	FY2021	FY2022	FY2023
Fresh surface water (1,000 m^3) Direct discharge to rivers, lakes, and marshes	2,189	2,273	2,241	1,421	1,527
Brackish surface water/seawater (1,000 m^3) Direct discharge to low-salinity water (brackish water) resulting from mix of seawater and freshwater, and to seawater	0	0	0	0	0
Groundwater (1000 m^3) Direct discharge underground	0	0	0	0	0
Third-party discharge locations (1000 m^3) Discharged by sewage and industrial waste disposal companies	17	15	17	20	31
Total (1,000 m^3)	2,206	2,288	2,258	1,441	1,559

Volume Discharged, by Production Site



Trend in Water Quality Data (Japan)

	FY2019	FY2020	FY2021	FY2022	FY2023
BOD	4,843 kg	6,424 kg	6,408 kg	4,474 kg	5,344 kg

Initiatives

Toward Conservation and Effective Utilization of Water Resources

Rebuilding water infrastructure facilities at production sites

More than 125 years have passed since the Meiden Group's founding, and the infrastructure facilities at our production sites have aged noticeably.

This is particularly true of the water infrastructure, which we are rebuilding as a special priority for BCP reasons.

At Numazu Works, one of our main production sites in Japan, we will begin building a large new combination water-purification tank in September 2024. To go with it, we are rebuilding the plant's water supply and factory effluent systems. Nagoya Works and Ota Works, two other major production sites in Japan, are likewise aging. Their updates will be planned and implemented in turn.

[Overview of Project to Rebuild Water Infrastructure]

(1) Remove 22 individual water-purification tanks to meet our obligation to make efforts related to Japan's Private Sewerage System Act and improve the quality of treated effluent

(2) Prevent leaks by bringing buried water supply pipes above ground (reduce water usage)

(3) Strengthen control of quality and quantity of treated effluent by separating the factory effluent system from rainwater

Initiatives to Conserve Water Resources through Our Business

In addition to design, construction, and execution of water treatment plants, the Meiden Group provides total support through to operation and maintenance as a general water treatment manufacturer, based on our record of involvement with construction and development of water and sewerage systems in Japan. We are contributing to the solution of a range of issues relating to the conservation of water resources through or water infrastructure systems business, which is one of our core businesses.

Order Taken for Tuas Water Reclamation Plant
Will Provide Ceramic Flatsheet Membranes with World's Largest Treatment Capacity of 97,500 m^3/Day

MEIDEN SINGAPORE PTE. LTD. (MEIDEN SINGAPORE) has received an order from Singapore enterprise Koh Brothers Building & Civil Engineering Contractor (Pte.) Ltd. for ceramic flatsheet membranes for an industrial effluent MBR* facility at the Tuas Water Reclamation Plant of the Singapore Public Utilities Board (PUB). This project is a new water reclamation plant to be built in western Singapore, scheduled for completion in 2025.

MEIDEN SINGAPORE will supply ceramic flatsheet membranes with a treatment capacity of 97,500 m^3/day to the plant. The Meidensha ceramic flatsheet membranes to be delivered can help to save energy and will offer high durability, excellent chemical resistance, and long life.

* MBR: Abbreviation of membrane bioreactor, a technology that separates activated sewage. It uses membranes instead of conventional settling tanks to separate treated water and activated sludge from

each other, thereby cleaning sewage and industrial effluent.

Under a 2010 memorandum of understanding (MOU) with PUB for the joint development of water treatment technology, we have been conducting a demonstration study on industrial effluent treatment at the Jurong Water Reclamation Plant. In 2014, a 4,550 m3/day demonstration plant began operating at the Jurong site. Highly concentrated industrial effluent that had previously been difficult to reclaim was successfully reused. PUB made note of the achievements, which led to the recent order for ceramic flatsheet membranes for the Tuas Water Reclamation Plant.

Tuas Water Reclamation Plant

Order Taken for Ceramic Flatsheet Membranes for Singapore Public Utilities Board Chestnut Avenue Waterworks; World's Greatest Treatment Capacity at 291,200 m^3/Day

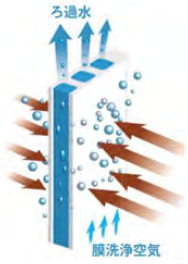
Overseas subsidiary Meiden Singapore Pte. Ltd. (Meiden Singapore) has taken an order from a Singaporean company to supply ceramic flatsheet membranes for the Chestnut Avenue Waterworks of the Singapore Public Utilities Board (PUB). The order is for ceramic flatsheet membranes with a treatment capacity of 291,200 m^3/day. The project is to replace the existing water purification system, which uses organic membranes, and is to be completed in 2026.

