

# Plant and Office Initiatives for the Environment

Through the careful and sustained efforts of each of our employees, the TEL Group is proactively undertaking various initiatives to help prevent global warming, conserve resources, and reduce waste.

## Measures to Help Prevent Global Warming

### Reducing Energy Consumption

In accordance with Tokyo Electron's Environmental Commitment, the TEL Group aims to achieve a 50% reduction in CO<sub>2</sub> emissions per unit of sales<sup>1</sup> by fiscal 2015 compared with the base year of fiscal 2008. In order to achieve this target, during the second half of fiscal 2010, measures were taken at our manufacturing sites to enhance clean room energy efficiency in order to reduce energy consumption, and investments were made with the expectation of achieving a reduction in CO<sub>2</sub> emissions of approximately 3,000 tons.

Meanwhile, efforts made at our offices include installing high-efficiency lighting systems, appropriate control of air-conditioning temperatures, and reducing the power consumption of office equipment. Outside Japan, Tokyo Electron U.S. Holdings, Inc. is implementing environmental measures that include purchasing green electricity from sustainable sources of energy such as wind power. In February 2010, our Tohoku Plant (Tokyo Electron Tohoku Ltd.) was awarded the Chairman's Prize by the Tohoku Seven Prefecture Committee to Promote the Use of Electrical Power for an Outstanding Energy-Efficient Factory.



Tohoku Plant was awarded the Outstanding Energy-Efficient Factory Prize.

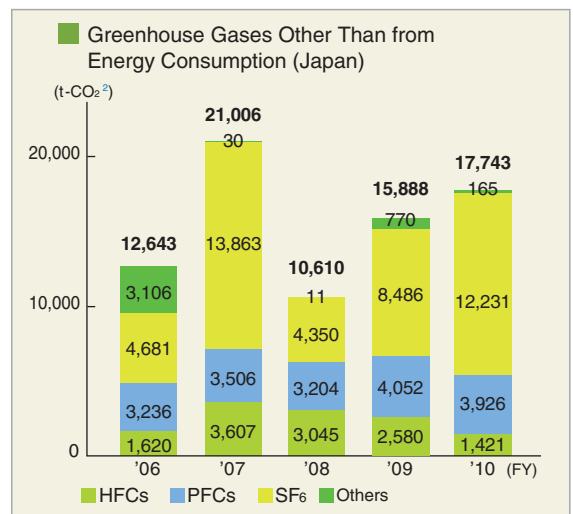
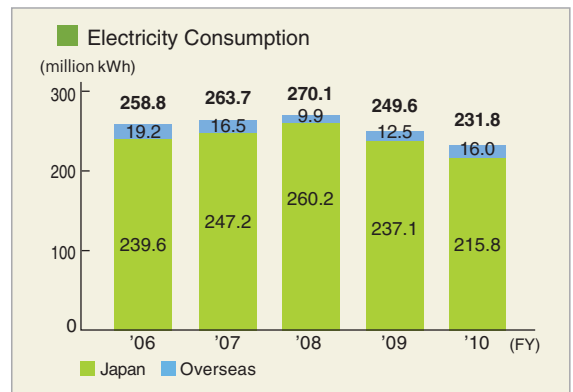
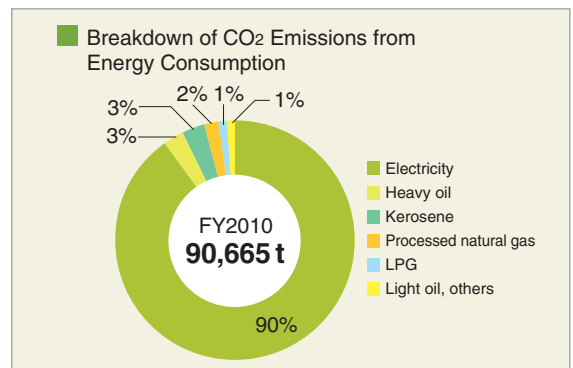
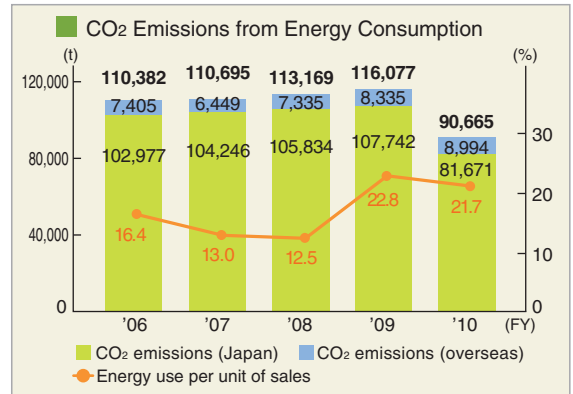
### Energy Consumption and CO<sub>2</sub> Emissions

Regarding energy consumption in fiscal 2010, our electricity usage declined by approximately 7% and heavy oil usage dropped by approximately 8% compared with fiscal 2009 due to energy conservation measures conducted in all regions and a decrease in production activities. CO<sub>2</sub> emissions from energy consumption decreased significantly by more than 20% due in part to an improvement in CO<sub>2</sub> emissions factors by our electrical power provider. CO<sub>2</sub> emissions (energy use) per unit of sales decreased by more than 5%.

