Pioneer sound.vision.soul

ENVIRONMENTAL REPORT 2005

Caring for our Customers while caring for our world

Editorial Policy

- This report has been prepared for general readers to promote Pioneer's environmental preservation activities in the global community. We aim to play our part as a responsible corporation, with reference to opinions and criticism from the public.
- During the production of the report, we referred to both the GRI Guidelines and the Guidelines for Environmental Reporting, 2003 Edition from the Ministry of the Environment. Even as we take on the guidelines as our guiding principle, we continue to strive to be even more precise.
- The GRI Guidelines require that disclosure of corporate information be reported from three aspects, economic, environmental and social.
  In this report we have only taken up those efforts related to the environment from the social aspects. More specifically, these are in the realm of efforts to make social contributions to the environment, environmental education and so on.
  As is indicated in the figure below, our social activities apart from those related to the environment are reported in detail on our home page under Corporate Citizen, and the economic aspects appears in our Annual Report and on our home page under IR.

Breakdown of Disclosed Pioneer Information

- Based on the results of questionnaires, we have prepared this report for the general readers, reducing the number of pages where possible without omitting essential information. As a further environmental consideration, we have printed the report on thin, recycled paper to save weight.

HP This logo indicates sections for which more detailed information is available on the web.
http://www.pioneer.co.jp/environment/e/

*GRI (Global Reporting Initiative) is an international organization established to improve the quality of enterprise communications so as to realize sustainable development.

We hope to have comments and opinions from the readers to help us make our future reports better. We would appreciate it if you would complete the questionnaire at the end of this book.

Environmental impact data included in this report

- Period:FY2005 (April 2004-March 2005)
- Data included is as presented in the map below, unless stated otherwise.
  - The data for 9 (PPD) was included from October 2004.
- Expansion of the range of data in Japan and abroad, and further scrutiny of figures has caused some changes from figures released last year.

Japan

1 Towada Electronics Corporation
- Towada Pioneer Corporation
- Towada Tech Corporation
- Kamikita Seimitsu Corporation

2 Tohoku Pioneer Corporation (Headquarters, Yonezawa Plant, Tendo Minami Plant)
- Mogami Electric Corporation
- T.P.A. Corporation
- Biotech Corporation
- T.S.E. Corporation

3 Pioneer Communications Corporation

4 Pioneer Precision Machinery Corporation

5 Pioneer Corporation
- Headquarters (Meguro, Tokyo)
- Tokorozawa Plant
- Kawagoe Plant
- Ohmori Plant
- Corporate R&D Laboratories

6 Pioneer Micro Technology Corporation (MTC)

7 Pioneer Service Network Corporation
World Parts Center (WPC)

8 Pioneer Display Products Corporation (DPC)
Shizuoka headquarters, Yamanashi Plant, Niike Plant

9 Pioneer Plasma Display Corporation (PPD)

North America

1 Pioneer North America, Inc. USA (PNA)

2 Pioneer Automotive Technologies, Inc. USA(PAT)

3 Pioneer Electronics Technology, Inc. USA (PET)

4 Pioneer Manufacturing de Mexico, S.A. de C.V. Mexico (PMM)

5 Pioneer Speakers, (S.A. de C.V.) Mexico (PSSA)

Europe

6 Pioneer Europe N.V. Belgium (PEE)

7 Pioneer Technology Belgium N.V. Belgium (PEM)

8 Pioneer Technology UK Ltd. UK (PTK)

9 Pioneer Technology Portugal S. A. Portugal (PEP)

Asia

10 Pioneer Electronics Asiacentre Pte. Ltd. Singapore (PAC)

11 Pioneer Technology (MALAYSIA) Sdn.Bhd. Malaysia (MPT)

12 Pioneer Manufacturing (THAILAND) Co., Ltd. Thailand (PTM)

13 Pioneer Electronics (TAIWAN) Corp. Taiwan (PTW)

14 Tohoku Pioneer (THAILAND) Co., Ltd. Thailand (TPT)

15 Monetech Audio Sdn.Bhd. Malaysia (MNC)

China

16 Pioneer China Holding Co., Ltd. Shanghai (PCH)

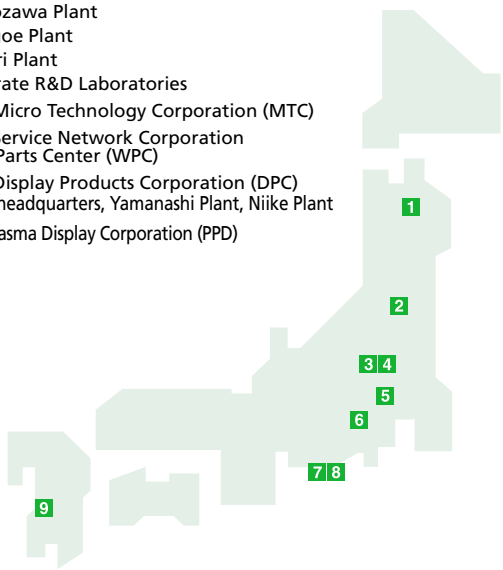
17 Pioneer Electronics Manufacturing (Shanghai) Co., Ltd. (PSM)

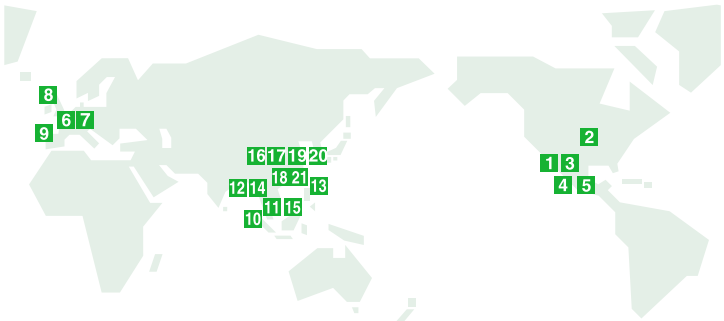
18 Pioneer Technology (DONGGUAN) Co., Ltd. (PTD)

19 Shanghai Pioneer Speakers, Co., Ltd. (Shanghai) (SPS)

20 Pioneer Technology (Shanghai) Co., Ltd. (PSG)

21 Dongguan Monetech Electronic Co., Ltd. (MND)





Highlights of FY2005

These are some of the highlights of the Pioneer Group's environmental preservation activities in FY2005.

High-definition plasma TV wins at Energy Conservation Awards

Details on P.19

The PDP-435SX high-definition plasma TV won the Energy Conservation Center Chairman's Prize in its category at the 15th Energy Conservation Awards in 2004.

The Third World Environment Conference

Details on P.12

The third World Environment Conference took place in May 2004. More than 100 participants, including heads of divisions, top management of local corporations, regional headquarters, and directors in charge of environment had earnest discussions.

Open House in the Kawagoe Plant

Details on P.20

The Kawagoe Plant opened its Open House, where a fluorescent X-ray analyzer, designed to analyze environmentally hazardous substances contained in components, is installed to be freely used by our suppliers.

Green Procurement Presentation in China

Details on P.21

The explanatory meetings on green procurement in China were held consecutively in Dongguan and Shanghai, China, in May.

Environmental Exhibition Room opened in Kawagoe Plant

Details on P.33

An "Environmental Exhibition Room" opened in the recycling center of the Kawagoe Plant in December 2004.

Contents

Message

Caring for our Customers while caring for our world

True Integration of Business Activities and Environmental Preservation Activities

Have you seen the "Earth at Night" photos? They are satellite images taken by NASA* that show the earth at night. Of the night scenes of various parts of the world, the Japanese archipelago is lit up brightly enough to clearly show its shape. This year, the Kyoto Protocol went into effect, which makes us very keenly aware of the need to reduce global warming gas emissions more than ever before. Pioneer has "Caring for our Customers while caring for our world" as the catch phrase for our philosophy of environmental activities in line with our CS-based management, or "what is most important for a corporation is customers." These photos have made me vividly realize that we are not yet fully true to our stated philosophy.

We often hear people say "environmental measures are costly" or "environmental action does not pay." This is a clear sign that environmental activities have yet to become rooted as part of business activities. For example, energy saving activities and logistics improvements can reduce both CO_2 and other global warming gases and cost, consequently bringing benefits to the company. Environmental activities are regarded as one of the important indexes of corporate value judgment from the viewpoint of CSR (corporate social responsibility). In business activities, improvement of business efficiency, improvement of productivity, and creation of corporate values are all critical elements, but, without a doubt, so are environmental activities.

Pioneer now has "true integration of business activities and environmental preservation activities" as our vision of environmental preservation activities.

By this, we mean that we will carry out business activities while trying to reduce environmental impacts at all processes of the product life cycle. We are in the process of fully realizing such an environmentally conscious business operation.

Our group philosophy is "Move the Heart and Touch the Soul." Actively pushing forward the integration of business activities and environmental preservation activities will help us form a recycling-oriented society while caring for the world. When we have an earth as beautiful as it should be, we will be able to move the heart and touch the soul of the people. That is when we will know that we are a step closer to our group philosophy.

In this report we would like to summarize our achievements so far, based on the results of our past efforts, as well as our concrete goals from now on. We hope that in reading this report everyone will understand the environmental preservation activities we are thinking of and we look forward to hearing your frank opinions about them.

July 2005

Kaneo Ito
President and Representative Director

*NASA: National Aeronautics and Space Administration

Greeting

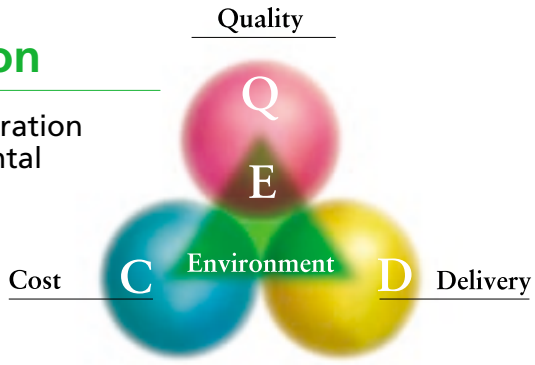
2010 Environmental Vision and Environmental Policies

The Pioneer Group Charter for Corporate Operations, which regulates the scope of the group's actions, defines ongoing activities for environmental preservation activities. Those activities are reflected and implemented in the corporate philosophy for environmental preservation, and in the basic corporate policies for environmental preservation, which state more specific activity guidelines.

2010 Environmental Vision

Pioneer Group aims at the true integration of business activities and environmental preservation activities.

Q stands for Quality
E stands for Environment
C stands for Cost
D stands for Delivery



Pioneer Group Charter of Corporate Operations

"Move the Heart and Touch the Soul"is the philosophy of the Pioneer Group. According to this philosophy, we, all the executives and employees of Pioneer, aim to continue our pioneering creation of new markets and conducting our business with integrity. We will operate our corporate activities based on a high standard of ethics, and aim to keep winning the confidence of our customers by contributing to society as responsible corporate citizens.

- **We will provide products and services that are useful, reliable and safe.**
- **We will operate our corporate activities fairly.**
- **We will continue efforts to conserve materials and energy, and reduce impact on the Earth's environment.**
- **We will strive for fair disclosure of information about our corporate activities.**
- **We will undertake effective risk management to deal with unforeseen incidents as quickly and sincerely as possible.**
- **We will properly manage and protect our assets and rights.**
- **We will endeavor to contribute to society from a global perspective.**
- **We will aim to pursue our corporate activities, always with respect for humanity.**

Corporate Philosophy of Environmental Preservation

The Pioneer Group will make efforts to always contribute to maintaining and realizing the rich and safe global environment through our corporate activities, based on the general understanding that it is one of our corporate missions to maintain, improve, and hand over the global environment to the next generation.

Basic Policies of Environmental Preservation

1.Compliance with Laws and Regulations

The Pioneer Group will comply with all applicable laws and regulations in connection with environmental protection, and when necessary, establish voluntary control standards to reduce the negative impact of its activities on the environment.

2.Preservation of Environment

The Pioneer Group will cease the use of, adopt substitute substances for, or restrain the discharge of, substances that are harmful to the environment such as those which contribute to the depletion of the ozone layer or global warming and other toxic chemicals, and thereby reduce the negative impact of its activities on the environment.

3.Development of Environment-Friendly Products

The Pioneer Group will examine the negative impact on the environment of the process from the procurement of materials and parts of the products to the ultimate disposal thereof, and conduct "Product Assessment" in the course of its research and development activities, and will develop new environment-friendly technologies to reduce the negative impact of such products and technologies on the environment.

4.Management by Goals

The Pioneer Group will establish goals in order to reduce the negative impact of its activities on the environment, such as natural resource saving, energy saving, recycling, reduction of waste material etc., and will make efforts to achieve those goals.

5.System Promoting Environmental Protection

An All-Pioneer system that contributes to the promotion of environmental protection will be established under the leadership of the officer in charge of the Environmental Preservation Group of Pioneer Group Headquarters. For such purpose, each division will establish corresponding organizations and optimize the environmental management system.

6.Training

The Pioneer Group will educate all its employees with regard to environmental protection, including notification of policies of environmental protection. In addition, specialized training will be given to employees when necessary.

7.Continuous Improvement

The Pioneer Group will continuously maintain and improve its environmental management system and protection activities by understanding its activities and conducting appropriate measures in accordance with the results of environmental audits.

8.Disclosure and Communications

The Pioneer Group will disclose its policies of environmental protection, goals and results of its environmental protection activities, to the public by use of its environmental reports, and thereby make efforts to facilitate communications with outside parties.

To Maintain, Improve and Pass on The Earth's Environment to Following Generations

The Kyoto Protocol, adopted at the United Nations Framework Convention on Climate Change Conference of Parties III (COP3) at Kyoto in 1997, was officially placed into force this year. In response, Japan is obliged to reduce CO_2 emissions by 6% from the standard 1990 level by 2012, but it is said that the 2003 emissions exceeded the target by 14%. If we want to achieve the target, all-out efforts combining all the people in this country need to be put forth. Industries must put their best foot forward and reduce their emissions, even in the products and services they offer to customers. We are no longer allowed to stay the course as we have done.

Pioneer never flinches from the challenge of reducing the amount of energy consumed by our products that are used in users' homes and by our plants to manufacture those products. This year, as the result of our efforts the energy efficiency of 306W in power consumption realized by the development and introduction of a "deep waffle rib structure" that converts electric power to light without loss, our 43V digital high-definition plasma TV, the PDP-435SX, won the Energy Conservation Center Chairman's Prize in the 2004 Energy Conservation Awards.

In addition to energy saving efforts, we also actively promote "green procurement" to aim at total abolition of environmentally hazardous substances in all our products. Environmentally friendly development of products is our standard attitude toward production.

These activities are carried out in conjunction with all our production facilities in the world through, for example, the annual Pioneer World Environment Conference. The conference provides an excellent opportunity to exchange notes on the energy-saving activities done and actions taken to realize total non-use of environmentally harmful substances at our offices and plants and to share information on the contributions made in their respective local communities. This significant gathering has given us a lot of food for thought about what Pioneer can do for the earth.

Under the catchphrase of "Caring for our Customers while caring for our world," the Pioneer Group is committed to maintaining, improving and passing on the earth's environment to the following generations.

Satoshi Matsumoto
Managing director
Environmental Preservation Group

Pioneer's History of Environmental Preservation

1989	Spring	Examination into substitutes for styrene foam packaging begins.
1990	December	Use of molded pulp made from recycled paper for packing of car stereo components begins.
1991	April	Environmental Preservation Promotion Division set up as a section in charge of environment.
	July	Company-wide Pioneer Environmental Conservation Committee is established.
1992	March	Specified CFCs completely abolished from the production processes of the Pioneer Group.
	September	Product assessments are begun for all electrical appliances.
	November	Environmental Regulations, equal to the Environmental Charter, formulated.
1993	February	Use of collapsible cardboard packaging for AV products is introduced.
		Recovery and recycling of used nicad batteries begins.
1995	June	A Pioneer director is named to take charge of environmental affairs.
1996	June	Tokorozawa Plant obtains ISO 14001 certification (the first in the Pioneer Group).
1998	June	Environmental Preservation Division is established with an assigned full-time director in charge.
	October	Pioneer Environmental Label is established.
	November	Products with lead-free solder go on sale.
1999	March	ISO 14001 certification is completed at all Pioneer design and manufacturing facilities in Japan.
	June	First issue of the Pioneer Environmental Report is published.
2000	June	Public announcements of environmental accounting begin.
	July	Green Procurement Standards are published.
	October	Awards ceremony for the First Pioneer Environment Contribution Awards is held.
	December	Started participating in the Eco Product Exhibition
2001	March	ISO 14001 certification is completed at all of Pioneer's main manufacturing facilities worldwide.
	October	Publication of site reports begins.
2002	March	Full-scale introduction of lead-free solder to products manufactured in Japan begins.
	May	First World Environment Conference held.
2003	November	Opinion Exchange Forum begins with third parties to exchange notes on the Environmental Report. Environmental Preservation Group established and the Eco Products Division inaugurated.
2004	May	Environment Managers' Conference held in the World Environment Conference.
	December	Optical disks made of cornstarch displayed at the Eco Product Exhibition
2005	February	PDP-435SX Plasma TV won an Energy Conservation Award. All major facilities in the world acquired ISO 14001 certification.