Meidensha ceramic flatsheet membranes to be supplied for the project will be housed in existing water tanks. This takes advantage of the characteristics of immersed-type membranes and minimizes installation costs. In addition, ceramic flat-sheet membranes offer excellent product durability, longevity, and energy efficiency. This makes them a highly economical choice, as they offer, for example, lower running costs (maintenance and membrane replacement costs) compared to the existing organic membranes.

Singapore, where water supply stability is a national concern, is a core base for Meidensha's ceramic flat-sheet membrane business. As such, Meidensha has conducted demonstration research at various water treatment plants in Singapore. In addition to our continued assistance in securing water resources and a stable supply of water, Meidensha also seeks to contribute to the Global Hydrohub initiative of Singapore's government.

■About Ceramic Flatsheet Membranes

Appearance of ceramic flatsheet membrane



Cross-section diagram showing sewage filtration with ceramic flatsheet membrane

- Ceramic flatsheet membranes contain countless pores invisible to the human eye. The pores filter out impurities as sewage passes through.
- The 6-mm-thick ceramic flatsheet membrane has a hollow structure and collects clean filtered water through a collecting tube on the inner side.

Water Resource Conservation R&D

Along with climate change, limited water resources is a global issue. The Meiden Group seeks to help solve water issues around the world so that water can be used sustainably. This is why we are developing our water infrastructure and ceramic flatsheet membrane businesses and actively investing in research and development.

Amount Invested in Water Infrastructure and Ceramic Flatsheet Membrane Business R&D

	Unit	FY2021	FY2022	FY2023
Amount invested in water infrastructure and ceramic flatsheet membrane business R&D	Million yen	1,026	1,075	1,035

Development of Sewage Biomarker Sensors for Real-Time Infectious Disease Monitoring: Selected for FY2024 Ministry of Land, Infrastructure, Transport and Tourism B-DASH (Feasibility Study)

In March 2024, Meidensha and partners Nihon Suido Consultants Co., UNIADEX, Ltd., SANKI ENGINEERING CO., LTD., NSC Tech Co., Ltd., Tohoku University Graduate School of Engineering, and Sendai city proposed a project under the FY2024 Ministry of Land, Infrastructure, Transport and Tourism B-DASH (Feasibility Study[*1]) and our proposal was selected.

At present, the trend of infectious diseases is being grasped using the results of sewage surveys around the world. However, the concentration of viruses in sewage is generally very low, and detection requires concentration, gene extraction and amplification. Therefore, the current situation is that it lacks real-time capability to grasp the trend of infectious diseases. In this research, we will develop a sensor technology for infectious disease-related protein biomarkers that are present in sewage at higher concentrations than viruses, and realize real-time infectious disease information monitoring from sewage by integrating IoT technology.

Key Points of This Research

- Identification of sewage biomarkers to track patients with infectious diseases:
  We will work to identify biomarkers in sewage for COVID-19, seasonal influenza, infectious gastroenteritis, and respiratory syncytial virus infections.
- Development of real-time monitoring sensors for sewage biomarkers:
  We will work to develop biosensors to detect biomarkers associated with infectious diseases in sewage.
- Construction of real-time sewage data sharing system:
  We will work so that infectious disease detection results found by sewage biomarker sensors will be immediately displayed on a DX platform for sharing sewage data. (This platform was previously established in an FY2022 Cabinet Office project[*2]).

Future Development

The Ministry of Land, Infrastructure, Transport and Tourism has promoted the use of sewage information as a national policy, including the establishment of guidelines for the use of such information. Compared to existing methods, the outcomes of this research could have significant advantages in terms of real-time performance and cost. We believe that this will enable the use of sewage information to become established and expand elsewhere. Meidensha and the other members of the joint research team will continue conducting research with the goal of adding even more value to sewage information.

*1 Feasibility study: A survey to examine the possibility of dissemination, including the effects of introduction, and to confirm the technical performance, etc., as a preliminary step to the demonstration project.

*2 A project that demonstrated methods for the effective use of sewage information by local governments and a sustainable system for the use of such data (FY2022, Cabinet Secretariat).

Partnerships with Outside Parties

The Meiden Group, in cooperation with its stakeholders in Japan and overseas, will pursue manufacturing that contributes to resolving issues such as Sustainable Development Goal 6 (CLEAN WATER AND SANITATION) and Goal 14 (LIFE BELOW WATER), realizes sustainable value creation, and works to resolve social issues.

