

## Plant and Office Initiatives for the Environment

- From fiscal 2013, we will focus on the reduction of energy consumption, water usage, and waste as well as the promotion of recycling, and strive to achieve set goals in each of these areas.
- We are also fully committed to the strict management of chemical substances in consideration of their potential impact on the environment as well as on the health and safety of employees, customers and others.

## Measures to Help Prevent Global Warming

### Efforts to reduce energy consumption

Since the goal for reducing CO<sub>2</sub> emissions set in 2008 is expected to be achieved in fiscal 2012 (see p. 15) thanks to our vigorous environmental investment and energy-saving activities, we have defined new goals for fiscal 2013 and onward. When these new goals were set, it was decided that each plant and office would choose in what unit energy consumption is measured and reported, depending on the form of its business. The plants and offices in Japan have chosen to use kiloliter of crude oil equivalent\*1 as the unit for measurement and to report in accordance with the Act Concerning the Rational Use of Energy. They will now work to reduce energy consumption calculated based on that unit by at least 1% year on year as required by the act. The Group as a whole will continue striving to reduce energy consumption across the board.



Photovoltaic power generation at the new Miyagi Plant

### Energy consumption and CO<sub>2</sub> emissions

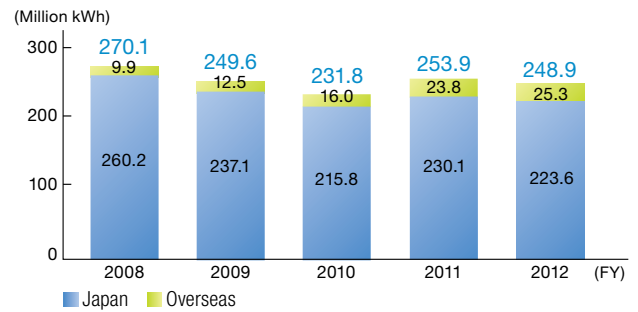
Power consumption in fiscal 2012 decreased by approximately 2% compared with fiscal 2011. Although power consumption at overseas plants and offices increased due to the opening of new facilities, power consumption at sites in Japan decreased by 2.8% despite the addition of the Miyagi Plant. In fiscal 2012, it is also estimated that a total of 2,113 MWh of electricity was generated by photovoltaic cells installed at the Yamanashi Plant and new Miyagi Plant, which accounted for about 1% of the Group's total energy consumption.

CO<sub>2</sub> emissions generated from energy consumption increased by approximately 3% compared with fiscal 2011. However, because CO<sub>2</sub> emissions fluctuate considerably according to the change in electric power companies' emission factors, the increase in CO<sub>2</sub> emissions in fiscal 2012 is considered primarily attributable to the worsened power emission factors in Japan.

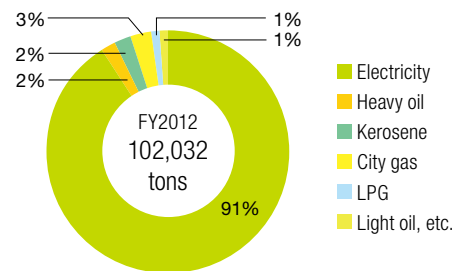
### The use of greenhouse gases other than CO<sub>2</sub>

In the process development of products, as well as dry etching and cleaning processes, we use hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>), which are greenhouse gases. In fiscal 2011, our use of these chemicals increased as a result of an increase in production and additions to the number of plants covered in our calculation. We are currently promoting the installation of air treatment equipment, among other measures, to reduce greenhouse gas emissions.

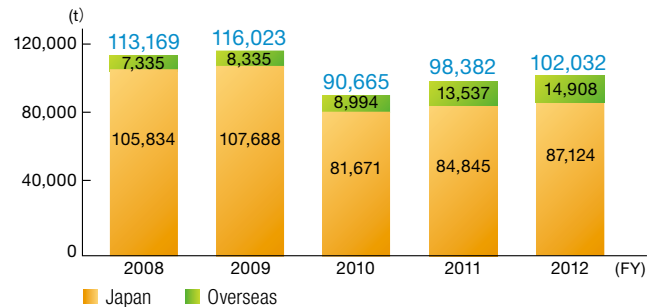
### Electricity consumption



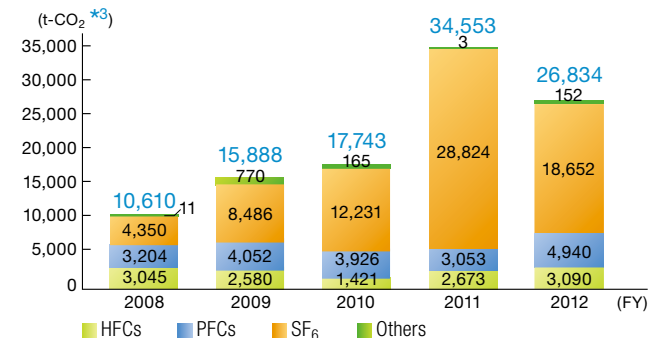
### Breakdown of CO<sub>2</sub> emissions from energy consumption\*2 by source



