

Environment

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Promotion of Strategic Environmental Management

Basic 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 our Basic Environmental Philosophy, 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 and design 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
 - To promote energy conservation
 - To properly manage hazardous substances
 - To promote the 3Rs (reduce, reuse and recycle)
 - 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. After establishing a sustainability management system, 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 environmental contribution activities through environmental education.

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.

To attain these targets, we joined the Ministry of the Environment’s “FY2020 project to support model businesses in compiling a plan to reduce CO2 emissions toward realizing SBTs.”*3 With that support, Meiden has compiled the FY2021 version of the Meiden Group’s plan to reduce greenhouse gas emissions toward attaining SBTs. This plan outlines initial ideas for an implementation plan and specific reduction measures to implement long-term reduction measures by the target year stated in the Second Meiden Environmental Vision, and thus we are considering setting even higher targets.

*3 FY2020 project to support model businesses in compiling a plan to reduce CO2 emissions toward realizing SBTs: A project of the Ministry of the Environment, intended to promote concrete reductions to help companies achieve their medium- to long-term targets. In FY2020, five companies were selected to participate: TOKYU FUDOSAN HOLDINGS CORPORATION, NISSIN FOODS HOLDINGS CO., LTD., FamilyMart Co., Ltd., Benesse Corporation, and MEIDENSHA CORPORATION.

Major Initiatives to Achieve Greenhouse Gas Emission Reduction Targets

Main Measures to Cut Greenhouse Gas Emissions

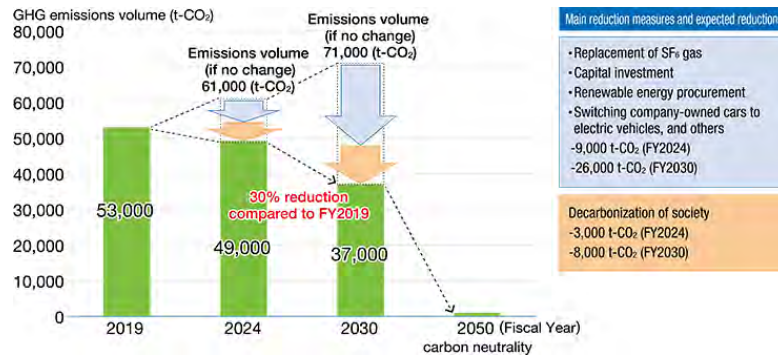
FY2030 greenhouse gas emissions reduction targets	Reduction measures (extract)
Emissions from business activities (scope 1+2) 30% reduction (compared to FY2019)	<ul style="list-style-type: none"> Replacing SF₆ gas (replacing with dry air, etc.) Capital investment (replacing aging equipment, introducing 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)	<ul style="list-style-type: none"> Eco-friendly product design (eliminating use of SF₆ 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	<ul style="list-style-type: none"> 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.

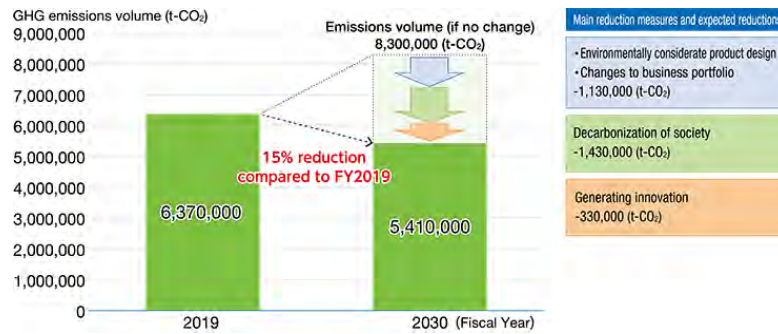
Transition plan for becoming carbon neutral

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				
			Procure renewable energy at Nagoya				
Switching company-owned cars to electric vehicles	Procure renewable energy in Germany, use solar in India, partially use solar in USA, Vietnam, Thaila					Overseas	
		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					
	Revising business portfolio	SF ₆ gas-free					
		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 Plan, 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

FY2022 Environmental Targets and Results

Targets and level of achievement for FY2022, 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 FY2022 Environmental Targets

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

Strategic Targets	Actions	FY2022 Environmental Targets (Japan)	FY2022 Results	Rating
Contribute to environment through products and services	Promote environmentally conscious design	GHG reduction contribution by ECBs: 8,000,000 tons	13,542,000 tons	☆☆☆
		Build a foundation for scope 3, category 11 reductions (build system, establish standards)	Revised product environmental assessments, implemented super green product system, built system for calculating product-specific emissions intensities	☆☆☆
Reduce the environmental impact of business operations	Reduce greenhouse gas emissions	Japan: Total emissions (Scope 1+2): -5% (compared to FY2019)	-7% (compared to FY2019)	☆☆☆
		Overseas*1: Total emissions (scope 1+2): -2% (compared to FY2019)	+1.8% (compared to FY2019)	☆☆
	Manage chemicals properly	VOC emissions: 80 tons or less	68 tons	☆☆☆
	Promote the 3Rs	Total waste: -5% (compared to FY2017) All sites in Japan (excludes Construction Service Business Units)	+0.1% (compared to FY2017)	☆
		Zero waste emissions*2 at 10 sites*3: 1% or less final waste emissions	1.7%	☆
	Conserve water resources	Promotion of efficient water use: 4 main manufacturing sites*4	Considered redevelopment of wastewater facilities Repaired underground water supply piping	☆☆☆
	Conserve biodiversity	Conservation of ecosystems: 4 main manufacturing sites*4	Removed introduced species, conducted red pine conservation activities, tree-planting activities, and river 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), HOKUTO DENKO 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.

FY2023 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 FY2023 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.

FY2023 Environmental Targets

Strategic Targets	Actions	FY2023 Environmental Targets (Japan)
Contribute to environment through products and services	Promote environmentally conscious design	9.0 million-ton reduction in GHG emissions by Environment-Contributing Businesses*1
		Develop a plan for scope 3, category 11 reductions (create systems and develop a standard)
Reduce the environmental impact of business operations	Reduce greenhouse gas emissions	Japan: Total emissions (scope 1+2): -8% (compared to FY2019)
		Overseas: Total emissions (scope 1+2): -3% (compared to FY2019)
	Manage chemicals properly	VOC emissions: 75 tons or less
	Promote the 3Rs	Total waste: -6% (compared to FY2017): All sites in Japan (excluding Construction Business Unit)
		Final disposal rate 1.0% or less: Main sites in Japan *2
	Conserve water resources	Promote redevelopment of wastewater treatment facilities
Conserve biodiversity	Conservation of ecosystems in green spaces (reduced agricultural chemicals, elimination of introduced species, 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 sites in Japan: Numazu Works, Ota Works, Nagoya Works, KOFU MEIDENSHA ELECTRIC MFG. CO., LTD., MEIDEN CHEMICAL CO., LTD., HOKUTO DENKO CORPORATION, MEIDEN ENGINEERING CORPORATION, Plant Construction & Engineering Business Group, 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 validity and effectiveness.

Organization

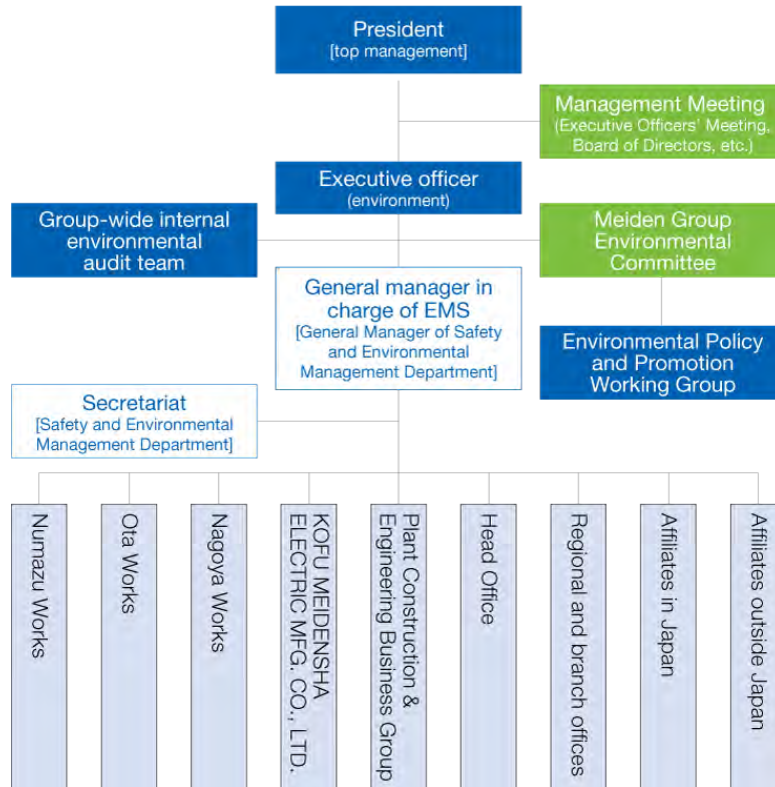
Environmental Management Promotion Organization

Under the leadership of the Representative Director, 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 and then acts as decided by top management.



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
<p>Government (political) Laws and Regulations</p> <ul style="list-style-type: none"> Carbon neutrality and mitigation of climate change Adapting to climate change Accelerating expansion into new energy and renewable energy markets, and carbon-free energy systems Strengthening partnerships with municipal governments, etc. 	<ul style="list-style-type: none"> Effects of cooperation throughout the value chain Rising insurance premiums Electricity market: More new players Intensified competition with other industries 	<ul style="list-style-type: none"> Increased demand for environment-friendly type products Increased opportunities in the primary and tertiary industry markets New energy, renewable energy, and VPP market expansion Proposals for urban development and business expansion 	<ul style="list-style-type: none"> Promoting environmental management Expanding products' contribution to the environment
<p>Economy</p> <ul style="list-style-type: none"> Carbon pricing Automobile electrification and digitalization Sustainability management and CSV approach 	<ul style="list-style-type: none"> Increased prices Zero value chain CO₂ emissions in the future Withdrawal of investors due to being seen as half- 	<ul style="list-style-type: none"> Expanded nonuse fossil fuel, new energy, and renewable energy markets Expanded EV motor/inverter market 	<ul style="list-style-type: none"> Expanding products' contribution to the environment Promoting environmental communication

Phenomena (issues) related to environment	Risks	Opportunities	Carrying out initiatives
<ul style="list-style-type: none"> • Medium- to long-term economic growth of developing countries • Poorer earnings due to instability of world economy (bank failures, wildly fluctuating exchange rates, etc.) 	<ul style="list-style-type: none"> • hearsed in carbon reduction efforts • Overseas compliance • Pressure on environmental management resources 	<ul style="list-style-type: none"> • Increased corporate value through information disclosure • Conducting growth investments (overseas markets) • Accelerating improvement of operational efficiency 	<ul style="list-style-type: none"> • Promoting environmental health and safety management • Environmental audits of overseas production sites
<p>Society</p> <ul style="list-style-type: none"> • Efficient utilization of resources and active utilization of recycled materials • Expanding businesses that contribute to the environment and products that contribute to GHG reduction • Response to CDP, SBT, TCFD, TGIF, etc.* • Expansion of responsibility to the value chain • Change of lifestyle (ecological orientation) and adoption of Sustainable Development Goals (SDGs) • Fair labor and employment conditions • Post COVID-19 and coexisting with COVID-19 initiatives <p>* TGIF: A section of the Climate Innovation Finance Strategy proposed by METI in September 2020. This favors finance (F) towards transition (T), green (G), and innovation (I), rather than a dualistic approach, in order to achieve the SDGs and the Paris Agreement.</p>	<ul style="list-style-type: none"> • Increased costs due to utilization of recycled materials • Reduced product competitiveness • Reduced corporate value • Risks to the value chain (procurement and seeking responsibility) • Decreased employee awareness • Increased reputational and litigation risks • Loss of corporate value as a so-called black company • Increased gap between companies 	<ul style="list-style-type: none"> • Reduced costs due to decreased reliance on scarce resources, and reduced emissions • Increased corporate value due to expansion of businesses that contribute to the environment and products that contribute to GHG reduction • Reputation as a problem-solving company • Enhanced value chain • Increased awareness, unified goals of employees, etc. • Initiatives to incorporate SDGs and information disclosure • Work-style reform initiatives • Creation of new businesses and work-style reforms 	<ul style="list-style-type: none"> • Promoting environmentally considerate design • Expanding products' contribution to the environment • Promoting environmental/health and safety communication • Strengthening value chain management • Reform of environmental/health and safety awareness
<p>Technology</p> <ul style="list-style-type: none"> • High-efficiency power transformer technology • Evolution of ICT and IoT technology and accelerated digital transformation • Diversification and efficiency of maintenance services • Evolution of virtual reality (VR) and augmented reality (AR) 	<ul style="list-style-type: none"> • Increased new players (IT companies) • Industrial accidents due to ignoring risks 	<ul style="list-style-type: none"> • Increased demand for environment-friendly type products • Utilizing ICT and IoT and strengthening system technologies and product capabilities • Enhanced rollout of one-stop services • Realistic experiences of accidents and disasters 	<ul style="list-style-type: none"> • Expanding products' contribution to the environment

Phenomena (issues) related to environment		Risks	Opportunities	Carrying out initiatives
Legal Restrictions Legal Restrictions	<ul style="list-style-type: none"> Tightened overseas environmental regulations Fourth basic recycling plan Tightening of harmful chemical substance regulations Stronger systems for chemical substance management in workplaces 	<ul style="list-style-type: none"> Penalties and loss of reputation due to non-compliance with overseas laws Increased cost of virgin materials Analysis, communication, and management of information concerning SDS and harmful substances Work environment deterioration and occupational illnesses due to incomplete risk management 	<ul style="list-style-type: none"> Utilization of recycled materials Superior products of competitive advantage that are free from harmful substances Thorough chemical substance risk assessment and risk management 	<ul style="list-style-type: none"> Promoting environmental management Promoting environmentally considerate design Strengthening management of chemicals in products Managing chemical substances properly Giving training on chemical substance risks, practicing thorough risk assessment, and developing management systems in accordance with revised laws
Natural Environment	<ul style="list-style-type: none"> Depletion of resources Microplastics issues Ecosystem abnormalities Occurrence of disasters Change to air temperature and rainfall, and abnormal weather events 	<ul style="list-style-type: none"> Increased cost of virgin materials Utilization of biodegradable plastics Increased reputational and litigation risks Business continuity Disaster response and industrial accidents at time of recovery Disrupted value chain due to flood, etc. 	<ul style="list-style-type: none"> Utilization of recycled materials and promotion of the 3Rs for products Provision of local contribution activities and increased corporate value Increased demand for the water business due to water risks 	<ul style="list-style-type: none"> Promoting environmentally considerate design Promoting environmental communication Promoting environmental/health and safety management

ISO 14001 Certification Status (as of March 31, 2023)

We are expanding the scope of bodies certified under ISO 14001, the international standard for environmental management systems. In Japan, Meidensha and 20 affiliated companies have finished earning certification. Overseas, 12 companies, mainly manufacturing sites, have finished earning certification.