Participation in Initiatives

CDP (Water Security)

Through our participation in initiatives, Meidensha is promoting water resource conservation activities through the efficient use of water resources and measures against water risks that affect business activities.

CDP Water Security is an international NGO that operates a global disclosure system for corporate water risks. Meidensha has been participating by responding to the organization's questionnaire since 2017.

We received a "B" rating from CDP Water Security in 2023.

Biodiversity

Policy

Policy on the Conservation of Biodiversity

The Meiden Group relies on the blessings of nature, which has biodiversity at its core, while its activities also have an effect on the natural environment. The Meiden Group aims to minimize this impact, create new symbiotic relationships, and contribute to the creation of a sustainable society.

The Meiden Group understands that the conservation of biodiversity is a major issue to be faced in order to achieve a sustainable society, hence reflects its ethos on biodiversity conservation in the Meiden Group's "Basic Environmental Philosophy," "Environmental Policies," and "Environmental Vision."

Furthermore, we have drafted guidelines on the conservation of biodiversity in order to clearly state the relationship between our business activities and preserving biodiversity and we are applying them in our business activities.

Meiden Group Biodiversity Guidelines

Basic Policy

We understand that our business activities benefit from the blessings of nature and at the same time, give various environmental impacts. We will deepen our people's understanding of the importance of "Conserving Biodiversity" and contribute to realizing a sustainable society through our products and innovative technologies.

Action Guidelines

① We will contribute to conserving biodiversity through the development and supply of environmentally conscious products and innovative related technologies and thus promote our water processing business and renewable energy-related business and reduction of the use of hazardous chemical substances in our products.

② We will clarify how our business activities interrelate with biodiversity and we will help to conserve biodiversity by reducing the environmental impacts of our business activities.

③ We will comply with applicable laws, regulations, and international rules relating to biodiversity.

④ We will deepen our people's understanding of "Conserving Biodiversity" and we will take voluntary related initiatives at home and abroad.

⑤ We will undertake activities in cooperation with our stakeholders such as local communities, non-profit organizations (NPOs), non-governmental organizations (NGOs), governments, etc., and we will promote environmental communication with such activities' information.

Map of Relationships Between Business Activities and Biodiversity

* This map is based on the Business & Biodiversity Interrelationship Map® of the Japan Business Initiative for Biodiversity (JBIB).

Information Disclosure Based on Taskforce on Nature-related Financial Disclosures (TNFD)

The TNFD is a framework for corporations and financial institutions to manage and disclose risks and opportunities in relation to nature and biodiversity. It aims to channel the flow of financial resources in nature-positive directions. The framework consists of 14 recommendations (recommended disclosures) under the four pillars :"Governance", "Strategy", "Risk and impact management", and "Indicators and targets".

The TNFD framework is the subject of ongoing discussions at Meidensha through the working group on biodiversity of four electrical and electronics organizations.* Going forward, we will continue to identify, evaluate and address nature-related risks and opportunities in our direct operations and supply chains.

* The Japan Electrical Manufacturers' Association (JEMA), the Japan Electronics and Information Technology Industries Association (JEITA), the Communications and Information network Association of Japan (CIAJ), and the Japan Business Machine and Information System Industries Association (JBMIA)

Initiatives

The Meiden Group is actively conducting protection and conservation activities in conjunction with local residents for nearby creatures, etc., on Meiden property and elsewhere, at each location.

A Head Office Building That is Considerate of Biodiversity

The ThinkPark Tower head office building in Osaki, Shinagawa City, Tokyo, is surrounded by the ThinkPark Forest on a block that is approximately 40% greenery. It is an oasis in the city and provides a relaxing space for employees and the local community.

Also, the Kazenomichi Path, which was designed so that the prevailing wind blows from the Meguro River and Tokyo Bay, provides relief from the heat island effect. ThinkPark Forest has been certified as an

“urban oasis” by the Social and Environmental Green Evaluation System (SEGES).*

* A certification system for evaluation of green initiatives.

SEGES (Only Japanese)

ThinkPark Tower

ThinkPark Forest

Initiatives at Each Site for the Conservation of Biodiversity

At each site of the Meiden Group, we are working to conserve biodiversity on the grounds of each site and nearby.

Head Office Area

Ikimono Log (Living Nature Log)

In the head office area of Osaki, Shinagawa Ward, Tokyo, we take pictures of the organisms that live in the vicinity of the head office building and post them on the Ikimono Log (Living Nature Log) website operated by the Ministry of the Environment. We hope to create a database with information on the organisms that live in the area.