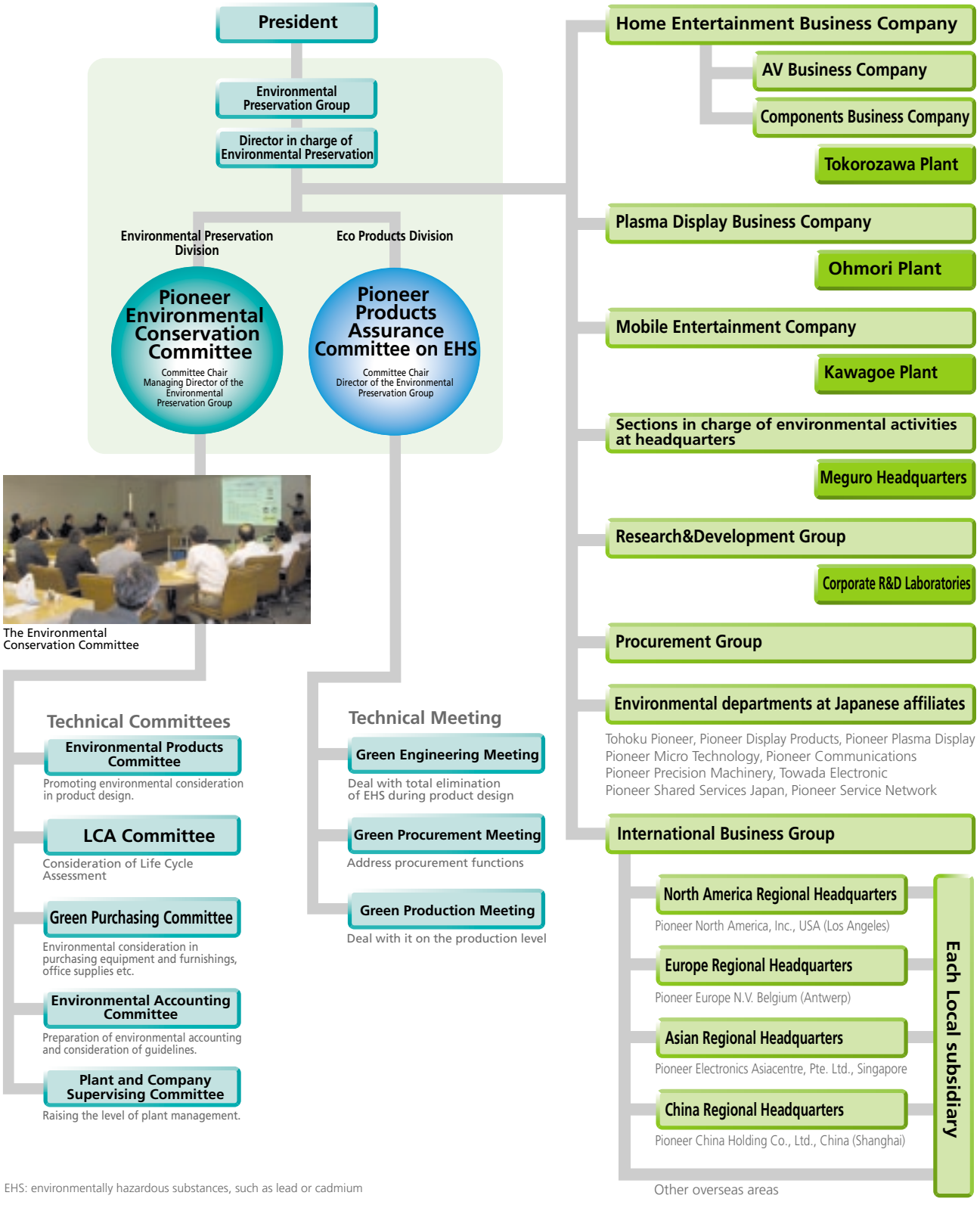
Promotional System

In July 1991, the Pioneer Environmental Conservation Committee was established as a group-wide organization. The Eco Products Division was established in November 2003 to reinforce the effort to substantially reduce environmentally hazardous substances in products.

Organization of the Pioneer Environmental Conservation Committee

The Pioneer Environmental Conservation Committee deliberates and integrates the responses to various environmental issues sought from the corporation. In addition, the Products Assurance Committee on EHS is committed to completely eliminating the environmental impact of our products. Both committees are structured as the highest institution for Pioneer's environmental activities within the company, related companies and overseas subsidiaries.

(As of June 1, 2005)



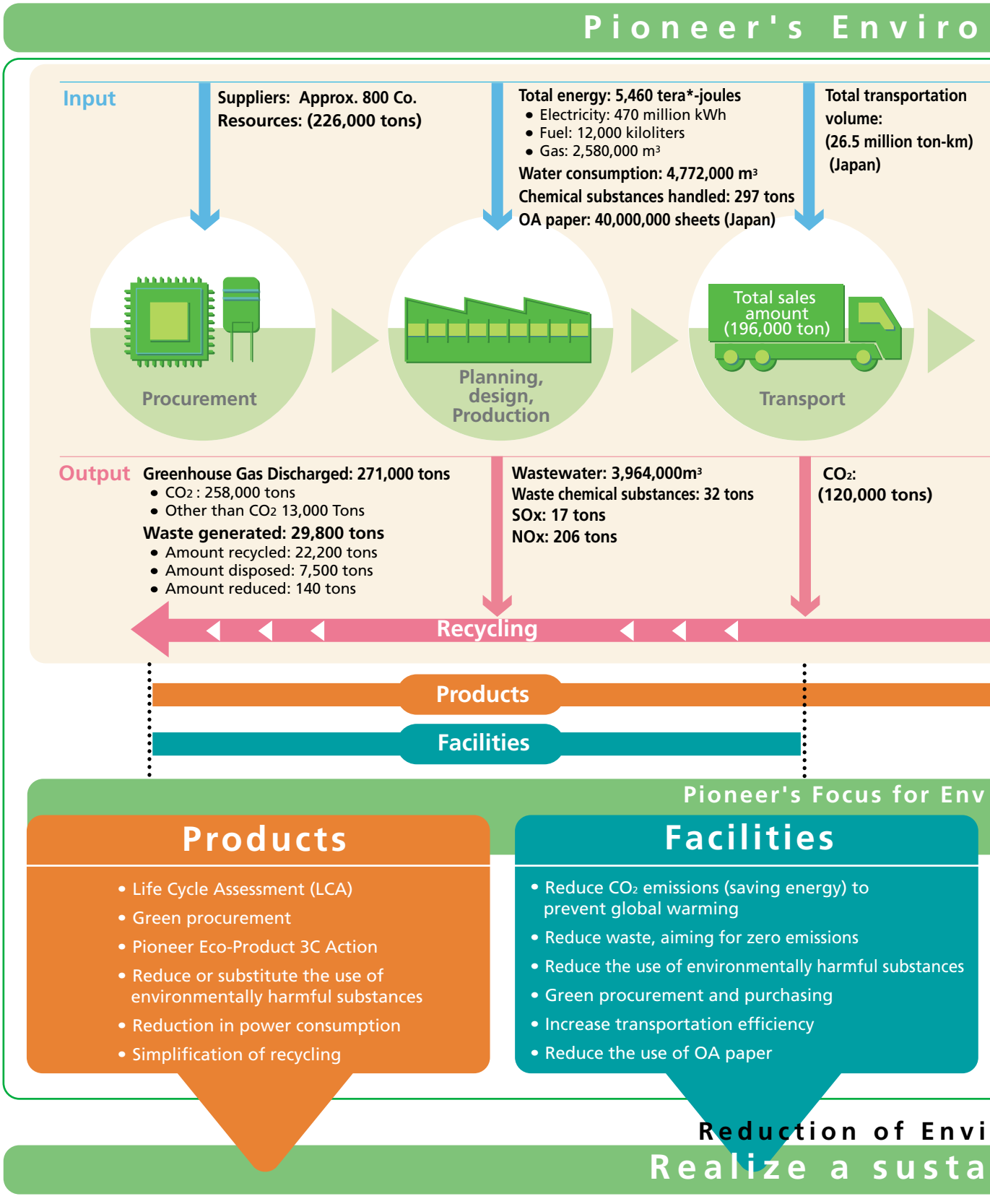
The Environmental Conservation Committee

EHS: environmentally hazardous substances, such as lead or cadmium

Pioneer's Environmental Impact and Issues to be Tackled

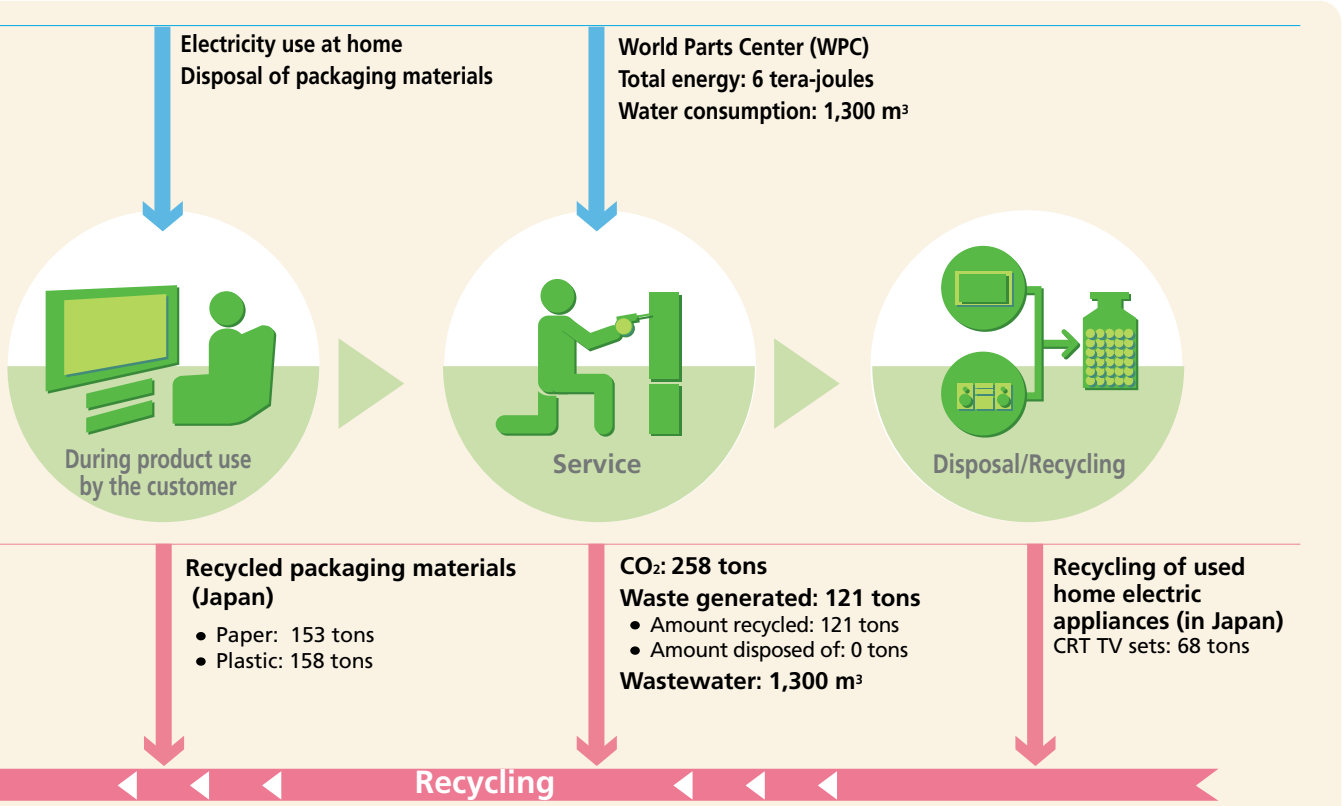
The illustration below shows the life cycle of Pioneer products, from their planning and manufacture to their delivery to customers, their use and ultimate disposal or recycling. It is inevitable that the environment will be impacted in various ways at each stage of the process. Pioneer continues to devote full attention to the reduction of this impact as far as possible.

Figures in parentheses are approximations including some degree of estimation.



* Tera- means 10^{12}

nmental Impact



ironmental Preservation

Management activities

- Promotion of Environmental Management System
- Environmental accounting
- Establishment of global systems

Social activities

- Active participation in local volunteer activities
- Communication with local communities
- Support for environmental preservation organizations
- Environmental education and PR
- Publicity campaigns

ronmental Impact
inable society

Pioneer carries out activities with a focus from four perspectives—products, facilities, management and social—in order to efficiently reduce the environmental impacts in each of the processes above.

Environmental Targets and Performance

At Pioneer, we have set ourselves the task of reducing the environmental impact generated by our products and plants.
As the importance of environmental issues never stops increasing and legal regulations eventually become more stringent, we re-examined some of the goals to better respond to the changes of the times.
Our evaluations of the results for FY2005 are reported in detail on the relevant pages.

Category	Objectives	Targets in FY 2005	FY2005 Results	Self assessment
Products	Construction of frameworks for ecological model development: Life Cycle Assessment (LCA)	Expand the number of models to which Product LCA applies	Applied to on-board car speakers	○
	Construction of frameworks for ecological model development: Eco Champion Challenger Model	Introduce new systems for more active environmental efforts	Eco-Product 3C Action system introduced	○
	Reduction of environmentally hazardous substances and use of substitutes	Achieve High Green Score Rate of 80% achievement rate in the Green Score (in Japan)	High Green Score Rate of 90% achieved (in Japan)	◎
		Promote non-use of PVC in components other than electrolytic capacitors	Subject components clarified and PVC use reduced	○
		Completely eliminate leaded solder	Use of lead eliminated from flow solder used in the company	○
	Reduction in power consumption	Reduce the average standby power consumption below that of the previous year (0.21W) (home-use audiovisual products)	Average standby power consumption at 0.32W DVD players featuring average standby power consumption of 0.07W released to market	△
Facilities	Prevention of global warming (Reduce greenhouse gas emissions)	Reduce domestically by 1% compared to FY2002 (absolute amount)	Increased by 43% in Japan (up to 87% after integration) Increased by 43% in basic unit for group sales (69% after integration) (Reduced by 13% from the FY1990 level for Pioneer alone)	×
	Reduction of waste (Zero Emissions of Waste)	Achieve the goal at all domestic facilities	Only one new facility achieved	△
	Reduction of environmentally hazardous substances	Achieve a 15% reduction from FY2002 data (in Japan)	Reduced by 44% from the FY2002 level	◎
	Green purchasing	Increase the green purchasing rate to 75% for stationery items and 100% for other subject items (such as paper, office electronic equipment, office furniture, etc.)	Green purchasing rate (94% total) Stationery: 66% Other than stationery: 96% Five items, including paper: 100%	△
	Reduction of OA paper	Reduce it to below that of the previous year	Reduced by 7% from the previous year	○
	Improvement in logistics	Reduce it to below that of the previous year (in basic unit for sales)	Increased by 16% over the previous year	×
Management activities	ISO 14001 certification	Increase the number of facilities with ISO 14001 certification	One in Japan and one overseas newly certified	○
	Environmental accounting	Increase the number of facilities using environmental accounting	Applied to a new production factory	○
	Establishment of global systems	Continue to hold the World Environment Conferences Identify 87% of our environmental impact	Third World Environment Conference held 90% of environmental impact identified	○
Social activities	PR activities	Update once or more per month Improve the publicity aimed at children	Website updated 14 times per year Online educational cartoon, "Manga Environmental Treasure Box," provided; up to Episode 4 released	○
	Environmental education	Continue awarding environmental prizes Hold lectures on the environment at each facility New acquisition of national qualifications, 100 or more people Maintain the internal auditing system at 200 people	Presented 3 groups and 2 individuals with Environmental Contribution Award and Environmental Patent Award Environment-related lectures held twice and general education offered (to all facilities) Number of employees who newly acquired national licenses: 138 Internal auditor: 274	○
	Social activities in the local environment	Continue and expand the activities	Carried out various activities at Pioneer facilities, including Zero Garbage cleanups, environment symposia and tree planting	◎

Self assessment criteria
◎ Target cleared by a large margin
○ Target achieved
△ Target tried, but more effort is necessary
× Target not achieved

*Raw unit for sales amount: Environmental impact amount per ¥100 million of sales

Targets for FY 2006	Targets for FY 2007	2010 Environmental Vision	Reference Pages
Increase the number of models to which Product LCA applies and apply LCA to environmentally friendly design	Apply LCA to environmentally friendly design		P17
Promote Eco-Product 3C Action	Increase the number of environmentally friendly products		P16
Achieve High Green Score Rate of 95% (in Japan)	Achieve a High Green Score rate of 95% (worldwide)		P21
Totally eliminate lead, mercury, hexavalent chromium, and cadmium from all new products (except where no alternative technology exists)	Further reduce use of lead, mercury, hexavalent chromium and cadmium by developing alternative technology		P22
Increase the number of products featuring an average standby power consumption of 0.1W or less Reduce annual power consumption	Reduce the annual power consumption to less than that of the previous year's model		P18
(Re-examination of the goals) Follow the industry's voluntary standard Reduce emissions by 25% from the FY1990 level in basic unit for net sales (production-related facilities in Japan)	Maintain the emission levels at 25% below the FY1991 levels in basic unit for net sales (for production-related facilities in Japan)	QECD True Integration of Business Activities and Environmental Preservation Activities	P24
Promote in the Group's production-related facilities	Achieve the goal in all production facilities of the Group		P27
Reduce the amount by 50% from the FY2002 level for the Group (in basic unit for sale)	Reduce the amount by 53% from the FY2002 level for the entire Group (in basic unit for sales)		P26
Maintain a green purchasing rate of 90% or more Increase the number of designated items	Maintain the green purchasing rate at over 90%	● **Supply products that exceed the standards for each environmentally friendly item** ● **Greenhouse Gas Emissions** ・Relative to the FY1990 level (in Japan) Reduced by 25% (in basic unit for net sales) ・New energy ratio 5% ● **Zero emission of waste achieved group-wide** ● **As a corporate citizen, be in harmony with society**	P29
Reduce consumption by 15% from the FY2001 level	Maintain the previous year's level		
At or less than the previous year (Per unit of sales)	Reduce to below the previous year (in basic unit for sales)		
Acquire certification at all Group companies in the world	Remain accredited		P10
Compile statistics for all ISO accredited facilities worldwide	Continue compilation and disclose the statistics		P14.15
Enrich the content of the World Conference Identify more than 90% of our environmental impact	Expand and enrich the content of the World Conference Keep over 90% of our environmental impact identified		P12
Enrich the website content with an international focus Continued implementation of environmental contribution prizes Implementation of environmental symposia at each facility At least 100 employees to receive new national qualifications Maintain system of 200 internal auditors and expand specialist education Reinforce activities based on social contribution action indices	Continue to promote activities		P30 ~ P34

Environmental Management System

Pioneer is building an environmental management system based on ISO 14001 international standards. This system has been used effectively in Pioneer Group companies worldwide to implement, maintain and improve environmental preservation activities. In FY2005, companies that newly acquired ISO 14001 certification included PHK (see below).

