

## Environment

Efforts to protect the global environment are a key management issue for Fuji Electric, and with the establishment of our Basic Environmental Protection Policy, we continue to promote environmental management with the goal of contributing to global environmental protection through our business activities.

In addition to our environmental protection activities, in fiscal 2012 we began a new Smart Factory Initiative in response to changes in power supply conditions following the Great East Japan Earthquake. This effort is built around the concept of reducing energy use, and better visualizing, understanding, and optimizing our consumption of power.



Fuel cells installed at the Yamanashi Branch Factory under the Smart Factory Initiative

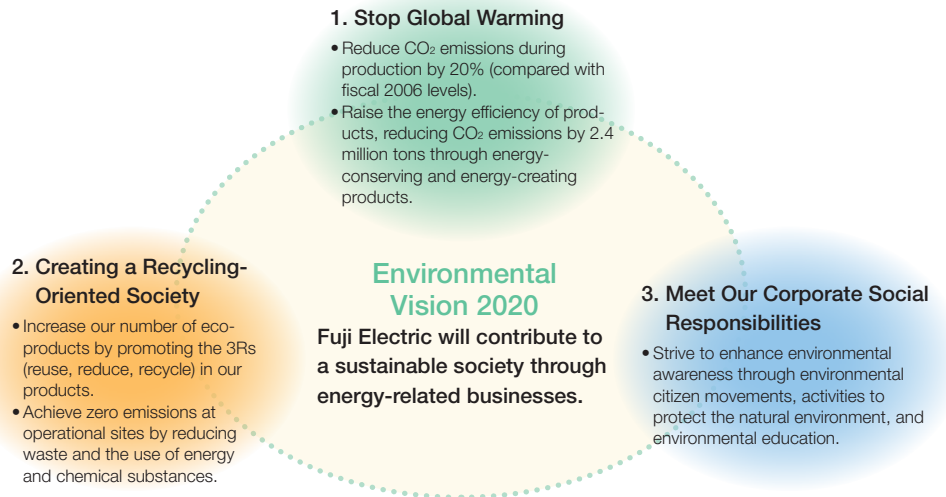
### Basic Environmental Protection Policy

1. Offering products and technologies that contribute to global environmental protection
2. Reduction of environmental burden throughout product life cycles
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

(Revised in 2003)

## Environmental Vision 2020

Fuji Electric's Environmental Vision 2020 was established to provide direction for our medium- to long-term environmental activities, centered around stopping global warming, creating a recycling-oriented society, and meeting our corporate social responsibilities. In addition to reducing the environmental load of our own production activities, our goal is to achieve a sustainable society by providing energy-saving, energy-creating products and technologies.



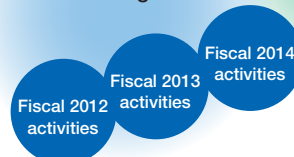
## Environmental Management 3-Year Rolling Plan

To achieve the goals of the Environmental Vision 2020, Fuji Electric has formulated an Environmental Management 3-Year Rolling Plan, designed to promote ongoing efforts.

In addition, through our Fuji Electric Global Environment Protection Committee, which reports directly to the president, and the Fuji Electric Global Environmental Promotion Responsibility Council, comprised of officers responsible for environmental management at each of our locations, we evaluate our activities for the current fiscal year and discuss, develop, and execute new initiatives for the following year.

3-Year Rolling Plan

Environmental Vision 2020



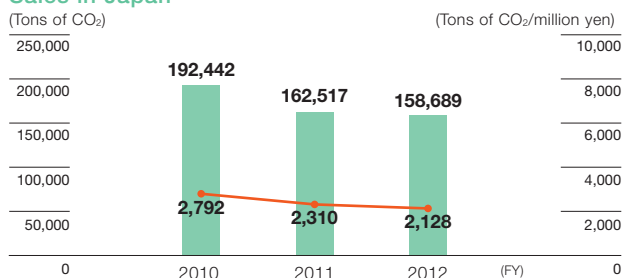
\* Please refer to our corporate website for more information about the fiscal 2012 goals and accomplishments of our environmental management promotion structure.