Certification Status in Japan

Company Name		Date of Certification Acquisition
1	MEIDENSHA CORPORATION*	February 24, 1998
2	MEIDEN SHOJI CO., LTD.	
3	KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.*	
4	MEIDEN SYSTEM MANUFACTURING CORPORATION*	
5	MEIDEN KIDEN KOGYO CO., LTD.*	
6	MEIDEN KOHSAN CO., LTD.	
7	MEIDEN SYSTEM SOLUTIONS CORPORATION	
8	MEIDEN PLANT SYSTEMS CORPORATION*	
9	M WINDS CO., LTD.	
10	MEIDEN UNIVERSAL SERVICE LTD.	

Company Name		Date of Certification Acquisition
11	MEIDEN AQUA BUSINESS COMPANY	
12	MEIDEN TECHNO SYSTEMS CO., LTD.*	
13	MEIDEN MASTER PARTNERS CORPORATION	
14	MEIDEN O&M CORPORATION	July 31, 2003
15	MEIDEN ENGINEERING CORPORATION	November 20, 2012
16	MEIDEN CHEMICAL CO., LTD.*	
17	MEIDEN FACILITY SERVICE CORPORATION	November 18, 2015
18	HOKUTO DENKO CORPORATION*	October 3, 2013
19	EAML Engineering CO., LTD.*	March 5, 2004
20	MEIDEN NANOPROCESS INNOVATIONS, INC.*	January 12, 2022

* Companies with manufacturing plants

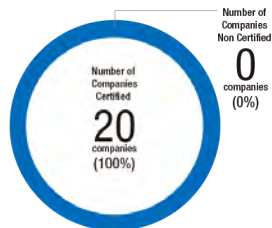
Certification Status Overseas

	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	SHANGHAI MEIDENSHA CHANGCHENG SWITCHGEAR CO., LTD.*	Shanghai, China	January 11, 2016
4	P.T. MEIDEN ENGINEERING INDONESIA	Indonesia	December 19, 2018
5	MEIDEN MALAYSIA SDN. BHD.	Malaysia	October 10, 2018
6	MEIDEN METAL ENGINEERING SDN.BHD.*	Malaysia	October 9, 2014
7	MEIDEN SINGAPORE PTE. LTD.*	Singapore	February 8, 2010
8	THAI MEIDENSHA CO., LTD.	Thailand	July 1, 2009
9	TRIDELTA MEIDENSHA GmbH.*	Germany	July 13, 2015
10	MEIDEN T&D(INDIA)PRIME MEIDEN LIMITEDLTD.*	India	January 26, 2015
11	MEIDEN AMERICA SWICHGEAR, INC.*	USA	September 29, 2021
12	VIETSTAR MEIDEN CORPORATION*	Vietnam	February 4, 2023

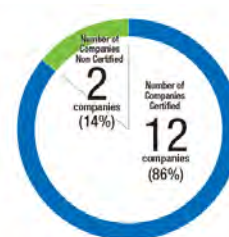
* Company with manufacturing plants

Percentage of Companies Certified in Japan/Overseas

Number of certified companies in Japan



Number of certified companies overseas



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. As for overseas sites, we have taught new manufacturing sites how environmental performance data is used and carefully examined data collection initiatives and the data itself.

In FY2022, our audits prioritized “environmental factors and evaluating environmental impact,” “checks of compliance obligation initiatives,” “improving human resources,” and “legal requirements (laws on industrial waste and plastic resource circulation).” We determined that the Group was conforming to ISO 14001:2015 requirements overall and functioning effectively.

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 within three hours.

In FY2022, there was one incident involving soil and groundwater exceeding standards in some samples. 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 2022	Nagoya Works	In connection with a building construction review, soil and groundwater at the site were studied and specific toxic substances exceeding standards were detected in some samples.	The contaminated area is covered with concrete pavement, etc., and there is no risk of contamination being spread by factors like soil dispersion or rainwater. We believe that there is no health hazard to nearby residents. However, we have monitored the groundwater under the guidance of Aichi Prefecture, placing the highest priority on not disturbing nearby residents.

Breaches of Environmental Laws (Record)

FY2020	FY2021	FY2022
0	0	0

Environmental Fines (Record)

FY2020	FY2021	FY2022
0	0	0

Environmental Accounting (FY2022)

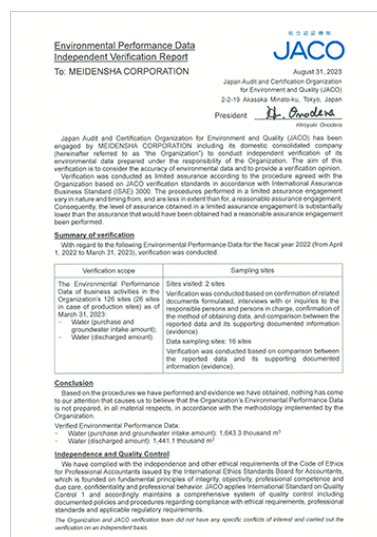
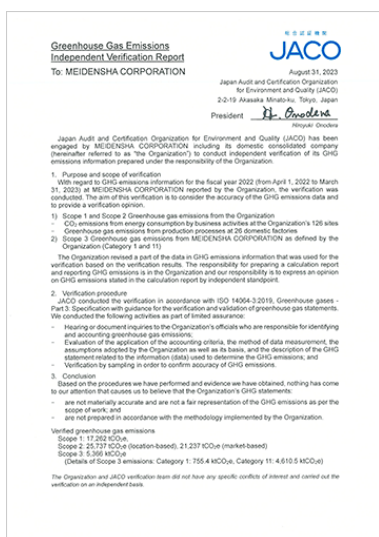
We quantify costs, etc., relating to environmental activities, with reference to the Ministry of the Environment's "Environmental Accounting Guidelines 2005."

Environmental Protection Costs		Investment (million yen)
Business area costs	Implementation of new energy-saving devices, etc.	2,328
R&D costs	R&D costs for environmentally conscious products, etc.	9,516

* Scope of calculation: Meidensha (non-consolidated); period covered: April 2022–March 2023

Third-Party Verification

In order to ensure the release of more accurate and reliable environmental performance data for FY2022, we have been examined by the Japan Audit and Certification Organization for Environment and Quality.



Click pics to enlarge.

Target Items

Amount of greenhouse gas emissions		Scope of calculation	
Scope 1	17,262 t-CO ₂ e	Scope 1 and 2 greenhouse gas emissions from the business activities of Meidensha and domestic Group companies during the period from April 1, 2022 to March 31, 2023.	
Scope 2	25,737 t-CO ₂ e (location basis)		
	21,237 t-CO ₂ e (market basis)		
Scope 3	(Category 1)	755.4 kt-CO ₂ e	Category 1 emissions (scope of calculation is based on Meidensha's determination) from the business activities of Meidensha during the period from April 1, 2022 to March 31, 2023.
	(Category 11)	4,610.5 kt-CO ₂ e	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, 2022 to March 31, 2023.
Water	Usage volume (Amount of water purchased and water intake)	1.6433 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, 2022 to March 31, 2023.
	Discharged water volume	1.4411 million m ³	Discharged water volume from the business activities of Meidensha and domestic Group companies during the period from April 1, 2022 to March 31, 2023.

Assessment Standards

JACO certification standards based on ISO 14064-3 and ISAE3000

ISAE3000:	International Standard on Assurance Engagements (ISAE) 3000
ISO14064-3:	Specification with guidance for the validation and verification of greenhouse gas assertions

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 CO₂ 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.

In FY2021, we have set a target of 950,000 tons/year of environmental contribution (the expected reduction in CO₂ emissions from products sold). We were unable to achieve our goal, with an emissions reduction of 736,000 tons/year due to factors such as the reduction in power generation as a result of the repair work of Hachiryu Wind Farm. In FY2022, we changed the name of “environmental contribution” to “GHG reduction contribution,” and we have set GHG reduction contribution targets using calculation methods that are comparable to standard products and services around the world. We set a GHG reduction contribution target of 8 million tons/year in FY2022. We achieved the target, having reduced emissions by 13,542,000 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 equipment for electric vehicles.



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 FY2022 (10,000 t-CO ₂)	Approach to calculating GHG reduction contribution
Wind power sales business*	3.9	Emissions curbed if grid power replaced by renewable energy generation
Photovoltaic generation systems	0.0	
Power conditioners for photovoltaic generation	1.9	
Power conditioners for storage batteries	0.0	
Hydro turbine generators	1,016.7	
Railway regenerative inverters	0.3	Emissions curbed by replacing conventional Meidensha goods (lowering energy losses)
Electrical equipment for electric vehicles	108.6	Emissions curbed if replacing gasoline vehicle of same grade
Control equipment and motors for electric forklifts	219.4	
Cubicle-type dry air insulated switchgear (Eco C-GIS)	0.0	Emissions curbed by not using SF ₆ gas
Ecotank type vacuum circuit breakers	3.4	
Total	1,354.2	

* Calculated by multiplying the difference in volume of CO₂ 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

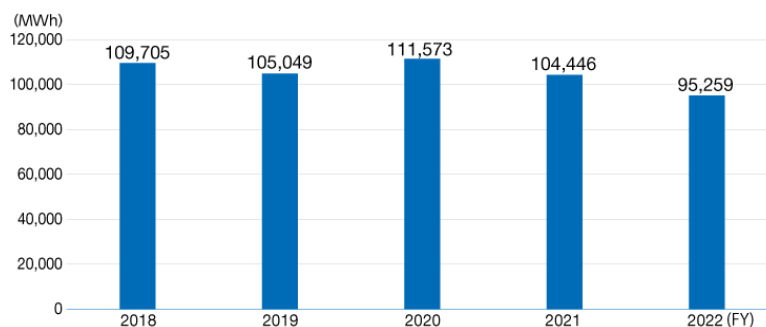


Choshi Shiosai Wind Farm

Aiming for increased utilization of wind power

In FY2022, the amount of electricity generated was 95,259 MWh, partly due to wind conditions. 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

Electrical Component for Electric Vehicles


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. One of our new initiatives was to commercialize Meiden e-Axle, which is an integrated motor/inverter/gear (decelerator) product.

This is a standard product that will contribute to shorter development times for customers and may reduce cost compared to custom products. It has a 60% higher output density compared with existing Meidensha products (excluding decelerator) with a maximum output of 150 kW and a maximum drive shaft torque of 3,120 Nm.

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 (SF₆) gas, which has more than 20,000 times the greenhouse properties of CO₂, 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.

we received the 2022 Environment Minister's Commendation for Global Warming Prevention Activity  [>](#)

- * SF₆ 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 23,500 times the effect on global warming of CO₂ 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 CO2 emissions according to a life cycle assessment (LCA), and we encourage environmentally conscious design in order to reduce CO2 emissions.



