Plant and Office Initiatives for the Environment—Preventing Global Warming

The Tokyo Electron Group is reducing its energy use to contribute to the prevention of global warming.

Reducing Energy Consumption

The Group is committed to reducing its energy use in compliance with the provisions of the Energy Saving Law. Its sites are actively reducing their energy consumption by setting specific energy-saving targets for lighting, OA machines, and air conditioners (through appropriate temperature control), while improving their work efficiency. Also, they completely shut down the machines during long holidays.

At TEL's Yamanashi Plant (Hosaka), we have installed a hybrid power generation system that uses both wind and solar power. Electricity generated by this system is used to light two lampposts within the premises of the plant, resulting in lower electricity consumption (by approximately 2.5 kWh per day).

Hybrid power generation system

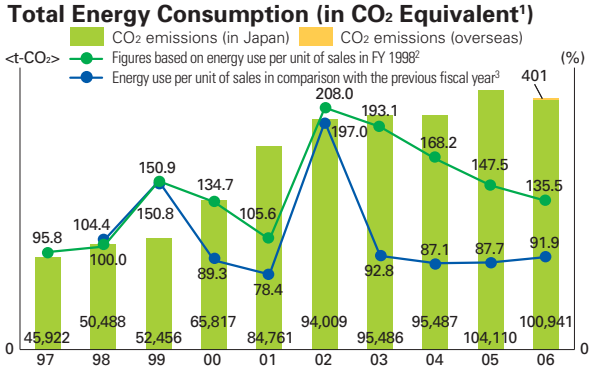
Energy Consumption

In FY 2006, as in FY 2005, our total energy use increased due to an increase in production quantities. However, we were able to reduce per-unit energy use and achieved the target of reducing the energy use per unit sales by 1% compared with the previous fiscal year. We will continue to improve on our energy-saving measures.

At the Yamanashi Plant, the amount of LPG used for decontaminating the process gas increased and energy use almost doubled from FY 2005.

In FY 2006, we have included data on emissions from places in Japan where our field engineers were stationed in the calculation of CO_2 emissions from our sites, referring to the guidelines for the calculation of greenhouse gas emissions from business entities published by Japan's Ministry of the Environment.

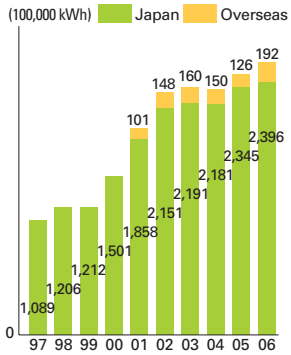
Total Energy Consumption (in CO_2 Equivalent[1])



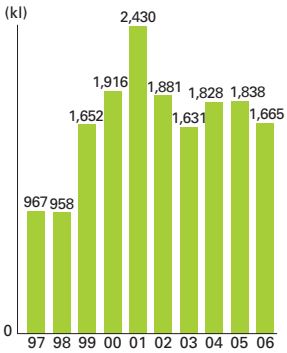
1. Calculated based on the guidelines for the calculation of greenhouse gas emissions from business entities published by Japan's Ministry of the Environment
2. Energy use per unit sales in FY 1998 =100%
3. Percentage of per-unit energy consumption in the current fiscal year to per-unit energy consumption in the previous fiscal year

(Plants in Japan and overseas)

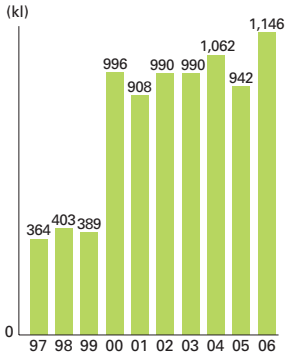
Electricity Consumption



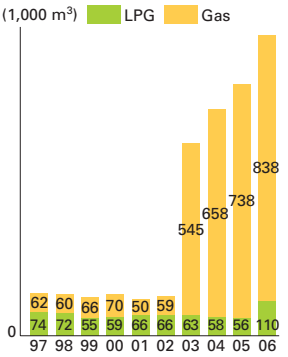
Heavy Oil Consumption



Kerosene Consumption



Gas Consumption



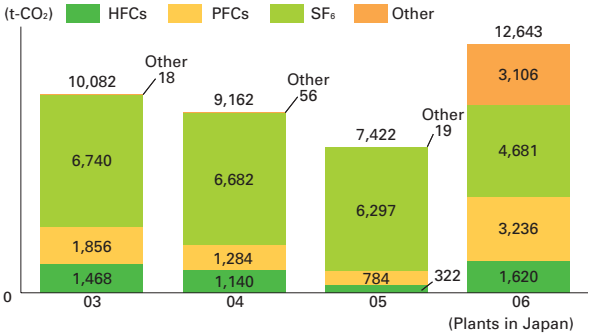
(Plants in Japan and overseas)

Reducing the Use of Greenhouse Gases other than CO_2

We use perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6), which are greenhouse gases, in dry etching, washing, and other processes during process development and process evaluation.