## Efforts to Stop Global Warming

### Reducing CO<sub>2</sub> During Production

In fiscal 2012, Fuji Electric expanded its efforts to conserve energy and curb energy costs. While energy costs were expected to rise 7.2% with the impact of rate increases, we succeeded in holding the rise in cost to 1.9% by a combination of upgrading to higher-efficiency facilities and equipment, controlling the number of units in operation, and installing inverter systems to control peak power use, among other measures.

#### CO<sub>2</sub> Emissions and CO<sub>2</sub> Emissions per Unit of Sales in Japan



■ CO<sub>2</sub> Emissions (left) — CO<sub>2</sub> Emissions per Unit of Sales (right)

\* The emissions per unit of sales is calculated by dividing the CO<sub>2</sub> emission amount by consolidated net sales.

### Smart Factory Initiative

In response to changes in power supply conditions in recent years, Fuji Electric has embarked on a new Smart Factory Initiative.

Under our Smart Factory Initiative, we coordinate effective use of our expertise in electric and thermal energy technology with production planning to optimize energy use.

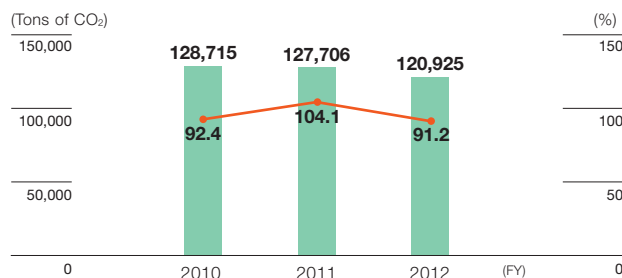
In fiscal 2012, four of our factories—in Kawasaki, Tokyo, Yamanashi, and Mie—were selected for conversion to Smart Factory sites due to the proportion of electric and

thermal energy used and the nature of their production methods. Having analyzed their unique energy usage patterns, and established a concept for implementing smart energy use based on those results, we have now started work to develop a concrete plan of action.

In fiscal 2012, we succeeded in reducing CO<sub>2</sub> emissions from production by 17.6% (compared to fiscal 2010 levels), exceeding our fiscal 2012 target of a 12.3% reduction.

Overseas, energy-saving diagnostics and other activities resulted in a 6.1% reduction in CO<sub>2</sub> (compared to fiscal 2010), versus our fiscal 2012 target of a 2.6% reduction.

#### Overseas CO<sub>2</sub> Emissions per Unit of Production



■ CO<sub>2</sub> Emissions (left) — CO<sub>2</sub> Emissions per Unit of Production (right)

\* Emissions per unit of production is the amount of CO<sub>2</sub> emitted by production volume (presented taking the value for FY2006 to be 100).

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In fiscal 2013, we will verify the Smart Factory Initiative concept and then roll it out at other factories. The results will eventually lead to the development of smart factory proposals for our customers.

### Examples of Initiatives

#### Fuji Electric Matsumoto Factory

### Realizing Environmental Targets Linked to Improved Operating Results

At the Matsumoto Factory, which produces semiconductors, 40% of the energy used is consumed in maintaining clean room ambient conditions (temperature and humidity, cleanliness, airflow, and air pressure). In fiscal 2012, we focused on efforts to make these clean rooms more energy-efficient.

Because minute changes in ambient conditions can have an impact on product quality, the facilities, manufacturing, and quality assurance departments worked together to repeatedly test quality against changes in conditions, before arriving at a set of operating conditions that would

ultimately satisfy both clean room ambient conditions and product quality requirements.

As a result, we exceeded our target for reducing energy consumption by 40%.



The Fuji Electric Fan Filter Unit with Inverter (clean room upper chamber) controls airflow optimally for each work area

## Reducing Society's CO<sub>2</sub> Emissions through Products

Fuji Electric is aiming to reduce society's CO<sub>2</sub> emissions by providing Eco-Friendly Products and Environmental Contribution Products.