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	<ul style="list-style-type: none"> • Weight reduction • External dimensions and capacity • Reduction of number of components
Energy and resource conservation	<ul style="list-style-type: none"> • Reduction of power consumption • Water saving • Reduction of consumables • Reduction of packaging volume (reduction of plastic packaging)
3R	<ul style="list-style-type: none"> • Use of recycled materials • Separability of materials • Ease of collection and transport
Long-term usability	<ul style="list-style-type: none"> • Maintainability • Reliability and durability
Prohibited substances	<ul style="list-style-type: none"> • Environmental friendliness
Life cycle consideration	<ul style="list-style-type: none"> • Reduction of life cycle environmental impact • Disclosure of information concerning evaluation of environmental impact
Environmental safety	<ul style="list-style-type: none"> • Danger of fire or explosion • Danger at time of dismantlement • Environmental measures
Other	<ul style="list-style-type: none"> • Entered contests for national-level awards • Top runner products (compared to other companies)

A Meiden Green Products Registered in FY2022

[Product] IoT Controller

In response to the shortage of new engineers due to the declining birth rate and aging population, railroad operators are increasingly practicing CBM (Condition-Based Maintenance) and labor-saving patrols and inspections using ICT technology. The purpose is to perform facility maintenance as efficiently as possible.

To meet this need, we developed an IoT controller that collects and stores information from sensors and measuring devices and transmits it to a host device.

This contributes to safe and secure facility operation by enabling operators to remotely monitor equipment and conditions and streamlining the time and travel required for patrol inspections.

This product has the following advantages over its predecessor.

- Reduces equipment energy consumption
- More efficient maintenance to lower running costs
- Reduces GHG emissions resulting from travel for patrol inspections



Lifecycle CO₂ Emissions

54 %

* Percentage based on previous model of equivalent Meidensha product

Lifecycle CO₂ Emissions



[Click here for related products and details.](#) >

Management of chemical substances in products

Initiatives

Management of chemical substances in products

Management of chemical substances in products We operate an “Environmental BOM*1 Management System” that collect and communicate information concerning chemical substances contained in products through a cloud-based Web system.

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*3, 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.

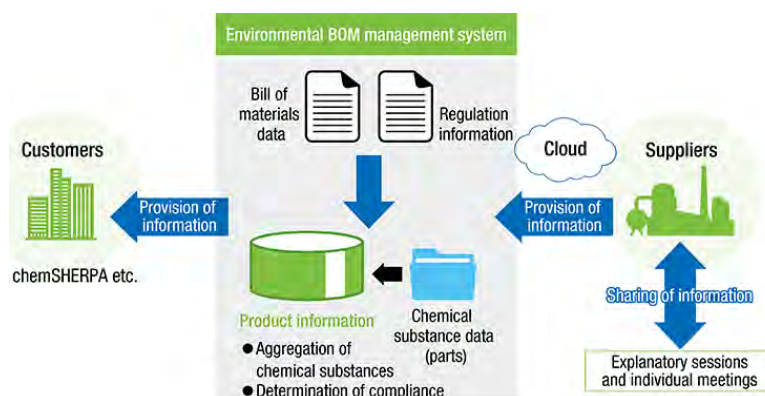
*1 BOM: Bill of Materials

*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

eidensha 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

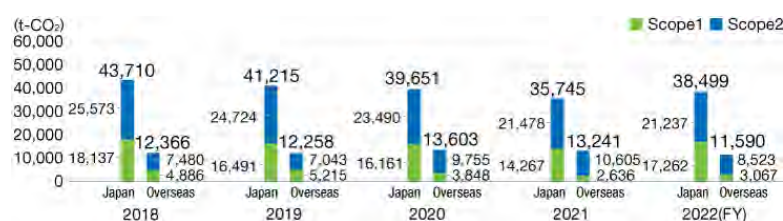
Amount of Greenhouse Gas Emissions

Scope 1 and Scope 2 emissions

To enhance our activities for mitigating environmental impact, we use internal carbon pricing and source CO₂-free electricity (in FY2022, more sites began to source CO₂-free electricity, including KOFU MEIDENSHA ELECTRIC MFG. CO., LTD. and MEIDEN NANOPROCESS INNOVATIONS, INC.). As a result, Scope 2 emissions fell even as production increased. On the other hand, Scope 1 emissions increased in FY2022 due to a leak of SF₆ gas from equipment used to recover it. In response to that incident, we refurbished the recovery equipment and put a stronger check system in place. We will continue working to control Scope 1 and 2 emissions.

		FY2019		FY2020		FY2021		FY2022	
		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
Scope2	Location basis	24,980	7,043	24,479	9,755	25,160	10,605	25,737	8,523
	Market basis	24,724	-	23,490	-	21,478	-	21,237	-

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 (SF₆ and CFCs, etc.)

Scope 2: Indirect Emissions Combustion of fossil fuel to generate electricity (electricity company) that is consumed by the company

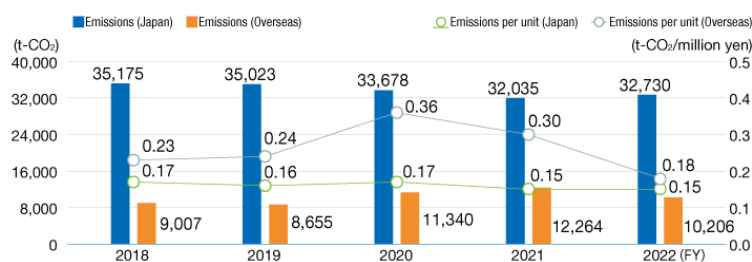
* Renewable energy produces zero emissions

Results Data

Amount of CO₂ Emissions from Energy Sources

In FY2022, we started aggregating environmental performance data for MEIDEN (HANGZHOU) DRIVE TECHNOLOGY CO., LTD., VIETSTAR MEIDEN CORPORATION, and MEIDEN AMERICA SWITCHGEAR, INC. As a result, although energy use has increased, the emission factor declined since we started using the International Energy Agency's (IEA) 2018 country-specific average factors in FY2022, leading to lower CO₂ emissions per unit of sales outside Japan.

Amount of CO₂ emissions from energy sources/CO₂ emissions per sales unit



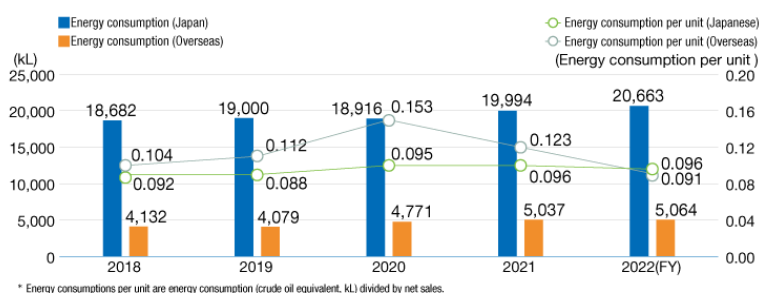
* Japanese emissions: The amounts of fuel oil and fuel gas are calculated referring to the "List of Calculation Methods and Emission Factors in the Calculation, Reporting and Publication System" for the relevant fiscal year published by the Ministry of the Environment. The amount of electric power is 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-CO2) divided by net sales (million yen).

Energy Consumption (crude oil equivalent)

Energy consumption/energy consumption per unit of sales



* Energy consumptions per unit are emissions (t-CO2) divided by net sales (million yen).

Initiatives

Reduction of CO₂ Emissions from Business Activities

Introduction of Renewable Energy

In recent years, we have procured electricity from renewable sources in an effort to reduce CO₂ emissions from business activities.

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

In FY2022, KOFU MEIDENSHA ELECTRIC MFG. CO., LTD., one of our main production base in Japan, introduced renewable power and switched 30% of its electricity consumption to CO₂-free power. In addition, the new head office at MEIDEN KOHSAN CO., LTD. sources electricity produced by M WINDS CO., LTD.'s Choshi Shiosai Wind Farm through non-fossil certificates with tracking information.

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	<p>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 CO₂-free electricity from solar and wind power.</p> <p>July: Signed power contract (Green Basic Plan) at Meidensha's Headquarters (ThinkPark Tower) and began sourcing CO₂-free electricity from solar and wind power, etc.</p>
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TOPICS

Promoting Internal Carbon Pricing

Internal carbon pricing is a mechanism to promote investment in equipment with a significant CO₂ 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-CO₂ 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-CO₂, 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- CO₂
- Subject to application: Proposed equipment for FY2023 and beyond

Activity Results

There were 13 cases in FY2022 in which we applied internal carbon pricing. For example, we introduced equipment that is expected to significantly lower CO₂ emissions, such as replacing fluorescent lighting with LED bulbs at the Meiden R&D Center and replacing compressors and air-conditioning equipment at production plants.

Equipment subject to internal carbon pricing (FY2022)	1,462 (million yen)
Reduction due to internal carbon pricing*	3,708 (t-CO ₂)

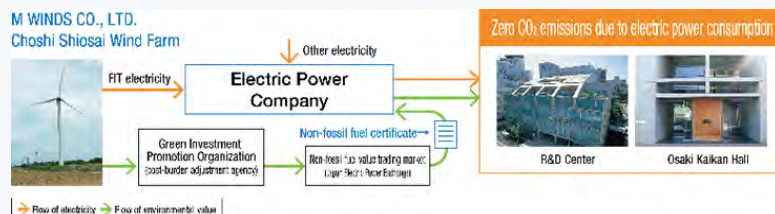
* Reduction is calculated based on the lifecycle (statutory useful life) of equipment.

Procurement of Electricity with Zero CO₂ Emissions Using Non-Fossil Fuel Certificates

Since November 2019, we have sourced electricity from effectively renewable energy sources for the Meiden R&D Center and Osaki Kaikan Hall with a combination of FIT*1 and non-fossil fuel certificates*2 with tracking information for Meiden Group subsidiary M WINDS CO., LTD.'s Choshi Shiosai Wind Farm. Through non-fossil fuel certificates containing tracking data, we are able to link electricity that is consumed by the R&D Center and Osaki Kaikan Hall to the environmental value of energy produced by Choshi Shiosai Wind Farm, demonstrating that we produce net zero CO₂ emissions. In this way, electricity consumption by Meidensha's R&D Center and Osaki Kaikan Hall produces net zero emissions.

Furthermore, using non-fossil fuel certificates with tracking information makes it possible to conform with the international initiatives RE100, which has the goal of obtaining 100% of the electricity required for business activities from renewable energy sources. This expands our options to effectively utilize existing wind farms.

As demand for electricity from renewable energy sources is rapidly increasing, with the aim of decarbonization, Meidensha will continue to work to reduce its environmental impact and provide products and services that contribute to a sustainable society.



*1 Feed-in tariff (FIT) scheme:

A system that obliges electricity companies to purchase electricity generated from renewable energy sources (solar, wind, hydro, geothermal, biomass) for a certain period of time. The system was launched in July 2012 in order to promote the use of renewable energy.

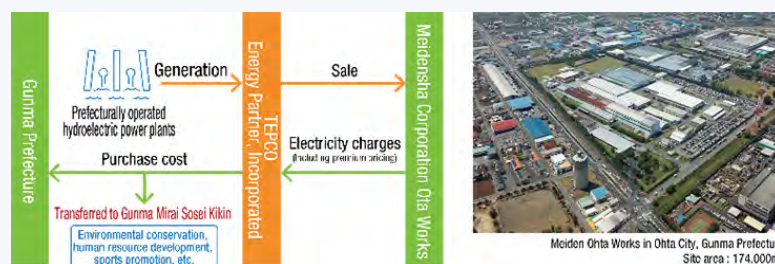
*2 Non-fossil fuel certificate:

A certificate issued by the Ministry of Economy, Trade and Industry that certifies the environmental value of electricity that does not create CO₂ emissions, such as electricity from renewable energy sources. Trading commenced through Japan Electric Power Exchange in May 2018, and a demonstration experiment that included tracking information (information that clearly states the type and location of energy source) in certificates commenced in March 2019.

Meiden switches to electricity with zero CO₂ emission at its R&D Center and another facility. Procured from a subsidiary's wind farm using "non-fossil certificates" with tracking information

Procurement of CO₂-Free Electricity that is Produced and Consumed in Gunma Prefecture for Ota Works

From April 2021, Meidensha has been procuring electricity from CO₂-free hydroelectric sources in Gunma Prefecture for Ota Works (Ota city, Gunma), which is one of our main production sites. Up to this point, we have trialed procurement of CO₂-free electricity for some facilities such as the Meiden R&D Center (Shinagawa, Tokyo), but this is the first time we have introduced it for whole production sites. This initiative uses the Gunma Hydroelectric Power Source Plan*1 from the power menu provided by Gunma Prefecture and TEPCO Energy Partner, Incorporated. This power menu is a plan for local generation and consumption of electricity provided from hydroelectric power plants directly run by Gunma Prefecture (excluding pumped hydro and FIT) to enable zero CO₂ emissions from electricity consumption. A portion of electricity charges are used for environmental protection projects, etc., in Gunma, which contributes to the local community.



Ota Works was established in 1977 as a dedicated rotating machinery factory. It currently focuses on medium and large rotating machinery and power generation equipment and dynamometers, which are used for research and development, etc., of vehicles, etc., and develops and manufactures environmentally considerate equipment. We have delivered many generators produced at Ota Works to hydroelectric power plants in Gunma, and Ota Works accounts for approximately 10% of the Meiden Group's total power consumption.*2 Going forward, Ota Works will manufacture hydroelectric power generation equipment and component products using electricity from renewable energy produced by hydroelectric generation.

The Meiden Group is also considering procurement of electricity from renewable sources at other sites. We will continuously work to reduce greenhouse gas emissions from business activities, etc., including prioritizing the introduction of equipment with a low environmental impact, etc., and contribute to the realization of a sustainable society through the development and delivery of products and services that contribute to global environmental conservation.

