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Message from the Environmental Officer

Establishment of Environmental Vision 2050

Preventing climate change, effectively utilizing natural resources, preserving biodiversity, and addressing other environmental issues are garnering rising attention. At the same time, the global community is increasingly taking action toward realizing a sustainable environment. This push to global action can be seen in the adoption of the SDGs by the United Nations in 2015 and in the implementation of a climate change response framework in the form of the Paris Agreement in 2016.

Recognizing this social push, Fuji Electric established its Environmental Vision 2050 to guide action for contributing to environmental preservation based on even loftier targets.

The vision sets the goal of our environmental initiatives to be realizing a low-carbon society, a recycling-oriented society, and a society in harmony with nature. Fuji Electric is approaching this goal through a supply chain-wide effort to reduce greenhouse gas emissions, promote the 3Rs (reduce, reuse, recycle), and minimize impacts on ecosystems. We are thus working to accomplish this goal through the efforts of employees as well as those of our associates.

Fuji Electric is dedicated to contributing to the realization of sustainable societies with innovative technologies and products going forward.

Fuji Electric positions the preservation of the environment as among its top management priorities, and it has established its Basic Environmental Protection Policy to guide activities for addressing environmental issues. We have since been consistent in our approach to reducing the environmental impacts of our business activities, and today we have in place an environmental management system that facilitates contributions to environmental preservation through our business.

In regard to global warming countermeasures in fiscal 2018, contributions to CO₂ emission reductions from products totaled 30,160,000 tons as a result of the high number of contributing products shipped. Meanwhile, greenhouse emissions from production activities increased by 15,000 tons because of higher production levels, but emissions per unit of production decreased by 1 ton per ¥100 million worth of production.

The ratio of waste sent to landfills, a target for our efforts to contribute to the realization of a recycling-oriented society, was 1.6% on a Companywide basis, a reduction of 0.7 percentage point year on year.

Meanwhile, we helped protect biodiversity through ocean and river preservation initiatives conducted as part of our social contribution activities.

From fiscal 2019 forward, we will be adhering to the newly established Environmental Vision 2050 as we seek to contribute to the realization of a low-carbon society, a recycling-oriented society, and a society in harmony with nature.

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

- Reduce greenhouse gas emissions during production by 31% (Greenhouse gas emissions' base year: Fiscal 2013)

Creating Environmental Value

- Reduce 50 million tons of CO₂ emissions through products annually

* Reduce, reuse, recycle

Realization of a Low-Carbon Society— Reduction of Society's CO₂ Emissions through Products

Reductions in CO₂ Emissions through Products in Fiscal 2018

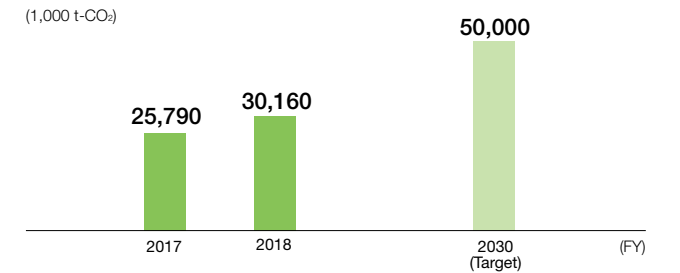
30,160,000 tons

By encouraging customers to use our clean energy facilities and energy-saving products, we are able to reduce CO₂ emissions from the use of our products. Fuji Electric calculates the contributions to CO₂ emissions reductions made over a full year of operation by all of the products it has shipped since fiscal 2009 (excluding those that have reached the end of their average life spans).