We will continue with our activities so as to minimize increases in CO<sub>2</sub> emissions when production increases.

### Reducing the Use of Greenhouse Gases Other than CO<sub>2</sub>

In process development of products and evaluating process (e.g., dry etching and cleaning processes) we use hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>), which are greenhouse gases. In fiscal 2010, we used 17,743 tons of greenhouse gases (CO<sub>2</sub> equivalent). We revised our calculation methods for SF<sub>6</sub> and PFCs in fiscal 2009 and made partial adjustments to our figures.



<sup>1</sup> CO<sub>2</sub> emissions (energy use) per unit of sales: CO<sub>2</sub> emissions from energy consumption/sales. We use adjusted emission factors for individual electric power providers for the emission factor for electricity consumption in Japan in fiscal 2010. For the emission factor for electricity consumption overseas, we use estimated factors calculated by the Federation of Electric Power Companies of Japan based on values published by the International Energy Agency (IEA).

<sup>2</sup> t-CO<sub>2</sub>e: a 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> with an equivalent greenhouse effect.

## Initiatives to Conserve Resources

### Our Approach to Resource Conservation

The TEL Group is working to minimize our use of limited resources. Specifically, we are reducing the use of copier paper and stationery and implementing green procurement practices, giving preference to environmentally conscious products.

We have also replaced printer toner cartridges for use in our offices with cartridges made from recycled materials and cooperated with the manufacturers in recovering end-of-life cartridges. At some offices, we have established an intranet-based system, under which unused stationery can be used by other departments, encouraging the reuse of resources across the organization. In addition, active efforts are made to donate excess office supplies, shelves, and other unused items to local government bodies and non-profit organizations.

### Efforts to Reduce the Use of Paper

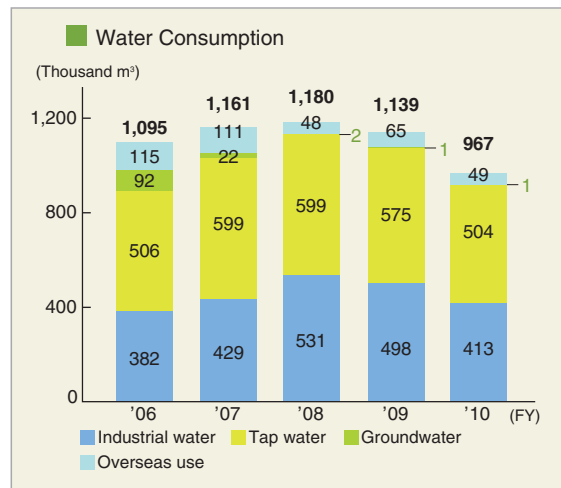
Our employees are encouraged to use duplex copying, to copy at a reduced size, and to digitize information and internal circulars. As a result, the Group's total use of copier paper in fiscal 2010 dropped by more than 10% over fiscal 2009, which represents a reduction of more than four million sheets in the year. Moreover, since fiscal 2010 we have expanded the scope of data collection for our activities by adding data from field service bases and training centers to that for our main business sites in Japan.

We are encouraging the use of environmentally friendly paper and introducing resource-conserving activities by introducing products such as paper cups made from a bamboo-based material. We are also working to raise employee awareness so that they use fewer paper cups and bring their own cups to work.

### Efforts to Reduce Water Consumption

To reduce water consumption, our manufacturing plants have installed water recirculating systems to reuse cooling

water. In fiscal 2010, water consumption fell by approximately 15%— mainly because of lower production. Our plants have also installed automatic faucets in restrooms and other facilities. These touch-free automatic faucets prevent water waste by automatically shutting off the supply when the user's hands are removed from the sensor range.