In FY 2006, we used 12,643 metric tons of greenhouse gases (as CO_2 equivalent), which is substantially larger than the amount used in fiscal 2005 (7,422 metric tons). This was because the types and volume of gas used for product evaluation increased.

Greenhouse Gas Consumption



(Plants in Japan)

Plant and Office Initiatives for the Environment—Waste Reduction and Recycling

The Tokyo Electron Group is working to minimize the generation of waste and improve its waste recycling rate to reduce its environmental impact.

Our Approach to Waste Reduction and Recycling

The Tokyo Electron Group is making concerted efforts to reduce the generation of waste based on the policy of minimizing waste generation, recycling generated waste as much as possible, and properly disposing of unrecyclable waste. In recent years, due to the lack of waste landfill sites, landfill costs have surged. This pushes us to make cost savings to reduce the generation of waste.

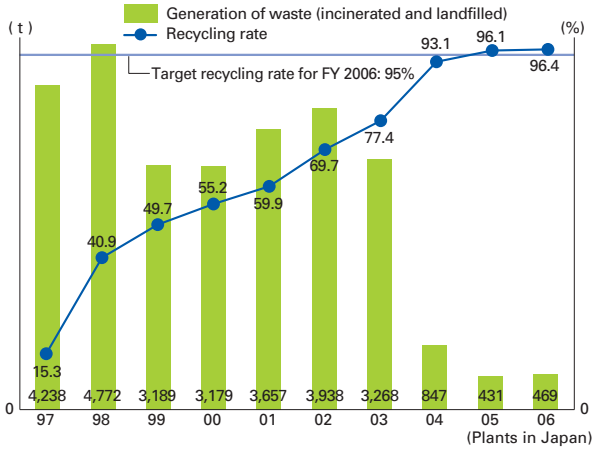
Specifically, we sort waste for recovery, change our manufacturing processes to generate no waste, use more recycling companies, check the qualifications of companies that we commission to dispose of waste, and regularly review the final disposal situation. Also, at our plants, we show how to sort waste in an easy-to-understand manner using illustrative posters. For example, Tokyo Electron U.S. Holdings Inc. in the United States recycled 32 metric tons of paper by encouraging employees to make effective use of waste paper through educational posters.

An educational poster

Waste Generation and Recycling Rate

In FY 1999, the Tokyo Electron Group set a target of increasing the entire Group's average recycling rate to 95% by FY 2006. As a result of making efforts to attain this target, we achieved a recycling rate of 96.1% in FY 2005 and 96.4% in FY 2006. In the future, we will focus on reducing our overall generation of waste, including recyclable waste.

Recycling Rate and Generation of Waste



Breakdown of Waste

Liquid waste from chemicals used in the product development and evaluation processes accounts for the largest percentage of waste generated by the Group. At present, most liquid waste is recycled. Also, some plants have installed equipment to treat liquid waste inside their premises. We plan to introduce this equipment to a greater number of plants in the future.

Breakdown of Waste (%)

Zero Emissions

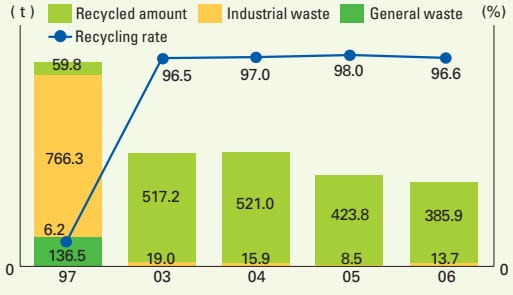
We define plants where less than 2% of waste generated by the plant is incinerated or landfilled as "zero emission plants" and encourage all plants to achieve zero emissions. In fiscal 2006, all the manufacturing plants excluding the Tohoku Plant achieved zero emissions consecutively from the previous fiscal year. In the future, we will also achieve zero emissions at our office facilities.