Brown-eared bulbul

Warbling white eye

Asian swallowtail butterfly

いきものログ

Click here to view Ikimono Log. (Only Japanese)

Osaki-no-Mori Nature Observation Events

We provide elementary school students near our head office with opportunities to interact with nature as they search for cicadas living in the area.

Participation in Ohana Ippai Osaki Activities

At head office and a group company (Meiden Engineering Corporation), we prepared soil in flower beds near Osaki Station, which are managed by Osaki Machi Unei Kyougikai, along with co-sponsors. Going forward, we will continue to actively participate in activities that leave abundant nature for future generations.

Numazu Works

The Numazu Works is blessed with the bounty of nature such as a green zone (area = approximately 65,000 m2) and groundwater. We are conducting activities to use these natural resources in a sustainable manner and contribute to the community.

Maintaining Biotopes

Through the survey of organisms, we discovered Atrocalopteryx atrata dragonflies, which are classified as class II endangered species, at the Numazu Works. We are maintaining a good biotope in the hope that the dragonflies will lay their eggs.

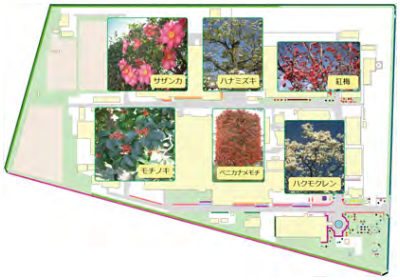
Cleanup at Senbonhama Beach

In November 2023, we carried out a cleanup at Senbonhama Beach in Numazu city as a joint effort with nearby companies.

Ota Works

Botanical Survey of On-Site Green Zone

At the Ota Works, we conducted an on-site botanical survey and found more than 30 varieties of trees. We included the results of the survey on the Ota Works Green Zone Map and we will apply the knowledge gained for future utilization of the green zone.



Ota Works Green Zone Map

Kanayama Red Pine Grove Conservation Activities

The red pine grove in Kanayama is the most well-known natural landscape in Ota City. Kanayama Castle was created using the natural contours of Kanayama and it is a precious historic site that is listed in the top 100 castles in Japan. The Ota works is registered as part of the “red pine managing owner system” and we work to conserve the red pine grove by participating in activities such as weeding.

The Biodiversity Working Group, the Four Electrical and Electronic Industry Associations

Meidensha has participated in the Biodiversity Working Group, a group consist of four electrical and electronic industry associations, since its inception in FY2011. As a member of the industry, we are promoting our biodiversity initiatives through the activities of the working group and enhancing our own efforts.

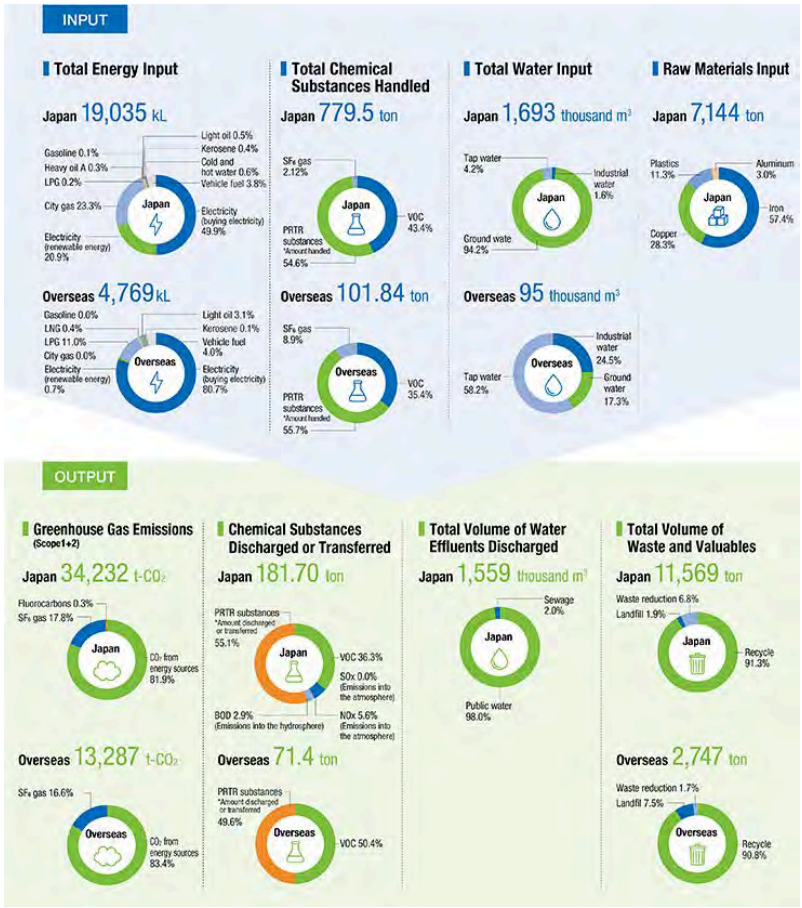
Click here to view information on the Electronic Industry Associations Biodiversity Working Group.

