

Environment

We will use the energy and environment technology we have cultivated to help address environmental issues across the supply chain.



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The expanding efforts of the international community to fulfill the SDGs is making it increasingly important to engage in environmental activities such as mitigating global warming, efficiently using natural resources, and preserving biodiversity.

Based on these social movements, in June 2019 Fuji Electric created the Environmental Vision 2050 to clarify the direction of environmental activities that we should work for the long term.

We will use our full array of energy and environment technology to create a supply chain fully dedicated to achieving the goals to realize a low-carbon society, a recycling-oriented society, and a society in harmony with nature.

In fiscal 2019, we successfully achieved each of our primary environmental targets for reducing greenhouse gas emissions, promoting the 3Rs (reduce, reuse, and recycle), and reducing the impact on ecosystems.

For fiscal 2020, we created the Environmental Vision Promotion Subcommittee under the newly established the SDGs Promotion Committee and a framework enabling steady advancement toward the Environmental Vision 2050. In addition, in June we declared our support for the Task Force on Climate-related Financial Disclosures (TCFD).

Fuji Electric will continue the global development of its energy and environment businesses to contribute to addressing environmental issues and help realize a sustainable society.

Basic Environmental Protection Policy

1	Offering products and technologies that contribute to global environmental protection
2	Reduction of environmental burden throughout product lifecycles
3	Reduction of environmental burden in business activities
4	Compliance with laws, regulations, and standards
5	Establishment of environment management systems and continuous improvements of the systems
6	Improvement of employees' environmental awareness and social contribution
7	Promotion of communication

Fuji Electric's Environmental Vision 2050

We aim to achieve a "Low-Carbon Society," "Recycling-Oriented Society," and "Society in Harmony with Nature" by expanding use of Fuji Electric's innovative clean energy technology and energy-saving products.

Realize a Low-Carbon Society

Target a reduction of 80% or more in greenhouse gas emissions across the supply chain

Realize a Recycling-Oriented Society

Promote green supply chains and 3R* activities to reduce environmental impact to zero

Realize a Society in Harmony with Nature

Aim for zero influence on the ecosystem by corporate activities contributing to biodiversity

Fiscal 2030 Target

Reducing Environmental Burden	Creating Environmental Value
<ul style="list-style-type: none"> Reduce greenhouse gas emissions during production by 31% (Greenhouse gas emissions' base year: Fiscal 2013) 	<ul style="list-style-type: none"> Reduce 50 million tons of CO₂ emissions through products annually

* Reduce, reuse, recycle

Environmental promotion system

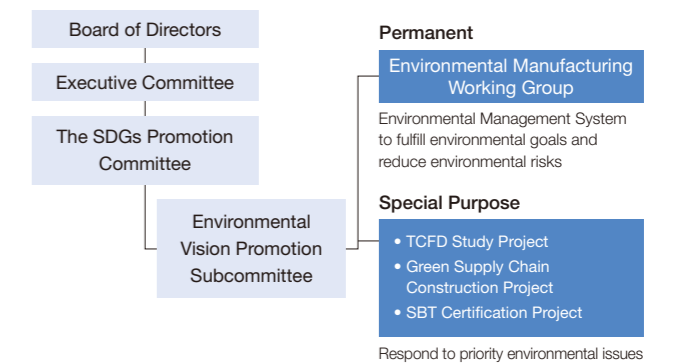
The Environmental Vision Promotion Subcommittee submits the environmental activities it deems as priorities to the SDGs Promotion Committee, which examines the issues and reports to the Executive Committee, which further deliberates the issues and reports to the Board of Directors.

The Environmental Manufacturing Working Group, composed of environmental managers from the operating sites, promotes initiatives aimed at fulfilling the Environmental Vision 2050. The members incorporate the environmental goals and initiatives into their individual divisions and are responsible for managing and fully carrying out the initiatives.

We have also established individual projects to focus the full force of our abilities into our initiatives for the environmental issues identified as important. The TCFD Study Project, Green Supply Chain Construction Project,

and Science-based Target (SBT) Certification Project each have teams with members from throughout our organization to create policies and strategic plans. Fuji Electric is continuously taking various approaches to resolve environmental issues.

Fuji Electric Environmental Promotion System



Supply Chain Initiatives for Environmental Vision 2050

(Upstream)	Supply Chain	(Downstream)
Business Partners	Fuji Electric	Customers
Raw Materials and Products Mining, manufacturing, disposal, transport, etc.	During Production 1. CO ₂ from fuel burning and other greenhouse gases 2. Power plant CO ₂ emissions due to our electricity usage	Product Usage Disposal, transport, etc.