*1 Application for trademark registration of "Gunma Hydroelectric Power Source Plan" filed in Gunma Prefecture.

*2 FY2019 power consumption: 7,123 MWh.

Meiden to use locally generated, CO₂-free electricity at Ota Works in Gunma Prefecture Important production base to tap renewable energy source generated by hydro power >

Double Winner of the FY2022 Environment Minister's Commendation for Global Warming Prevention Activity

MEIDENSHA CORPORATION and MEIDEN KOHSAN CO., LTD. (MEIDEN KOHSAN), a member of the Meiden Group, won an FY2022 Environment Minister's Commendation for Global Warming Prevention Activity in the category of pioneering introduction and proactive implementation. The two were praised for their efforts to implement ABW*1 and a multi-function PCS*2 manufactured by Meidensha at the new MEIDEN KOHSAN head office.

At the same event, Meidensha's independent effort to contribute to a decarbonized society by making the world's first Ecotank Type Vacuum Circuit Breaker (VCB) that does not use SF₆ gas also won an Environment Minister's Commendation for Global Warming Prevention Activity in the product development and commercialization category.

Product and Service Initiatives >

The Ministry of the Environment sponsors the Environment Minister's Commendation for Global Warming Prevention Activity to honor individuals and entities that have made outstanding achievements in alleviating climate change and adapting to it.

At the FY2022 event, the Meiden Group became the only business group to be a double winner.



(Left) Isato Kunisada, Parliamentary Vice-Minister of the Environment and Member of the House of Representatives

(Right) Takeshi Miida, Representative Director & President & Executive Officer, MEIDENSHA CORPORATION

*(As of December 2022)



The new MEIDEN KOHSAN head office

■ Category of pioneering introduction and proactive implementation (mitigation and adaptation)
Implementation of ABW and a multi-function PCS manufactured by Meidensha at the new MEIDEN KOHSAN head office

■ Overview of initiative

- MEIDEN KOHSAN's aging head office was rebuilt with an ABW layout. Windows were optimally placed to allow natural lighting to come in, lighting was replaced with LEDs, etc., resulting in major energy savings.
- A multi-functional PCS developed by Meidensha was introduced; it is used as a storage battery for power generated with solar panels; for charging and discharging power by EVs; and as a power source used at the new head office.
- Certified as being the highest rank in the Building-Housing Energy-efficiency Labeling System (BELS), as well as ZEB Ready*3 as defined by the Ministry of Economy, Trade and Industry
- Uses CO₂-free electricity generated by M Winds Co., Ltd., a Meiden Group company, thereby emitting no CO₂ in Scope 1 and 2 and reducing annual CO₂ emissions by about 49 tons.


*1: Activity Based Working.

A work style that allows employees to choose the time and place to work in a way that suits their type of job.

*2: Power Conditioning System.

A device to convert power generated by solar panels into power for the utility grid.

*3: ZEB Ready means that a building consumes at least 50% less primary energy (not counting renewable energy) compared to standard primary energy consumption.

Meiden, subsidiary receive the 2022 Environment Minister's Commendation for Global Warming Prevention Activity (PDF:271KB)  [>](#)

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 on holidays and at night.

TOPICS

Energy Saving Campaign

The Group held an Energy Saving Campaign with the aim of using energy more efficiently, spreading awareness of energy saving, and lowering energy costs. As part of this, employees were invited to propose ideas for improvements that would lead to energy savings. In addition, divisions that made outstanding energy-saving efforts at their respective offices and units received commendations.

Examples of Initiatives

1. Turning off unnecessary lighting

- (1) Normally keep lights off in unoccupied areas; use fewer lights in common areas
- (2) Be sure to turn off lights when away from the desk (when going to meetings, taking a break, or leaving the office at the end of the day)
- (3) Turn off lights to vending machines; turn off neon "MEIDEN" sign on top of main building at Numazu Works

2. Strictly controlling air-conditioner operations

- (1) Set air-conditioning to save energy but still be reasonably comfortable (suggested settings: 28°C in summer, 20°C in winter); use timer to control operations
- (2) Practice Cool Biz and Warm Biz: wear light clothing and avoid wearing neckties in seasons when the workplace is being cooled and wear layered clothing in seasons when it is being heated
- (3) Limit the number of air-conditioning units operating 24 hours a day
- (4) Inspect filters when doing basic air-conditioner inspections and clean filters when doing major cleanings

3. Saving power with office equipment

- (1) Put PCs into power-saving mode
- (2) Turn monitors off when away from the desk; lower monitor brightness (but keep bright enough)
- (3) Reduce the number of laser printers and multi-function printers in use

4. Introducing energy-saving equipment

- (1) Introduce energy-saving equipment based on internal carbon pricing evaluation
- (2) Switch to LED lighting and top-of-line equipment; replace air conditioners with energy-saving equipment; build solar houses at work sites
- (3) Reduce standby power consumption by reviewing the operating conditions of equipment such as conveyors and compressors

Initiatives and Results Data

Reducing Emissions of Greenhouse Gasses Other than CO₂

The Meiden Group's emissions of greenhouse gasses other than CO₂ include SF₆ gas, which is used for lightning arresters and circuit breakers, etc., and CFCs, which are used as refrigerants in air conditioners.

The Group is working to reduce emissions of SF₆ gas with its powerful greenhouse effect and is also doing technical research and verification of alternative gases. To curb CFC emissions, moreover, we are strengthening management of air-conditioning equipment and updating facilities.

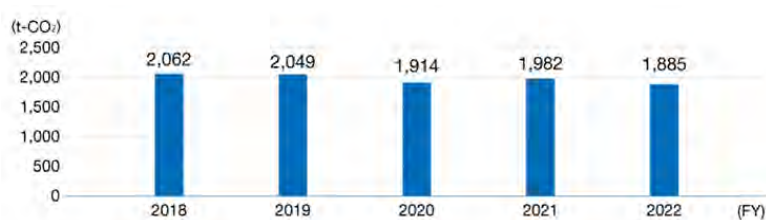
Emissions of Greenhouse Gasses Other than CO₂ (Japan)



Reduction of CO₂ Emissions from Product Transport

The transport division is working to reduce CO₂ 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.

CO₂ 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 (freight, storage, packing, etc.)	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

Category	Calculation Method	
	Amount of Activity	Basic Unit
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	Amount of activity of sales agents, etc.	Ministry of the Environment Basic Unit - DB
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-CO₂)

Category	FY2019	FY2020	FY2021	FY2022
Purchased goods and services *1	916,059	790,749	944,989	1,161,608
Capital goods *2	44,023	56,146	31,329	24,862*3
Fuel- and energy-related activities not included in Scopes 1 or 2	1,882	1,893	3,425	3,472*4
Upstream transportation and delivery *1	1,324	1,481	1,586	1,830
Waste generated in operations	1,587	2,004	1,645	1,925*5
Business travel	3,192	1,007	2,160	4,770
Employee commuting	1,152	940	1,182	1,401
Upstream leased assets *1	2,491	2,336	2,287	2,756
Downstream transportation and distribution *1	1,249	1,162	1,285	1,165
Processing of sold products	—	—	—	—
Use of sold products	6,370,000	6,050,000	5,922,573	5,745,708
End-of-life treatment of sold products *1	6,591	5,960	6,573	7,025
Downstream leased assets	18,509	16,837	16,298*2	16,441
Franchises	—	—	—	—
Investments	—	—	—	—
Other	—	—	—	—
Total	7,368,060	6,930,516	6,935,330	6,972,963

*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 Figures for FY2021 have been revised.

*3 Since FY2022, the emissions intensity has been revised according to the industry of the sector in which the capital to be calculated has been formed.

*4 Since FY2022, figures have been recalculated to include steam use.

*5 From Basic Guidelines for Calculating Greenhouse Gas Emissions through Supply Chains, Ministry of the Environment and Ministry of Economy, Trade and Industry

Waste from the company's own business activities (excluding salvageable materials): Revised according to the description of emissions related to disposal and treatment outside the company.

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 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.



Strategy

Analysis of Climate Change Scenarios

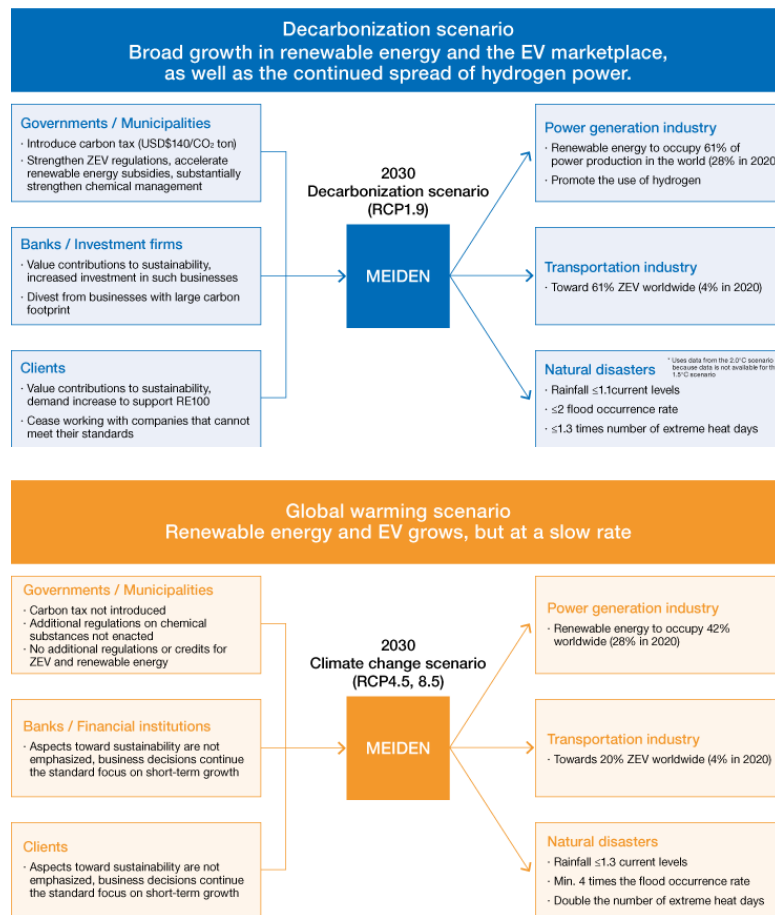
The Sustainability Management Promotion Division analyzes climate change scenarios in conjunction with relevant departments. The scenario analysis examination process is divided into four parts, with analysis and evaluations conducted annually. At the same time, major factors that could impact business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



Step 1: Identification and Materialization of Types of Scenario

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 arranged outlooks and specific scenarios 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	2.5 to 4.0°C	STEPS	IEA
		RCP4.5	IPCC
		RCP8.5	IPCC



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.

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 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 manufacturing costs Increased procurement costs	All companies
Opportunities to reduce GHG emissions	Rising prices from growing demand for EV and renewable energy components	Increased procurement and manufacturing costs	EV-related business/Renewable energy-related business
Increased frequency of extreme weather events	More water-related disasters	Suspension of operation/Collapse of supply chain	Production sites

Factors for Risks and Opportunities	Societal Scenario	Opportunities and Risks for Meiden	Relevant Businesses
		Increased costs to respond to water-related disasters	
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

* Examples of main scenarios

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 a business” 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)

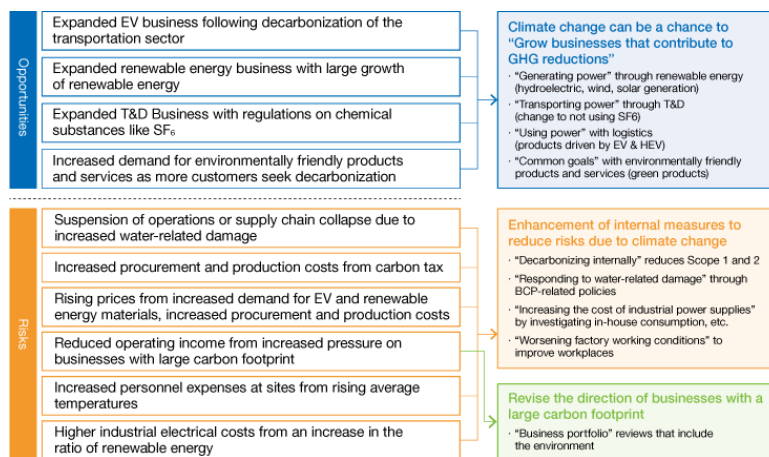
Impact on operating income (estimate)	Very large: ±10 billion yen or more Large: ±1 billion yen or more Medium: ±0.1 – 1 billion yen Small: ±less than 0.1 billion yen
likelihood of occurrence in an event in 2030	Large: High probability of occurrence Medium: Occurrence is possible, but cannot be predicted 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 (RCPL5)	Climate change scenario (RCPL5, 6-9)
Decarbonization of the transport industry	Expanded EV business	EV business	Recent average sales × ZEV stock growth ratio	Very large	Large
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	Medium	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	Small
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	7.5 billion	N/A
Rising prices from growing demand for EV and renewable energy materials	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.	Very large	Very 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	Medium
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.