Overview of Environmental Impacts by Our Business Activities

The Meiden Group finds out the overview of environmental impacts by our business activities and uses this information to plan specific activities.

Overview of Environmental Impacts by Our Business Activities (FY2023)

Our rate of use of major resources (INPUT) and our environmental impacts from our business activities (OUTPUT) are shown below



Environmental Impact Data (FY2023) From the Four Main Manufacturing Sites (Domestic Manufacturing Sites)

Numazu Works

Message From the Environmental Manager

The Numazu Works is the main factory of the Meiden Group and conducts development, design, and manufacture of supervisory control equipment, power conversion equipment, power transformers and distribution panels , motor control equipment(inverters), electronic products, and surge arresters, development of software for integrated control devices and standalone, and on-site installation, and after-sales service for products.

At Numazu Works, we are promoting efficient energy use through capital investment and reform of equipment operation, and since July 2023 we have been obtaining 20% of our electricity from CO_2-free sources to reduce greenhouse gas emissions. We are also advancing replacement of SF_6 gas with dry compressed air, as a measure to reduce emissions of SF_6 gas, which is a particularly potent greenhouse gas, in the product testing process.

Additionally, to comply with the purposes of the Building Standards Act (one water-purification tank per site) and the Private Sewerage System Act (obligation to make efforts to convert individual water-purification tanks to combination water-purification tanks), and to avoid the risk of process wastewater spills, a complete upgrade on the wastewater system at the plant began in FY2022.

The upgrades to the wastewater system at the plant continue to make strides into FY2024.

Numazu Works, Environmental Manager, Masanori Fukumoto

Environmental Impact Data (FY2023)

Numazu Works

INPUT		
Energy		
Total energy input	9,711	kL
>Electricity	6,941	kL
>>Electricity from renewable energy	1,152	kL
>City gas	2,687	kL
>LPG	12	kL
>Heavy oil A	14	kL
>Gasoline	14	kL
>Light oil	0.3	kL
>Kerosene	2.5	kL
Cold and hot water	0	kL
Vehicle fuel	40	kL
Equipment subject to internal carbon pricing	259	Millions of yen
Chemicals		
SF_6 gas	16,520.6	kg
VOC	40.7	ton
Amount of PRTR substances* handled	73.1	ton
Water		
Water input volume	1,607.2	thousand m³
>Tap water	25.2	thousand m³
>Industrial water	0	thousand m³
>Groundwater	1,582	thousand m³

OUTPUT		
Greenhouse gases		
Greenhouse gases (Scope 1)	11,095	t-CO_2
>CO_2 attributable to energy use	4,960	t-CO_2
>SF_6 gas	6,106	t-CO_2
>CFCs	29.1	t-CO_2
Greenhouse gases (Scope 2)	10,129	t-CO_2
>CO_2 attributable to energy use	10,129	t-CO_2
Reduction benefit from internal carbon pricing	62	t-CO_2
Chemicals		
VOC (Emissions to air)	39.0	ton
SOx (Emissions to air)	16.4	Kg
NOx (Emissions to air)	6,601	Kg
BOD (Emissions to air)	5,108	kgBOD
Amount of PRTR substances* released or transferred	53.9	ton
Water		
Effluent amount	1,490.5	thousand m³
>Drained to sewer	3.7	thousand m³
>Drained to public waters	1,487	thousand m³
Waste		
Waste emissions volume	3,198.4	ton
>Recycling volume	2,695.6	ton
>Final disposal volume	28.8	ton
>Volume reduction volume	474.0	ton

Ota Works

Message From the Environmental Manager

The Ota Works conducts development and manufacture of large electric generators, power generation equipment, dynamometer systems, and control equipment, etc.

In addition to previous environmental activities, this year, we procured CO_2-free electricity and achieved zero greenhouse gas emissions from electricity consumption. We will continue working to reduce our environmental impact and achieve the SDGs.