Fuji Electric's Environmental Vision 2050				
Target a reduction of 80% or more in greenhouse gas emissions across the supply chain				
Low-Carbon Society		Fiscal 2030 Target		
		Reduce greenhouse gas emissions during production by 31%	Reduce 50 million tons of CO ₂ emissions through products annually	Clean energy, energy-saving products
Recycling-Oriented Society	Green procurement Cooperation with business partners	Eco-friendly products (Product 3R) Waste reduction, water recycling during production	Eco-friendly products	
Society in Harmony with Nature		Reduction of environmentally hazardous chemical substances Environmental preservation activities		

Close Up!

Declaration of support for the TCFD

Fuji Electric has declared its support to the Task Force on Climate-related Financial Disclosures (TCFD), an international framework for analyzing and disclosing the financial impact of climate change.

As we pursue the Environmental Vision 2050, the Company will analyze the risks and opportunities that climate change brings to its business and value chain along with the financial impact that accompanies them. The information will be actively disclosed and incorporated into our management strategies.



Selection to the CDP A List

In fiscal 2019, the CDP* certified Fuji Electric as an "A List Company" with excellent climate change initiatives and information disclosure. Fuji Electric was one of 38 Japanese companies on the A List.

* The CDP is an international NGO engaged in environmental activities, such as related to climate change. The CDP collects, analyzes, and evaluates information on environmental activities conducted by major companies and disclose the results to institutional investors.



Realize a Low-Carbon Society

Reduction of society's CO₂ emissions through products

Our total CO₂ emissions from our product operations declines when customers use our clean energy and energy-saving products. This is part of the goal in our Environmental Vision 2050 to "contribute to reducing society's CO₂ emission volume through our products." We calculate the contributions to CO₂ emissions reductions made over a full year of operation by all products shipped since fiscal 2009 (products within their average life spans). In fiscal 2019, we achieved our goals by supplying the

market for clean energy (geothermal power generation, solar power generation, biomass power generation) and energy-saving products (general-purpose inverters, power semiconductors).

The contribution from our leading products, or power electronics systems and electronic device products is 62%, which is relatively low compared to their sales composition ratios. And we are working to increase their contribution to reducing CO₂ emissions. In fiscal 2020, we aim to increase the contribution by mainly expanding sales of low-loss insulated-gate bipolar transistor (IGBT) modules.

Fiscal 2019 Result for the Year

Environmental Vision 2050	FY2019 Target	FY2019 Result	FY2020 Target
(FY2030 Target) Contribute to reducing society's CO ₂ emission volume by 50 million tons annually through our products	32.10 million tons annually	This year's target achieved 36.51 million tons annually (Exceeded the target by 14%)	34.00 million tons annually

Calculation of CO₂ Emissions Reduction Contribution

CO₂ Emissions Reduction Contribution = CO₂ reduction effect when product is in use x number of units being used in the market for the fiscal year

The CO₂ emissions reduction effect when a product is in use is:

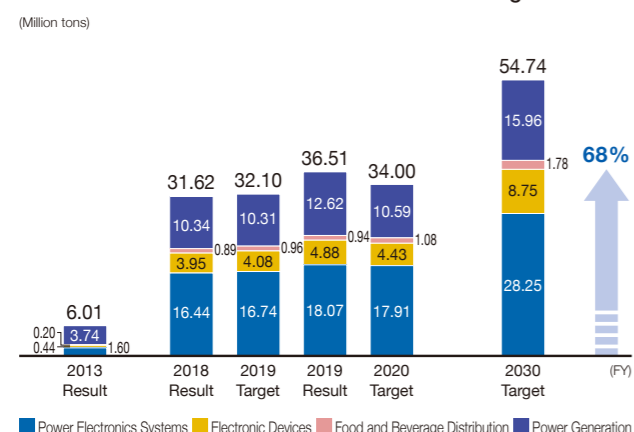
- Clean energy: Average CO₂ emission volume during thermal power generation minus CO₂ emission volume when the product was introduced
- Energy-saving products: CO₂ emission volume prior to introducing the product minus after introducing the product

* Calculated based on the Ministry of Economy, Trade and Industry Guideline for Quantifying Greenhouse Gas Emissions Reduction Contribution (stock-based)

