

Plant and Office Initiatives for the Environment

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 CO₂ emissions per unit of sales¹ by fiscal 2015 compared with the base year of fiscal 2008. In order to achieve this target, we began to make investments in fiscal 2010 that are expected to reduce our CO₂ emissions by approximately 5,000 tons cumulatively, while in fiscal 2011 specific measures were taken at our manufacturing sites and offices in order to reduce energy consumption. As an example of Group-wide initiatives outside Japan, Tokyo Electron U.S. Holdings, Inc. is implementing environmental measures that include purchasing green electricity.

Energy Consumption and CO₂ Emissions

Energy consumption in fiscal 2011 increased by approximately 10% compared to fiscal 2010 partly due to increased production as a result of the growing shipment volume in each region. On the other hand, we were able to reduce our use of heavy oil by about 16% as a result of recent efforts to shift energy sources. CO₂ emissions from the use of energy increased by 8% compared to fiscal 2010. There was a significant increase in our overseas CO₂ emissions, which was attributable to expanded scope for calculations of emissions in the United States and the launch of operations at our new technology center in Taiwan. In terms of CO₂ emissions per unit of sales, we achieved a significant improvement of more than 30%.



PV power generation system at the Yamanashi Plant

Reducing the Use of Greenhouse Gases Other than CO₂

In the process development of products, as well as dry etching and cleaning processes, we use hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆), 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 calculations, but we are currently taking measures to address this, including installing a PFC abatement device in our New Miyagi Plant.

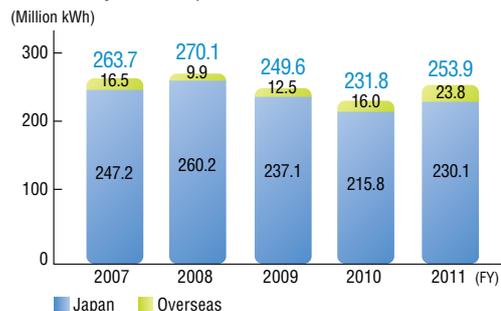
¹ CO₂ emissions (energy use) per unit of sales: CO₂ emissions from energy consumption/sales.

We used adjusted emission factors for individual electric power providers for the emission factor for electricity consumption in Japan in fiscal 2011. 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).

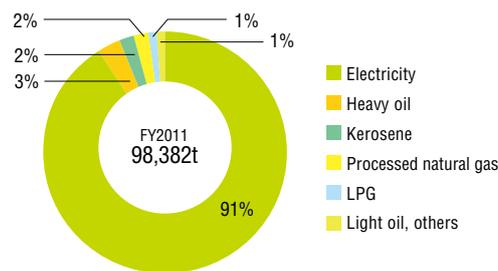
² t-CO₂: A unit indicating the amount of CO₂ and other greenhouse gases emitted, absorbed, or stored, which is converted to the weight of CO₂ with an equivalent greenhouse effect.

In addition to our efforts to reduce CO₂ emissions by half and lower energy consumption, we are proactively working to conserve resources, minimize waste and promote recycling. We are also fully committed to rigorously managing chemical substances in consideration of their impact on the environment as well as general health and safety.

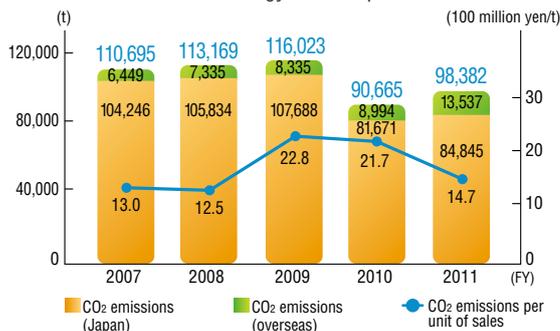
Electricity Consumption



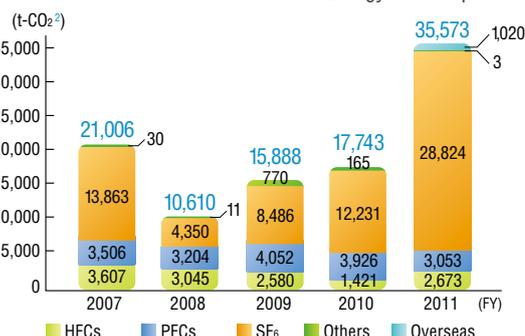
Breakdown of CO₂ Emissions from Energy Consumption



CO₂ Emissions from Energy Consumption



Greenhouse Gases Other Than from Energy Consumption



● Initiatives to Conserve Resources

Our Approach to Resource Conservation

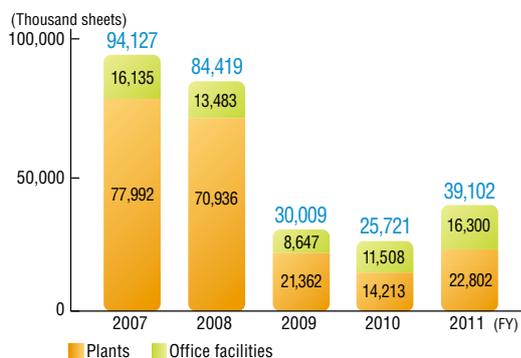
The TEL Group is working to minimize its use of limited resources. Specifically, we are reducing the use of copier paper and stationery and implementing green procurement practices, giving preference to environmentally conscious products. We have also replaced printer toner cartridges for use in our offices with cartridges made from recycled materials and cooperated with the manufacturers in recovering end-of-life cartridges.