Ota Works, Environmental Manager, Manabu Fujikawa

Environmental Impact Data (FY2023)

Ota Works

INPUT		
Energy		
Total energy input	1,999	kL
>Electricity	1,488	kL
>>Electricity from renewable energy	1,488	kL
>City gas	349	kL
>LPG	8	kL
>Heavy oil A	32	kL
>Gasoline	1	kL
>Light oil	68	kL
>Kerosene	33	kL
Cold and hot water	0	kL
Vehicle fuel	20	kL
Equipment subject to internal carbon pricing	0	Millions of yen
Chemicals		
SF_6 gas	0	kg
VOC	20.9	ton
Amount of PRTR substances* handled	20.8	ton
Water		
Water input volume	40.4	thousand m^3
>Tap water	13.3	thousand m^3
>Industrial water	27.1	thousand m^3
>Groundwater	0	thousand m^3

OUTPUT		
Greenhouse gases		
Greenhouse gases (Scope 1)	1,086	t-CO_2
>CO_2 attributable to energy use	1,049	t-CO_2
>SF_6 gas	0	t-CO_2
>CFCs	36.8	t-CO_2
Greenhouse gases (Scope 2)	0	t-CO_2
>CO_2 attributable to energy use	0	t-CO_2
Reduction benefit from internal carbon pricing	0	t-CO_2
Chemicals		
VOC (Emissions to air)	11.2	ton
SOx (Emissions to air)	41	Kg
NOx (Emissions to air)	501	Kg
BOD (Emissions to air)	104	kgBOD
Amount of PRTR substances* released or transferred	16.8	ton
Water		
Effluent amount	28.8	thousand m^3
>Drained to sewer	0	thousand m^3
>Drained to public waters	28.8	thousand m^3
Waste		
Waste emissions volume	607.6	ton
>Recycling volume	510.4	ton
>Final disposal volume	5.4	ton
>Volume reduction volume	91.8	ton

Nagoya Works

Message From the Environmental Manager

The Nagoya Works develops and manufactures logistics and transportation products and ceramic membranes used for water treatment and has manufactured integrated motor and inverter units for EVs since FY2020.

In FY2023, production of inverter units for EVs and ceramic membranes increased, resulting in higher emissions of greenhouse gases. However, we worked to achieve efficient equipment operation, and emissions per unit of production were improved. As the rate of decarbonization is increasing and technology for electrification, computerization, and artificial intelligence of electric vehicles is evolving rapidly, Nagoya Works will focus on electrification and contribute to society.

Nagoya Works, Environmental Manager, Tomohisa Asakura

Environmental Impact Data (FY2023)

Nagoya Works

INPUT		
Energy		
Total energy input	2,628	kL
>Electricity	1,562.6	kL
>>Electricity from renewable energy	0.0	kL
>City gas	1,058.5	kL
>LPG	0.1	kL
>Heavy oil A	0.0	kL
>Gasoline	0.0	kL
>Light oil	0.0	kL
>Kerosene	1.6	kL
Cold and hot water	0.0	kL
Vehicle fuel	5.2	kL
Equipment subject to internal carbon pricing	0	Millions of yen
Chemicals		
SF_6 gas	0	kg
VOC	0.5	ton
Amount of PRTR substances* handled	8.2	ton
Water		
Water input volume	15.4	thousand m^3
>Tap water	6.3	thousand m^3
>Industrial water	0	thousand m^3
>Groundwater	9.1	thousand m^3

OUTPUT		
Greenhouse gases		
Greenhouse gases (Scope 1)	1,893	t-CO_2
>CO_2 attributable to energy use	1,887	t-CO_2
>SF_6 gas	0	t-CO_2
>CFCs	5.7	t-CO_2
Greenhouse gases (Scope 2)	3,217	t-CO_2
>CO_2 attributable to energy use	3,217	t-CO_2
Reduction benefit from internal carbon pricing	0	t-CO_2
Chemicals		
VOC (Emissions to air)	0.2	ton
SOx (Emissions to air)	0	Kg
NOx (Emissions to air)	2,962	Kg
BOD (Emissions to air)	129	kgBOD
Amount of PRTR substances* released or transferred	7.8	ton
Water		
Effluent amount	9.5	thousand m^3
>Drained to sewer	0	thousand m^3
>Drained to public waters	9.5	thousand m^3
Waste		
Waste emissions volume	806.5	ton
>Recycling volume	761.2	ton
>Final disposal volume	23.4	ton
>Volume reduction volume	21.9	ton

KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.

Message From the Environmental Manager

Since its foundation in 1943, KOFU MEIDENSHA ELECTRIC MFG. CO., LTD. has been manufacturing small and medium-capacity industrial motors and forklift motors, and has been manufacturing EV motors since 2009.