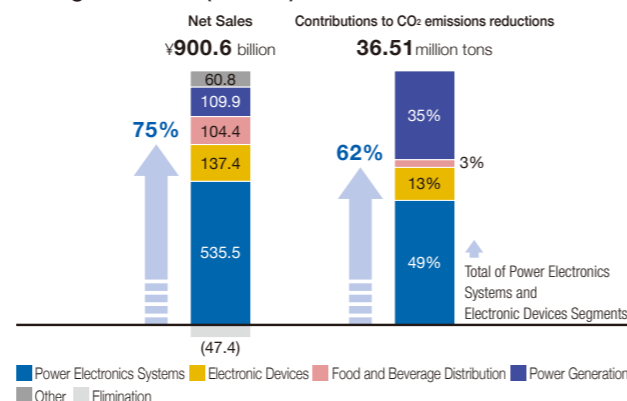
Main Contributing Products

- Power Electronics Systems: General-purpose inverters and top runner motors
- Electronic Devices: Power semiconductors
- Food and Beverage Distribution: Vending machines
- Power Generation: Geothermal and hydro power generation

Contributions to CO₂ Emissions Reductions through Products



Net Sales and Contributions to CO₂ Emissions Reductions through Products (FY2019)



Reduction of greenhouse gas emissions during production

We manage and seek to reduce the CO₂ and other greenhouse gases (GHG) generated during the production process at our factories. We set annual target values designed to lead us to achieve the 2030 targets in the

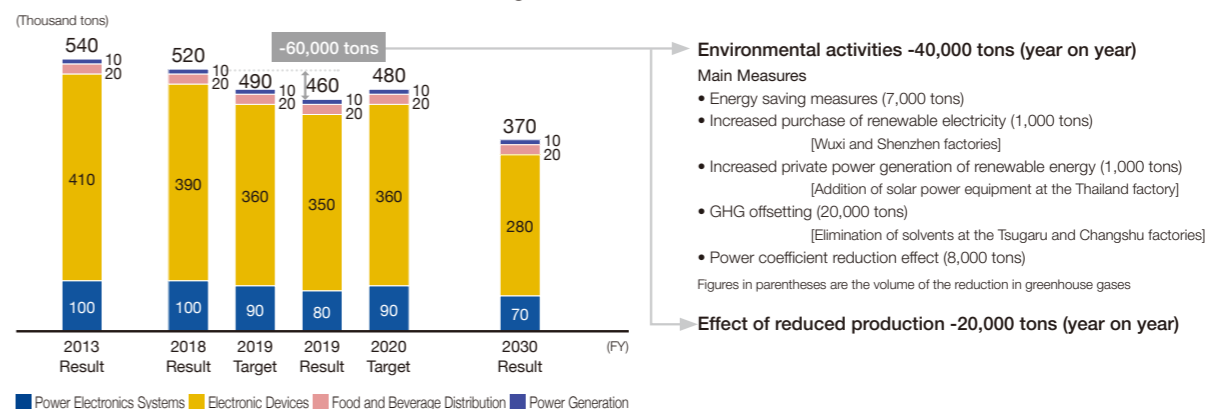
Environmental Vision 2050. In fiscal 2019, we prioritized investing in energy-saving production equipment and achieved our targets for the year. We are aiming to achieve our fiscal 2020 targets by investing further in abatement apparatus to reduce GHG emissions from the manufacturing lines of our semiconductor factories.

Fiscal 2019 Result for the Year

Environmental Vision 2050	FY2019 Target	FY2019 Result	FY2020 Target
(FY2030 Target) GHG Emissions During Production Reduce by 31% (from fiscal 2013)	488,000 tons/year	This year's target achieved 456,000 tons/year (down 12% from the previous year) (down 15% from the base year)	479,000 tons/year

* Power coefficient
Japan: 0.463 kg-CO₂/kWh Overseas: IEA emission factors (latest average power coefficient for each country)

Reduction of Greenhouse Gas Emissions during Production



Close Up!

Addition of solar power generation equipment at the Thailand factory cuts CO₂ emissions by 22%

Fuji Electric Manufacturing (Thailand) Co., Ltd. added a solar power generation facility with capacity of approximately 900 kW to the switchgear and control-gear system factory established in 2019, raising the factories total power generation capacity to 1,400 kW. Solar power now comprises approximately 36% of the electricity the company uses, which reduced its CO₂ emissions by 22% from the previous year.



Fuji Electric Manufacturing (Thailand) Co., Ltd.