Three-tier environmental auditing systems

At each facility, we conduct Internal Environmental Audits to check on the status of implementation of the environmental preservation and management activities. The Pioneer Group in Japan has some 233 active internal environmental auditors.

In addition, the Environmental Preservation Division carries out its group-wide environmental audit to check on the status of activities at our facilities and internal companies. When an excellent activity is discovered, it is rolled out across Group companies.

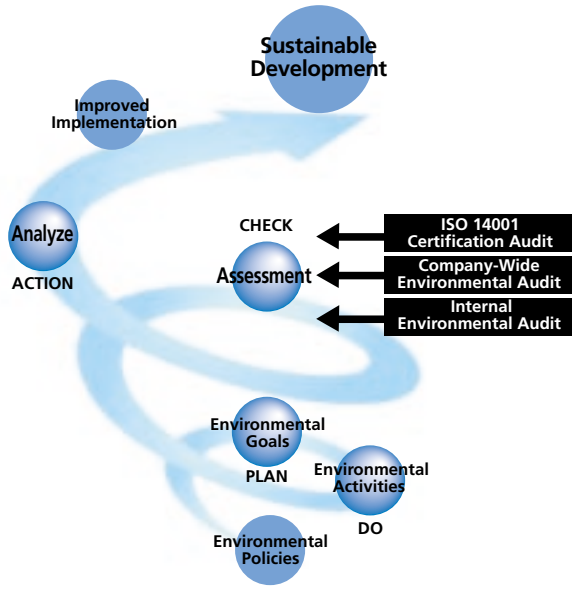
Further, we have an External Audit conducted by ISO 14001 Audit Registered Bodies. Through these three environmental audits, we quickly discover any problem areas or things that need to be improved, allowing us to implement appropriate countermeasures as we strive to raise the bar on our activities.

Group-wide environmental auditing

In FY2005, two facilities and two inner companies underwent environmental audit. The environmental audit confirmed the status of environmental activities at these facilities and companies and helped promote smooth sharing of environment-related information among members in the group.

Specific results of external auditing

Third-party auditing of domestic facilities has produced the evaluation that environmental activities are continuously improving. It also



confirmed that we have taken care of the observations pointed out in the previous year very well. The last audit results, however, pointed out 34 new items for correction or improvement. Major ones included the recording of procedure-based activities and how the environmental objectives and goals are achieved, and how the degree of achievement is evaluated. Facilities thus notified immediately took corrective actions, and the information on these actions was shared in the Pioneer Environmental Conservation Committee for group-wide distribution, thereby helping improve the activity group-wide.

ISO 14001 Certification Status

(As of June 2005)

★ Indicates companies that received certification for first time in FY2004

- **Pioneer Tokorozawa Plant**
- **Pioneer Kawagoe Plant**
- **Pioneer Ohmori Plant**
- **Pioneer Corporate R&D Laboratories**
- **Pioneer Headquarters, Meguro**
  - Pioneer Service Network Corporation
  - Pioneer Shared Service Corporation
  - Pioneer Design Corporation
  - Increment P Corporation
  - Pioneer Media Creates Corporation
  - Pioneer AFM
  - Pioneer Industry Corporation
  - Pioneer Navicom Corporation
  - Fukuin Corporation
  - Pioneer HRD Corporation
  - Techno Access Corporation
  - Pioneer Welfare Service Corporation
  - Pioneer Building Management Corporation
  - Monotec Tokyo Corporation
  - Pioneer Micro Technology Corporation Semiconductor division, Tokyo office
  - ED Lease Corporation
  - Pioneer Health Insurance Association
  - Pioneer Welfare Annuity Fund
  - Pioneer Workers Union
- **Pioneer Micro Technology Corporation**
- **Pioneer Display Products Corporation Headquarters/Niike/Yamanashi Plants**
  - Pioneer Service Network Corporation World Parts Center
- **Pioneer Plasma Display Corp.**
- **Tohoku Pioneer Corporation Headquarters, Yonezawa and Tendo Minami Plant**
  - Mogami Electric Corporation
  - T.P.A. Corporation
  - T.S.E. Corporation
  - Biotech Corporation
- **Pioneer Communications Corporation**
- **Pioneer Precision Machinery Corporation**
  - ★ Hokuriku PPM
- **Towada Electronic Corporation**
  - Towada Pioneer Corporation
  - Towada Tech Corporation
  - Kamikita Seimitsu Corporation

Asia

- **Pioneer Electronics Asiacentre Pte. Ltd. (PAC) Singapore**
- **Pioneer Technology (Malaysia) Sdn. Bhd. (MPT) Malaysia**
- **Pioneer Electronic (Taiwan) Corp. (PTW) Taiwan**
- **Pioneer Manufacturing (Thailand) Co., Ltd. (PTM) Thailand**
- **Tohoku Pioneer (Thailand) Co., Ltd. (TPT) Thailand**
- **Monetech Audio Sdn. Bhd. (MNC) (Malaysia)**

China

- **Pioneer China Holding Co., Ltd. (Shanghai)**
- **Pioneer Electronics Manufacturing (Shanghai) Co., Ltd. (PSM) Shanghai**
- **Shanghai Pioneer Speakers Co., Ltd. (SPS) Shanghai**
- **Pioneer Technology (Dongguan) Co., Ltd. (PTD) Dongguan**
- **Dongguan Monetec Electronic Co., Ltd. (MND) Dongguan**
- **Pioneer Technology (Shanghai) Co., Ltd. (PSG) Shanghai**
- ★ **Pioneer (HK) Co., Ltd. (PHK) Hong Kong**

Europe

- **Pioneer Europe N.V. (PEE) Belgium**
- **Pioneer Technology Belgium N.V. (PEM) Belgium**
- **Pioneer Technology Portugal S.A. (PEP) Portugal**
- **Pioneer Technology UK Ltd. (PTK) U.K.**
- **Pioneer Benelux B.V. (PEB) The Netherlands**
- **Pioneer France S.A. (PFS) France**
- **Pioneer Electronics Iberica, S.A. (ESP) Spain**
- **Pioneer Danmark A/S (PDS) Denmark**
- **Pioneer Norge AS (PEN) Norway**
- **Pioneer Scandinavia A.B. (PES) Sweden**
- **Pioneer GB Ltd. (PGB) (England)**
- **Pioneer Electronics Deutschland GmbH (PED) (Germany)**
- **Pioneer Italia S.p.A (PEI) (Italy)**

North America

- **Pioneer North America Inc. (PNA) (U.S.A.)**
- **Pioneer Automotive Technologies, Inc. (PAT) (U.S.A.)**
- **Pioneer Automotive Technologies, Inc. (PAT-Ohio) (U.S.A.)**
- **Pioneer Electronics Technology Inc. (PET) (U.S.A.)**
- **Pioneer Electronics (USA) Inc. (PUSA)**
- **Pioneer Electronics Service Inc. (PSE) (U.S.A)**
- **Pioneer Strategic Business Services (PBS) (U.S.A)**
- **Discovision Associates (DVA) U.S.A.**
- **Pioneer Electronics of Canada, Inc. (POC) Canada**
- **Pioneer Manufacturing de Mexico S.A. de C.V. (PMM) Mexico**
- **Pioneer Speakers S.A. de C.V. (PSSA) Mexico**

Strict voluntary management standards

In the unlikely event of an accident at a facility that resulted in environmental contamination of the surrounding area, it will take a lot of time and money to restore the contaminated environment and may cause serious problems and loss to the neighboring residents and many other concerned people. In order to avoid such risk, Pioneer has established and operates voluntary management standards that are stricter than those provided by law. Use and operation of these stringent voluntary management standards has brought us an established system to prevent exceeding of the regulatory limits.
Despite our effort, there was one violation of environmental legislature (related to a discharge standard as explained below) in FY2005.

Examples of responses to accidents and complaints (in Japan)

In FY2005 there were two incidents related to risk management at our facilities.

- Domestic wastewater discharge exceeded the standard limit
  Action: The discharge system was renovated.
  Cause: Broken seal
- The air blower unit of the septic tank failed
  Action: The failed unit was repaired.

We received four complaints or demands for our facilities.

- From the neighboring residents
  Noise from the equipment or transport vehicles (two cases)
- From administration
  Sorting or discharge of wastes (two cases)

The number of complaints or requests received were reduced to one-third that of the previous year. We always respond to such complaints or requests as swiftly as possible, find the causes and take corrective and preventive measures.

Implementation of emergency response training

For facilities which could cause major environmental impact in the event of an accident (such as crude oil tanks), we carry out emergency response training to handle any emergency that can be envisaged.
We also take actions to quickly minimize the impact, using a system to promptly notify the local authorities with jurisdiction over the concerned facility.

Employees at the Yamanashi Plant of Pioneer Display Products Corp. take regular training to minimize the impact of any incident.

Thorough management of PCBs

PCBs were used in the past as insulation oil in appliances such as electrical condensers and fluorescent light ballasts. Its production has now been stopped as a pollution prevention measure. However, the capacity of facilities for processing PCBs is currently inadequate, and PCBs must, by law, be stored and reported to prefectural authorities annually to prevent loss or leakage.
Such containers are strictly managed at each of our facilities and reported to the authorities.

Environmental Patrol by Directors

Pioneer Plasma Display Corp. directors carry out an environmental patrol as a part of risk management.
The directors thoroughly inspect the operation and management of the preliminary wastewater treatment facility and the water purification equipment and waste management to avoid causing risk to the environment.

Environmental patrol

Risk management by PRTR

Data submission under the PRTR Law in Japan began in FY2002. The Pioneer Group reports environmental data for each facility to prefectural authorities according to the Law.
This data is collated and managed for each facility, and we are working to raise the level of environmental risk management and lessen environmental impact.
Abroad, we manage risk based on the same kind of laws if they have been adopted in the region. In countries where the protocol has not been introduced, we are starting to collect and manage data in the same way as we do in Japan, based on Japan's PRTR protocol.

PRTR See page 26

Efforts in Other Countries

Pioneer held the Third World Environment Conference

The Pioneer Group held the third World Environment Conference and the Environmental Managers' Conference on May 20 and 21. More than 100 people participated in the first day's session from around the world, including President Ito, division managers, top managers of local corporations, staff from regional headquarters, and directors in charge of environment.
President Ito delivered the opening speech and addressed anew the importance of environmental actions, saying, "Today environmental issues are one of the most important concerns for management, and a key to successful management in this respect is how to handle environmental issues. Traditionally it was the production section that took the initiative, but from now on it should be a company-wide effort, including sales sections, that will successfully get us through this challenge of environmental preservation."
The Environmental Preservation Division provided a report on environmental preservation activities taken or being taken by the Pioneer Group as a whole. Each regional headquarters provided their own report on environmental actions. Many questions were asked by the President and other directors, which provided an active opportunity for the energetic exchange of notes.
Following the World Environmental Conference, the World Environmental Managers' Conference was held. Some 30 representatives participated from five facilities in Japan, each regional headquarters, and 15 local corporations. Comments and opinions expressed by those participants include: "It served as an excellent opportunity to know the opinions and ideas of each of these companies" and "We'd like to use the good aspects of the actions taken by the head office and branch offices to our advantage."

President Ito's opening speech at the beginning of the World Environmental Conference stressed the importance of environmental preservation efforts.

Environmental managers from various countries and regions joined an active exchange of opinions.

Activities in Europe PEP (Portugal)

PEP held an event on Europe's Car-Free Day

A Portuguese corporation specialized in production, Pioneer Technology Portugal S.A. (PEP) held an event to enhance environmental awareness, focusing on the impact on the environment from the increase in the number of cars, on Europe's Car-Free Day in September 2004. The message conveyed was, using fewer cars can lesson the negative impacts of cars, such as noise or air pollution, on the environment.
PEP thought up a variety of educational attractions, including games related to air pollution and other environmental problems, a bicycle competition in a bicycle circuit created in the PEP compound, and awarding of bicycles and helmets. A bicycle exhibition and an obstacle race were also held at a separate venue near the factory.

European Car-Free Day Poster

A bicycle exhibition was also held.

Varying Educational Programs on Environment Day

PEP celebrates Environment Day every year to enhance awareness of environmental preservation activities. In 2004 it was held in June, and a variety of educational programs, events and exhibitions were carried out to let the people know about the environment, environmental impacts, and environmental preservation activities, including water quality and the ozone layer, as well as the impacts PEP has on the environment and the measures taken by PEP.

A small cake, with a clover-shaped "Environment Mark" on it, was presented to every employee.

A mini recycling box, designed to help the user easily recycle materials either at home or at the office was also distributed to all employees.

PHK (Hong Kong) acquired ISO 14001 certification

Hong Kong sales corporation Pioneer (HK) Ltd. (PHK) successfully received ISO 14001 accreditation for both its Hong Kong Office and Shengzhen Office in October 2004, receiving the certificates in February, 2005.
The efforts made by PHK to obtain accreditation by the end of October 2004, two months earlier than planned, despite the short period of time for preparation, won them high applause from the accreditation organization as well as the consultants.
PHK is determined to continue environmental preservation activities as part of their business activities.

PHK Hong Kong Office staff (upper) and PHK Shengzhen Office staff (lower) celebrating the acquisition of ISO 14001 certification.

PTW (Taiwan) donates PCs to an elementary school

Pioneer's Taiwanese corporation specialized in production, Pioneer Electronic (Taiwan) Corporation (PTW) donated 10 PCs to a primary school in Fu-hsing, Taoyuan in September 2004. Donations of PCs to the elementary school started in 2002 and have continued every year since then. This charity has been appreciated by the recipients as being instrumental for early computer education. The Principal of the primary school, Ms. Lim, visited PTW and handed a letter of thanks to PTW President Kashiwagi.

PTW President Kashiwagi (right) receives a letter of thanks from Principal Lim.

North America

Pioneer North America joins the Energy Star Program

The Environmental Protection Agency of the USA introduced the Energy Star program to set energy saving standards.
Pioneer North America, Inc. (PNA) participated in Energy Star for audiovisual products and attaches Energy Star labels to qualified products.
In 2004, PNA registered 30 models in the audiovisual products genre, including plasma TVs. A similar program is also in place in Australia. PNA registered 8 models in their program.

Tree Planting Week by PMM (Mexico)

A Mexican corporation specialized in production, Pioneer Manufacturing de Mexico, S.A. de C.V. (PMM) came up with a program to plant new trees. PMM provides trees for planting in the company compound by their own employees as well as at the homes of the employees. This effort has been recognized as an excellent social contribution by the local government, which certified tree planting in praise of PMM's effort.

PMM employees planting tees in the company compound

Environmental Accounting

Pioneer has kept environmental accounts since the Environmental Accounting Committee was formed in October 1999. Pioneer Plasma Display Corp. is included in the list for statistic compilation since October 2004. Currently the list has a total of 37 companies, including 16 in Japan and 21 overseas.
Pioneer chooses to disclose its environmental accounting results as an important tool to promote corporate environmental preservation activities.

Pioneer's environmental accounting defined

Pioneer has established its own Group-wide Environmental Accounting Guidelines based on the publication "Environmental Accounting Guidelines (2005 Edition)" issued by Japan's Ministry of the Environment. These guidelines stipulate that environmental investment is depreciable in fixed amounts over a five year period, and that its economic benefit also extends to five years. Our environmental investment calculations however, reflect figures from 1999 onwards, the year that Pioneer began keeping environmental accounts.
It is possible to make comparisons in green purchasing as to when a consideration has been made for the environment or not; further, only items which show a striking difference are calculated. (low-pollution vehicles, LCD monitors, recycled toner cartridges).
One hundred percent of payroll costs are accounted for in the division that deals with the environment full-time, and other notable environmental activities are accounted for based on a pro rata or time-multiplied wage rate.
Economic benefits, profits on sale of recycling and cost savings (savings of electricity and waste disposal expenses, external consultation fees, environmental impact measurement fees) are accounted for, but so-called "surmised benefits" (from risk avoidance) are not calculated. In addition, the benefits derived from issuing the environmental articles have now been added up. (Estimated benefit to profit contribution)

Data collection results by category

Environmental accounting results for FY2005 have been classified into four categories, or products, facilities, management activities, and social activities, as in the table below.
The Products category consists of direct costs and indirect costs (R&D expenditure).
Direct cost is calculated by booking the "cost-increase" portion as expenses and the "cost-decrease" portion as benefit and multiplying either figure by the number of the product manufactured in FY2004.

Material Flow Cost Account

Material flow cost, one of the environmental accounts, is an evaluation method directed at material loss in the production process. It measures loss with the materials and their volume input to each loss-generating place (place where each production process takes place). Known as an effective tool for material processing, the material flow cost account was experimentally applied to the Pioneer Precision Machinery Corp. resin molding line, and the results were compared with those of the conventional cost/structure method. We intend to apply it to other products in the future.