TOPICS

Developing Environmentally Friendly Products and Services

Scope 3, Category 11 is emissions from product use and connects directly to our customer's Scope 1 and 2 emissions. Developing and producing environmentally friendly products and services with a low carbon footprint through "a complete life cycle from material procurement through product use and disposal" will lead to the decarbonization of our Company, our customers, and society as a whole.

In FY2022, we worked systematically on LCAs (life-cycle assessments) of existing products, and have completed assessments for most products categories involved in social infrastructure. We concurrently revised our environmental assessment of products that includes LCA and continue reviewing standards for green products and preparing to develop super-green products that will represent the gold standard for the industry.

Product environmental assessment

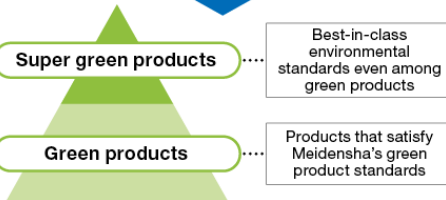
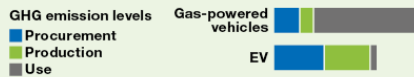
Product environmental assessment sheet

- 1 Reduce product weight
- 2 Reduce energy and resources
- 3 Recycling
- 4 Long-term use
- 5 Banned substance
- 6 Consider product lifecycle
- 7 Environmental awards, Top runner products etc.

Simple LCA evaluation sheet

- 1 Procurement
- 2 Outsourcing
- 3 Production
- 4 Logistics
- 5 Use
- 6 Disposal

Calculate the environmental footprint for the entire LC footprint



Our “High voltage products for GX” is a prime example of a package of products with a low carbon footprint. This system combines remote-monitoring functions with our high voltage feeder panel, high voltage transformer, and high voltage switchgear, all feature products designed to be environmentally friendly in order to reduce customer Scope 2. The high voltage feeder panel require no painting or welding in order to reduce the amount of harmful substances used, the high voltage transformer uses palm oil for insulation to reduce its strain on the environment, and the high voltage switchgear uses C-GIS that relies on dry air insulation and so does not use SF₆.

Combining our featured products for an “Environmentally conscious system with remote monitoring functions: The Super-High-Voltage Substation”

[High-voltage substation and power supply room]

- ◇ Paintless power supply room construction
- ◇ Weldless substation frame
- ◇ Insulation diagnosis via partial discharge detectors
- ◇ Application: Stations (switches) that supply high-voltage 6.6 kV to each factory

[High-voltage transformer]

- ◇ 66/6.6 kV 15,000 kVA 2 oil-immersed transformers
- ◇ Uses palm oil as the insulation oil (environmentally friendly)
- ◇ Application: Stepping down from super-high-voltage 66 kV to high-voltage 6.6 kV

[Super-high-voltage switchgear]

- ◇ 72 kV Eco C-GIS 2 power receiving lines
- ◇ Uses dry-air insulation (no SF₆ gas, more environmentally friendly)
- ◇ Application: Used as a switch for super-high-voltage 66 kV from a power supply

TOPICS

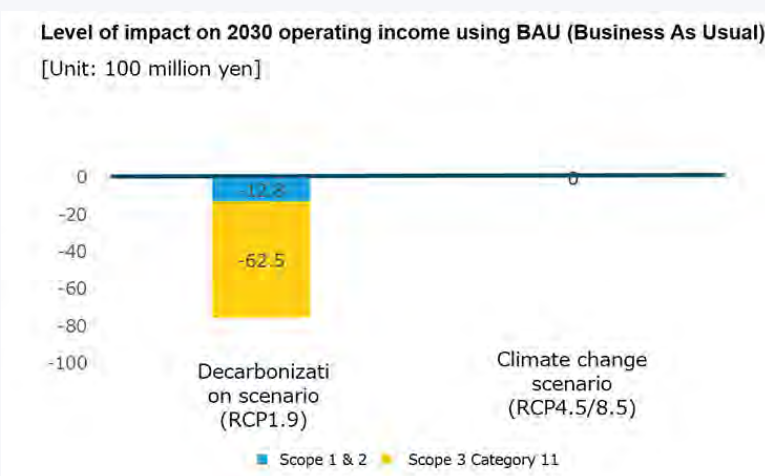
Reducing the Company's Environmental Impact

Company GHG emissions from manufacturing and purchasing (Scope 3, Category 1) exist to some degree. Introducing a carbon tax within the Group can lead to increased manufacturing costs going

forward and could potentially negatively impact profitability. According to the scenario assumed by TCFD, the following simulations represent the introduction of carbon tax when assuming that carbon emission increase with BAU (Business as usual) in 2030 for each scenario.

<Calculation conditions and results>

<Calculation conditions>
<ul style="list-style-type: none"> Carbon tax price 2030 decarbonization scenario (RCP1.9): USD \$140/t-CO₂ 2030 climate change scenario (RCP4.5/8.5) None introduced
<ul style="list-style-type: none"> Direct charges in Scope 1 & 2, indirect charges for Scope 3, Category 1 due to cost pass-throughs from suppliers
<ul style="list-style-type: none"> Assumes a 30% pass-through ratio based on a 29.9% energy cost pass-through from a Small and Medium Enterprise Agency survey of cost pass-throughs*.
<ul style="list-style-type: none"> * Results of a follow-up survey from the Small and Medium Enterprise Agency price negotiation promotion month (September 2022) (December 23, 2022)
<ul style="list-style-type: none"> Affiliate sales in FY2021 Values for Scope 1, Scope 2, and Scope 3 Category 11 assume an 3% annual increase until FY2030 using BAU



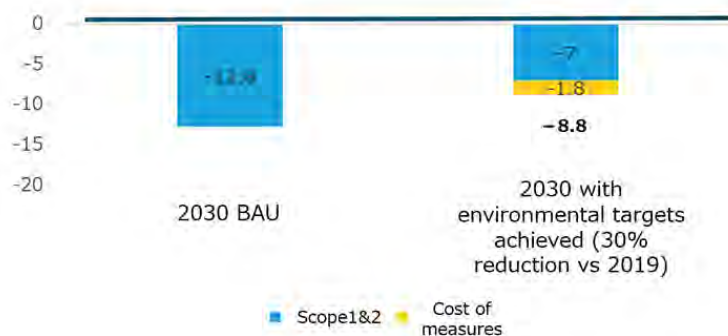
BAU sales in 2030 are calculated to be 340 billion yen (FY2021 baseline). With the decarbonization scenario (RCP1.9), introducing a carbon tax will result in operating income of 7.5 billion yen, a reduction of 2.2%. Such an introduction would significantly impact the Company, so it is vital to strategically reduce Scope 1, Scope 2, and Scope 3, Category 1. That is why the Company drafted the Second Meiden Environmental Vision in FY2021 and launched the following initiatives.

SCOPE1 & 2	Scope 3 Category 1
<ul style="list-style-type: none"> Replacing gas equipment with electric Switching to low-energy equipment Introducing ICP (Internal Carbon Pricing) Switching to renewable energy sources Eliminating SF₆ 	<ul style="list-style-type: none"> Using LCA to reduce GHG, including procured products Support decarbonization of suppliers

For Scope 1 and Scope 2, we plan to have 100% of domestic factories and 30% of overseas factories use renewable energy by 2030 (within the range of our normal investment activities, 8 billion yen in environmental investment by 2030) and predict that doing so will increase 2030 costs by 180 million yen. However, Scope 1 and Scope 2 emissions will be cut by 30%, with a projected 400 million yen relative improvement compared with pre-initiative estimates. We are exploring ways to minimize the remaining impacts that introducing a carbon tax would have on degraded operating income by examining the absorption of cost pass-throughs, etc., the prospect of generating wind power internally, the progress of additional decarbonization efforts within the Group, and more.

Level of impact on 2030 operating income (Scope 1 & 2)

[Unit: 100 million yen]



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		FY2022		FY2023	FY2024	FY2030
		Plan	Actual	Plan	Plan	Plan
Emissions from business activities (Scope 1+2)	Japan	5% reduction	8% reduction	8% reduction		
	Overseas	2% reduction	1% increase	3% reduction		
	Total	4% reduction	7% reduction	5% reduction	6% reduction	30% reduction
Emissions from product use (Scope 3, Category 11)			10% 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-CO₂ to 15,000 yen/t-CO₂.

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 (SF₆ gas-free, reducing product size, increasing efficiency, etc.) and updating our business portfolio (expanding low-carbon businesses) as ways to reduce emissions.

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/Osaka Kaikan Hall, Ota Works				
		Procure renewable energy at Kofu			Procure renewable energy at Numazu, Head Office	Nagoya
Switching company-owned cars to electric vehicles	Gradually acquire EVs/hybrids (as fleet is updated)				Entire fleet EVs/hybrid	
	Procure renewable energy in Germany, use solar in India, partially use solar in USA, Vietnam, Thaila				Oversea	
Emissions from product use (Scope 3, Category 11)	Environmentally friendly product design	Compact, high-efficiency SF ₆ gas-free				
	Revising business portfolio	Increase percentage of EV-related, maintenance services, small to medium hydroelectric systems, etc.				

Our timeline for the key measures aimed at reducing greenhouse gas emissions >

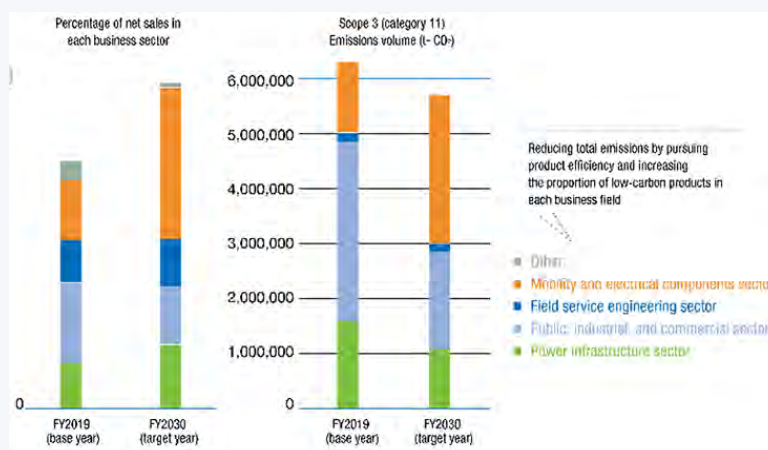
Future Path

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. For now, we will make ad-hoc reforms starting from the following conditions.

- Internal carbon price: 15,000 yen/t- CO₂
- Subject to application: Capital proposals for FY2023 onwards

Issue of Green Bonds

In July 2019, we issued green bonds through public offering for the purpose of funding mass-production equipment for Motors and Inverters for Electric Vehicles.

In June 2018, Meidensha pledged to reduce greenhouse gas emissions by 30% by fiscal 2030 (compared to fiscal 2017 levels) and as part of the First Meiden Environmental Vision and we are promoting reduction of environmental impact. Furthermore, we understand that contributing to the achievement of sustainable development goals (SDGs) is a major management issue facing the Company and we are promoting the environmental contribution business by rolling out environmentally conscious products and services.

By issuing green bonds, we plan to expand our capital procurement resources and deepen the understanding of a wide range of stakeholders regarding our active environmental initiatives.

Meidensha Green Bonds

Outline

Name of bonds	"Meidensha Corporation 2nd Series Unsecured Straight Bonds (with pari passu agreement limited to corporate bonds) (Green Bonds)"
Also known as	Meidensha Corporation Green Bonds
Maturity	5 years
Total amount of issue	6.0 billion yen
Coupon rate	0.260%
Issue price	100 yen for each 100 of corporate bonds
Date of issue/date of maturity	July 23, 2019 to July 23, 2024
Redemption method	Bullet payment at maturity
Subscription method	Open invitation
Security/guarantee	Unsecured and non-guaranteed
Rating	BBB+ (Japan Credit Rating Agency, Ltd./Rating and Investment Information, Inc.)
Use of proceeds	To provide partial funding of enhancement of mass-production facilities for electric vehicle components
Lead managing underwriter	SMBC Nikko Securities Inc.
Green Bond Structuring Agent	SMBC Nikko Securities Inc.
Principles with which to confirm compliance	Climate bond standard version 2.1 Low Carbon Transport (Land) Standard Version 1.0 (CBI) Green Bond Principles 2018 (ICMA) Green Bond Guidelines 2017 Edition (MOE)

List of investors that have declared their investment in corporate bonds

(As of July 17, 2019 in alphabetical order)

- Aichi Shinkin Bank
- Daitokyo Shinyokumiai
- Fukoku Mutual Life Insurance Company
- Hanno-Shinkin Bank
- JA Bank Fukuoka
- JA Bank Ibaraki
- JA Bank Iwate
- Kameari Shinkin Bank
- Kesenuma Shinkin Bank
- Kiryu Shinkin Bank
- Kitami Shinkin Bank
- Meiji Yasuda Asset Management Company Ltd.
- Sugamo Shinkin Bank
- Sumitomo Mitsui DS Asset Management Company, Limited
- Sumitomo Mitsui Trust Asset Management Co., Ltd.
- Taiyo Life Insurance Company
- THE BANK OF NAGOYA, LTD.
- THE DAIDO FIRE AND MARINE INSURANCE COMPANY LIMITED
- THE KAGAWA BANK, Ltd.
- THE TOWA BANK, LTD.
- Tokio Marine & Nichido Fire Insurance Co., Ltd.
- Tokio Marine Asset Management Co., Ltd.