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.

The Group's total use of copier paper in fiscal 2011 increased significantly over fiscal 2010. This was due in part to a broad increase in production and shipments in comparison to fiscal 2010. However, the total use of copier paper in fiscal 2011 was still less than half of fiscal 2008 figures, while the amount of paper used as a percentage of sales has also decreased.

■ Copier Paper Consumption (Japan)

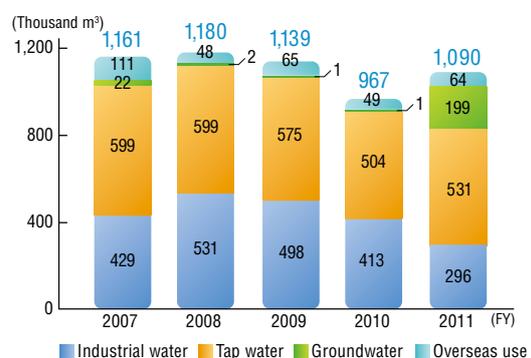


We are encouraging the use of environmentally friendly paper and introducing resource-conserving activities by introducing products such as paper cups made from a bamboo-based material. We are also working to raise employee awareness so that they use fewer paper cups and bring their own cups to work.

Efforts to Reduce Water Consumption

Our water use in fiscal 2011 increased by approximately 10%, which was due partly to an increase in production. At the same time, we are increasing the use of ground water after having received government approval. As more and more people are becoming conscious of their water use, we are conducting studies on the use of various water resources and recycling methods. In addition, we are investigating effective ways of utilizing water, based on our daily efforts to prevent wasted water, through the installation of automatic faucets in restrooms and other facilities and the reuse of water via re-circulating cooling systems used in our manufacturing processes.

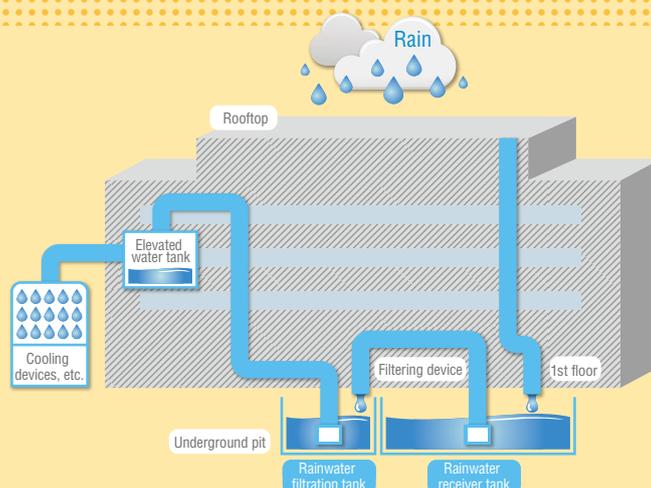
■ Water Consumption



TOPICS

Reusing Rainwater (Yamanashi Plant)

Tokyo Electron's Yamanashi Plant (Fujii) reuses rainwater as part of its water conservation program. Rainwater that falls onto the rooftop of Building No. 1 in the Fujii area is first collected in the rainwater receiver tank located in the basement. After the water is filtered and purified, it is reused in water-cooled chillers (air conditioners) and scrubbers (air purifiers). We estimate that Building No. 1 has recycled over 30,000 tons of rainwater in the 10 years since its completion.



● 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.

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 manifests¹ to ensure proper management of waste materials.

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

Volume of Waste Generated and Recycling Rates

We have set a new target to maintain a recycling rate² of greater than 97%. In fiscal 2011 our recycling rate was 98.1%, and compared to fiscal 2009 figures, incinerated and landfill waste declined by 11.2%. Nearly 100% of liquid waste, resulting from the chemicals used in our product development and evaluation processes, is currently being recycled.

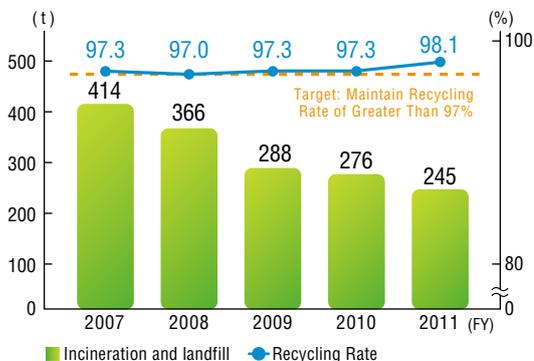
² Recycling rate: $\frac{\text{Recycled amount}}{\text{Amount of waste generated}} \times 100$



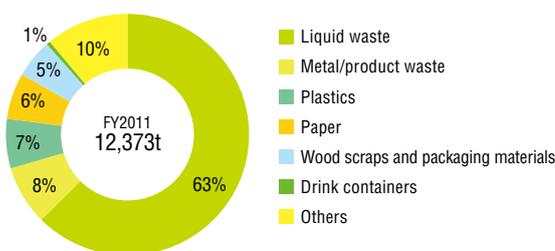
Zero Emissions

The TEL Group defines plants where less than 2% of waste generated is incinerated or put into landfill as “zero emission plants.” In fiscal 2011, all of our manufacturing plants in Japan achieved zero emissions as a result of our efforts to recycle and reduce waste.