FY2003 Data Collection Results by category

(Million ¥)

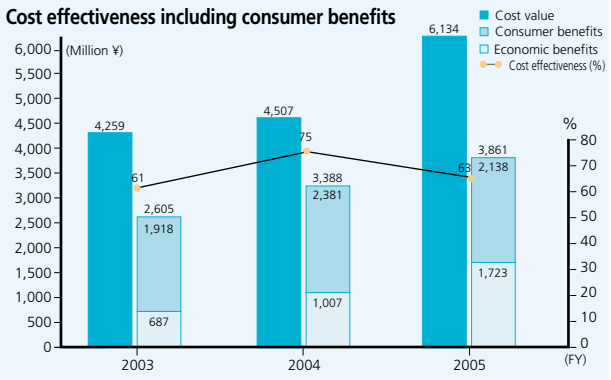
	Main Activities	Investment value	Cost value	Economic benefit
Products	Direct cost (energy-saving measures, use of lead-free solder, product cost increase/decrease through reduced packaging materials)	109	1,572	266 (2,138)*
	R&D cost (increased efficiency of plasma displays, organic EL and others)	100	1,574	
Facilities	Pollution prevention and energy-saving activities, waste reduction, green purchasing, reduced distribution	243	1,597	1,428
Management activities	Environmental management systems and all management activities, PR activities	20	1,370	28
Social activities	Activities to contribute to the environment in the community and monetary contributions	0	21	0
	Total	**472**	**6,134**	**1,723(3,861)***

*Figures in ( ) represent collected data and include consumer benefits.

Consumer benefits

Consumer benefits are savings gained by our customers through using our products. We regard these as separate from benefits gained by Pioneer, but they are also added to economic benefits for internal management to assist in judging cost effectiveness. Calculation standards have been set for each product type and booked for products that show clear energy-saving benefits. As a result, savings equivalent to ¥2.1 billion in value and 41,000 tons of CO_2 were gained.

Cost effectiveness including consumer benefits



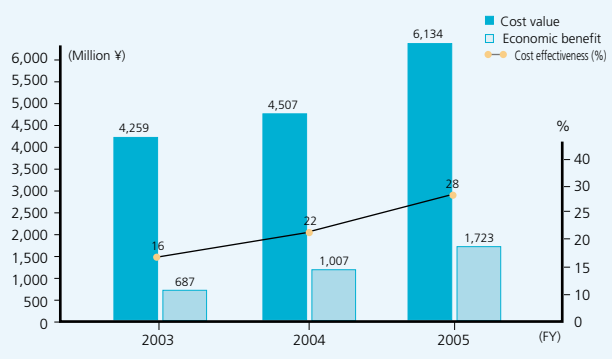
Consumer benefits

Product Line	Details	Savings	Equivalent value (Millions ¥)
AV products	Reduced standby power consumption	51,473,000 kWh	1,183
Plasma displays	Reduced operation and standby power consumption	32,689,000 kWh	752
CATV terminals	Reduced operation and standby power consumption	8,382,000 kWh	193
Car electronics products	Fuel savings from improved fuel consumption due to reduced weight	Equivalent to gasoline 98 kl	10
	Total		**2,138**

Calculation formula =_{(Non-environmentally friendly reference model - FY2004 model) x other terms x coefficient x No. of units produced per year}
Consumer usage conditions over one year were envisaged as follows:
Standby time: 22 h/day x 365 days (AV products)
(operation time: 4.5 h/day, standby time 19.5 h/day) x 365 days (for plasma displays and CATV terminals)
Weight of normal car = 1.5 t, fuel consumption 10 km/l, drive distance 10,000 km (car electronics)
Coefficients: Unit electricity cost (¥)23/kWh), gasoline (¥)100/l)

Results collected according to the Ministry of the Environment Guidelines

The results: investment ¥470 million, expenses of ¥6.1 billion, economic benefit, ¥1.7 billion. The percentage of environmental investment in the Pioneer group's facility investment total (¥63.9 billion) is 0.7%, and that of environmental research and development in the research and development cost total is 2.8% (¥55.9 billion). Direct comparison between years is not possible, but environmental efficiency (cost effectiveness) improved by 28% in FY2005 due to the introduction of energy-saving equipment and other measures.



Environmental costs

(Million ¥)

Cost category	Details		Investment	Expense
Plant	1. Anti-pollution costs	Cost required for pollution prevention	53	850
	2. Global environmental preservation costs	Cost of measures for energy saving, etc.	182	263
	3. Resource recycling costs	Costs for waste reduction, disposal	6	420
Product-related	Costs for environment-friendly products (elimination of styrene foam, use of lead-free solder, energy saving, etc.), green procurement, green purchasing		111	1,636
Management	Costs necessary for acquiring/maintaining ISO 14001, education and training, and PR costs		20	1,370
R&D	Costs for technology development including environmental factors		100	1,574
Social activities	Costs for social activities (voluntary activities, donations, etc., for environmental preservation)		0	21
Environmental damage	No fines or charges		0	0
		Total	**472**	**6,134**

Note: Terminology and categories based on Guidelines (2005) set down by Japan's Ministry of the Environment.

Economic benefits

(Million ¥)

Ministry-defined categories	Details	Amount
a. Income Sale profits from waste recycling, etc. b. Expenses Savings in energy saving and waste treatment costs	1. Savings due to environmental preservation (energy saving, etc.)	919
	2. Savings due to resource recycling (selling or saving resources, reduced waste treatment costs, etc.)	457
	3. Product-related savings (in procurement, production, distribution and green purchasing)	319
	4. Other benefits (saving fees for externally consigned audits, effect of running environment articles)	28
	Total	**1,723**

Environmental performance effect in Japan

		Main activities	Environmental impact			Environmental performance effect	Assessment
			FY2004	Values corrected in FY2004	FY2005	Value corrected in FY2004, FY2005	
Reduction Categories	INPUT	Energy (tera-joule)	3,612	3,781	5,464	-1,684	×
		Water used (1,000 m³)	3,519	3,683	4,773	-1,090	×
		Chemical substances handled (tons)	147	154	262	-108	×
	OUTPUT	CO_2 emissions (1,000 ton CO_2)	192	201	271	-70	×
		Waste water(1,000m³)	3,069	3,212	3,965	-753	×
		Waste generated (tons)	21,512	22,516	29,968	-7,452	×
		Waste disposed (tons)	191	200	53	147	○
Increased Category		Recycled amount (tons)	8,427	8,820	11,780	-2,960	○

*Values corrected for FY2004 = Environmental impact for FY2004 x Sales for FY2005 / Sales for FY2004 (based on the definition of the Ministry of the Environment)

The benefit indicated by the material base is a factor in environmental accounting. The comparison in yearly changes above excludes any increase/decrease in sales in accordance with the guidelines of the Ministry of the Environment. In FY2005, energy and water consumption unfortunately increased due to the construction of new factories, but the volume of recycled materials made a remarkable increase.

Future environmental accounting

Environmental Accounting is still in the development stage. Pioneer will continue to participate in the Business Study Group for Environmental Accounting sponsored by Japan's Ministry of the Environment, and reflect the results in its in-company guidelines for full utilization as an environmental management index.

Ask the Expert

What is environmental accounting?

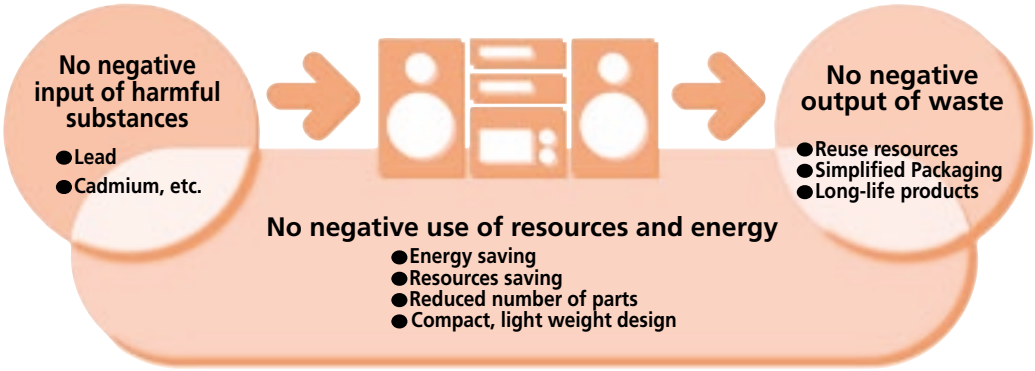
Environmental accounting means identifying the costs and benefits of activities that are good for the environment as a guideline for future activities.
For example, when an incandescent bulb is replaced with an energy-saving fluorescent bulb in a home, the incandescent bulb costs ¥200 against ¥1,000 for the fluorescent bulb, but the electricity saving is ¥1,500 year. Therefore the environmental cost is ¥1,000 - 200 = ¥800 and the benefit is ¥1,500. Thus a cost of ¥800 yielded a saving of ¥1,500.

COLUMN

Realizing Environment-Friendly Products

Pioneer sets "No negative input, No negative output and No negative use" as its activity guidelines for environmental consideration in products.
We have set Pioneer Environmental Label Guidelines for environment-friendly products, and only products meeting the set conditions may bear the Pioneer Environmental Label.
From FY2003, we have instituted the Pioneer Eco Champion Model Support System that assists the development of environment-friendly products.
The Pioneer Eco-Products 3C Action program was newly launched in FY2005 to boost the supporting system.

No negative input, No negative output and *No negative use* concept for product design



Pioneer Environmental Label Guidelines
As of June 2005

The Pioneer Environmental Label reflects images of the Earth, the Environment, and Living in Harmony.

Compulsory Items (Products must meet all items)

1. Conduct the product assessment for environment
2. To facilitate recycling, parts containing 20 grams of resin or more are labeled as such in accordance with ISO standards.
3. Specific brominated flame retardants said to release dioxins during incineration are not used.
4. CFCs, HCFCs and other ozone-depleting substances are not used at all in Pioneer's products or manufacturing processes.
5. All batteries are located so that they can be easily removed.
6. The volume of packaging materials used has been reduced by more than 20% from FY1991 levels.
7. Lead-free solder is introduced.

Optional Items (Products must meet one or more of these items)

1. Standby power consumption is reduced to 0.5 W or less (however, CATV terminals are at 1 W or less).
2. Styrene foam and other resinous packaging materials are not used.
3. Recycled materials are widely used in the products.

Pioneer Eco-Products 3C Action

Pioneer has set up a new in-house program to promote environmental designing of products, which is the "Pioneer Eco-Products 3C (Champion, Challenger, Contest) Action."
This three-part program consists of: (1) the Pioneer Eco Champion Model, which supports flagship products featuring environmentally friendly design in every aspect; (2) the Pioneer Eco Challenger, which supports top-runner products in specific aspects of environmentally friendly design; and (3) the Pioneer Eco-Product Idea Contest, which puts environmentally friendly design ideas gathered from employees into commercialization.

Pioneer Eco Challenger Model HTZ-232DV

DVD 5.1 ch Surround Sound System, created by overcoming the challenge of energy use reduction and downsizing, was designated as a Pioneer Eco Challenger. Its energy-saving features produce a remarkable reduction in energy loss during operation and help reduce environmental impacts during transport because of its compactness.

HTZ-232DV

Example of Pioneer Environmental Labeled Product (2005 model)

CDJ player CDJ-200

This player, capable of DJ playing of CD-R/RW media that records music in MP3 format in addition to CD, has eco-friendly design features, including the use of cardboard-made buffers and lead-free solder.

CDJ-200

Our basic attitude toward research and development is "R&D is the very source of environmental preservation efforts." In line with this basic concept, we introduced an environmental management system and promote R&D activities that take the environment into account. With the life cycle assessment (LCA) method introduced to environmental impact assessment, which is one of our research themes, we are actively engaged in research on improving energy and resource efficiency and the reduction of toxic chemical emissions for a better future environment.

Life Cycle Assessment (LCA) and Product LCA (ProLCA)

Pioneer's LCA Committee analyzes and evaluates environmental impacts and loads imposed by products in accordance with the Pioneer LCA Guideline. Our LCA revealed that audio-visual (AV) products, particularly, have a great impact on the environment because of their standby mode power consumption. We therefore redoubled our effort in reducing standby power consumption.

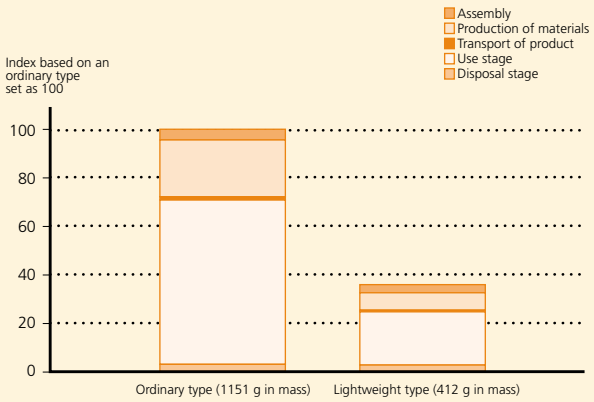
The Pioneer Corporate R&D Laboratories developed a product LCA (ProLCA) to further reduce the time and labor previously spent on LCA. ProLCA puts the evaluation data into a database for online sharing, thereby allowing engineers to casually carry out LCA. It now allows us to create products with the global environment considered as early as the design stage.

LCA of weight saving of an onboard speaker

Speakers designed for vehicles can reduce gasoline consumption if they are made much lighter.

Our lightweight 16 cm speaker was compared with an ordinary speaker of the same size to find that the former reduced CO_2 emission by more than 60% over the latter.

CO_2 emission caused by an onboard speaker



Ask the Expert

What is LCA?

LCA means Life Cycle Assessment, and it is used to evaluate the life of a product. When you take one product, including everything from mining for the raw materials, manufacturing to transporting, use and disposal, the impact on the environment is evaluated. For example, there is a product which consumes a small amount of energy during its manufacturing, but if a large amount of energy is consumed during its use, it will not help reduce environmental impacts at all. LCA analyzes the life of product as a whole and evaluates the impact on the environment.

COLUMN

Topics

Next-generation optical disk created out of corn

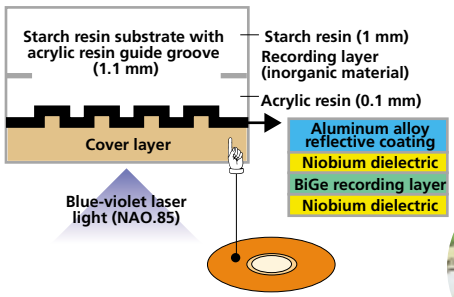
Large-capacity next-generation optical disks have a promising future of greater demand. The Pioneer Corporate R&D Laboratories developed a technology that uses cornstarch to produce the substrate that is most of the mass of an optical disk.

The Laboratories announced the successful development of this unprecedented disk at ISOM 2004 (International Symposium on Optical Memory in 2004) to find a big reaction.

This technology features the use of a plant, a recyclable resource, as the raw material instead of oil, a limited resource, hence is resource-saving. Other environmental impact reduction features of this technology include the biodegradability of the starch resin, which biologically degrades in the ground when buried for disposal, and the fixation of CO_2 in the air by photosynthesis during the growth of corn.

Yasuo Hosoda, development researcher in the Nano Process Research Dept, Pioneer Corporate R&D Laboratories, speaking about the "corn" disk they developed

Structure of the disk (containing 87% plant material)

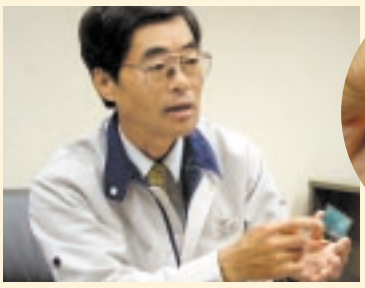


Resin for the substrate part was created totally from cornstarch

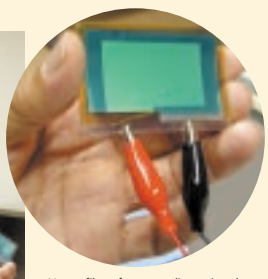
Nata de coco fiber turned into a display substrate

Pioneer, Mitsubishi Chemical and Kyoto University jointly developed a technique to use nata de coco to produce substrates for the organic EL display. Their technology features the extraction of fiber finer than an optical waveform by removing water from nata de coco under pressure. This "nano fiber" has excellent strength and dimensional stability far greater than that of a glass substrate. When infiltrated with resin, the nano fiber becomes transparent enough for use as a display substrate material. The nano-fiber substrate is very thin, less than 1 mm in thickness, light, and even bendable.

Nata de coco is a food produced from fermented coconut milk. Use of such natural material will help us reduce consumption of the limited petroleum reserves.



Masami Tsuchida, Display Device Research Dept., Pioneer Corporate R&D Laboratories, explaining the substrate made from nata de coco fiber



Nano fiber features dimensional stability equal to that of a glass substrate and flexibility equal to that of plastics.

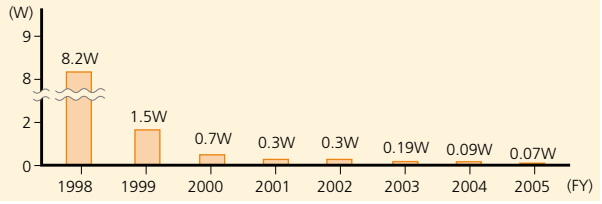
Energy and Resource Saving in Products

Environmentally friendly design (DfE, ECD) is becoming a standard in manufacturing. Pioneer saves energy and resources when designing and manufacturing our products so as to reduce CO_2 emissions, one of the causes of global warming.

Standby power consumption

Standby power consumption is said to be a major element in household power consumption.
Since FY2000, Pioneer has been aiming to design all new products for standby power consumption of 1 W or less, and in FY2005 the weighted average for our household AV products reached 0.32 W.
We are striving to lead the home electrical device world with our self-imposed goals of 1 W for audio systems in FY2004 and 1 W in FY2005 for plasma displays; even more than with the audio systems, we are achieving our plasma display goals. We have also marketed a lot of products consuming less than 0.1W in the standby mode, such as DVD players.