External Evaluation of Compliance

Green bond framework

Meidensha Green Bonds are issued and managed according to the Green Bond Framework developed in accordance with the Green Bond Principles 2018*1 drafted by the International Capital Market Association, the Green Bond Guidelines 2017*2 Edition drafted by the Ministry of the Environment, and the Climate Bond Standard Version 2.1*3 drafted by the Climate Bonds Initiative (CBI).

Second-party opinion and ratings

Compliance with these green bonds is assessed by the Japan Credit Rating Agency (hereinafter JCR) according to the JCR Green Bond Evaluation, and the bonds received a rating of Green 1, which is the highest rating, as they fulfilled the Green Bond Principles 2018 and the Green Bond Guidelines 2017.

JCR green bond assessment attached  >

Verification

DNV GL Business Assurance Japan K.K. (DNV GL), one of the world's leading organizations to evaluate and accredit the ESG performance, has verified that Meidensha Green Bonds cleared the requirements in the Climate Bonds Standard Version 2.1 as well as related technological standards.

Pre-assessment report issued by DNV GL  >

Certification

Meidensha has received certification from Climate Bonds Initiative (CBI), an international nongovernmental organization dedicated to promoting large-scale investments to realize a low-carbon society that sets stringent standards for the issuance of such bonds. Meidensha is the first Japanese private enterprise to receive the CBI certification.

Additionally, JCR and DNV GL has received the notification of Green Finance Organization JAPAN's decision to grant as subsidy as part of the Financial Support Programme for Green Bond Issuance of MOEJ's FY 2018*4.



Green bond framework

1. Use of Proceeds

Eligible green project: Equipment for mass production of electric vehicle components

Outline of facility expansions(Total investment: Approx. 7 billion yen)

Nagoya Works: Renovation of existing buildings and introduction of new facilities	
Location	496 Ittangosewari, Nishibiwajimacho, Kiyosu City, Aichi Prefecture
Parts to be produced	Inverter-Integrated Motor Units for EVs
Start of operations	Scheduled for November 2019
Total floor space	4,620m ²
Production capacity	Maximum annual production of 170,000 units

Kofu Meidensha Electric Mfg. Co., Ltd.: Construction of new building and introduction of new facilities	
Location	825 Nakadate, Chuo City, Yamanashi Prefecture
Parts to be produced	Motors for EVs
Start of operations	Scheduled for November 2019
Total floor space	2,660m ²
Production capacity	Maximum annual production of 170,000 units

Numazu Works: Expansion of facilities	
Location	515 Kaminakamizo, Higashimakado, Numazu City, Shizuoka Prefecture
Parts to be produced	Inverters for EVs
Start of operations	Scheduled for April 2019
Total floor space	240m ²
Production capacity	Maximum annual production of 120,000 units

2. Process for Projects Evaluation

Nominated green bond projects were selected and evaluated by Meidensha Accounting & Financing Group Financing Division, after the consideration of conformity to qualified criteria, based on the Group's management philosophy, environmental vision, and CSR critical issues. Final approval of the project selection is implemented by the director of treasury executives of the company decision making committee. Furthermore, we also conduct verification of negative environmental impact of eligible projects.

3. Management of Proceeds

The proceeds from the Green Bonds will be fully allocated to eligible projects and assets and tracked. Fund allocation will be implemented in one year after bond issuance. The proceeds will be managed by the Meidensha Accounting & Financing Group Financing Division. The proceeds outstanding balance will be managed by internal Meidensha forms (earmarked by numbering) and its budget and actual expense

tracked with Meidensha internal protocol (accounting management scheme) quarterly. These will be requested to receive approval from the Meidensha General Manager of Financing Division to avoid deviation (financial outflow). Meidensha also manages the preservation of documents related to cash management by using the accounting document retention term list and through the accounting regulations of Meidensha concerning the scope and preservation of accounting documents.

Until the allocation of procurement funds is decided, we will manage cash or cash equivalents equal to funds.

4. Reporting

Funding status reporting

We will report the status of funding once a year until the full amount of funds to be procured is applied to projects that meet qualified criteria. Disbursement status disclosed is as follows: (1) Amount of funds appropriated, (2) Approximate amount or ratio in case of unappropriated funds, operation schedule of allocated time, and unappropriated period, (3) Estimated amount or percentage when the refund is applied.

We will disclose in a timely manner if there is a major change in the procurement funding plan or when there is a significant change in the fund status after the procurement funds have started to be appropriated.

Impact reporting

Until Green Bonds are redeemed, the following indicators showing the progress status of qualified projects funded and the environmental improvement effect are scheduled to be disclosed once a year on our website.

KPI in Impact Reporting: Annual CO₂ emission reduction from eligible projects*5

*1 The guideline regarding green bond Issuance is written by Green Bond Principles Executive Committee which is facilitated by ICMA (International Capital Market Association.)

*2 MOEJ (Ministry of the Environment of Japan) has established "the Green Bond Guidelines, 2017" in March 2017 with the purpose of spurring issuances of Green Bonds and investments in them in Japan. The Guidelines, with due consideration to the consistency with the GBP, which is widely accepted in the Green Bond markets in the world, provide issuers, investors and other market participants with illustrative examples of specific approaches and interpretations tailored to the characteristics of the Japan's bond market which will aid these market participants to make decisions on working-level matters related to Green Bonds.

*3 Climate Bonds Standards (CBS) is a standard developed by Climate Bonds Initiative (CBI), the UK's international nongovernmental organization, which includes certification process, pre issuance and post-issuance requirements and sectoral eligibility and guidance. And is aimed with the objective of "Ensuring credibility and transparency of Green Bond's contribution to the environment. CBS imposes a sectoral standard, and it is necessary to meet the applicable sectoral standard in judging the eligibility of projects and assets covered by the green bond.

*4 A program where subsidies will be provided for the expenses that are required by those who support companies, municipalities and other bodies who seek to issue Green Bonds, in the form of granting external reviews, consultation on establishing a Green Bond framework, etc.

(1) A Green Project that meets one of the following criteria:

1. Contributes mainly to domestic decarbonization (renewable energy, energy efficiency, etc.)
 - Projects for which equal to or more than half of the procured amount, or equal to or more than half of the number of projects is domestic decarbonization-related project.
2. Has high decarbonization and effects on vitalization of local economy
 - Decarbonization effects Those whose subsidy amount per ton of domestic CO₂ reduction is less than the specified amount.

- Effects on vitalization of local economy Projects that are expected to contribute to effects on vitalization of local economy as part of the ordinance and plan, etc. decided by the municipality, projects for which investment by municipalities can be anticipated, etc.

(2) Compliance with the Green Bond Guidelines to be confirmed by an external review organization before issuance.

(3) It cannot be "Green wash" bonds.

*5 The formula for calculation differs from Meidensha's calculation of environmental contribution and CO2 emissions reduction, which are stated under Meidensha's environmental targets, as they are calculated according to the ICMA Green Bond Principles 2018, the MOE Green Bond Guidelines 2017, the CBI Climate Bond Standard Version 2.1, and the Low Carbon Land Transport and the Climate Bonds Standard (v1.0).

This content is provided for the sole purpose of publicly announcing the Company's issuance of the Bonds, and not for the purpose of soliciting investment or engaging in any other similar activities within or outside of Japan.

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 all domestic and overseas business activities, as well as conserve energy, promote the 3Rs in relation to waste, and properly manage hazardous chemicals as stipulated in the President's Environmental Policy. Furthermore, we will establish our own internal standards and work towards preventing environmental contamination while complying with all environmental laws, regulations, and other requirements.

[President's Environmental Policy >](#)

Initiatives

Targets for Measures to Combat Waste and Pollution

Reduction of single-use plastic packaging

The Meiden Group set a target of 2% reduction (compared to FY2019) as a measure to reduce single-use plastic packaging. Going forward, we will continue to work to reduce plastic usage by promoting the 3Rs for plastic packaging and environmentally considerate design.

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)

(t)

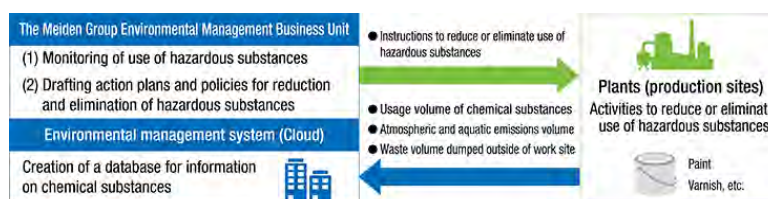
Raw Material	FY2019	FY2020	FY2021	FY2022
Iron	6,306	5,140	5,356	4,820
Copper	2,778	2,334	2,176	2,120
Plastic	778	781	789	864
Aluminum	334	226	223	266
Total	10,196	8,481	8,544	8,070

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.

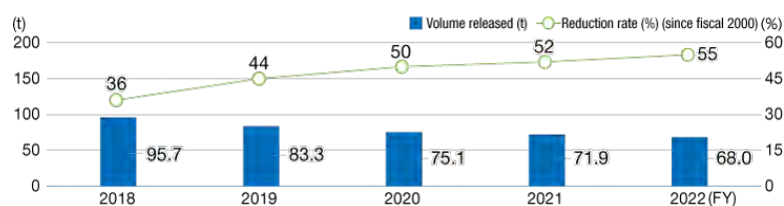
Tightening Management of Chemical Substances



Reduction of Volume of Volatile Organic Compounds (VOC) Released

In FY2021, we promoted reuse of solvents through the introduction of solvent collection devices, and replacement with low-VOC solvents, and we released 71.9 tons of VOC. Going forward, we will promote improvement of varnish impregnation processes, substitution with low VOC paint and solvents, etc., and reduction of VOCs released.

Volume of VOCs Released and Reduction Rate (Japan)



Promotion of Disposal and Processing of Devices that Include PCBs

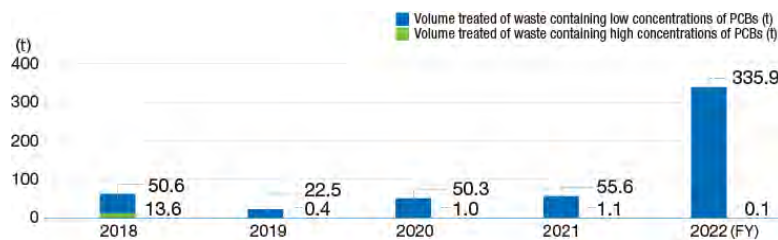
In accordance with the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes (PCB Special Measures Act), we are gradually disposing of devices that contain PCBs (polychlorinated biphenyls) such as transformers and condensers that were manufactured in the past and stored for nearly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

In FY2022, we disposed of 0.1 tons of waste containing high concentrations of PCBs and treated 335.9 tons of waste containing trace amounts.

Since we began processing PCB waste in FY2007, through FY2022, we have disposed of approximately 105 tons of waste containing high concentrations of PCBs and treated about 734 tons of waste containing trace amounts. In FY2023, we expect to finish 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)

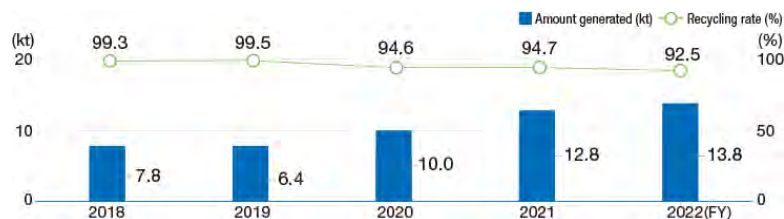


Promoting the 3Rs for Waste (Reduce, Reuse, and Recycle)

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

In FY2022, we revised our calculation method for recycled quantity, and we worked to improve the precision of calculation by appropriately calculating the amount of waste generated by recycling. The amount of waste increased due to a large amount of waste (debris) being generated by an increase in on-site construction; however, we will work to reduce the amount of waste generated by continuing to promote the 3Rs.