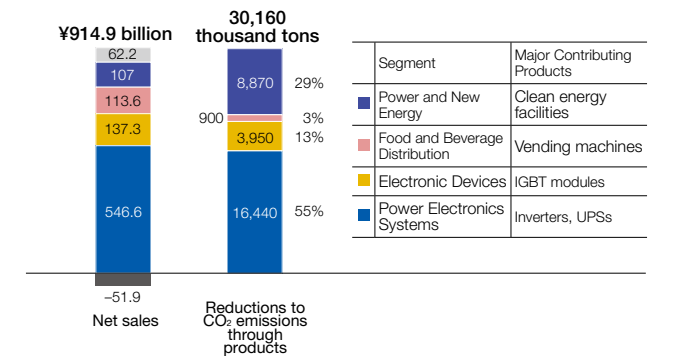
In fiscal 2018, the contribution to CO₂ emissions reductions from products was 30,160,000 tons. This contribution was largely a result of sales of clean energy facilities in the power and new energy business and of energy-saving equipment such as inverters in the power electronics systems business and IGBT modules in the electronic devices business. This amount of reduction was equivalent to 2% of Japan's total greenhouse gas emissions in fiscal 2016 (approximately 1.3 billion tons).

Beginning with fiscal 2019, Fuji Electric will work toward accomplishing the target for reductions to society's CO₂ emissions through products set in the Environmental Vision 2050 (50 million tons in fiscal 2030).

Reductions in CO₂ Emissions through Products



Net Sales and Reductions in CO₂ Emissions through Products by Segment in Fiscal 2018



Note: The contributions to CO₂ emission reductions refers to CO₂ emission reductions from products shipped in and after fiscal 2009 that were in operation for a year. Calculated based on the Ministry of Economy, Trade and Industry's Guideline for Quantifying Greenhouse Gas Emission Reduction Contribution

Products Contributing to Reductions to Society's CO₂ Emissions

Case Example

Geothermal Power Generation Contribution to reductions of 4 million tons of CO₂ a year

Geothermal power is a form of renewable energy that is generated using steam and hot water underground. Binary geothermal power generation employs new technologies that make it possible to generate geothermal power using low-temperature heat sources. These technologies are put to use in the Takigami Binary Geothermal Power Plant, which is located at the foot of Mount Kuju in Oita Prefecture. Fuji Electric was contracted for procurement, production, and construction activities pertaining to this power plant, which went onstream in March 2017 boasting a generation capacity of 5,050 kW, among the largest in Japan.

The geothermal power generation plants Fuji Electric has delivered since 2009 have a combined total generation capacity of 846 MW. The combined total CO₂ emissions from these plants is 4 million tons less per year than would be emitted by standard thermal power generation plants with the same generation capacity.



Takigami Binary Geothermal Power Station

Case Example

General-Purpose Inverters Contribution to reductions of 1.2 million tons of CO₂ a year through energy savings

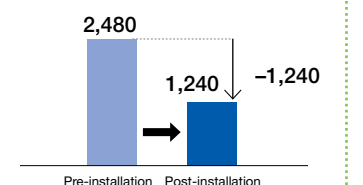
Inverters are used to control motor rotations in pumps, fans, and conveyance systems. With inverter control, the amount of electricity consumption decreases in proportion to the cube of the motor rotations. Electric equipment using inverter control can therefore save 50% more energy compared with equipment not using inverters (damper control), assuming operation at 80% wind output.

In fiscal 2018, we shipped roughly 15,000 mega-type general-purpose inverters (with a combined capacity of 100 kW), contributing to reductions of 1.2 million tons of CO₂ a year.



FRENIC-MEGA general-purpose inverter

Annual Reductions to CO₂ Emissions (1,000 t-CO₂)
Based on fiscal 2018 shipments of mega-type general-purpose inverters



Note: Calculated under standard operating conditions
50% decrease in electricity consumption when operating with 20% reduction in wind output
CO₂ coefficients
Japan: 0.496 kg-CO₂
Overseas: 0.506 kg-CO₂

Realization of a Low-Carbon Society— Reduction of Greenhouse Gas Emissions During Production

Total Greenhouse Gas Emissions from Production Activities

499,000 tons* (down 7% from fiscal 2013)

As part of its efforts to contribute to the realization of a low-carbon society, Fuji Electric is working to reduce the greenhouse gases emitted during production activities. When converted to a CO₂ basis, total greenhouse gas emissions in fiscal 2018 amounted to 499,000 tons, an increase of 15,000 tons and a reduction of 1 ton per ¥100 million worth of production in terms of emissions per unit of production compared with the previous year.