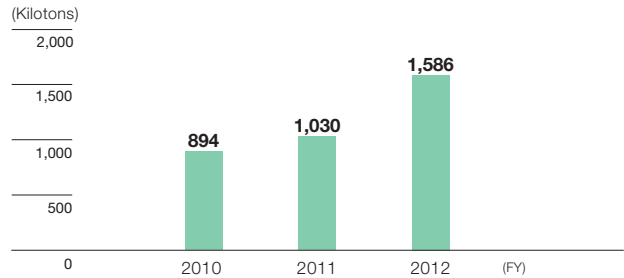
In fiscal 2012, we achieved a reduction of 1.58 million tons, against the result of fiscal 2011, 1.03 million tons, exceeding by 0.56 million tons.

One such initiative has been the establishment of a common Fuji Electric Eco-Product Certification System designed to expand the range of "eco-products" and "super eco-products." The goal is to increase the ratio of sales of eco-products among overall sales to 70% by 2020 (this ratio was 29.5% in fiscal 2012).

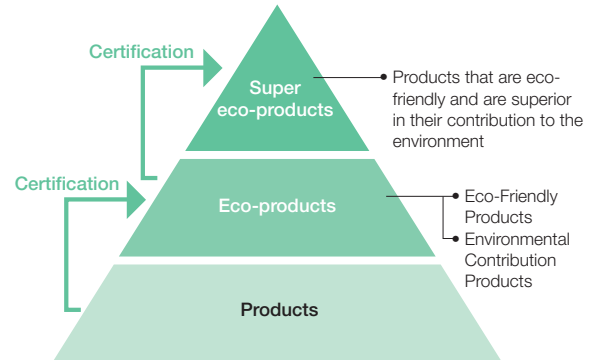
### Eco-Product Certification System

Fuji Electric evaluates the degree of product eco-friendliness on a company-wide platform. Products meeting fixed criteria are certified as "eco-products," while those that are at the top of the industry for environmental benefit and contribution, and which are recognized outside the Company at the national level for environmental superiority are labeled "Super eco-products."

### Reduced CO<sub>2</sub> Emissions through Products



\* Amount of CO<sub>2</sub> reduction based on one year of operation of products shipped for each fiscal year.  
 \* Calculated making reference to the quantification method of GHG emission reductions stipulated in the Electrical and Electronics Industries' Commitment to a Low Carbon Society.



**Eco-Friendly Products:** Products that have a reduced environmental impact over the entire product lifecycle. These products are superior to traditional products in at least four of six standard areas, including energy conservation, resource conservation, and recyclability.

**Environmental Contribution Products:** Products that contribute to environmental preservation during use. Products that contribute to the environment by utilizing natural energy or information and communication technology.

### Super Eco-Products in Fiscal 2012

#### Agency for Natural Resources and Energy Director's Award Received at the Superior Energy Conserving Machinery Awards

In the 33rd annual Superior Energy Conserving Machinery Awards held by the Japan Machinery Federation in fiscal 2012, Fuji Electric was recognized with the Agency for Natural Resources and Energy Director's Award for its HX Series of uninterruptible power supplies (UPS) equipped with a 3-level IGBT module, and for its PVI Series of power conditioners (PCS).

Both products were recognized for their world-class energy-saving performance. Fuji Electric's proprietary new 3-level IGBT module significantly reduces power losses generated in the conversion between alternating and direct current, with the HX series of UPSs achieving a conversion efficiency of 97%, and the PVI series of PCSs achieving 98.5% efficiency.



# Initiative to Create a Recycling-Oriented Society

## Waste Reduction

In addition to reducing waste, Fuji Electric has worked to promote resource recycling, with a focus on attaining the goal of zero waste emissions — a ratio of waste sent to landfills to total waste of no more than 1%.

In Japan, waste recycling enabled Fuji Electric to achieve its goal of zero waste emissions in fiscal 2004, and we have continued to meet our targets in the years since.

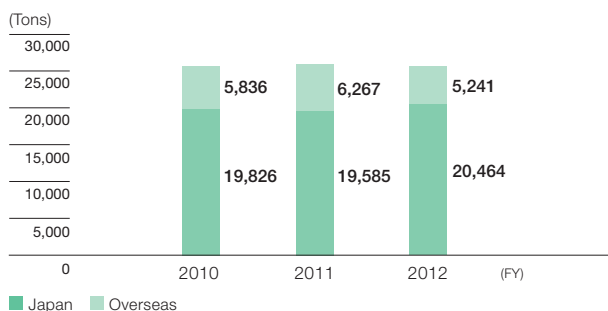
Further, in fiscal 2011 we revised this target to “under 0.5%,” and worked to strengthen our efforts in resource recycling.