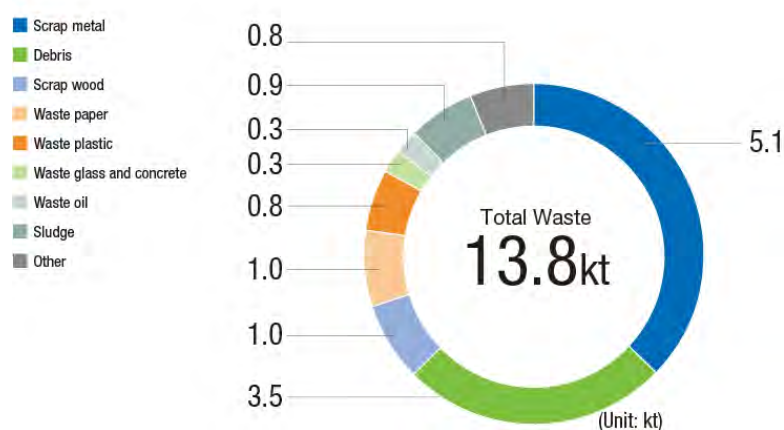
Trends in Generation of Waste, etc., and Recycling Rate (Japan)



* 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 FY2022 (Japan)

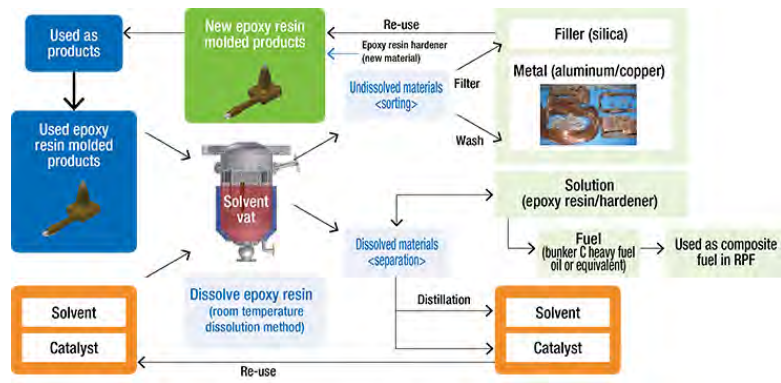


Collaboration with Other Companies to Reduce Waste and Resource Use (Recycling Epoxy Resin Molded Components)

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

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

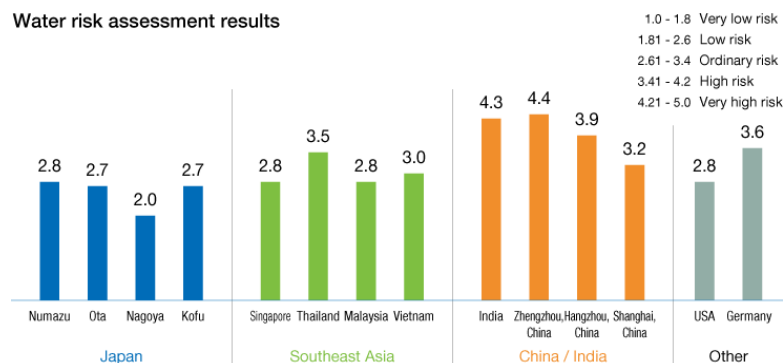
The Meiden Group includes “promotion of water reuse” and “water safety” as part of the medium- to long-term “Environmental Vision.” We will work to preserve water resources through water conservation and effective utilization of rainwater; take steps to respond to water risks such as water shortages, flood, and contamination; and improve sanitation.

Initiatives

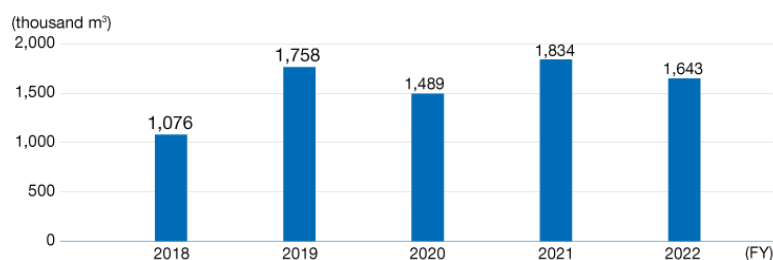
Water Risk Assessments

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 16 production sites in 9 countries. We found that although domestic sites were within ordinary risk levels, 50% 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 and China 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



Trends in Water Usage Volume (Japan)



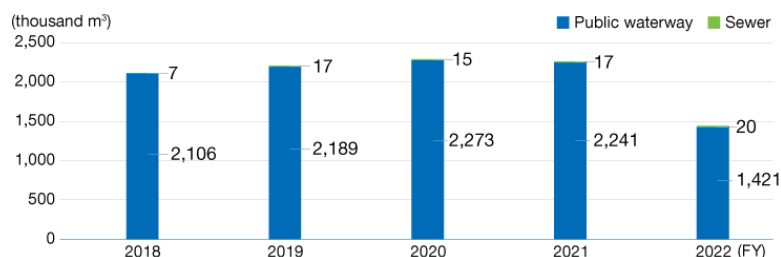
Water Withdrawals, by Source (Japan)

	FY2018	FY2019	FY2020	FY2021	FY2022
Groundwater (1,000 m³)	943	1,626	1,344	1,728	1,552
Industrial water (1,000 m³)	80	70	87	43	22
Tap water (1,000 m³)	53	63	59	63	69

* 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.

Trends in Effluent by Discharge Location (Japan)



Trend in Water Quality Data (BOD Discharge) (Japan)

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

Initiatives

The Meiden Group has been in business over 125 years. As such, some of the infrastructure at production sites has significantly deteriorated.

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 November 2023. 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 rain water

Initiatives

Conservation of Water Resources: Initiatives through Business

Contributing to the Solution of a Range of Issues Relating to Conservation of Water Resources

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 our water infrastructure systems business, which is one of our core businesses.

Contribution to Local Water Disaster Prevention Through Real-Time Flooding Updates Delivery of Flooding Information System That Uses Smart Flood Level Rods to Saga City

We delivered a flooding information system that uses smart flood level rods (automatic flood level measurement rods) to Saga City. Saga City began using this system to provide a disaster prevention information service concerning flood levels to residents and others on April 25, 2022.

Saga City developed the Saga City Basic Plan on Wastewater Measures (March 2014) to deal with increasing flood risk due to rain inundation as a result of downpours increasing in frequency and severity in recent years due to climate change. The city aims to create a "city and populace that is resilient against flooding" by implementing software measures such as creating and disseminating hazard maps in addition to hardware measures such as installing pump stations, channels, and balancing reservoirs. As one of these measures, the city installed flood level rods in 83 locations in the city, and is actively promoting utilization of information for self, mutual, and public assistance to prevent disasters as part of increasing awareness of flooding.

Until now, flood level rods have been relied on for reading and reporting by citizens and disaster volunteers. Now, real-time disaster prevention information can be used for flood protection activities due to the expansion of automatic measurement. Up to FY2021, we have partnered with Saga City to conduct demonstration experiments of real-time monitoring systems using automated flood level rods. The systems were installed in practical use in 29 locations throughout the city.

We received an order from Saga City to build a flood information provision system to notify residents, etc., with the aim of further utilizing disaster prevention information obtained through automated flood level rods (smart flood level rods), and delivered the system in March 2022.

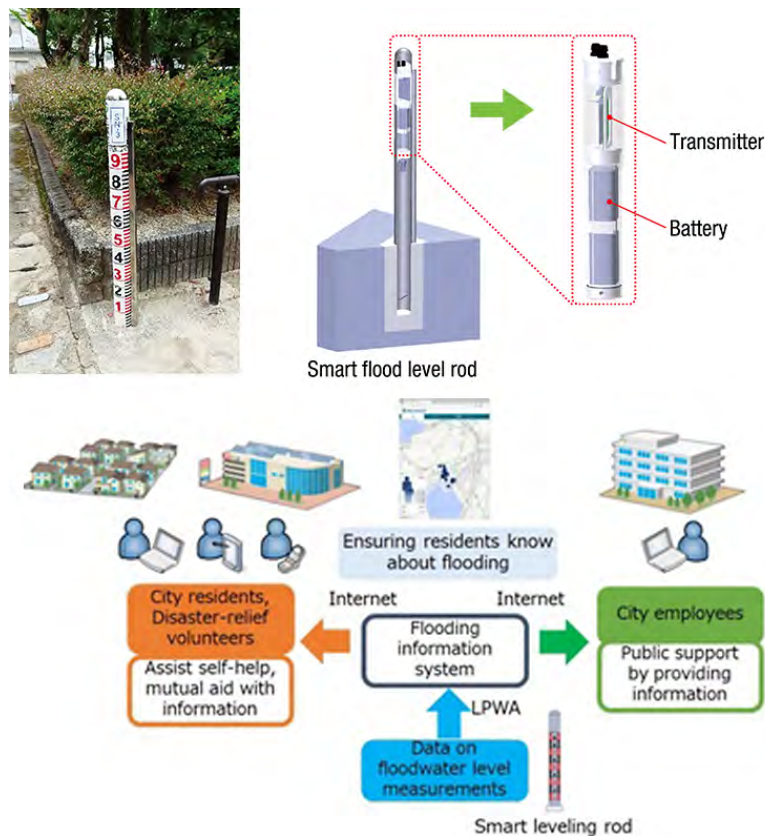
What is a Smart Flood Level Rod?

A smart flood level rod is an IoT device comprising a rod (pole) fitted with a transmitter, an antenna, and a battery. It gathers flood information in real time, and provides it via the cloud computing.

Product Features

- It is possible to wirelessly transmit, gather, and provide information via the cloud computing, using LPWA transmission devices fitted to rods
- It is possible to supply power to sensors and transmission devices from batteries mounted on the rods
- It is possible to monitor flood levels in real time, simply by installing rods on roads

<Diagram of smart flood level rod application>



Collaboration with Stakeholders: Partnerships with Outside Parties

The Meiden Group, in cooperation with its stakeholders in Japan and overseas, will pursue manufacturing that helps solve challenges such as Sustainable Development Goal 6 (which seeks clean water and sanitation for all) and Goal 14 (conservation of marine resources), sustainably create value, and work to solve social issues.

Order Taken for Tuas Water Reclamation Plant

Will Provide Ceramic Membranes with World's Largest Treatment Capacity of 97,500 m³/Day

MEIDEN SINGAPORE PTE. LTD. (MEIDEN SINGAPORE) has received an order from Singapore enterprise Koh Brothers Building & Civil Engineering Contractor (Pte.) Ltd. for ceramic 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 membranes with a treatment capacity of 97,500 m³/day to the plant. The Meidensha ceramic 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 membranes for the Tuas Water Reclamation Plant.

Tuas Water Reclamation Plant

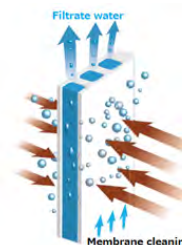


©2021 PUB, Singapore's National Water Agency

■ About Ceramic Membranes



Appearance of ceramic membrane



Cross-section diagram showing sewage filtration with ceramic membrane

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

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

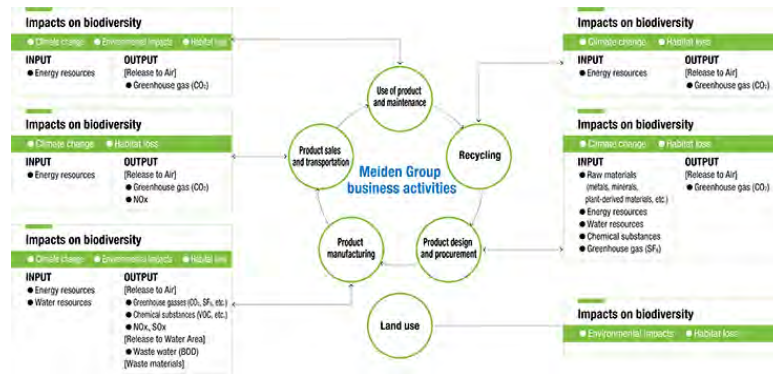
Basic Policy

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).

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.



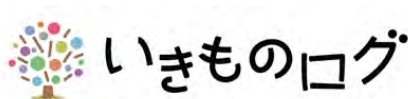
Brown-eared bulbul




Warbling white eye



Asian swallowtail butterfly



[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.



Beach Cleanup at Senbonhama Park

In 2022, to commemorate the 125th anniversary of the founding of Meidensha, we donated 125 Japanese black pine trees and had Meiden Group employees plant them at Senbonhama Park in Numazu.



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.



Discontinued Selling PET Bottles at Our Facilities

The problem of marine pollution caused by plastic waste has spread over a wide area, and there are concerns that it can adversely affect the ecosystem, living environment, fisheries, tourism, etc. The use of plastic bags has been abolished since July 2020 at on-site shops in the Meiden Group's Numazu Works and Ota Works. Shops prepare eco-bags instead of using plastic disposable bags at the checkout. We conducted e-learning for all Meiden Group employees concerning the problem of marine plastic waste, and stopped selling PET bottles from all vending machines at Numazu Works in December 2021. We are reducing plastic waste by eliminating the use of PET bottles, which had previously totaled 500,000 bottles per year.