Standby power consumption of DVD players



DV-474-S, featuring an excellent standby power consumption of 0.07W

DVD/MD mini-component system X-HA7DV

Despite its abundance of useful functions, this mini-component system achieved the industry's highest class of standby power consumption, or 0.065W, because of its energy-saving design.

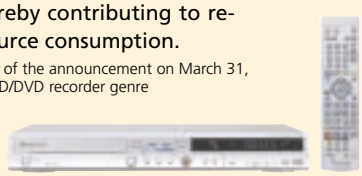
X-HA7DV

Resource saving by double-layer disk structure

DVR-555H-S

Our DVR-555H HDD/DVD recorder is the first* of its kind in the world that can record data into a double-layered DVD-R disk. The double-layered DVD-R disk has a capacity of 8.5 GB, 1.8 times the conventional single-layer disk, and helps reduce the number of disks used to record the image, thereby contributing to reduced resource consumption.

* As of the date of the announcement on March 31, 2005, in the HDD/DVD recorder genre



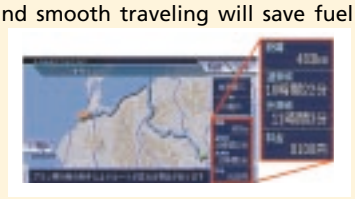
DVR-555H-S

Using Car Navigation to Reduce Environmental impact

【Car Navigation and Prevention of Global Warming】
If you get lost and waste gas driving around for 10 minutes, some 3,500 cc of fuel is used up and 800 grams of CO_2 is exhausted. By using Car Navigation and selecting an efficient route, this kind of waste can be avoided, which is connected to prevention of global warming.

Evolution in congestion prediction, HDD Cyber Navi

HDD Cyber Navi is fitted with an "on-demand VICS" capability that can receive current congestion information on a real-time basis through telecommunications. The fresh information thus obtained and the conventional congestion prediction capability is combined to make a more accurate prediction of congestion and set the fastest detour route. Such efficient and smooth traveling will save fuel consumption, consequently leading to a reduction in global warming gas emissions.



Cyber Navi searching for a route to avoid predicted congestion

Weight saving for car electronics products

In fulfilling our role in proactively reducing automotive exhaust emissions and improving fuel economy, Pioneer is pouring its energies into the reduction in size and weight of its car navigation and car electronics products.

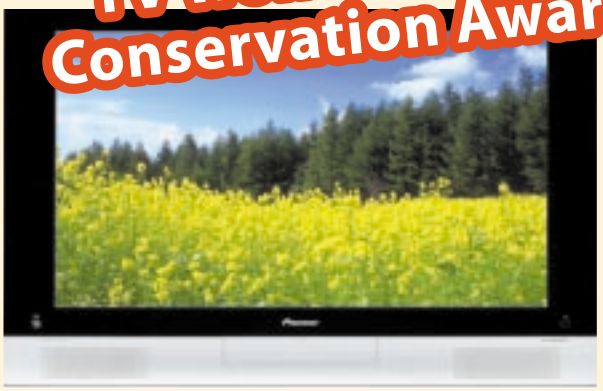
Development of onboard speaker system

Tohoku Pioneer is developing a next-generation onboard speaker system, or seat woofer, that incorporates an unprecedented lightweight design.
A compact sub-woofer unit inside the seat serves as the structural piping of the seat to eliminate the use of a large woofer. Weight and space saving has thus been realized.

Seat woofer under development

TOPICS

High-Definition Plasma TV Won an Energy Conservation Award!



Pioneer's high-definition plasma TV, PDP-435SX, won the Energy Conservation Center Chairman's Prize at the 15th Energy Conservation Awards in 2004. This page outlines the energy- and resource-saving excellence of Pioneer that played a key role in bringing the award to the TV product with a high reputation for the "highest class of energy saving performance."

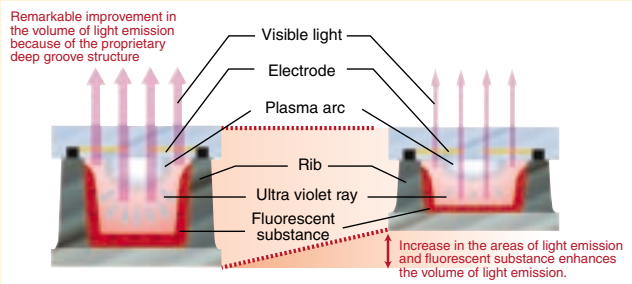
Reason for the Award

Energy Conservation Center Japan (ECCJ) praised our high-definition TV by stating the following:
This product achieved the smallest level power consumption, 306W, for a 43 V plasma TV due to various improvements, including enhanced luminous efficiency of the PDP panel. Such power saving excellence, equal to or better than LCD TV, was the result of many efforts, such as reduction in power loss in the product, reduction in standby power consumption, and the capability of using power depending on the brightness level of the display, which is one of the features of the plasma TV. The awarding of the Chairman's Prize is a logical conclusion, considering it has the highest level of energy saving performance amid the growing social demand for TVs that are smaller in thickness, larger in display size and higher in definition.

"Deep waffle rib structure" satisfying both power consumption reduction and high brightness

Deep Waffle Rib Structure

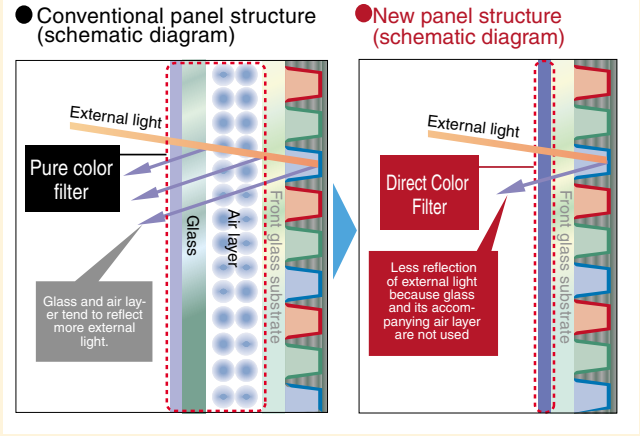
The waffle rib structure is Pioneer's proprietary technique that prevents leakage of light from cells and increases the area of fluorescent substance by surrounding each cell, the minimum luminous unit of the plasma panel, with waffle-like ribs. The advanced version of this is the "deep waffle rib structure", which further increased the area of plasma arc and the area of fluorescent substance to successfully achieve the industry's highest class in both brightness and low-level power consumption for a TV with a high-density and high-definition panel.



Resource and weight saving realized by

Direct Color Filter

Pioneer's "direct color filter" is the world's first* of its kind, achieved by successfully removing glass from the front filter and replacing it with a composite film. This idea allows direct application of the film onto the plasma panel, thereby eliminating the need for the front glass. Its other major features include remarkable improvement in the level of focusing performance, conventionally bothered by multiple reflections of external light and plasma light, prevention of external light reflection, and improvement in the color purity correction capability.
In addition to the thus enhanced beauty of the display, the smallest weight was successfully realized among products with the same display size, which contributes to reduction of the materials used to produce the TV and energy used in manufacturing and transport of the product.
Both high performance and environmental consideration are successfully incorporated in this product.



*For a 50 V and 43 V XGA type plasma TV as of the press release date in May 2004

Fine-tuned energy-saving design

Other technical features, minor but important, that helped PDP-435SX win the prize include reduction in the number of operation circuits, in exothermic loss of components, and in standby power consumption.
The remote control has a direct button that allows the user to turn the energy saving mode on with one push to enjoy energy-saving use of the TV, about 30%* less than in the normal mode. The TV is filled with these fine-tuned design features for energy conservation.

The prize-winning energy saving TV and its developer team

Pioneer is always improving environment-related features of our plasma TV, such as energy and resource saving, since the marketing of the world's first 50V high-definition plasma TV in 1997. We will continue the past effort and yet enhance our technical know-how now that our effort has been rewarded by the winning of the prize.

*The effect changes depending on the image shown on the display.

Energy Conservation Awards

The Energy Conservation Awards, the awards created by the Energy Conservation Center in 1990, are presented to commercial equipment and systems that have excellent energy conservation performance in order to promote development of energy conservation technology.

Reducing Environmentally Hazardous Substances

Pioneer set up the Eco Products Division in November 2003 and had the former Green Procurement committee change its name to the Products Assurance Committee on EHS in order to ensure reduction of environmentally hazardous substances in our products.
In addition, we revised the control standards for Environmentally Hazardous Substances (EHS) to respond, at an early stage, to chemical substance restrictions being promoted in Europe and the rest of the world.

Aiming at No Environmentally Hazardous Substances (EHS)

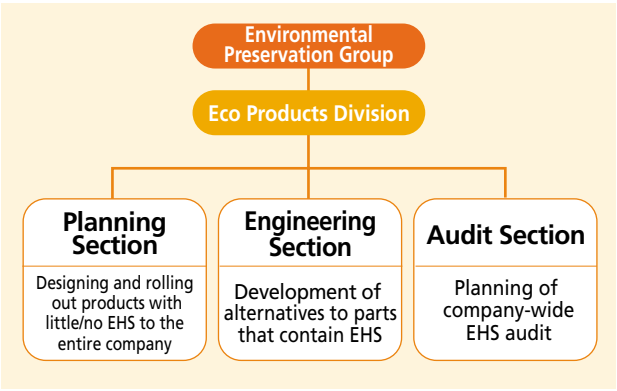
The Eco Products Division, newly established under the existing Environmental Preservation Division, simultaneously with the Environmental Preservation Group, is engaged in various measures to reduce EHS in our products and formulate in-house standards for the reduction or total elimination of EHS or an organizational system to promote such under the following tripartite system:

■Planning Section: planning and promotion of group-wide product EHS activities, including the development of product environmental standards and an EHS information system

■Engineering Section: carrying out and coordination of research on alternatives to EHS-containing products, in cooperation with the design sections, for reduction and elimination of EHS from our products

■ Audit Section: development of EHS audit programs for suppliers, auditor education and training, implementation of internal audits and development of a mechanism to not use EHS in product manufacturing

Amid the movement to reinforce environmental preservation restrictions in various parts of the world, Pioneer is active in reducing EHS to zero in all the products of the group, with a highly enhanced level of environmental consciousness.



Designating Seven Important Substances For Complete Elimination

Pioneer policy gives the highest priority to efforts in eliminating the following seven substances completely.

■Cadmium ■Mercury ■Lead
■Short-chain paraffin chloride
■Hexavalent Chromium
■PBBs* ■PBDEs*

*PBBs, PBDEs are abbreviations for specific bromated flame retardants

Standardization across Industry and EHS Control Standards

Pioneer actively participates as an organizer company in the Japan Green Procurement Survey Standardization Initiative (JGPSSI) for the electric and electronics industries. Pioneer issued an Environmentally Hazardous Substances Standard in line with the guideline formulated in the JGPSSI. In it, we also stipulated the deadline for completely abolishing EHS in the parts from our suppliers.

Using a fluorescent X-ray analyzer to reduce EHS in products

Green procurement is one of the ways to not allow input of hazardous substances in products. Use of a fluorescent X-ray analyzer is another way to check components for the presence of EHS. These devices are being installed at various sites of the group.

The credibility of EHS content is enhanced by double-checking: use of the information provided by suppliers on EHS contained in products and in-house analysis of EHS in products by using the device.

Using a fluorescent X-ray analyzer for detailed examination of hazardous content in products

TOPICS

Opening House Supporting suppliers with EHS analysis

The Kawagoe Plant set up an Open House in which a fluorescent X-ray analyzer is installed to measure EHS in products or their components. Since its establishment in April 2003, the plant has been using this analyzer to measure the EHS content of all newly adopted components (components for testing). Since the analyzer is expensive and requires running costs after installation, it is difficult for small suppliers to do the same analysis and inspection because of the large cost burden.

Aware of the need for combined efforts with suppliers and other cooperating companies in EHS reduction, Pioneer utilizes the newly established Open House at the Kawagoe Plant to provide the analyzer, the lab, and knowhow to small suppliers for free to help them considerably reduce their own costs for EHS analysis and inspection.

Analysis lab where EHS analysis is conducted

Green Procurement

Pioneer discloses the Green Procurement Standards to suppliers for evaluation based on the "Green Score," the comprehensive system for the scores awarded to each of them.

Reinforcing EHS management by using Green Procurement Standards

Pioneer discloses the Green Procurement Standards to our suppliers. Focusing on the management of environmentally hazardous substances, the Standards serve as a guideline to suppliers.

Green Procurement Standards

Evaluating "environmental preservation activities" of suppliers

Pioneer evaluates suppliers from two viewpoints: environmental management system and EHS management. It awards a "Green Score" to each supplier based on the evaluation results in order for us to be able to judge whether or not to deal with suppliers.

■Pioneer's supplier environmental judgment (Green Score)
A rank: suitable
B rank: almost suitable
D rank: improvement needed

Pioneer aims at increasing the suppliers recognized with an A rank score. As the day is soon coming when compliance with Europe's RoHS[1] is officially required, we urgently needed to ensure strict management and therefore shifted the basis of evaluation to "ensuring environmental compliance[2]" of procured components. We thus re-examined the targets of green procurement and started working on it under the new standard of "High Green Score Rate[3]" in FY2006.

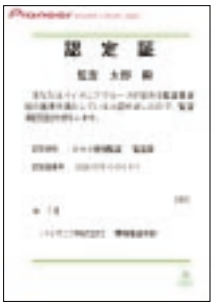
Explanatory meetings held on green procurement in Dongguan and Shanghai

The explanatory meetings on green procurement were held in Dongguan and Shanghai for suppliers in China.
Some 190 suppliers participated in the briefing session held in Dongguan in May. Some 160 participated in the one in Shanghai.
As the number of these meetings increases, more and more suppliers become seriously conscious of environmental considerations and attentively listen to our briefings. These two meetings also saw many participants ardently asking questions.

Chinese manufacturers show greater interest in environmental compliance year by year.

EHS management audit by qualified auditors

Pioneer carries out EHS management audits of suppliers. Auditors are required to have the capability of carrying out proper audits as well as the leadership to realize improvement in cooperation with the audited suppliers. We thus have in place an auditor certification system in which only those who learned the special knowledge on EHS and passed the certification test can conduct audits.
In FY2005, the auditor training program was held six times (three in Japan and three outside Japan) to certify auditors as part of the effort to build a reliable auditing system. Pioneer intends to continue this system to improve auditor capability for better and more accurate EHS management auditing.



EHS management auditor certificate

Auditor training in Dongguan, China

Green Procurement and Green Purchasing

Pioneer tackles green procurement and green purchasing separately.

■Green procurement
Procurement of parts and materials for making our products, which gives priority to the purchase of environmentally friendly supplies from companies who are active in environmental conservation.

■Green purchasing
Giving priority to environmentally friendly products when buying products that are not directly related to production of our products, such as office supplies, vehicles, etc.

* RoHS Directive
RoHS stands for Restriction of Hazardous Substances. It is the directive that prohibits use of the following six substances in any electric or electronics products handled in the EU on and after July 1, 2006: lead, mercury, cadmium, hexavalent chromium, PBB (polybrominated biphenyl) and PBDE (polybrominated diphenyl ether)

* Compliance: to keep laws, regulations and other codes and norms
* High Green Score Rate: the percentage of Rank A and B scores

Reducing Environmentally Hazardous Substances in Products

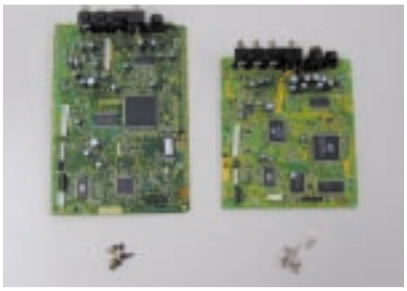
RoHS-compliant DVD player

Our work on product design and development in compliance with EU's RoHS Directive is smoothly ongoing.
The RoHS Directive spells out the total prohibition of six specified substances and bans the sale of products that contain any of these substances on and after July 1. 2006. The Tokorozawa Plant did not postpone the in-house process to comply with this directive in designing and developing compliant products and successfully mass-produced the first RoHS-compliant product, the DV-474-S DVD player, in March 2004.

DV-474-S

This success involved the total disassembly of the product's 2003 model into pieces; a detailed and careful inspection of every and each component for any of the specified substances, at quite a lot of time and labor; demanding improvement from component manufacturers and suppliers to eliminate any of the specified substances contained, based on the inspection results; elimination of lead from the solder used in the process of main substrate units; elimination of hexavalent chromium from screws; elimination of lead from cables; and use of alternatives to PVC sleeves in electrolytic capacitors. Such a complete review and improvement of the 2004 model finally resulted in creation of the eco-friendly version of the DVD player.

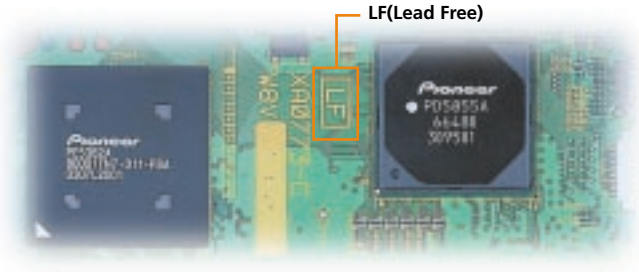
DV-474-S on display at Eco Products 2004



Main substrate unit and screws using no lead or hexavalent chromium (right) and the conventional items (left)

Lead-free solder introduced on all new products

Lead is a substance that has adverse effects on people and the environment when it is disposed of. For this reason, calls to ban the use of lead are becoming louder around the world. For example, the European Union (EU) is planning to ban its use and that of other harmful substances in home electrical products by July 2006.



A Lead-free Soldered Board

To cope with these situations, Pioneer started using lead-free solder in all newly launched products.
Pioneer started using lead-free solder in 1998. Since then we have expanded its adoption to a variety of products, starting with AV products like plasma displays and DVD players, and including car electronics products, CATV terminals, DVD writers, cordless answering phones, etc.