TOPICS

Reducing Waste at the Tohoku Plant

TEL's Tohoku Plant reduced the total generation of waste from more than 900 metric tons (including recyclable waste) in FY 1997 to approximately 400 metric tons in FY 2006, an approximately 56% reduction. Unfortunately, however, the plant could not maintain its zero emissions in FY 2006 from the previous fiscal year, because its recycling rate dropped due to debris generated from repairs to floors. Nevertheless, the plant is determined to maintain a high recycling rate and examine measures to reduce its total waste generation.

Waste Generation and Recycling Rate at the Tohoku Plant



Plant and Office Initiatives for the Environment—Resource Conservation

The Tokyo Electron Group is reducing its use of paper and water to conserve resources.

Approach to Resource Conservation

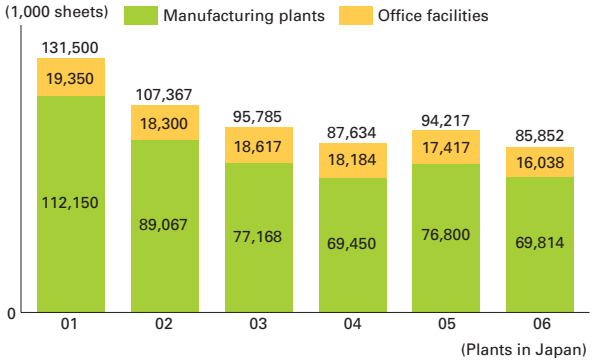
We are minimizing our use of resources based on the concept of green procurement, which means to give preference to environment-conscious products in purchasing. Specifically, we are reducing the use and purchase of copy paper and stationery, and when we purchase them we choose environment-conscious products. At our offices, we have replaced printer toner cartridges with cartridges made from recycled materials and cooperate with the manufacturers in the recovery of end-of-life cartridges. At some offices, using the intranet, we have established a system under which stationery no longer being used by a certain department can be reused by another department.

Recycling box on the intranet

Efforts to Reduce the Use of Paper

The entire Group is committed to reducing the use of paper. In FY 2006, as a result of encouraging duplex copying, copying at reduced size, and digitization of information and documents circulated among employees, we reduced the use of copy paper by approximately 9% over the FY 2005 level as a whole (approximately 8.3 million sheets saved during the year). Also, we encouraged the use of recycled paper with the exception of some special-purpose papers, and introduced paper cups made from kenaf, which is an alternative to wood pulp. We will continue to reduce the use of copy paper in our business operations by minimizing the number of different types of records and slips, thereby further reducing the total paper use.

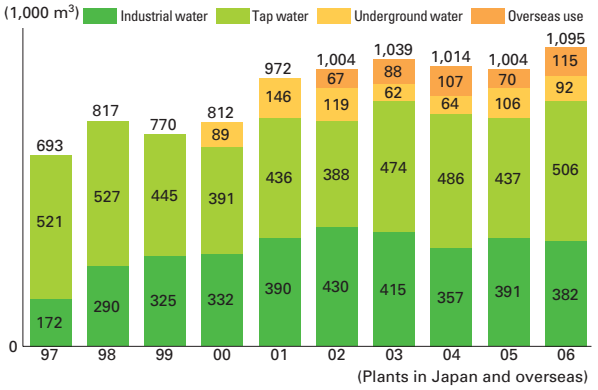
Copy Paper Consumption



Efforts to Reduce the Use of Water

At our manufacturing plants, various measures are being taken to reduce the use of water. For example, the plants have installed a water recirculating system to reuse cooling water. They have also installed automatic faucets in restrooms and other facilities. These touch-free automatic faucets prevent wastage of water by automatically shutting off the supply when the hands are removed from the sensor range.

Water Consumption



TOPICS

Reduction in Water Use at the Koshi Plant in Kumamoto

At TEL's Koshi Plant, underground water accounts for most the water used by the plant, which is implementing rigorous measures to prevent the depletion and pollution of underground water. The workers at the plant have taken the initiative in reusing cooling water and vacuum pump sealing water and in introducing vacuum pumps that do not use water. Also, the plant conducts activities to minimize the use of non-industrial water. Recognized for its water conservation efforts, the plant received the Higo Water Conservation Prize from the Higo Water Conservation Fund in FY 2005.


Vacuum pump that uses recirculated water


Vacuum pump that does not use water

Plant and Office Initiatives for the Environment— Management of Chemical Substances

The Tokyo Electron Group is committed to the proper management of chemical substances and to reducing their emissions.