### CO<sub>2</sub> emissions from energy type × consumption



### Greenhouse gases other than from energy consumption



\*1 Kiloliter of crude oil equivalent: Volume of electricity, heavy oil, gas, and other types of energy used × Per-unit calorific value of each energy type × Conversion rate for crude oil equivalent

\*2 We used adjusted emission factors for individual electric power providers for the emission factor for electricity consumption in Japan in fiscal 2012. For the emission factor for electricity consumption overseas, we used estimated factors calculated by the Federation of Electric Power Companies of Japan based on values published by the International Energy Agency (IEA).

\*3 t-CO<sub>2</sub>: An unit indicating the amount of CO<sub>2</sub> and other greenhouse gases emitted, absorbed or stored, which is converted to the weight of CO<sub>2</sub> in tons with an equivalent greenhouse effect

## Initiatives to Conserve Resources

### Our approach to resource conservation

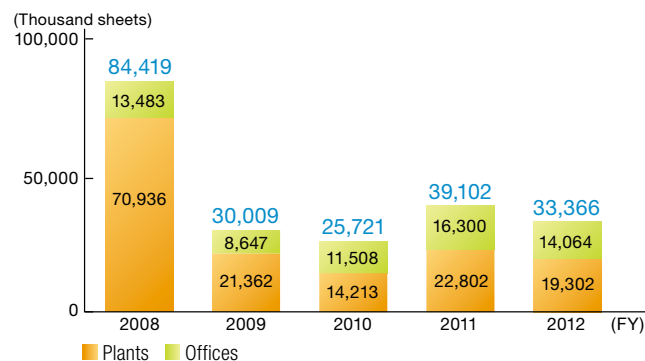
The Tokyo Electron Group is working to minimize the use of limited natural resources by reducing the volume of paper and water used.

We also use recycled printer toner cartridges in our offices and actively cooperate with manufacturers in the recovery of end-of-life cartridges.

### Efforts to reduce the use of paper

Our employees are encouraged to use duplex copying, to copy at a reduced size, and to digitize information and internal circulars. As a result of these efforts, the Group's total use of copier paper in fiscal 2012 decreased by approximately 14%, or more than five million sheets of copier paper, compared with fiscal 2011. This is a reduction to less than half of fiscal 2008 figures, and the amount of paper used as a percentage of sales has also decreased.

### Copier paper consumption (Japan)



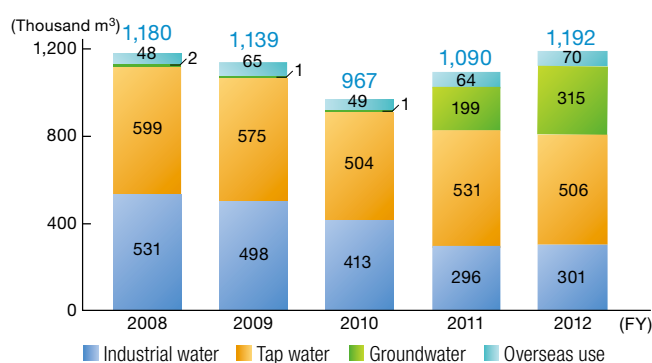
We are also encouraging the use of environmentally friendly paper and introducing products that will help conserve resources, such as paper cups made from a bamboo-based material, for internal use.

### Efforts to reduce water consumption

As the management of water consumption is becoming an increasingly important issue for society, in fiscal 2012 we conducted studies on how water is used and recycled at our company to identify ways to further reduce water consumption. Based on the results of these studies, we have set a new goal of maintaining the same level of water consumption in fiscal 2012. Our water consumption in fiscal 2012 increased by approximately 9% year on year, partly due to the increased volume of water used for process evaluations.

Moving forward, we will continue monitoring our water consumption to ensure that it will not exceed the fiscal 2012 level on a per-unit basis.