Signboard attached to equipment and devices using lead-free solder, used at various plants in the world

The Lead-free Solder Logo

Lead-free Solder Use—100%

Plasma TV (PDP-435SX)

Lead-free Solder Use—100%

Car audio system (DEH-010)

Lead-free Solder Use—99%

Cordless answering phone (TF-AD1500)

Lead-free Solder Use—100%

DVD-RW writer (DVR-109)

Product Recycling

Product recycling is one of the most important elements of environmental preservation. Pioneer is engaged in a range of recycling activities, based on the theme of "No negative output."

Supporting afforestation with pure-malt speakers

The "pure-malt" speaker is made of casks retired from their 50-year duty of maturing whisky. This is not just a recycled product; it can create "warm and soft sound" that cannot be reproduced by new material fresh from felling. A third collaboration with liquor manufacturer Suntory, S-A4 Spirit Puremalt is now on sale.
Pioneer donates part of the sales to the Green Fund of the National Land Afforestation Promotion Organization to support creation of a richly wooded land in the future.

The Green Fund symbol

Puremalt speaker S-A4SPT-PM

Packaging materials

Pioneer is working to make maximum use of pulp moldings and corrugated cardboard from recycled paper as shock-absorbent materials. All new car electronics products are packed in such materials.

Car Audio Products are packaged only in cardboard, making it easy to recycle.

Packaging using molded pulp as shock absorbent material

Results of Product Recycling (Japan)

Pioneer CRT TVs with built-in tuners are subject to the appliance recycling law.
We collected 2,582 sets in FY2005 and had a recycling rate of 86%.

Recycling performance in FY2005

Number of TV Sets Taken in	2,582
Number of TV Sets Recycled	2,58374 tons
Weight of Recycled TV Sets	68 tons
Weight of Recycled Materials	59 tons
Recycling Rate	86%

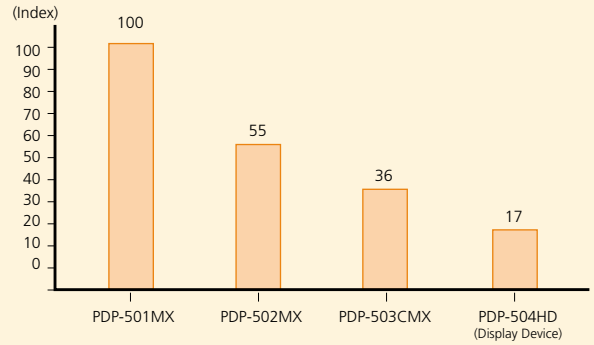
Recycling Rechargeable Batteries (Japan)

Pioneer uses small rechargeable batteries in our products, such as cordless phones and the like. In the interest of not using limited resources carelessly, we became affiliated with the Japan Battery Recycling Center, JBRC (formerly: Small, Rechargeable Battery Resource Recycling Promotion Center). We are proactive in our commitment to collect and recycle small rechargeable batteries.

Reduced disassembly time

We are working to reduce the time taken to disassemble our products as a way to facilitate recycling.
For large plasma displays, we have reduced the disassembly time to 17% compared to first-generation models.

Plasma display disassembly time



Ask the Expert

DfE and ECD

Have you heard the acronyms "DfE (Design for Environment)" or "ECD (Environmentally Conscious Design)?" In short, these concepts represent a product design approach that reduces environmental impacts through the total life cycle of a product.
In other words, it involves the basic energy-saving features, such as the use of less harmful materials in producing the product itself or of energy saving capabilities, as well as a comprehensive design approach that considers minimization of environmental loads in all stages of a product life cycle, from production, transport, and recycling to disposal.

COLUMN

Environmental Preservation at Pioneer Facilities

Pioneer is strengthening its efforts to reduce environmental impact at all its manufacturing facilities in Japan and overseas.
We are also continually working towards CO_2 reduction, zero emissions of waste and the promotion of recycling and other activities in the manufacturing process, under the slogan "No negative input, No negative output, No negative use."

No negative input, No negative output and *No negative use* Activities in Facilities

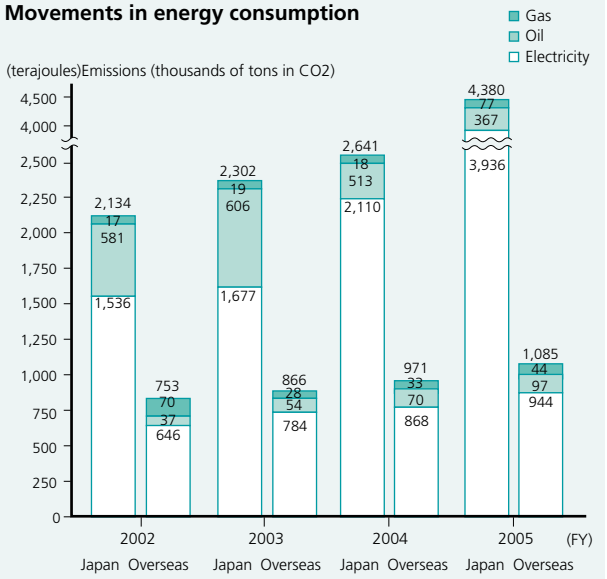
Energy Saving

Reduction in greenhouse gas emissions

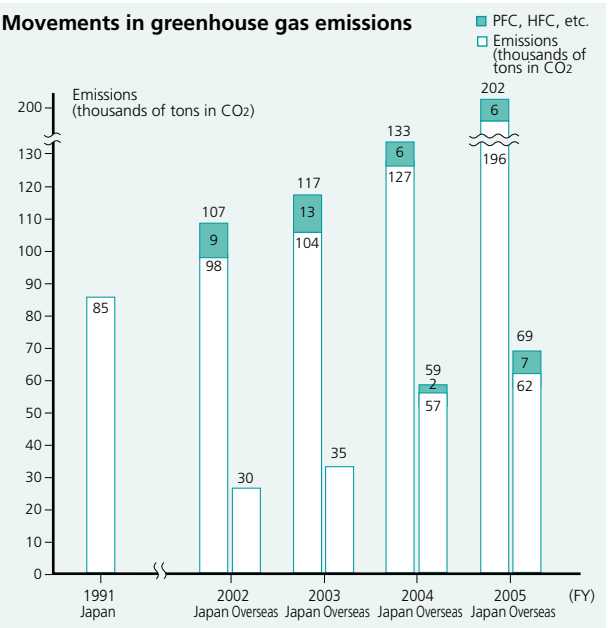
Taking measures against global warming means a lot to Pioneer. We are not only reducing CO_2 emissions from energy consumption, but also reducing the emissions of any substance that ultimately contributes to the global warming effect. To this end, as we need to know how much these other substances contribute to global warming, we convert the emissions of harmful substances such as PFC and HFC into CO_2 for consistent measurement. We, Pioneer Corp. alone, reduced our emissions of global warming substances by 13% from FY1991 levels, but the total emissions from the group in Japan are increasing because of the growth of new business such as plasma displays or organic EL. In addition, a large jump in the FY2005 emissions resulted from an increase in the number of facilities due to merging with other businesses.
We are now working on fulfilling the Japanese electric and electronic industry's voluntary target, or reduction of CO_2 emissions in the basic unit for net production by 25% from the 1990 level by 2010, as Pioneer's own target.
The FY2005 result of Pioneer's effort in this respect is a 25% reduction in the basic unit for net production from the FY1991 level. We intend to further decrease the emissions in line with the industry's standard by taking various actions, including the installation of energy saving equipment. Our efforts are also directed toward creating electrically efficient products that customers buy and use to reduce CO_2 emissions from electricity consumption.

Consumer Benefit refer to page 14

Movements in energy consumption



Movements in greenhouse gas emissions



* Change from Environmental Report 2004
The Power to CO_2 conversion factor used above is the updated one announced by the Federation of Electric Power Companies of Japan.
Since the factor for FY2005 is yet to be announced, the FY2004 factor is used instead.
For other conversion factors, those shown in the Ministry of the Environment's Guideline on the Calculation Method for Greenhouse Effect Gas Emissions from Businesses were used.

NAS batteries introduced in DPC Yamanashi Plant

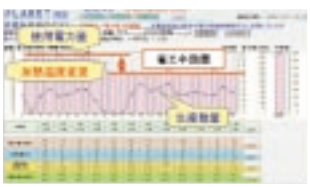
Pioneer Display Products Corp. ("DPC") introduced NAS batteries in its Yamanashi Plant simultaneously with completion of its fourth line in September 2004. NAS batteries store electricity by the chemical reaction of sodium and sulphur.
Since the batteries can store electricity during the night and use it during the day, power consumption that was formerly concentrated in the daytime has now been leveled to eventually decrease environmental impacts. Electric power stored during the night is made available for emergency use and may serve as a highly reliable non-interruptive power supply unit.
DPC originally used diesel engines for standby power generation in cases of emergency, but compared with that system, the new battery system can save some 20,000 tons of CO_2 per year.
Another advantage of the NAS battery is its small size, which requires a smaller area for installation. DPC now places more emphasis on greening of the plant's compound.

NAS battery

DPC Yamanashi Plant

Using the production equipment basic unit management system to promote energy saving activities

Pioneer Plasma Display Corp. (PPD) established a management system using the production equipment energy consumption for a basic unit. PPD makes it available for access on the in-house intranet (PLANET WEB) to promote substantial energy savings.
The system graphically indicates the product input volume and power consumption per hour and allows the employees to learn the power consumption when no products were input (or fixed power consumption). As the information is available on the intranet for sharing, the employees can fine-tune energy conservation measures for their production equipment based on the analysis of both variable and fixed power consumption.
Improvement of the unit power consumption (power consumed in producing one product) will totally make a great contribution to energy conservation.

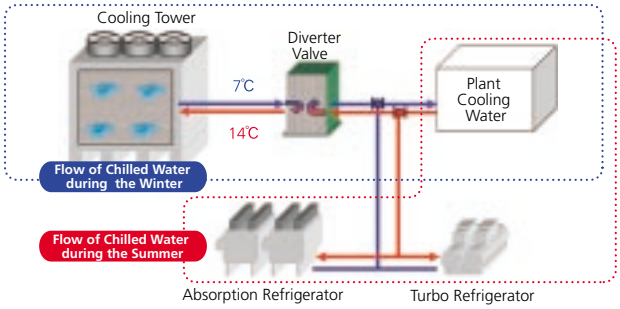


PLANET WEB window

The Kagoshima Plant at PPD head office

Free Cooling with Natural Energy

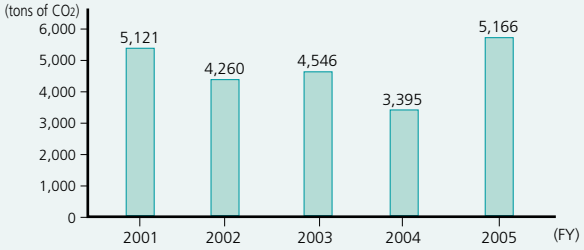
Tohoku Pioneer's Yonezawa Plant, located in the Tohoku area known for its heavy snowfall in winter, makes effective use of its own climatic characteristics. They use a free cooling system that applies natural energy to the production of chilled water. Absorption freezers or a turbo freezer conventionally produces the chilled water used as the coolant in the air-conditioners or production equipment. With the introduction of the free cooling system, they do not need to operate these freezers in winter, and have eventually achieved a reduction of 388 tons of CO_2 in FY2005.



Reduction in emissions of gases other than CO_2 that are specified by the Kyoto Protocol

The effort in reducing CO_2 is our standard effort. We are also trying to reduce greenhouse gas emissions other than CO_2, including PFC and HFC, specified by the Kyoto Protocol.
The emissions in FY2005 unfortunately increased over the previous year because of the contribution from increased production of semiconductors and other products.
What we will have to do in the future is to come up with a new system that can cope with production increases, such as the use of alternative materials.

Emissions of gases other than CO_2 that are specified by the Kyoto Protocol (converted to CO_2) (in Japan)



Ask the Expert

What are PFCs and HFCs?

PFCs and HFCs are alternative chlorofluorocarbons, and as they do not contain chlorine or damage the ozone layer, they are used for cleaning parts and as a refrigerant in air conditioners. However, some produce a green house effect thousands of times worse than that of CO_2. These substances are listed in the Kyoto Protocol and the Law concerning the Promotion of Measures to Cope with Global Warming as those required to be decreased. We are therefore obligated to reduce them.

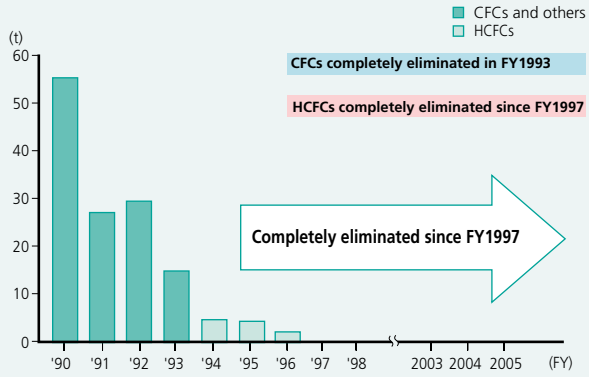
COLUMN

Protection of the Ozone Layer and PRTR

Elimination of Ozone Layer Damaging Substances Completed

Back in 1992, Pioneer completely eliminated specified chlorofluorocarbons, which have a high coefficient in damaging the ozone layer and which were banned in 1995 according to international regulations, from the production processes of all group companies. In addition, we completely eliminated the alternatives to chlorofluorocarbons such as HCFCs, which destroy the ozone layer, from the production processes for our products in 1996, prior to 2020, as stipulated in international regulations, by switching to cleaning with alcohol or no cleaning.

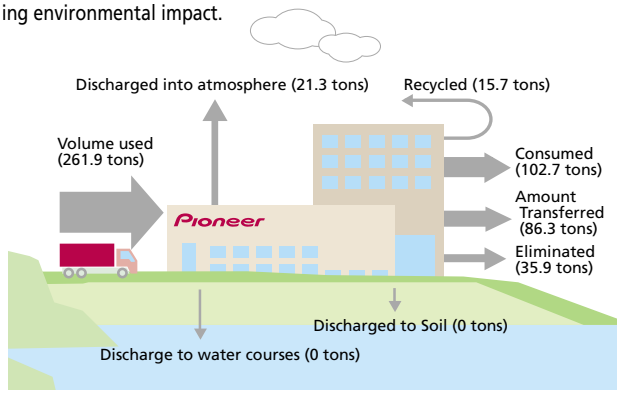
Trends in the use of ozone-depleting chemicals



Management Under PRTR

In line with the PRTR (Pollutant Release and Transfer Register) protocol, we started reporting the discharge of chemical substances into the environment to the state for our business records in FY2002. As the volume we handled according to our business recorders in FY2005 was one ton/year or more at Pioneer, (List of Class I Designated Chemical Substances), the nine substances shown in table below were subject to reporting.

Compared with the previous year, the number of substances handled in annual amounts of over 1 ton increased from 8 to 9 due to the merging of businesses and the increased production of plasma displays, but despite the 78% increase in the amount of those substances, their contribution to emissions decreased by 38%. In the future we will go on raising the level of our environmental risk management and reducing environmental impact.



Ask the Expert

What is Amount Transferred in PRTR?

Amount transferred refers to the amount of waste hauled to a disposal company, or the amount treated in the sewage system.

The amount eliminated means the amount of subject substances which were changed into other safe substances via neutralization and decomposition.

Amount consumed refers to the amount transformed to other substances by reaction, consumed as products or shipped out.

COLUMN

Results of survey of PRTR-controlled substances (Japan)

Substance	No. of facilities	Volume used (tons)	Discharged into atmosphere (tons)	Amount transferred			Consumed (tons)	Eliminated (tons)	Recycled (tons)
				Amount transferred as waste (tons)	Amount transferred to sewers (tons)	Total (tons)			
2-amino ethanol	3	44.6	0	0	14.3	14.3	0	27.8	2.5
Ethylene glycol	6	19.1	0	1.1	0	1.1	5.4	0	12.6
Chromium and trivalent chromium compounds	3	2.2	0	0.7	0	0.7	1.5	0	0
Toluene	5	21.6	20.7	0.6	0	0.6	0.3	0	0
Lead and its compounds	10	157.3	0	66.9	0	66.9	89.9	0	0.5
Nickel	3	1.9	0	1.6	0	1.6	0.3	0	0
n-butyl phthalate	6	1.6	0.6	0	0	0	0	1.0	0
Hydrogen fluoride and its water-soluble salts	1	7.0	0	0	0	0	0	7.0	0
Boron and its compounds	4	6.6	0	1.1	0	1.1	5.3	0.1	0.1
Total		**261.9**	**21.3**	**72.0**	**14.3**	**86.3**	**102.7**	**35.9**	**15.7**

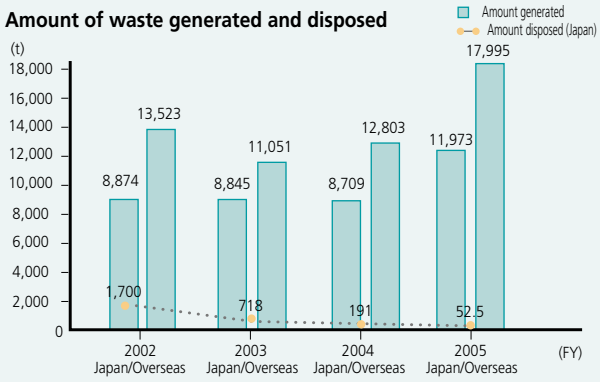
Recycling at Facilities

Pioneer is working towards the goal of zero emissions of waste at our production facilities worldwide.