Fukiage Factory Saving energy using our ZEBLA software

Our efforts to save energy include actively using our own products. The Fukiage Factory, which mainly produces magnetic switches and molded-case circuit breakers, began using the ZEBLA power prediction system to reduce its energy consumption in fiscal 2015. In fiscal 2019, the system helped the factory lower its energy consumption by 9.1% and CO₂ emissions by 22.4% from fiscal 2013. The ZEBLA system saves energy by predicting the amount of electricity that will be needed during peak consumption and other periods. Automating the calculations for predicting power volume needs enables energy saving in real time. The Energy Conservation Center, Japan (ECCJ) awarded the Fukiage Factory the Chairman Prize of ECCJ at the Fiscal 2019 Energy Conservation Grand Prize for Excellent Energy Conservation Equipment in recognition of its energy conservation efforts.



The ZEBLA power prediction system

Close Up!

Solar power with storage batteries reduces CO₂ emissions by approximately 60,000 tons

Fuji Electric delivered power generation equipment with storage batteries to the Suzuran Kushiro-cho Solar Power Plant, which began commercial operation in February 2020. Incorporating storage batteries to a mega solar operation provides output fluctuation control and ensures a stable supply of clean energy. The power plant reduces annual CO₂ emissions by 59,864 tons*¹ and provides electricity that is equivalent to the annual consumption of approximately 21,300 households*².



Suzuran Kushiro-cho Solar Power Plant (Hokkaido, Japan)

*1. Calculation of CO₂ emissions reduction: Annual power generation x CO₂ emission factor
Output 92 MW, CO₂ emission factor: 0.619 kg-CO₂/kWh (weighted average of thermal power generation)
*2. From the website of Tokyu Land Corporation

Realization of a Recycling-Oriented Society

We aim to realize the 3Rs across the supply chain from product development to procurement, use, and final product disposal.

The indicators we use to measure our progress are the reduction of the amount of waste sent to landfills and water consumption. These indicators we use to evaluate our performance encourage us reuse the surplus materials and water generated in our production processes. And we evaluate the achievement based on the annual targets.

We continued minimizing the amount of waste sent to landfills in fiscal 2019 and lowered the ratio of waste sent to landfills in Japan and overseas to 1.1%. We vastly exceeded our targets due to progress reusing waste

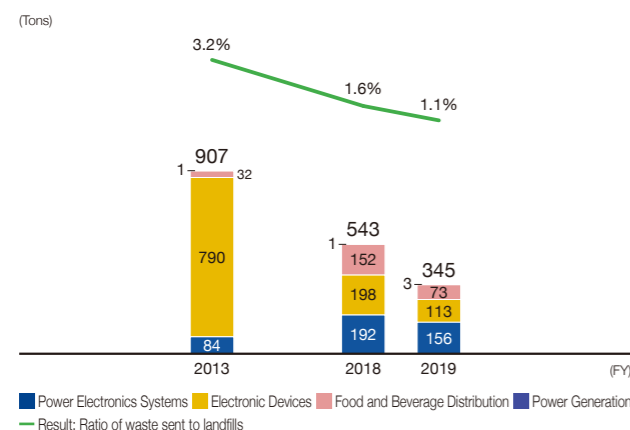
plastic in Japan and steady progress improving our final disposal processes overseas.

Our main issue at present is the lack of progress in working with our business partners and customers to apply the 3Rs. Our first step will be to strengthen the cooperative efforts with our business partners aimed at creating sustainable resource recycling. In fiscal 2020, we created the Green Supply Chain Construction Project in which our procurement and environmental departments will work together to promote environmental preservation efforts for our business partners. We are also continuing efforts to reduce the amount of waste sent to final landfills overseas with the aim of further lowering the final disposal rate.