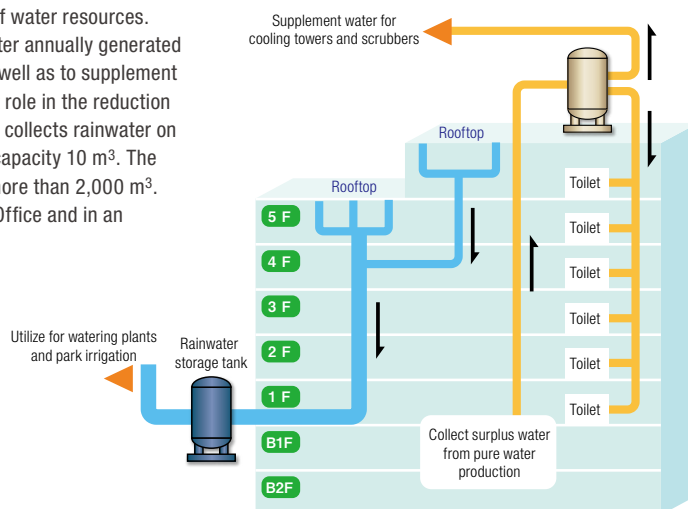
### Water consumption



## TOPICS

### Efforts to reduce water consumption at Tokyo Electron Taiwan

Tokyo Electron Taiwan has adopted systems for collecting and recycling wastewater and rainwater at its Head Office building to ensure the effective utilization of water resources. The wastewater recycling system collects around 2,000 m<sup>3</sup> surplus water annually generated from pure water production and reuses it in toilets and other places as well as to supplement water for cooling towers and scrubbers. The system plays an important role in the reduction of wastewater discharged into sewers. The rainwater collection system collects rainwater on the rooftop of the building and stores it in an underground tank with a capacity 10 m<sup>3</sup>. The total annual volume of rainwater stored in the tank is estimated to be more than 2,000 m<sup>3</sup>. The rainwater is used for watering plants on the premises of the Head Office and in an adjacent park.



## Initiatives for Reducing Waste

### Our approach to waste reduction and recycling

The Tokyo Electron Group conducts various activities to minimize waste, recycle whatever waste is generated to the greatest extent possible, and dispose of non-recyclable waste in a proper and responsible manner.

To be more specific, we separate recyclable waste from non-recyclables, use new manufacturing processes that do not involve waste generation, hire only waste disposal companies inspected and authorized by our company, periodically check final waste disposal practices, and also focus on educational activities related to the sorting of waste and other topics. Some business sites have begun using electronic manifests\*1 to ensure proper management of waste.

\*1 Electronic manifest: A system in which the flow of industrial waste is managed via a communication network linking information processing centers, the companies generating the waste, waste collection and transportation companies, and waste disposal companies. It replaces the conventional paper-based control manifest.

### Volume of waste generated and recycling rates

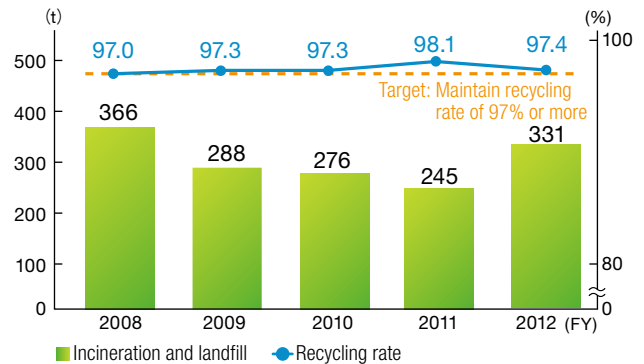
Although the volume of incinerated and landfill waste increased over the fiscal 2011 level, the recycling rate\*2 in fiscal 2012 was 97.4%, achieving the target set in fiscal 2011 to maintain a recycling rate of 97% or more. As for liquid waste, including chemicals used in our product development and evaluation processes, nearly 100% is currently recycled.

\*2 Recycling rate: Recycled amount ÷ Amount of waste generated × 100

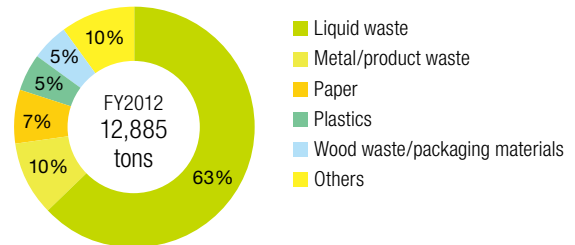
### Zero waste

The Tokyo Electron Group defines plants where less than 2% of waste generated is incinerated or put into landfill as “zero waste plants.” In fiscal 2012, we achieved zero waste at all but one of our plants in Japan as a result of our efforts to reduce waste and recycle.

### Recycling rate and generation of incinerated and landfill waste (Japan)



### Breakdown of waste (Japan)



### Recycling rate for industrial waste generated at Tokyo Electron Group plants in Japan

Plant	Recycling rate
Tohoku Plant	99.2%
Taiwa Plant	100%
Yamanashi Plant (Hosaka)	100%
Yamanashi Plant (Fujii)	100%
Koshi Plant	100%
Ozu Plant	100%

## TOPICS

### Waste recycling promotion by an overseas Group company

Tokyo Electron U.S. Holdings, Inc. is actively promoting the recycling of waste. Its activities include a campaign against the use of Styrofoam cups, which cannot be reused and do not biodegrade, as well as the recycling of mobile phones and other electronic waste. A total of more than 500 mobile phones had been recycled as of fiscal 2012.