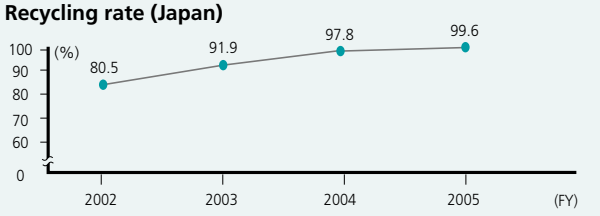
Towards Zero Emissions of Waste

The waste generated in FY2005 increased by 37% in Japan and by 41% outside Japan from the previous year due to the merging of businesses or increased production of plasma displays. The amount of waste sent to landfill in Japan, however, achieved a 73% reduction, with the recycling rate improved to 99.6%.
Tohoku Pioneer, Pioneer Communications, Pioneer Service Network Corp. (WPC), and Towada Electronics Corp. achieved zero emission of waste in FY2005. With their success, the number of facilities achieving zero emission increased to 17 with the eventual rise in recycling ratio. There is only one new facility left until all production facilities in Japan become zero-emission achievers.

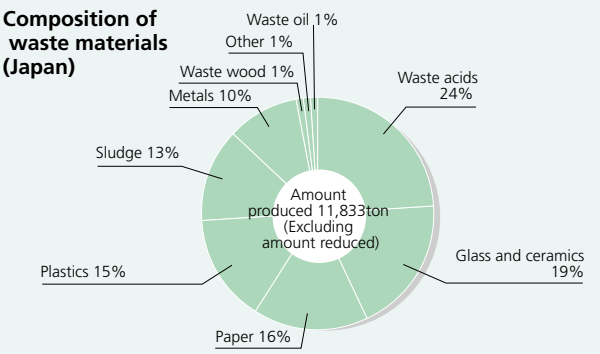
Amount of waste generated and disposed



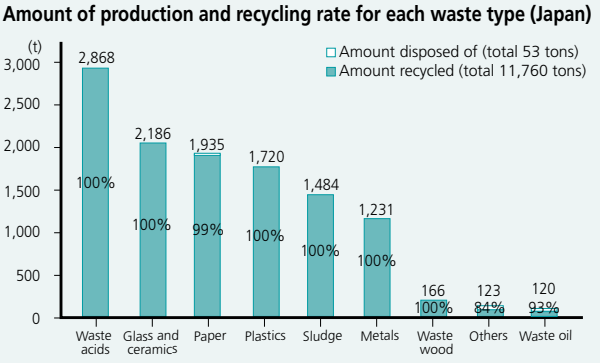
Recycling rate (Japan)



Composition of waste materials (Japan)



Amount of production and recycling rate for each waste type (Japan)



Pioneer Precision Machinery and Towada Electronics won the 3R* Promotion Council Chairman's Prize

Pioneer Precision Machinery Corp. and Towada Electronics Corp. were awarded 3R Promotion Council Chairman's Prizes in the 2004 3R Promotion Contributors' Awards sponsored by the 3R Promotion Council.
Both facilities were awarded for their great improvement in recycling ratio as a result of their aggressive promotion of "reuse, reduce, and recycle" activities toward zero emission of wastes.

*3R stands for "reuse, reduce and recycle."

Mr. Shimoyama of Towada Electronics and Mr. Morita of Pioneer Precision Machinery at the awards ceremony; 3R promotion activities of both facilities were highly acclaimed, with Pioneer Precision Machinery having achieved the zero emission target.

MPT (Malaysia) promotes Recycling Day Drive

Malaysian corporation Pioneer Technology (MALAYSIA) Sdn.Bhd. (MPT) carries out a Recycling Day campaign three times a year to lift their employees' awareness of environmental preservation. MPT works closely with local waste management contractors in trying to establish the recycling activity as part of the corporate culture.

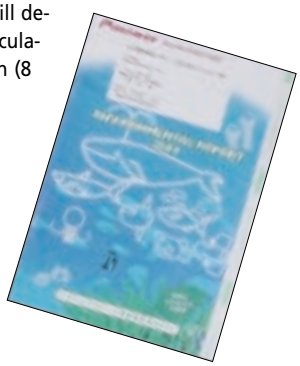
MPT employees with a Recycle Day Drive banner

Cooperation with a local recycling contractor

Eco-conscious Mailing

We mail our Environmental Reports to our stakeholders in a resource-saving and recyclable manner. To be specific, we use the Eco-Mail service, which allows mailing of a document with just tape and a label, and Pioneer's own recyclable A4 in-house envelopes.
Starting from the FY2006 issue, we will decrease the number of copies for circulation and instead issue a digest version (8 pages) to save paper.

With the top half cut off, these A4 envelopes can be reused as standard-size envelopes.



Seal pasted onto the front page is easily removable.

Zero emission of waste: Pioneer's definition of this drive is to recycle over 99% of wastes generated from our facilities to bring landfill disposal to almost zero.

Countermeasures for Water/Soil Pollution

Conservation of water resources

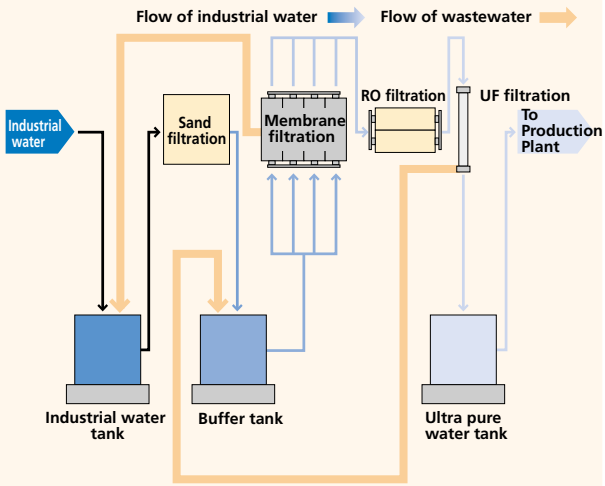
Reducing Wastewater

Pioneer began gathering data on water resource usage in the Group in FY1998, and started doing the same for wastewater volume in FY2001. The amount of wastewater remarkably increased in FY2005 due to the merging of business and the increased production of plasma displays, but we doubled our efforts to reduce wastewater by continuously carrying out water-saving measures, including reuse of wastewater.

Wastewater reuse

Production of organic EL, semiconductors and plasma displays requires pure water. Pure water is created by passing raw industrial water through various filters. Wastewater is generated when the water passes through filters, but it is recovered and reused as industrial water supply. In FY2005 we reused 432,000 m³ in this way.

Examples of Reusing Wastewater



Effective Use of Groundwater (Well Water)

As part of our effort to effectively use limited resources, we are reducing the consumption of groundwater (well water) used in semiconductor production by taking various measures. For example, we shortened the reserve washing process used to prevent clogging of the filtering device and reuse part of the well water used as cooling water.

Well water filtering device

Thorough water quality management

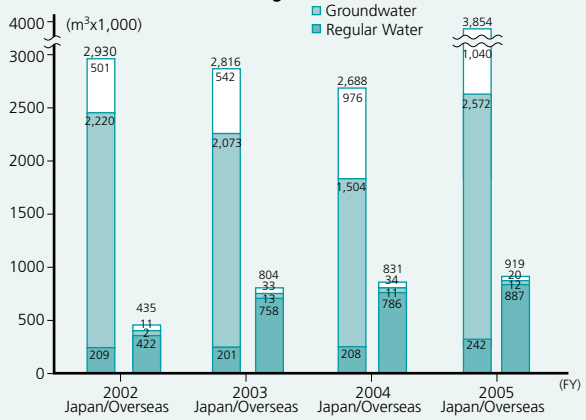
Pioneer has set voluntary water quality standards that are stricter than those set by Japanese law, and the whole group pursues painstaking water quality management (see table below).

Example of water quality measurement results (Pioneer Micro Technology)

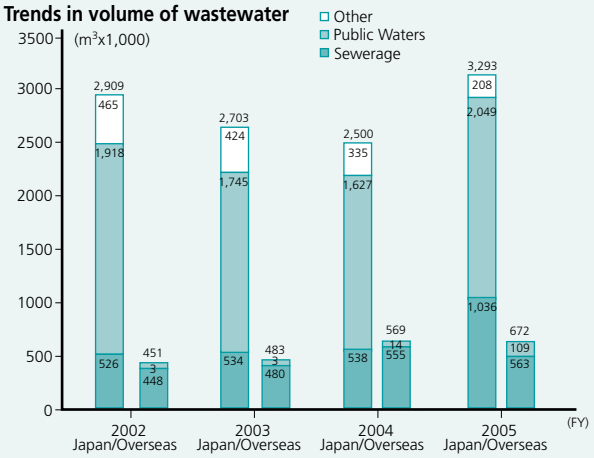
	Legal standard	Pioneer's Standard	Measured value	Measurement frequency
BOD	30	6	2.8	4 times/yr.
SS	50	5	0.5	4 times/yr.
n-hexane extracts	5	0.6	0.5	4 times/yr.

BOD: Biochemical Oxygen Demand (mg/l)
SS: Suspended solids (mg/l)
n-hexane extracts (general name for oils) (mg/l)

Trends in volumes of water usage



Trends in volume of wastewater



Measures against groundwater and soil contamination

Since FY1999, Pioneer has conducted surveys of soil/groundwater pollution for each production facility, and at facilities where pollution is suspected, detailed surveys, such as borings, were conducted to confirm that no problems existed. Further, a survey is conducted at non-production facilities when obtaining ISO certification.
Since FY2005, standard values have been met at all the measurement points.

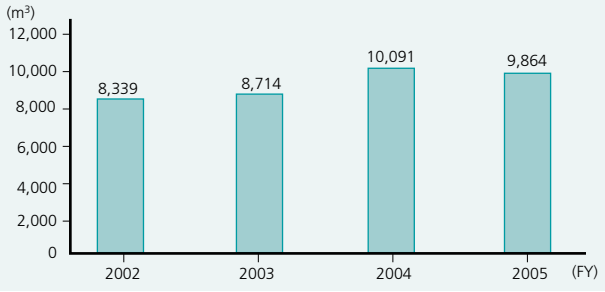
Logistical initiatives

Pioneer understands that improving the efficiency of product transportation is an important element in environmental conservation. Therefore, we are merging and relocating our logistical centers and eliminating distribution steps in a review of our transportation methods.

Modal shift

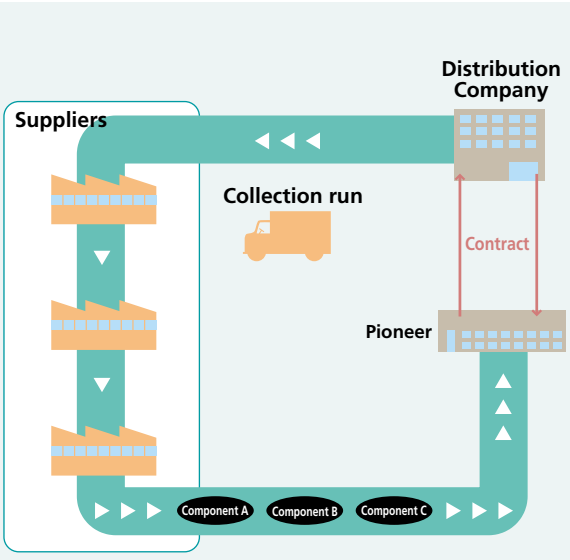
Modal shift is shifting the means of transport to railroad or marine transport. Pioneer has been promoting a modal shift for many years now. In FY2005, the volume of cargo handled by railroad or marine transport was unfortunately reduced to 98% of that for the previous year. This is because the number of small-quantity items and the frequency of transport increased and we had to shift from railroad container transport to break-bulk trucking for some of the cargo. We will plan to promote a modal shift at new distribution sites and use transport by rail or sea for major routes as much as possible.

Trends in modal shift (Japan)



Milk run development

Pioneer uses milk runs to improve transport efficiency from parts suppliers and shorten the transport distance. This year, the number of parts suppliers incorporated into the milk run system decreased from 30 to 25, but we successfully reduced the cumulative traveling distance for 2- and 4-ton trucks by 145,207 km. This equals the saving of some 28,379 liters of fuel, which is a reduction of 83 tons in CO_2.



Environmentally Friendly Sales Promotions

Pioneer is carrying out environmental preservation activities as part of our own business activities. Take an audio-visual product catalog, for instance. It does not simply introduce our products for sales promotion but also outlines how we act for environmental preservation. In this sense, these catalogs are a publicity tool for our environmental actions.

Environmental preservation activities described on the back cover of the catalog

Green Purchasing

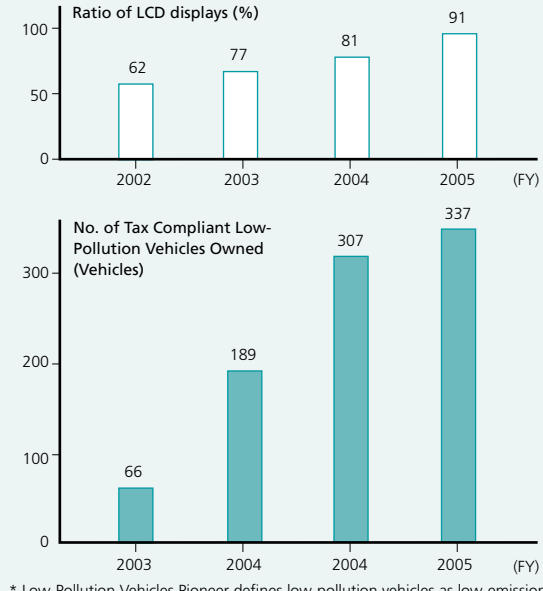
Each division of the entire Pioneer Group is pushing hard for green purchasing, in conjunction with the Green Purchasing Standards we laid down internally. In particular, we are putting energy into switching from CRT monitors to LCD, and switching our company cars to low-pollution vehicles.

Paper usage decreased by 93% from the previous year.

Out of 9 items assigned a "100% Green Purchasing Target," 100% green purchasing was achieved for 5 items. We are still pushing hard to increase the number of target items and reach 100% green purchasing.

There are ten green purchasing items: stationery, OA paper, copying machines, printers, faxes, toilet tissue, PCs, office furniture, uniforms and vehicles. 9 items, excepting stationery, are designated a "100% Green Purchasing Target".

Progress in green purchasing (Japan)



* Low-Pollution Vehicles Pioneer defines low-pollution vehicles as low-emission gas vehicles and vehicles with a high mpg in Japan.

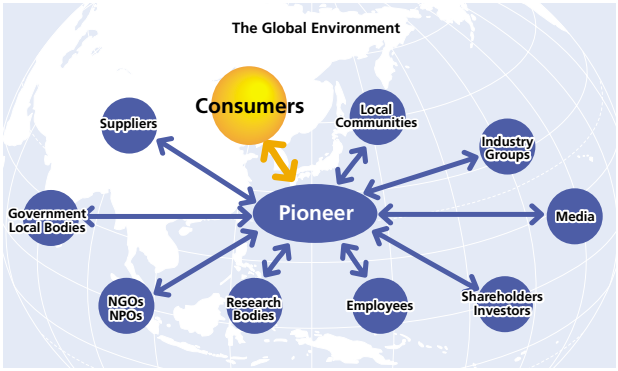
Social Reporting

Pioneer takes it as our duty to stay a leader in the creation of new markets, continue preservation and improvement of the global environment as a responsible "good corporate citizen," and maintain a high level of ethics as a member of local as well as international society. We believe that the Pioneer Group concept of "Move the heart, touch the soul" will be realized through that attitude.

Linked Together with Various Stakeholders

This illustration shows the role Pioneer should play for preservation of the global environment through our relations with a variety of our stakeholders.

HP For social reports that are not related to the environment, see the "Corporate Citizen" page of our Web site:
http://www.pioneer.co.jp/citizen/index-e.html



Social Activities to Preserve the Environment

Domestic facilities involved in the Zero Garbage move

At its domestic facilities, Pioneer cleans the surroundings and commuting roads on a periodic basis. In June, the Environmental Month, more than 1,000 employees joined cleanup operations at 9 facilities in Japan. Many other facilities do their own part in the zero-garbage drive for local communities.
The Zero-Garbage drive helps improve the eco-consciousness of our employees as well as it helps deepen our environmental communication with local customers.


Pioneer Display Products Yamanashi Plant


Pioneer Micro Technology, Kofu, Japan


Tohoku Pioneer Yonezawa Plant


President Ito active in garbage collection, Pioneer head office in Meguro, Tokyo


Tokorozawa Plant


Kawagoe Plant


Omori Plant


Pioneer Corporate R&D Laboratories

Zero Garbage drive overseas

Taiwan's Pioneer Electronics (TAIWAN) Corp. (PTW) gathered 36 kg of garbage after their annual cleanup of the surrounding area in September 2004. This year PTW plans to do the same thing two times.
Chinese local corporation Dongguan Monetech Electronic Co., Ltd. (MND) launched their own zero-garbage drive for cleanup of the area around the plant in July 2004.


PTW employees engaged in cleanup; they received thanks from the local shop owners


MND employees cleaning up the road along Pioneer Street

Pioneer Corporate R&D Laboratories joined a major cleanup operation for the Iimori River

A major cleanup operation for the Iimori River, Tsurugashima City, Saitama Prefecture, was held in April 2004, sponsored by the Satoyama Support Club. Participants included the mayor of Tsurugashima, city office staff, gardening unions, local NPOs and the members of the Laboratories.

Over 100 people participated in the operation on a sunny Sunday.

PPD joined the Furusato Izumi Cleanup Operation

Pioneer Plasma Display Corp. (PPD) joins the Furusato Izumi Cleanup Operation every year. 57 members of PPD, more than last year, participated in a cleanup of the Fukunoe bathing beach in July 2004.

The participants included many families.