Of this, CO₂ emissions came to 357,000 tons, an increase of 1,000 tons year on year. This outcome is largely a result of higher orders, and consequently production of, power semiconductors and other offerings in the electronic devices business and products such as energy-saving equipment and systems in the power electronics systems business.

Energy conservation activities aimed at reducing CO₂ emissions had the benefit of lowering emissions by 8,000 tons on a Companywide basis. Renewable energy usage is being promoted as one facet of these activities. On this front, we installed a new solar power generation system at Wuxi Fuji Electric FA Co., Ltd., of China. This system is supplying clean energy that accounts for approximately 20% of the electricity used to power the factory's production activities.

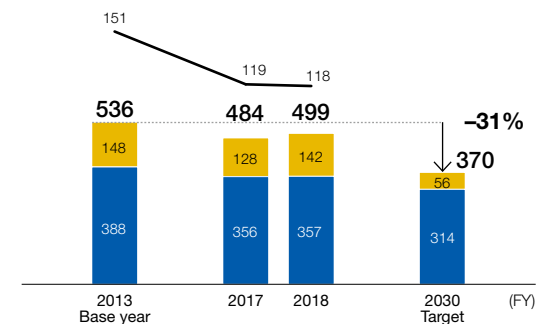
Emissions of greenhouse gases other than CO₂ totaled 142,000 tons, up 14,000 tons year on year. This increase was primarily due to the bolstering of equipment to accommodate higher production levels in the electronic devices business.

In fiscal 2019 and beyond, we will be accelerating initiatives for achieving the greenhouse gas emissions reduction target set for fiscal 2030. CO₂ emission reduction initiatives will include tracking energy usage and installing LED lighting and high-efficiency air conditioners. As for greenhouse gases other than CO₂, we will target emission reductions by installing abatement apparatus and switching to alternative gases.

Note: The power coefficient used for conversions is 0.496 kg-CO₂e/kWh.

Total Greenhouse Gas Emissions from Production Activities and Target

Emissions (1,000 t-CO₂) Emissions per unit of production (tons/¥100 million)



■ CO₂ ■ Other greenhouse gases
— Emissions per unit of production
Note: Emissions are calculated using actual or forecast electricity consumption for each fiscal year (power coefficient for fiscal 2018: 0.496 kg-CO₂e/kWh).

Realization of a Recycling-Oriented Society

Efficient Use of Water Resources

Companywide Water Usage in Fiscal 2018

13,478,000 tons

Japan: 7,503,000 tons (Target: 7,297,000 tons)
Overseas: 5,974,000 tons (Target: 5,901,000 tons)

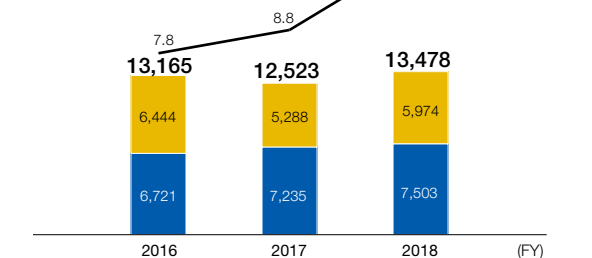
As part of its efforts to efficiently use water resources, Fuji Electric is increasing its water recycling rates with the goal of reducing total water usage.

In fiscal 2018, we failed to meet our water usage targets both in Japan and overseas due to higher production levels. However, the water recycling rate rose by 3.4 percentage points year on year due to the recycling of an additional 600,000 tons of water at the Malaysia Factory.

Going forward, we will endeavor to further reduce Companywide water usage by raising water recycling rates at factories.