## TOPICS

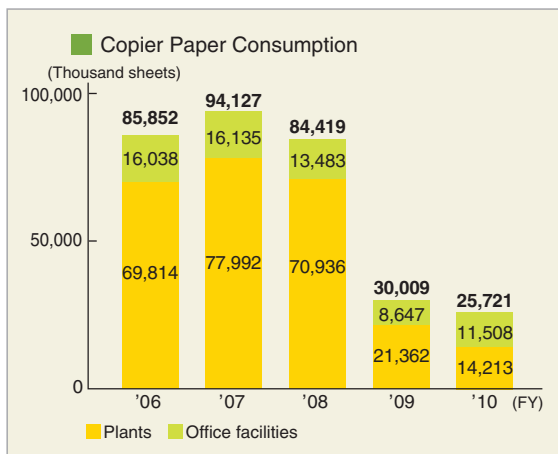
### Joint Development of Clean Suits That Are Both Comfortable and Dust-resistant

Tokyo Electron and ANYONE Inc. have jointly developed a revolutionary clean suit (dust-resistant clothing) that is both comfortable and dust-resistant.

In order to develop a work suit that is comfortable to wear, especially while working on equipment manufacturing in clean rooms, the materials, design, and sewing techniques used for the clothing were reviewed and altered.

The newly-developed suit has dramatically minimized the discomfort that conventional clean suits impose on wearers in a number of ways that include controlling the temperature and humidity inside the clothing, providing more room in the suit, and making it easier to put on and take off.

With this new suit, it is anticipated that air-conditioning temperatures in clean rooms can be set 2°C higher in summer, which will contribute to saving energy.



## Initiatives for Reducing Waste

### Our Approach to Waste Reduction and Recycling

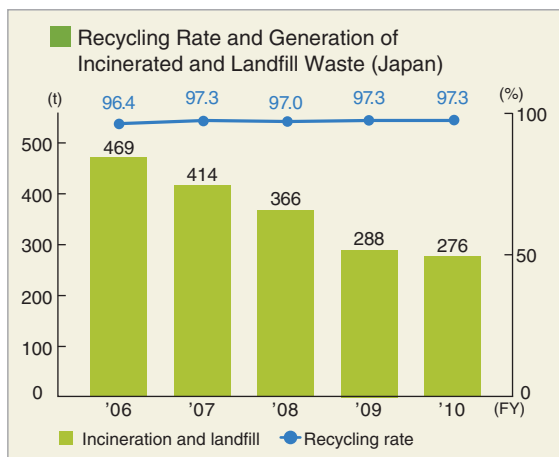
The TEL Group is working hard to reduce and recycle its waste. We work according to a clear policy: minimize waste first and foremost, recycle whatever waste is generated to the greatest extent possible, and dispose of non-recyclable waste in a proper and responsible manner.

In recent years, landfill costs have surged due to a shortage of sites, which means that reduced waste also leads to reduced costs. We separate recyclable waste from non-recyclables, use new manufacturing processes that do not involve waste generation, monitor the qualifications of contract waste disposal companies, periodically review 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<sup>1</sup> to ensure proper management of waste materials.

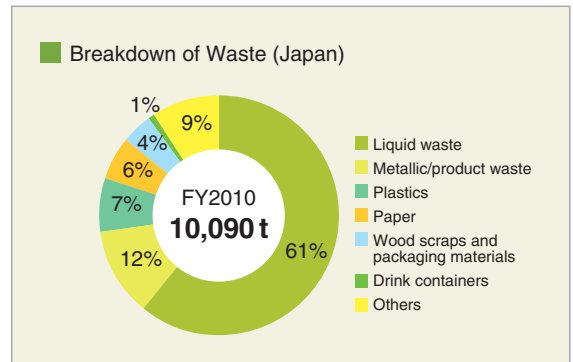
<sup>1</sup> Electronic manifest: a system in which the flow of industrial waste is managed via a communications network linking information processing centers, companies generating the waste, waste collecting and transporting companies and waste disposal companies, instead of the conventional paper-based control manifest.

### Volume of Waste Generated and Recycling Rates

In fiscal 1999, the TEL Group set the target of increasing its average recycling rate<sup>2</sup> to 95% by fiscal 2006. As a result of recycling measures, we achieved a recycling rate of 96.1% in fiscal 2005, and 97.3% in fiscal 2010. Compared to the fiscal 2009 figures, incinerated and landfill waste fell by 4.2% and total waste (including recycled waste) decreased by 6.3%. The largest percentage of waste generated by the Group comes from liquid waste resulting from the chemicals used in our product development and evaluation processes, but 99% of this liquid waste is currently being recycled.



<sup>2</sup> Recycling rate: recycled amount ÷ amount of waste generated/100



### Zero Emissions

The TEL Group defines plants where less than 2% of waste generated is incinerated or put into landfill as “zero emission plants.” In fiscal 2010, all of our manufacturing plants in Japan achieved zero emissions as the result of efforts to recycle and reduce waste, and we will continue to promote zero emission activities across the entire group.