We reduced energy demand in our manufacturing process in FY2023, but the impact of abnormally hot weather caused overall energy consumption to remained unchanged versus FY2022. Each site worked to achieve efficient equipment operation and emissions per unit of production were improved. In addition, since FY2022, we have been sourcing renewable electricity for 30% of the electricity we use as we work to reduce greenhouse gas emissions.

KOFU MEIDENSHA, Environmental Manager, Oda Shigehiro

Environmental Impact Data (FY2023)

KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.

INPUT		
Energy		
Total energy input	1,918	kL
>Electricity	1,592	kL
>>Electricity from renewable energy	518	kL
>City gas	318	kL
>LPG	0.4	kL
>Heavy oil A	0	kL
>Gasoline	0	kL
>Light oil	0	kL
>Kerosene	0	kL
Cold and hot water	0	kL
Vehicle fuel	7.2	kL
Equipment subject to internal carbon pricing	0	Millions of yen
Chemicals		
SF_6 gas	0	kg
VOC	39.1	ton
Amount of PRTR substances* handled	36.0	ton
Water		
Water input volume	10.7	thousand m^3
>Tap water	6.7	thousand m^3
>Industrial water	0	thousand m^3
>Groundwater	4.0	thousand m^3

OUTPUT		
Greenhouse gases		
Greenhouse gases (Scope 1)	589	t-CO_2
>CO_2 attributable to energy use	581	t-CO_2
>SF_6 gas	0	t-CO_2
>CFCs	7.7	t-CO_2
Greenhouse gases (Scope 2)	1,879	t-CO_2
>CO_2 attributable to energy use	1,879	t-CO_2
Reduction benefit from internal carbon pricing	0	t-CO_2
Chemicals		
VOC (Emissions to air)	15.2	ton
SOx (Emissions to air)	0	Kg
NOx (Emissions to air)	0	Kg
BOD (Emissions to air)	0	kgBOD
Amount of PRTR substances* released or transferred	13.9	ton
Water		
Effluent amount	10.7	thousand m^3
>Drained to sewer	10.7	thousand m^3
>Drained to public waters	0	thousand m^3
Waste		
Waste emissions volume	783.1	ton
>Recycling volume	771.5	ton
>Final disposal volume	0.006	ton
>Volume reduction volume	11.6	ton

Promotion of Environmental Communication

Policy

The Meiden Group engages in two-way communication with all our stakeholders, which is intrinsically linked to the development of our environmental activities. We also actively disclose information on our activities and their results.

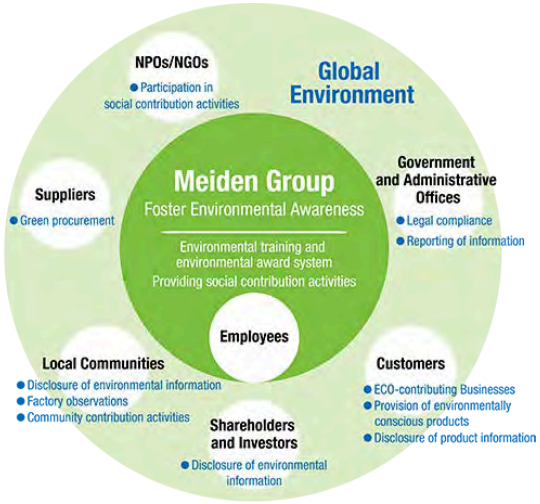
Initiatives

Promotion of Environmental Communication

The Meiden Group is working to create relationships of trust in order to remain to be a company that is needed by society.

We actively release information concerning our environmental conservation activities and environmental impact through our website. We reflect the opinions and needs expressed by our stakeholders in the Meiden Group's environmental activities and environmental training.

Environmental Communication Organization Chart



Initiatives

Participation in WIPO GREEN International Platform for Environmental Technology

Meidensha has participated as a partner business in WIPO GREEN since March 2022. The international platform is operated by the World Intellectual Property Organization (WIPO) of the United Nations to promote the use and diffusion of environmental technologies.

We have also registered certain of our environmental technologies and related patents in the WIPO GREEN database. These include an ecotank-type vacuum circuit breaker that does not use greenhouse gases, a ceramic flat-sheet membrane for water treatment devices that contributes to the effective use of water resources, and a charging and discharging device for battery testing that improves accuracy and efficiency in battery research and evaluation.

We will continue to register Meidensha's environmental technologies and disseminate them widely around the world through WIPO GREEN. This will give more people the opportunity to use them and help achieve a sustainable society by, for example, decarbonizing society and adapting to climate change.

[About WIPO GREEN]
Established by WIPO in 2013, WIPO GREEN is an online platform that promotes the transfer of environmental technologies by connecting providers of such technologies with those who wish to use them. The platform maintains a registry of environmental technologies and needs for such technologies around the world.