■ Recycling Rate and Generation of Incinerated and Landfill Waste (Japan)



■ Breakdown of Waste (Japan)



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

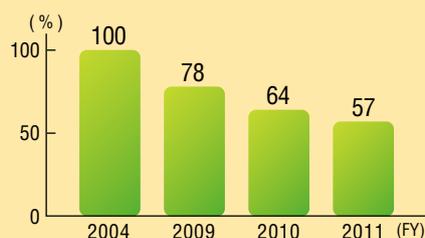
Plant	Recycling rate
Tohoku Plant	99.3%
Miyagi (Matsushima) Plant	99.2%
Sendai Office	99.9%
Yamanashi Plant (Hosaka area)	100%
Yamanashi Plant (Fujii area)	100%
Koshi Plant	100%
Ozu Plant	100%

TOPICS

Initiatives to Recycle and Reduce the Use of Paper in Offices

At the TEL Group's corporate head office, we have set up dedicated collection boxes for confidential documents and recycle these into raw materials for recycled paper. Before this, we used to shred or incinerate these documents as waste, but since instituting this new collection system we are now able to recycle 100% of these documents. When converting this amount of recycled paper into the equivalent in harvested timber, it shows that we were able to conserve 216 trees in fiscal 2011. In addition, encouraging employees to bring their own cups has helped us reduce our use of paper cups by more than 40% compared to fiscal 2004.

■ Paper Cup Usage with the Fiscal 2004 Level Set at 100%



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 (PRTR³ Act), we identify the amounts of regulated substances used, discharged and transferred, and rigorously control these substances. Hydrogen fluoride, which we use large quantities of during the cleaning of test wafers, is covered under this Act. In addition, in April 2010 a revision to this Act added methylnaphthalene as a designated chemical substance. Methylnaphthalene is a substance found in heavy oil and is used in boilers and other facilities at some of our business locations. Ethylene glycol, which we had been handling in large volumes until fiscal 2010, was removed from the list of designated chemical substances by this same revision.

After use, we properly dispose of dangerous and hazardous chemical substances either through specialist waste disposal contractors or using our in-house processing equipment. Going forward, we will continue to properly manage risk relating to these chemical substances.

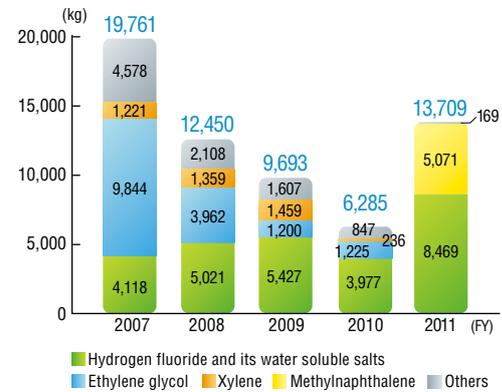
Input and Output (FY2011)

Input		Change from previous year
Electricity	254.04 million kWh	+9.6%
Gas	1.142 million m ³	-2.4%
Fuel	1,826 kl	-7.6%
Water	1.090 million m ³	+12.7%
Chemical substances (regulated as Class 1 designated chemical substances under the PRTR Act)	13.7 tons	+121.0%
Paper(copier paper)	155 tons	+52.0%

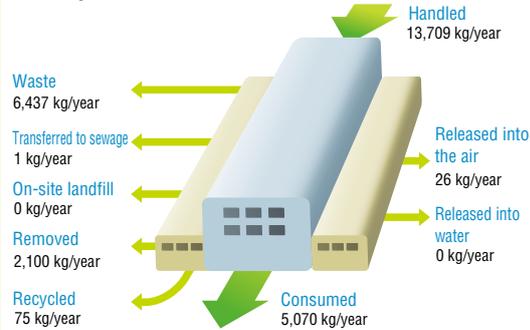
The Tokyo Electron Group

Output		Change from previous year
Total product shipment	24,322 tons	+84.8%
CO ₂ emissions from energy consumption	98,382 tons	+8.5%
NO _x emissions	10.5 tons	+4.0%
Waste	12,373 tons	+22.6%
Recycled amount	12,128 tons	+23.6%
Amount of waste	245 tons	-11.2%

Amount of Handled Substances Regulated as Class 1 Designated Chemical Substances under the PRTR Act (Japan)



Material Balance of Chemical Substances Regulated under the PRTR Act



³ 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.

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 biphenyls (PCB) to the governor of the prefectures in which our plants are located. We rigorously manage our compliance with the above Acts, as we did so when trace amounts of PCB were detected from transformers and condensers set for disposal after the demolition of one of our closed plants in fiscal 2011.