In fiscal 2012, two new factories (in Chiba and Tsugaru\*) came online in Japan, increasing both waste generated and landfill-bound waste, but with the latter ratio at 0.43%, we were nevertheless able to achieve our target.

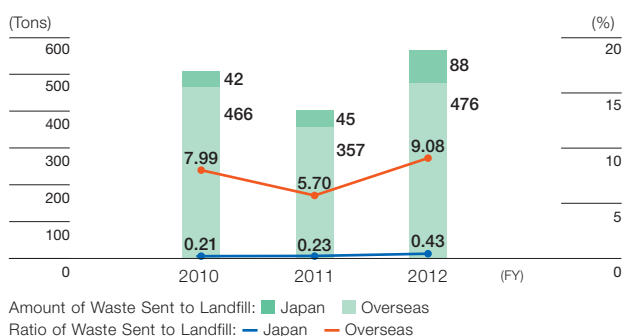
In addition, we have launched zero emission activities at our overseas factories. Worldwide, waste treatment and disposal and resource recycling infrastructure is far less advanced than in Japan, particularly in emerging countries. At its overseas operations, Fuji Electric is working to bring the ratio of waste sent to landfills down to 7% or less in fiscal 2013.

\* Tsugaru: Fuji Electric Tsugaru Semiconductor Co., Ltd.

### Amount of Industrial Waste



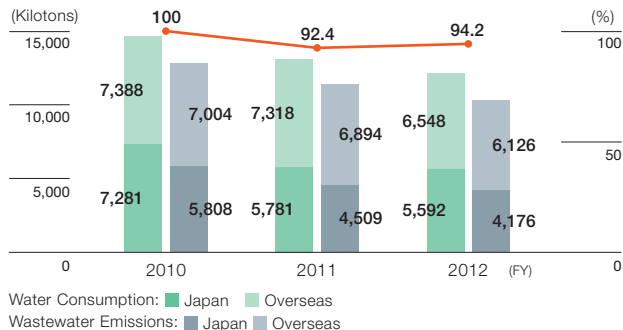
### Amount and Ratio of Waste Sent to Landfill



## Efficient Use of Water Resources

In view of the problem of global water resource depletion, in addition to its efforts to comply with wastewater quality requirements and reduce wastewater, in fiscal 2012 Fuji Electric launched a new initiative aimed at more efficient use of water resources. Using fiscal 2010 levels as a standard, this initiative aims to reduce both total water intake and base units of consumption at our domestic manufacturing sites by 1% each, with the goal of reducing those levels by 10% in fiscal 2020.

### Water Consumption and Wastewater Emissions per Unit of Production



\* Water consumption per unit of production is the amount of water consumed for the amount of production (Presenting FY2010 level as 100).

## Examples of Initiatives

### Fuji Electric Power Semiconductor Omachi Factory

## Fusing Production Streamlining with Environmental Activities for a Whole-Team Effort to Reduce Waste

In fiscal 2004 the Omachi Factory, which assembles IGBT modules and other semiconductor products that contribute to energy savings, succeeded in recycling 100% of waste generated, and has continued to maintain zero emissions ever since.

Recognizing that initiatives to eliminate assembly defects through production streamlining efforts could lead to a further reduction in waste generated, in fiscal 2012 the factory set targets for elimination of defects as an environmental initiative, and began addressing the issue through a collaboration between staff of its manufacturing, quality assurance, and technology departments. At the same time,

these efforts were coordinated with the activities of its on-site quality control circle, and the entire staff worked to promote further waste reduction activities.

As a result, generated waste was reduced by 72% compared to fiscal 2010 levels. Going forward, we plan to continue these initiatives for integrating production streamlining and environmental activities.



Waste reduction is incorporated into the activities of the quality control circle

## Mapping the Interplay between Business Activities and Environmental Impact

Fuji Electric is constantly working toward more efficient use of resources and energy and the reduction of waste throughout all of its business activities. We are also

proactive in our efforts to be more environmentally conscious across the entire product and service lifecycle.

Scope: Production Bases in Japan