Companywide Water Usage Volumes and Recycling Rate

Water usage (1,000 tons) Water recycling rate (%) Recycled water / Water usage



■ Japan ■ Overseas
— Companywide water recycling rate

Waste Reduction

Ratio of Waste Sent to Landfills (Companywide)

1.6%

Japan: 0.6% (Target: Less than 0.5%)
Overseas: 3.7% (Target: Less than 7.0%)

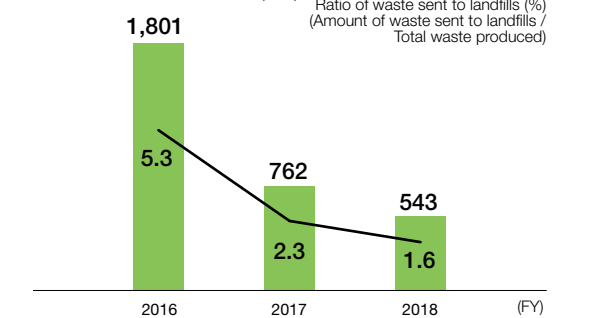
Fuji Electric's initiatives to reduce waste production volumes and the ratio of waste sent to landfills includes making lighter and more compact products and reducing defective products at the manufacturing stage.

On a Companywide basis, the ratio of waste sent to landfills in fiscal 2018 decreased 0.7 percentage point, to 1.6%. Overseas, this ratio was 3.7%, 3.3 percentage points lower than the target of 7.0%, due to a change in the sludge treatment method at the Malaysia Factory.

Looking ahead, Fuji Electric will continue striving to reduce the Companywide ratio of waste sent to landfills below 1.0% by fiscal 2030.

Amount and Ratio of Waste Sent to Landfills

Amount of waste sent to landfills (tons) Ratio of waste sent to landfills (%) (Amount of waste sent to landfills / Total waste produced)



■ Amount of waste sent to landfills — Ratio of waste sent to landfills

Realization of a Society in Harmony with Nature

Guided by the Fuji Electric Biodiversity Action Guidelines, the Company is advancing biodiversity preservation activities through its social contribution activities and through its business of supplying products that reduce air pollution and other environmental impacts.

For example, the SO_x scrubbers released in fiscal 2018 (see page 18) help prevent air pollution by cleaning ship exhaust gas to remove more than 98% of the pollutant sodium oxide (SO_x) contained therein.

Fuji Electric Biodiversity Action Guidelines

1. Reduce environmental impact through our energy and environment technologies, and contribute to biodiversity
2. Minimize the impact of our business on biodiversity and promote sustainable use
3. Work with society to actively promote biodiversity action

Case Example

Prevention of Global Warming through Energy Savings in Production Activities Suzuka Factory

The Suzuka Factory is our principal production base for power electronics system products, and this factory is aggressively pursuing energy savings through three initiatives to help prevent global warming.

The first initiative was the introduction of an energy usage monitoring system that can monitor electricity usage conditions by piece of equipment, which has made it possible to implement real-time energy conservation efforts. The second initiative was to improve energy efficiency. Measures with this regard included the replacement of aged equipment with Fuji Electric inverters and high-efficiency air conditioners, which are effective in reducing the energy consumption of production equipment. The third initiative was to entrench energy conservation awareness among all employees. All employees at the Suzuka Factory are taking part in energy conservation activities, such as regularly turning off lights. These initiatives resulted in a 1% year-on-year reduction in total electricity consumption in fiscal 2018, despite the overall increase of 6% in total production hours,* to 850,000 hours, that stemmed from higher production levels.

* Total production hours is the sum of all hours spent by all employees directly performing production processes.



Energy usage monitoring system

Case Example

Reduction of Amount of Waste Sent to Landfills Malaysia Factory

The waste water produced during the manufacture of electronic devices is discharged into rivers after extracting the metal-containing sludge through treatment procedures. As recent as fiscal 2016, the Malaysia Factory was burying this sludge, which was thus accounted for directly in the amount of waste sent to landfills. As the Malaysia Factory was searching for methods of putting this sludge to better use, AKBK Sustainable Resource Management Centre, a new waste recycling plant operated by a Japanese company, was established. We were thus prompted to look into the possibility of recycling this sludge as cement, a waste treatment method that had not been used in Malaysia previously. We were able to adopt this treatment method, and recycling commenced when the AKBK Sustainable Resource Management Centre started operation in fiscal 2017. As a result, the amount of waste sent to landfills at the Malaysia Factory in fiscal 2018 was approximately 70% lower than in fiscal 2016.



AKBK Sustainable Resource Management Centre (Malaysia)