Campaign poster discouraging the use of Styrofoam products

## Management of Chemical Substances

### ● Our approach to the management of chemical substances

The Tokyo Electron Group uses chemical substances mainly in the development and manufacturing phases of products. In the development phase, whenever we introduce a new chemical substance or alter the method of using a chemical substance, we make sure to check for environmental, health and safety risks and take the necessary measures before the new substance or method is adopted. With regard to hazardous and harmful chemicals used in the manufacturing process, we are promoting their replacement with safer substances.

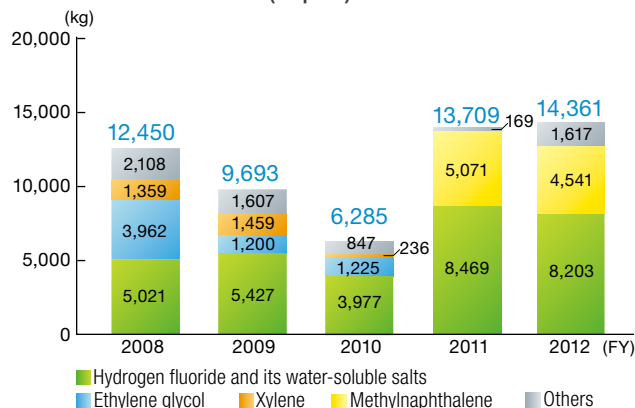
### ● Compliance with the PRTR\* law

In accordance with the Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof ("PRTR law"), we ensure that chemical substances regulated under the act are managed rigorously, and that the amounts of regulated substances used, discharged and transferred are consistently monitored. Hydrogen fluoride, one of the regulated substances, is used in large quantities by the Group, particularly during the cleaning of test wafers. Methylnaphthalene, a substance found in heavy oil, is also used in boilers and other facilities at some of our business locations. We make sure to properly dispose of these hazardous substances after use either through specialist waste disposal contractors or using our in-house processing equipment. We will continue to properly manage risk relating to these chemical substances.

### ● Safe storage of PCBs

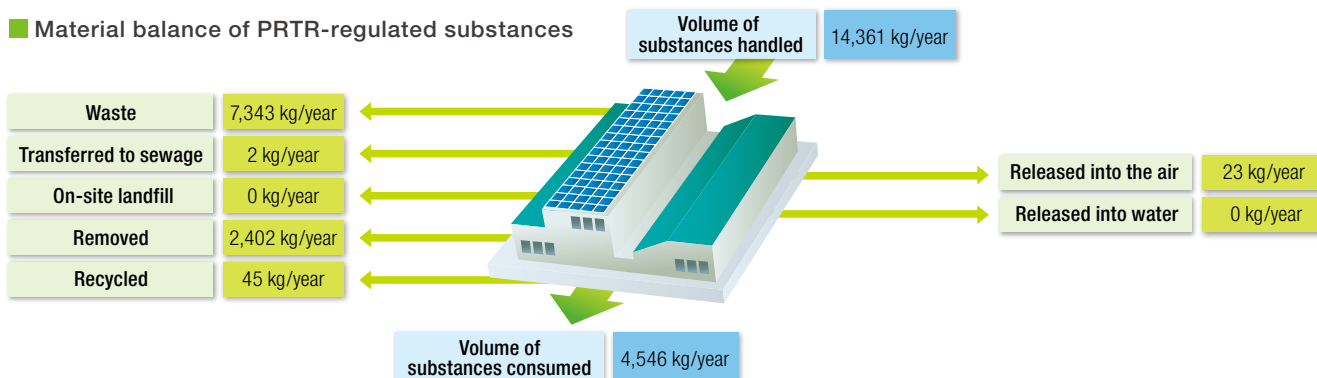
Based on the Act on Special Measures concerning Promotion of Proper Treatment of PCB Wastes and the Waste Management and Public Cleansing Act, the Tokyo Electron Group reports annually on the storage, management and disposal of waste containing polychlorinated biphenyls (PCBs) to the governor of each of the prefectures in which our plants are located. We ensure that all PCBs, including traces of PCBs that were detected in transformers and condensers marked for disposal following the demolition of one of our closed plants, are managed properly in accordance with the acts.

### ■ Volume of PRTR Class I Designated Chemical Substances handled (Japan)



\* PRTR (Pollutant Release and Transfer Register): A system under which the use of chemical substances that may be hazardous to human health and the ecosystem, their release into the environment, and their transfer (contained in waste) off the original business premises are identified, tabulated, and disclosed

### ■ Material balance of PRTR-regulated substances



### ■ Input and output (FY2012)