[WIPO GREEN Partners]
WIPO GREEN Partners are members of the WIPO GREEN Advisory Board that work with WIPO to guide the activities of the WIPO GREEN platform. They include public and private organizations who support, advise, and otherwise work on behalf of WIPO GREEN.

WIPO GREEN database List of our registered technologies（as of October, 2024）

Registered technology (product)	Month & year registered
Ecotank-type vacuum circuit breaker	February 2022
Ceramic flat-sheet membrane for water treatment devices	December 2022
Charging and discharging device for battery testing	February 2024

March 28, 2022
Meidensha Begins Participation as a Partner Business in WIPO GREEN Environmental Technologies Platform ›

February 29, 2024
Meidensha's Charging and Discharging Device for Battery Testing Newly Registered to WIPO GREEN Environmental Technologies Platform ›

Cooperation with WIPO GREEN | Ministry of Economy, Trade and Industry, Japan Patent Office（Only Japaese） ›

Foster Environmental Awareness

Policy

The Meiden Group believes that increasing each person's environmental awareness leads to environmental contributions to society.

Initiatives

Foster Environmental Awareness

We conduct education relating to environmental initiatives such as environmental management and environmentally conscious design as part of the regular curriculum for employee education, which is conducted for each level of employee such as new employees, new managers, and candidates for executive roles.

Furthermore, we promote environmental activities at each site, conduct internal auditor education, etc., for personnel that are involved with work that impacts the environment, and conduct specialist education as necessary.

Environmental Education (e-learning) for All Meiden Group Staff

Each year, we conduct environmental education for all staff of the Meiden Group, including officers, through e-learning. In FY2023, we gave training on Japan's Plastic Resource Circulation Act, which went into effect in April 2023 and on the topic of "Energy Conservation in the Meiden Group" to further promote Group energy conservation initiatives. Of Meiden Group employees, 83. 8% took the course online, and educational materials were shared with subject employees who were unable to take the course online.

Following are examples of comments and impressions of employees who took the training.

<Trainee impressions>

- I'd already known about the Revised Energy Conservation Act, but now I understand it in more detail.
- This inspires me to do more to conserve energy so the objectives of the Energy Conservation Act can be achieved.
- I want to think more about investing in energy conservation, as there are limits to what individual employees can do.

Promoting Acquisition of Certification Test for Environmental Specialists (Eco Test)® Certification

We promote acquisition of Certification Test for Environmental Specialists (Eco Test)® certification provided by the Tokyo Chamber of Commerce and Industry, and provide support for examination costs and provide sample questions, etc., through e-learning. In the January test in FY2022, our pass rate was 88%. We have 910 Eco Test certification holders as of March 2023. We will provide a bonus from FY2022 to FY2024 for people who have acquired qualifications, as part of promoting acquisition of qualifications.

* Eco Test® is a registered trademark of the Tokyo Chamber of Commerce and Industry.

Specialist Education

We conduct specialist education as necessary at each site, conduct internal auditor education, etc., for employees that promote environmental activities or are involved with work that impacts the environment. In FY2023, we gave training for factory staff on such topics as carbon neutrality and management of chemicals in products. In addition, we gave training on ISO 14001 (a standard on environmental management systems) for staff at branch offices and divisions of the Head Office.

Education Concerning Environmental Laws

We also teach employees about environmental laws and regulations as part of compliance training. In FY2023, we gave lectures on chemical management, Japan's Waste Disposal Act, PCB Special Treatment Act, and Water Pollution Prevention Act. By looking at case studies of violations, we remind trainees of the importance of legal compliance.

Sustainability Management Seminars for Management-Level Employees

Since FY2017, we have been inviting outside experts to hold sustainability management seminars for management. Topics have included the SDGs, ESG investment, TCFD, and SBTs.

Meidensha promotes sustainability management by deepening our understanding of social trends and the environmental initiatives that corporations need to take.

Results Data

Environmental Education Results (FY2023)

Content	Times conducted	Number of participants	Outline
Environmental education (e-learning)	1	7,160	• Energy Conservation in the Meiden Group
Specialist education	11	—	• Carbon neutrality training • Training on management of chemicals in products • Group-wide internal environmental auditor training • ISO 14001 training

Content	Times conducted	Number of participants	Outline
Education concerning environmental laws	4 & shared by video	4,949	• Laws relating to the environment • Examples and causes of contraventions • Meidensha's compliance status • Management of chemical substances according to law • The PCB Special Treatment Act • The Waste Disposal Act • Water Pollution Prevention Act