Our Approach to the Management of Chemical Substances

The Tokyo Electron Group uses chemical substances mainly in developing and manufacturing products. In developing products, we sometimes adopt new chemical substances that were not used before, or use chemical substances in a way that is different from the traditional usage. In these cases, we look closely at the development facilities and methods, assess the environmental and operational risks associated with the use of the substances, and implement necessary measures before actually using the substances. As for the chemical substances that we use in our manufacturing processes, we are replacing dangerous and harmful substances with safer ones.

Compliance with the PRTR* Law

According to the provisions of the Law Concerning Reporting, etc. of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in Their Management (PRTR Law), we rigorously control the specific chemical substances regulated under the law and identify the use and emissions of these substances on a continuous basis. We use large amounts of hydrogen fluoride, which is one of the substances regulated under the PRTR Law, mainly for cleaning test wafers. The hydrogen fluoride waste is disposed of by an external company specializing in disposal or we dispose of it in the approved manner within our premises. We also use a considerable amount of ethylene glycol as a refrigerant for cooling water and recycle almost all of its waste. We will continue to properly manage the risk associated with the use of chemical substances.

*PRTR stands for 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 to the environment, and transfer (contained in waste) to the outside of the business premises entities are identified, tabulated, and announced.

Amount of PRTR Law Class 1 Designated Chemical Substances Handled

(kg)

Number in the Law	Name of Class 1 Designated Chemical Substance	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006
1	Water-soluble zinc compounds	0	50	0	70	0
3	Acrylic acid	0	0	0	20	0
16	2-Aminoethanol	520	430	0	475	0
43	Ethylene glycol	1,500	4,000	9,144	6,353	2,800
44	Ethylene glycol monoethyl ether	120	0	0	0	0
45	Ethylene glycol monomethyl ether	0	0	0	0	3
63	Xylene	180	0	0	0	0
78	Diphenylmethane-4,4'-disocyanate	0	0	0	14	24
172	N,N-dimethylformamide	290	450	309	131	0
207	Water-soluble copper salts (except complex salts)	190	120	0	110	0
227	Toluene	620	0	0	5	0
260	Pyrocatechol	0	30	0	3	9
283	Hydrogen fluoride and its water-soluble salts	2,470	3,690	4,558	3,553	4,811
304	Boron and its compounds	0	0	0	0	1
311	Manganese and its compounds	0	900	450	610	540
Total		5,890	9,670	14,461	11,344	8,188

* Weights are shown in metric tons for FY 2002 and 2003.

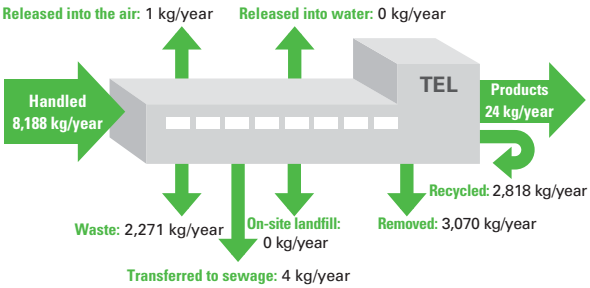
(Plants in Japan)

Handling of PRTR Law Class 1 Designated Chemical Substances

(kg)

How Chemical Substances are Handled	Amount
Released	1
Transferred	2,275
Consumed	24
Removed	3,070
Recycled	2,818
Total	8,188

Material Balance of Chemical Substances Regulated under the PRTR Law



PCB Storage

Based on the Law Concerning Special Measures Against PCB Waste, we report on the storage and disposal of waste containing polychlorinated biphenyl (PCB) to the governor of the prefecture every year. The Tokyo Electron Group presently stores two waste transformers and four waste capacitors that contain PCB in a strict and secure manner.

TOPICS

Management of Special Gas

In our product development and evaluation processes, we use liquid chemicals and special gas to simulate the actual semiconductor manufacturing process. Because some of these special chemicals are hazardous to both the environment and human health, we strictly control their use, including the careful management of devices that use these chemicals. At the Kansai Technology Center located in Amagasaki City in Hyogo Prefecture, we check the devices that use special chemical substances daily or regularly so that we can detect any problems without fail. We have established a system to deal with any possible problems. For example, in the event of a gas leak, the gas detection system triggers an alarm and stops the supply of gas. Also, we notify workers of any problems by the use of sirens, automatic broadcasts, and message boards that are put up within the clean room, at the entrance, and in the office room of each plant to show important information in real time.

Message board