### Recycling Rate for Industrial Waste from TEL Group Plants in Japan

Plant	Recycling rate
Tohoku Plant	98.6%
Miyagi (Matsushima) Plant	99.8%
Yamanashi Plant (Hosaka area)	100%
Yamanashi Plant (Fujii area)	100%
Koshi Plant	100%
Ozu Plant	100%

## TOPICS

### Environmental Training Video

Our Yamanashi Plant has produced an environmental training video for newly assigned employees. This video introduces the Yamanashi Plant's energy conservation and waste management activities. The video aids our environmental education by showing basic environmental actions such as turning off electricity (switching lights off at lunch time and switching office equipment off at the end of the business day), maintaining set air-conditioning temperatures, and encouraging the use of duplex printing, as well as rules for waste disposal.



Environmental training video

## Management of Chemical Substances

### Our Approach to the Management of Chemical Substances

The TEL Group uses chemical substances mainly in developing and manufacturing products. In developing products, whenever we adopt new chemical substances that have not been used before or use chemical substances in a way that is different from their traditional usage, we first closely examine the development facilities and methods, and then assess the environmental and operational risks associated with the use of the substances. We do not begin using the substances until all the necessary measures have been implemented. We are also replacing dangerous and harmful chemicals used in the manufacturing process with safer substances.

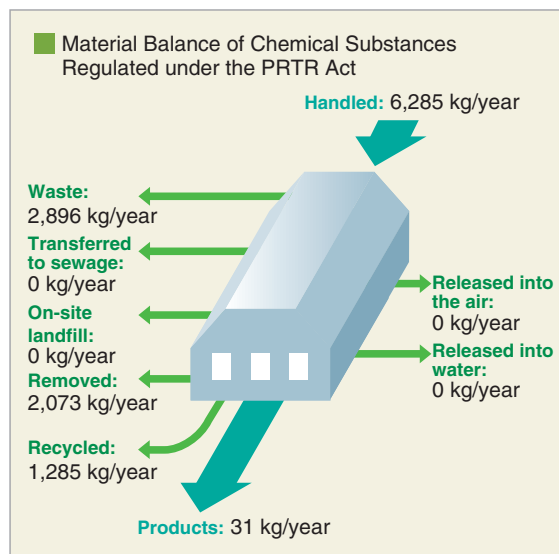
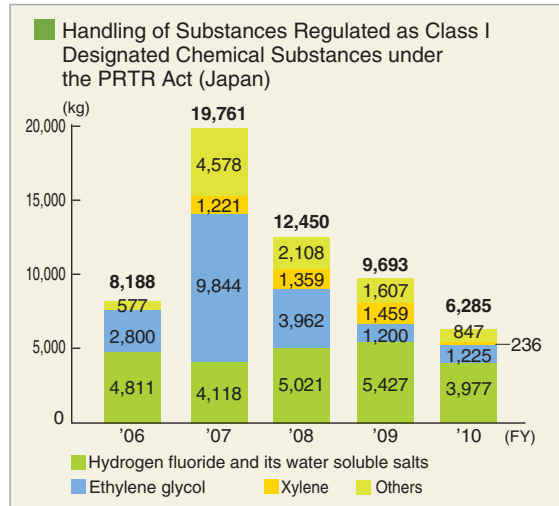
### Compliance with the PRTR Act

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<sup>3</sup> Act), we identify the amounts of regulated substances used, discharged and transferred, and rigorously control these substances. This applies particularly to hydrogen fluoride, which is primarily used for cleaning test wafers, and ethylene glycol, which is primarily used as a refrigerant for cooling water. After use, hydrogen fluoride and ethylene glycol waste is either disposed of by an external contractor or disposed of in an approved manner within our premises. In addition, in accordance with the revised PRTR Act, in April 2010 we began identifying the amounts of newly regulated substances used, discharged and transferred and we will continue to properly manage all the risks associated with the use of chemical substances.

### PCB Storage

Based on the Act on the Proper Treatment of PCB Waste and the Waste Disposal and Public Cleaning Acts, the TEL Group reports annually on the storage, management, and disposal of waste containing polychlorinated biphenyl (PCB) to the governor of the prefectures in which our plants are located.

The TEL Group is currently storing two decommissioned transformers and four capacitors that contain PCB in a strict and secure manner in accordance with legal requirements.



<sup>3</sup> PRTR (Pollutant Release and Transfer Register): under the PRTR system, 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) outside of the business premises are identified, tabulated, and disclosed.

### Input and Output (FY2010)