Educational poster concerning the problem of marine plastic waste



Vending machine after cessation of sale of PET bottles

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.](#)

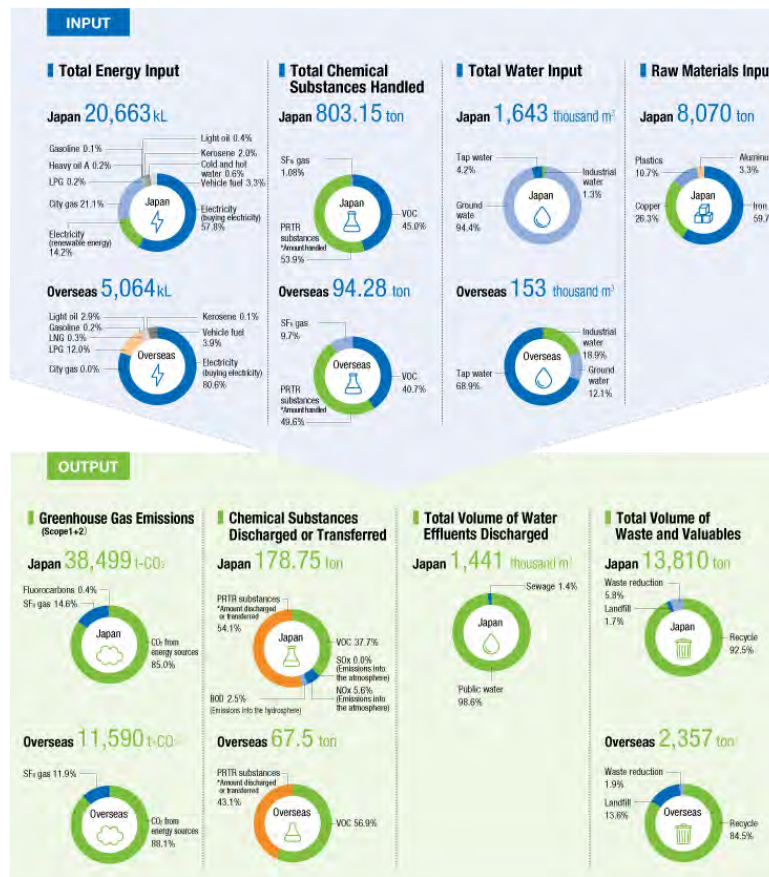
* The Japan Electrical Manufacturers' Association (JEMA), the Japan Electronics and Information Technology Industries Association (JEITA), the Communications and Information network Association of Japan (CIAJ), and the Japan Business Machine and Information System Industries Association (JBMIA)

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 (FY2022)

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



Environmental Impact Data (FY2022) 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 are advancing replacement of SF6 gas with dry compressed air, as a measure to reduce emissions of SF6 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. By consolidating 28 existing tanks (22 individual water-purification tanks and six combination water-purification tanks) into one combination water-purification tank to be newly constructed, and rerouting the process piping, we will achieve safe water treatment and reduce electricity consumption with the improved operating efficiency of the treatment facilities.

Numazu Works, Environmental Manager, Masanori Fukumoto

Environmental Impact Data (FY2022)

Numazu Works

INPUT			OUTPUT		
Energy			Greenhouse gases		
Total energy input	10,209	kL	Greenhouse gases (Scope 1+2)	24,345	t-CO ₂
>Electricity	7,548	kL	>CO ₂ attributable to energy use	18,648	t-CO ₂
>>Electricity from renewable energy	0	kL	>SF ₆ gas	5,632	t-CO ₂
>City gas	2,582	kL	>CFCs	64.7	t-CO ₂
>LPG	12	kL	Reduction benefit from internal carbon pricing	210	t-CO ₂
>Heavy oil A	10	kL	Chemicals		
>Gasoline	15	kL	VOC (Emissions to air)	34.8	ton
>Light oil	0.1	kL	SOx (Emissions to air)	9	Kg
>Kerosene	3	kL	NOx (Emissions to air)	7,211	Kg
Cold and hot water	0	kL	BOD (Emissions to air)	4,246	kgBOD
Vehicle fuel	39	kL	Amount of PRTR substances* released or transferred	38.3	ton
Equipment subject to internal carbon pricing	1,385	Millions of yen	Water		
Chemicals			Effluent amount		
SF ₆ gas	8,693	kg	>Drained to sewer	4.9	thousand m ³
VOC	36.8	ton	>Drained to public waters	1,376	thousand m ³
Amount of PRTR substances* handled	56.5	ton	Waste		
Water			Waste emissions volume		
Water input volume	1,567	thousand m ³	>Recycling volume	2,151.4	ton
>Tap water	26.8	thousand m ³	>Final disposal volume	19.2	ton
>Industrial water	0	thousand m ³	>Volume reduction volume	462.0	ton
>Groundwater	1,540	thousand m ³			

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 sourced CO₂-free electricity that is produced and consumed within Gunma Prefecture 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 (FY2022)

Ota Works

INPUT			OUTPUT		
Energy			Greenhouse gases		
Total energy input	2,173	kL	Greenhouse gases (Scope 1+2)	1,170	t-CO ₂
>Electricity	1,637	kL	>CO ₂ attributable to energy use	1,132	t-CO ₂
>>Electricity from renewable energy	1,637	kL	>SF ₆ gas	0	t-CO ₂
>City gas	359	kL	>CFCs	38.4	t-CO ₂
>LPG	8	kL	Reduction benefit from internal carbon pricing	24	t-CO ₂
>Heavy oil A	34	kL	Chemicals		
>Gasoline	1	kL	VOC (Emissions to air)	13.4	ton
>Light oil	73	kL	SOx (Emissions to air)	45	Kg
>Kerosene	34	kL	NOx (Emissions to air)	306	Kg
Cold and hot water	0	kL	BOD (Emissions to air)	135	kgBOD
Vehicle fuel	27	kL	Amount of PRTR substances* released or transferred	19.4	ton
Equipment subject to internal carbon pricing	68	Millions of yen	Water		
Chemicals			Effluent amount		
SF ₆ gas	0	kg	>Drained to sewer	0	thousand m ³
VOC	25.2	ton	>Drained to public waters	37.5	thousand m ³
Amount of PRTR substances* handled	24.2	ton	Waste		
Water			Waste emissions volume		
Water input volume	36.4	thousand m ³	>Recycling volume	593.1	ton
>Tap water	14.4	thousand m ³	>Final disposal volume	3.9	ton
>Industrial water	22	thousand m ³	>Volume reduction volume	144.2	ton
>Groundwater	0	thousand m ³			

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 FY2022, our factory for integrated motor and inverter units for EVs went into full operation, plus production of 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 is focusing on electrification and will continue to contribute to society through future automation of automobiles.

Nagoya Works, Environmental Manager, Tomohisa Asakura

Environmental Impact Data (FY2022)

Nagoya Works

INPUT			OUTPUT		
Energy			Greenhouse gases		
Total energy input	2,744	kL	Greenhouse gases (Scope 1+2)	4,582	t-CO ₂
>Electricity	1,619	kL	>CO ₂ attributable to energy use	4,582	t-CO ₂
>>Electricity from renewable energy	0	kL	>SF ₆ gas	0	t-CO ₂
>City gas	1,118	kL	>CFCs	0	t-CO ₂
>LPG	0.138	kL	Reduction benefit from internal carbon pricing	0	t-CO ₂
>Heavy oil A	0	kL	Chemicals		
>Gasoline	0	kL	VOC (Emissions to air)	0.4	ton
>Light oil	0	kL	SOx (Emissions to air)	0	Kg
>Kerosene	1.787	kL	NOx (Emissions to air)	2,420	Kg
Cold and hot water	0	kL	BOD (Emissions to air)	93	kgBOD
Vehicle fuel	5.063	kL	Amount of PRTR substances* released or transferred	5.9	ton
Equipment subject to internal carbon pricing	0	Millions of yen	Water		
Chemicals			Effluent amount		
SF ₆ gas	0	kg	>Drained to sewer	0	thousand m ³
VOC	0.6	ton	>Drained to public waters	7.6	thousand m ³
Amount of PRTR substances* handled	6.8	ton	Waste		
Water			Waste emissions volume		
Water input volume	12.8	thousand m ³	>Recycling volume	573.4	ton
>Tap water	6.6	thousand m ³	>Final disposal volume	20.9	ton
>Industrial water	0	thousand m ³	>Volume reduction volume	25.3	ton
>Groundwater	6.2	thousand m ³			

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.

In FY2022, our new factory for EV motors went into full operation, resulting in greater energy use. However, we 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 a portion of the electricity we use as we work to reduce greenhouse gas emissions.

KOFU MEIDENSHA, Environmental Manager, Oda Shigehiro

Environmental Impact Data (FY2022)

KOFU MEIDENSHA ELECTRIC MFG. CO., LTD.

INPUT			OUTPUT		
Energy			Greenhouse gases		
Total energy input	2,128	kL	Greenhouse gases (Scope 1+2)	2,966	t-CO ₂
>Electricity	1,827	kL	>CO ₂ attributable to energy use	2,949	t-CO ₂
>>Electricity from renewable energy	510	kL	>SF ₆ gas	0	t-CO ₂
>City gas	294	kL	>CFCs	16.7	t-CO ₂
>LPG	0.49	kL	Reduction benefit from internal carbon pricing	0	t-CO ₂
>Heavy oil A	0	kL	Chemicals		
>Gasoline	0	kL	VOC (Emissions to air)	18.2	ton
>Light oil	0	kL	SOx (Emissions to air)	0	Kg
>Kerosene	0	kL	NOx (Emissions to air)	0	Kg
Cold and hot water	0	kL	BOD (Emissions to air)	0	kgBOD
Vehicle fuel	6,283	kL	Amount of PRTR substances* released or transferred	13.6	ton
Equipment subject to internal carbon pricing	0	Millions of yen	Water		
Chemicals			Effluent amount	11.4	thousand m ³
SF ₆ gas	0	kg	>Drained to sewer	11.4	thousand m ³
VOC	50.9	ton	>Drained to public waters	0	thousand m ³
Amount of PRTR substances* handled	48.3	ton	Waste		
Water			Waste emissions volume	783.3	ton
Water input volume	11.4	thousand m ³	>Recycling volume	772.7	ton
>Tap water	6.2	thousand m ³	>Final disposal volume	0.007	ton
>Industrial water	0	thousand m ³	>Volume reduction volume	10.6	ton
>Groundwater	5.2	thousand m ³			

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

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

Endorsement and Participation in GX League

Meidensha has endorsed and participated in the Ministry of Economy, Trade and Industry's GX League, a forum for companies that aim to achieve sustainable growth in the present and future society by taking on the challenge of GX (Green Transformation) to achieve carbon neutrality and social transformation by 2050. Here, they can collaborate with other companies making similar efforts and with government and academia.



The Meiden Group has set carbon neutrality and well-being as the values we provide, and we declare that being a sustainability partner is our aspiration and vision for achieving the society we aim for. Our goal is to contribute to the decarbonization of society through our products, businesses, and solutions.

At the same time, we aim to achieve carbon neutrality (net zero) in our business activities by 2050. As an intermediate step, we have set the following GHG emissions reduction targets, which we are working to achieve by FY2030: 30% reduction of emissions from business activities (Scope 1 and 2; compared to FY2019) and 15% reduction of emissions during product use (Scope 3 Category 11; compared with FY2019).*

We believe that the vision and direction of the Meiden Group are in line with the purposes of the GX League and we have expressed our support for the GX League concept. Moreover, we became a GX League participating company on May 15, 2023.

We are accelerating efforts to achieve carbon neutrality in several ways. For example, by selling more environmentally friendly products, we are contributing to the decarbonization of society and our customers' business activities. We are also utilizing renewable energy sources such as photovoltaic, wind, and hydro power, and also improving energy conservation by increasing the efficiency of our products.

* These targets were recognized by the SBT initiative as consistent with the Paris Agreement, and SBT certification was granted in April 2021.

[Medium- to Long-Term Environmental Targets at the Meiden Group >](#)

[Meiden endorses METI's GX League Basic Concept >](#)

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 FY2022, we gave training on Japan's Plastic Resource Circulation Act, which went into effect in April 2022. Of Meiden Group employees, 85.9% 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>

- This was a good opportunity to learn about Meidensha's environmental initiatives.
- This has inspired me to more actively sort my plastic waste from now on.
- Now I hope to use less plastic at home, such as by choosing products that come without a label.

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 FY2022, we gave training for factory staff on such topics as carbon neutrality, implementation of chemical audits, and management of chemicals in products. In addition, we gave training on controlling CFC emissions and on waste disposal for members of the sales division.

Education Concerning Environmental Laws

We also teach employees about environmental laws and regulations as part of compliance training. In FY2022, we gave lectures on 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.

Environmental Management Seminars for Management-Level Employees

Each year, we invite outside experts to hold environmental management seminars for management.

Date	Theme	Instructor (affiliation, role, etc., are those at the time)
12/21/2017	Increasing expectations for environmental management: ESG investment, SDGs, and TCFD recommendations to disclose climate-related financial information, etc.	Toshihiko Goto CEO of Sustainability Forum Japan Chairperson and executive director of Global Compact Network Japan
12/21/2018	Toward the utilization of SDGs	Yoriyuki Numakura Manager of KPMG AZSA Sustainability Co., Ltd.
06/21/2019	Trends in ESG investment and information disclosure: TCFD recommendations	Mari Yoshitaka Chief Consultant, Clean Energy Finance Division, Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
12/11/2020	The Meiden Group's CO ₂ reduction plan to achieve SBTs	Yoshihisa Niwa Managing director and partner of the Boston Consulting Group Shoji Hajime Managing director and senior partner of the Boston Consulting Group Makoto Morihara Principal of the Boston Consulting Group
05/26/2022	Latest trends in disclosure of corporate information concerning climate change	Kosuke Terasaki Senior Researcher Sustainability Sec., Risk Management Department 3rd MS&AD InterRisk Research & Consulting, Inc.

Environmental Education Results (FY2022)

Content	Times conducted	Number of participants	Outline
Environmental education (e-learning)	1	7,213	<ul style="list-style-type: none"> • Japan's Plastic Resource Circulation Act in the Meiden Group
Specialist education	8	—	<ul style="list-style-type: none"> • Carbon neutrality training • Chemical audit implementation training • Training on management of chemicals in products • Group-wide internal environmental auditor training • CFC emissions control training • Waste processing training
Education concerning environmental laws	4 & shared by video	4,336	<ul style="list-style-type: none"> • 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