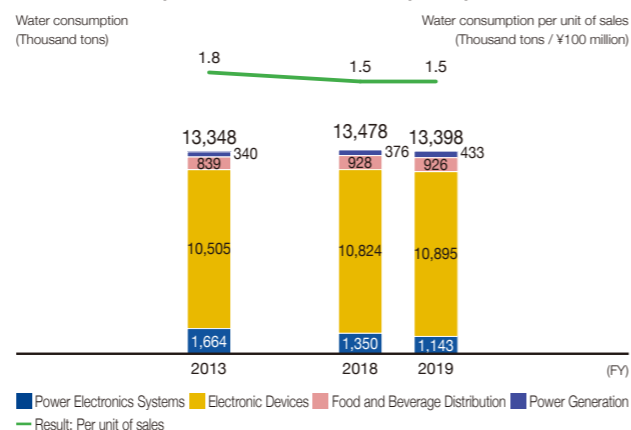
Fiscal 2019 Result for the Year

Environmental Vision 2050	FY2019 Target	FY2019 Result	Major Measures
(FY2030 Target) Ratio of waste sent to landfills Under 1.0%	Ratio of waste sent to landfills Under 2.1%	This year's target achieved Amount of waste sent to landfills 345 tons Ratio of waste sent to landfills 1.1%	<ul style="list-style-type: none"> Promote recycling of waste plastic (for producing cement) (Mie Factory, Food and Beverage Distribution) Promote reuse of semiconductor packaging materials (Fuji Electric Power Semiconductor Co., Ltd., Electronic Devices)
(FY2030 Target) Water consumption per unit of sales 1,800 tons / ¥100 million	Per unit of sales 1,800 tons / ¥100 million	This year's target achieved Consumption 13,398,000 tons Per unit of sales 1,500 tons / ¥100 million	<ul style="list-style-type: none"> Countermeasures for filter membrane blockage in water recycling equipment (Matsumoto Factory, Electronic Devices) Promote water conservation (Fuji Electric (Malaysia) Sdn. Bhd., Electronic Devices)

Amount and Ratio of Waste Sent to Landfills



Water Consumption and Water Consumption per Unit of Sales



Close Up!

Lower final waste disposal volume by 18 tons by reusing semiconductor packaging materials

The Hokuriku Factory of Fuji Electric Power Semiconductor Co., Ltd., which assembles power semiconductor packages, is reusing materials (sticks) for storing and safekeeping electrical module semiconductors. In fiscal 2019, it collected, cleaned, and reused approximately 140,000 used sticks that would previously have been disposed of, which is equivalent to roughly 18 tons of plastic disposal. Prior to implementing the recycling program, it conducted a thorough investigation about the viability of reusing the sticks and verified that there would be no adverse effect on our products.

Realizing a Society in Harmony with Nature

We design and manufacture our products to have no adverse impact on ecosystems so our customers can use our products with peace of mind. We set indicators for reducing the use of chemical substances (VOCs: Volatile Organic Compounds) that lead to environmental degradation and incorporate the targets into our annual goals and evaluate the result.

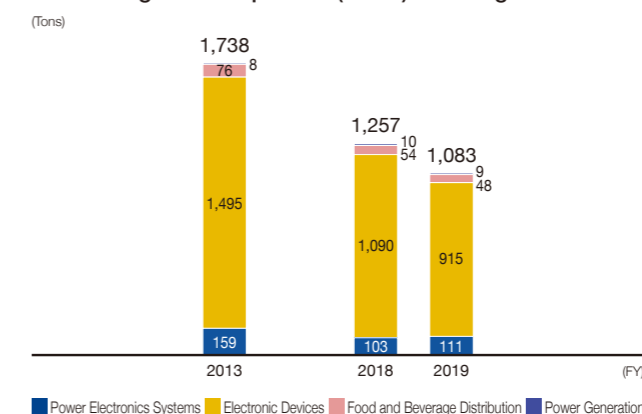
All our operating bases also conduct environmental preservation activities catered to specific local biodiversity preservation needs. Preservation activities in fiscal 2019 include planting mangroves (Fuji Electric (Malaysia) Sdn. Bhd.).

In fiscal 2020, we will promote the CSR Procurement Guidelines to raise the awareness of our suppliers about reducing the environmental impact of business operations.

Fiscal 2019 Result for the Year

Environmental Vision 2050	FY2019 Target	FY2019 Result	Major Measures
Volatile organic compounds (VOCs) Discharge volume Under 1,694 tons	Under 1,704 tons	This year's target achieved 1,803 tons	<ul style="list-style-type: none"> Reduction of solvent paint usage (Mie Factory, Food and Beverage Distribution)

Volatile Organic Compounds (VOCs) Discharge Volume



Close Up!

Advance examination of regulated substance content

We acquire materials with low environmental impact from our business partners in accordance with Green Procurement Guidelines and manage them.

With the increase from six to ten of the regulated substances subject to the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS)* in fiscal 2019, the Suzuka Factory, which manufactures inverters, surveyed 381 of its business partners regarding the inclusion of regulated substances. The survey confirmed that none of the 381 companies use regulated substances.

* RoHS regulated substances: Specific hazardous substances with restrictions for use in electrical and electronic equipment

Contribution to SOx removal from ship exhaust gas

Sulfur oxide (SOx) is an environmental pollutant present in ship fuel that is considered to be a cause of acid rain.

The SOx scrubber we launched in fiscal 2018 contributes to preventing air pollution by over 98% of the sulfur oxides contained in ship exhaust gas. We had delivered over 40 of the SOx scrubbers as of July 2020 and are currently expanding our lineup of products designed for large vessels.