Towada Electronics carried out the Oirase Stream Cleanup Operation

Towada Electronics Corp. carried out a cleanup of the Oirase mountain stream in October 2004, with many employees enthusiastically picking up refuse in the mountain river as well as on the nearby roads. The Oirase River is the only stream flowing out of Lake Towada, and one of the important tourist spots of the local area. They intend to continue this drive to promote environmental preservation and local tourism.

72 joined the operation and picked up 10.5 kg of refuse, including empty cans, PET bottles and wastepaper.

Donation to WWF Japan

Pioneer Group sells small rechargeable batteries collected group-wide to recycling contractors and donates the proceeds to the World Wildlife Fund, Japan every year.

Pioneer Forest born near Lake Kamakita, Saitama

Pioneer decided to join the Saitama Prefecture Agricultural and Forestry Public Corporation's afforestation movement by offering the use of its own wooded lot, named Pioneer Forest, near Lake Kamakita, Saitama Prefecture, for afforestation promotion activities.
Pioneer signed an agreement with the said public corporation in March 2005 on the details of cooperation.
Covering an area of 2.4 hectares, Pioneer Forest is a lot afforested with 8-year-old cypress trees. We provide the financial aid necessary for the maintenance of the forest, such as the cutting of unnecessary twigs, branches and trees, and offer other forms of cooperation, including afforestation activities by Pioneer employees, to promote various uses of forests under the guidance of the public corporation.

Signatories shaking hands upon agreement

Pioneer Forest near Lake Kamakita, Saitama Prefecture

Pioneer Corporate R&D Laboratories staff experienced voluntary afforestation activity

The Tsurugashima Satoyama Support Club held a "Beginners' Afforestation Volunteering Program" at the request of the Tsurugashima City Social Welfare Council. The program included training in how to maintain the woods, safely carry out afforestation work, and produce fancy goods out of the thinned wood. Laboratories staff also joined the program to get hands-on experience in afforestation activities.

Participants engaged in the actual work of brush cutting after receiving the training

MPT active in local cleaning

Malaysian corporation Pioneer Technology (MALAYSIA) Sdn.Bhd(MPT) carried out a cleanup and landscape beautification program in cooperation with the local government and local waste disposal contractors in March 2004. 153 members of MPT joined the campaign to clean drainage gutters and plant trees for landscape beautification.

Participants planted 153 trees along the road.

MPT employees cleaning a drainage gutter

Environmental Education and Environmental Communication

Selections for Pioneer Environmental Contribution Award and Environmental Patent Award

Pioneer honors the excellent environmental contributions of Pioneer facilities, groups and individuals with the Pioneer Environmental Contribution Award. In addition, patents judged to make particularly great contributions to environmental betterment are honored with the Environmental Patent Award.
51 applicants were screened for the FY2005 Environmental Contribution Award, and the following were selected as winners.
Pioneer Service Network (PSN) won the Grand Prize in the facility and affiliate division; the staff of Pioneer Corporate R&D Laboratories Environmental Symposium won the group division award for their contribution with the symposium; and two individual works, "Review of the Disposal Route of Combustible Garbage and Plastics (RPF)" and "Use of Tempura Waste Oil for a Light Oil Alternative," won the award in the individual division.
Among the patents for inventions made in FY2004, 32 were judged as being particularly contributory to environmental improvement, and two of those won the grand prize of the Environmental Patent Award.

Pioneer Environmental Contribution Award and Environmental Patent Award winners

Environmental education through internship for local technical school students

Internships were offered to students of a local technical school, and Tohoku Pioneer's Yonezawa Plant received six high school students. Environmental education was provided as part of the internship. The students learned the fact that environmental preservation activity is an important factor for corporate activities and that the times require a company to have EQCD in place as early as in the stage of QCD.

Local high school students enthusiastically taking a lesson during their internship

Utilizing E-Learning for Company-wide Training

The Pioneer head office at Meguro conducted training on ISO 14001 for all of its employees. As many as 1,850 employees took the course, in which the e-learning system was introduced to allow employees to study during their free time. In 2004, employee education started to include green purchasing in the study agenda, and education programs with fuller contents were provided to employees.

Fun Learning with the Environmental Treasure box

Pioneer created the "Environmental Treasure Box" on its environment web site to raise interest in environmental issues in a way that is easy for everyone to understand. Environmental issues are explained via fun illustrations and conversations between a cat called Spimaru, a clever feline who knows everything about environmental issues, and the elementary school student, Pio, who is ever so curious.
In the fourth episode, the wise Spimaru explains in an easy-to-understand way why Pioneer's plasma TV set is an energy-saving TV, even with its finer definition and larger monitor.

You can learn environmental issues without losing interest while Spimaru the wise cat has a fun chat with elementary school student Pio.

HP **http://www.pioneer.co.jp/environment/tamate/index.html**
(Japanese only)

Reducing Power Consumption at Home with the COCO-chan Campaign

Over 1,000 people participated in the COCO-chan Campaign 2004, sponsored by the Japanese Electrical Electronic & Information Union. The COCO-chan Campaign calls for the savings of electricity at home, in particular through reduced use of air conditioning during summer, and commends employees who contribute to reducing power consumption. The number of people participating year after year is getting higher, as is awareness about energy conservation. The COCO-chan Campaign will continue in 2005.

Distribution of environmental report to each employee

Pioneer distributes the Environmental Report to employees every year to promote their environmental consciousness. The digest version is newly issued this year to ensure more efficient and effective use of the report. We are improving environmental education in various ways, including the effective use of the online version of the report.
(See Opinion Exchange Forum with Meiji University on the Environmental Report on p. 34.)

No. of Personnel with Major Environment-related Qualifications

	Qualification		No. of people qualified	No. Qualifying in FY2005
National qualification	Pollution-related	Administrator of pollution prevention (air, water, noise)	52	6
	Energy	Administrative engineer for energy (electrical, heating)	22	1
		Energy manager, type II (electricity, heating)	22	4
		Boiler engineer	84	2
		Chief electric engineer	2	0
	Waste materials	Administrative officer for specially managed industrial waste disposal	93	10
	Handling of hazardous materials	Agent for dangerous articles	458	13
		Chief personnel for designated high-pressure gas	47	2
		Chief personnel for high-pressure gas	11	0
		Work supervisors (organic solvents, lead, designated chemicals)	910	95
		Chief agent for toxic substances	19	1
		Other	19	4
Internal qualification	Environmental Management	Internal environmental auditor	274	51

The Tokorozawa Plant held a lecture on the environment titled "About Green Purchasing by Tokorozawa City"

The Tokorozawa Plant held its Environmental Lecture in March 2005 by inviting the staff of Tokorozawa City Hall, who had won the Grand Prize in the 2004 Green Purchase Awards, as lecturers. 76 participants attentively listened to the lectures.
The lecturers explained the definition of "green purchasing," what the citizens can do about the environment, and what the city of Tokorozawa is doing. It was a good opportunity for us to think anew what "green purchasing" is about.

Tripartite efforts for environmental preservation combining the forces of citizens, the administration and industry were materialized.

Communication with the Community

Environmental Report and site reports issued

Pioneer began issuing the Environmental Reports in 1999 to promote environmental communication in and out of the company. Some facilities also issue their own site reports for better communication with the local community. Detailed data on local efforts that are not mentioned in the Environmental Reports are described in these site reports. Facilities that issue site reports are shown in the list on the first page.

Pioneer Corporate R&D Laboratories held an Environmental Symposium

The second Tsurugashima Environmental Symposium was held in March 2005, and some 100 people attended the event.
It started with a classical rakugo performance, followed by a lecture on the environment and the presentation of a report on the basic environmental plan, and went on to a Q&A session. In the Q&A session, it was clarified that citizens hoped the Environmental Network could achieve a lot and the network was presented words of encouragement.
Simultaneously with the symposium, an event for preservation of neighboring forests, or the Exhibition of Wooden Products Born from Forests of Saitama, and a public reading were held. These two events made us feel very close to the woods.

"Rakugo" comic monologue by Sanyutei Yogaku, titled "The Grateful Racoon Dog"

Presentation on the basic plan and Q&A session

Wooden product exhibition and public reading

Participated in Earth Day in Kawagoe 2004

The Kawagoe Plant placed exhibits in Earth Day in Kawagoe 2004, held in September 2004, to make the plant's efforts in environmental preservation known to the general public. This annual environmental event at Kawagoe Suijo Park has been held for the past six years.
At the venue, the Kawagoe Plant placed exhibits to explain that the plant has a policy of zero input of hazardous materials, such as the use of lead-free solder, and that the plant had achieved "zero emission" status. Panel exhibits and demonstrations outlined Pioneer's ecologically friendly products, centering on car navigation systems.
The Plant intends to participate in these environment-related events in the future as well, to deepen environmental communication with the local citizens.

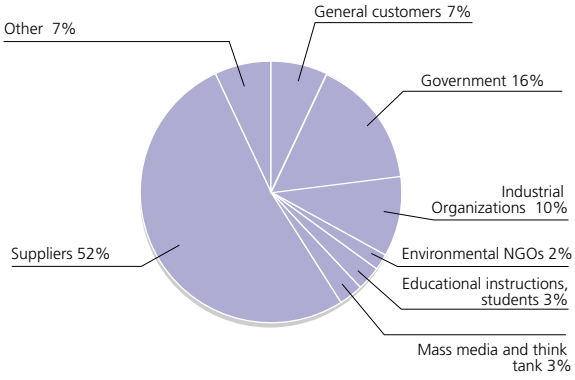
Direct communication with visitors to deepen their understanding of what Pioneer does for the environment

Kawagoe Plant opened an environmental exhibition room

The Kawagoe Plant opened a dedicated exhibition room on the environment, the "Environmental Exhibition Room," on the second floor of the recycling center in their compound as part of Pioneer's corporate activity toward a sustainable cyclic society.
This Environmental Exhibition Room serves as an in-plant environmental education tool as well as a publicity space to advertise our environmental attitude to the general public.
Similar environmental exhibition corners have been set up in the Tokorozawa and Omori Plants.

Environmental Exhibition Room set up to "visualize" our environmental activities

Inquiries (416, other than report requests)



Pioneer participated in Eco Products 2004

Pioneer placed a booth in Eco Products 2004, held at Tokyo Big sight in December 2004.
Our booth had various exhibits on the theme of "Caring for our Customers while caring for our world," presenting a variety of our environmental preservation actions. These included the development of energy-saving plasma TVs and weight-saving car-related products, and the reduction of CO_2 emissions by efficient driving with car navigation systems. Blu-ray discs made from cornstarch resin and the environment-compliant DV-474-S with less EHS content were also displayed. Visitors ardently posed questions to the booth staff.

Pioneer's booth impressed visitors with various exhibits showing our eco-friendly products and our environmental preservation activities.

A throng of people gathered around the energy-saving large-display plasma TV.

Manga Environmental Treasure Box attracted children for its ease in understanding environmental words and phrases.

Plastic material made from a plant

Next-generation disk made from corn (See TOPICS on p.17.)

Car navigation for eco-driving

Opinion Exchange Forum with Meiji University on the Environmental Report

As in the last year, a forum to exchange notes on the Environmental Report was held with a group of 10 Meiji University students from the Omori Seminar headed by Masayuki Oomori, Associate Professor in environmental economics, the School of Political Science and Economics, at our Meguro head office in October 2004. The forum aimed at exchanging notes between Pioneer, the writer of the Environmental Report, and the third party, the readers, in order to help Pioneer write reports that are easier for general citizens to understand.
We received a wide range of opinions on Pioneer Group Environmental Report 2004 from the students, including such laudatory comments as "the message from top management is always excellent every year" or "the pages on the environmental goals and the results (p. 8 and 9) have a consistent format for easy comparison" and critical comments, such as "the organization chart (p.5) is difficult to understand" or "the efforts in the natural (new) energy genre are difficult to understand."
The forum also had a discussion on the ideal environmental report. In the discussion, upsides and downsides of the report format, both the printed version and the web version, were identified, and many fresh and valuable recommendations were made. In response to what we learned from this forum, we issue the 2005 report in three formats, an unabridged version (this one), the digest version and the web version, to be able to meet the varying needs of the stakeholders.
Pioneer pushes forward with exchange of notes and communication with third parties in the future.

Prof. Omori and his students intent on listening to our presentation and active in expressing their opinions

TOPICS

Omori Plant participated in Eco Festa Wonderland

The Omori Plant participated in Ota-ku Eco Festa Wonderland, sponsored by Ota-ku, Tokyo and held at an elementary school, in February 2005. Created by the combined forces of the school, NPOs, local corporations and the administration, this environmental event included presentations on environmental activities to elementary school students and their parents.
The Omori Plant gave a presentation on the eco-friendly design of a plasma display panel (PDP) by using a Cyberboard so that even elementary school children could understand. They also displayed Fish Life, a product designed to use a plasma display.
Some participants were surprised by the thinness of the display and the freshness of the image, and others asked questions about the superiority of PDP over LCD.
Some elementary school students were sent to each booth as juvenile volunteers, and the fifth grade students sent to the Omori Plant's booth were assigned to check the environmental quiz answers and explain how to use Fish Life. These students must have also learned about the environmental preservation efforts with joy as they helped the Omori Plant's staff.

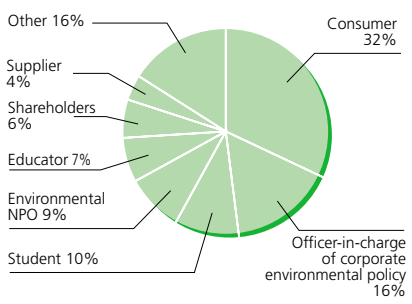
Fish Life was a very popular attraction for children.

Children had to make a line to answer the environmental quiz.

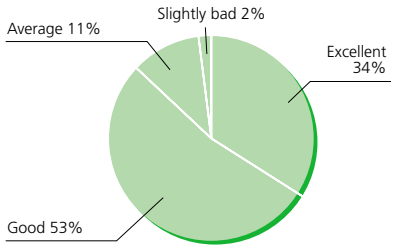
Your Opinions

Pioneer has been working hard to communicate our commitment to environmental conservation in an easy-to-understand way by issuing an Environmental Report every year since FY2000. The following summarizes the results of the questionnaire from the 2004 edition of the report.
We value your opinions, thoughts and requests and will reflect them in future activities and in creating the next edition of this report.
We sincerely thank you for your cooperation.

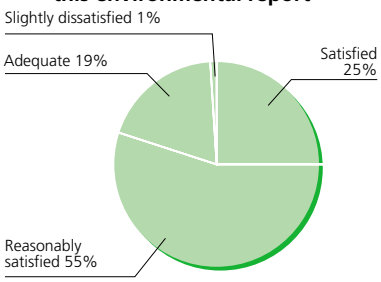
1 Your title or position.



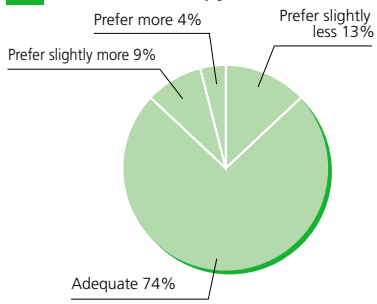
2 How would you evaluate Pioneer's environmental conservation efforts?



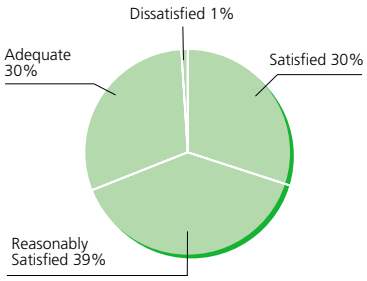
3 Your level of satisfaction with this environmental report



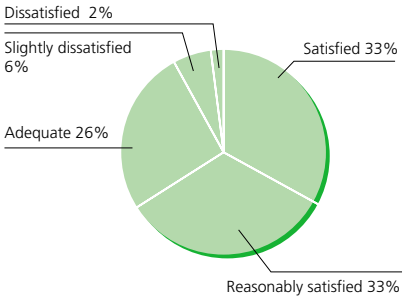
4 What about copy volume?



5 Was it easy to understand?



6 Paper Quality



Note: Questionnaire data was obtained by analysis of 67 responses from the Environmental Report 2004.

Items of interest to you (top six)

- Reducing Environmentally Hazardous Substances, Green Procurement, Introducing Lead-free Solder & Commitment to Eliminating PVC
- Environmental Management System, Environmental Risk Management, Efforts in Other Countries
- Environmental Impacts and Issues
- Environmental Targets and Performance
- Environmental Education
- Energy Saving in Products

Reader impressions

- It is easy to understand; i.e. the Ask the Expert column.
- It is easy to understand; i.e. many photos and graphs used.
- It was the first time to read an environmental report, but it was easy to read.
- The entire company tackled the matter as one.
- I feel that Pioneer is particularly serious about strict EMS management.
- Pioneer seems to also be positive in external activities.
- My impression of Pioneer changed after reading this.

Reader feedback and Pioneer responses

1	Wouldn't the web version be sufficient if saving of resources is prioritized?	We believe it very important to answer various requests, demands and questions, which is why we issue the report in three formats: unabridged, digest, and web. We decreased the number of copies for circulation (40 pages) and instead increased that of a digest version (8 pages) to save paper.
2	I want the data to always be compared with the 1990 data.	Considering the movement related to the Kyoto Protocol, our Environmental Report 2005 uses the CO_2 emission data as compared with the FY1991 data.
3	I expect Pioneer to disclose negative information.	Our negative information is disclosed as complaints and incidents and their reactions (p. 11); environmental targets and performance together with self-evaluation (p. 8); and the readers' comments in the last part of the report.

Thank you for taking the time to read the Pioneer Environmental Report

We would be most grateful if you would enhance our environmental activities and the editing of future environmental reports by giving us some feedback. Please complete the questionnaire below and fax it to the Environmental Preservation Division. We would appreciate your cooperation. Anonymous responses are also welcome.

1. Your title or position. (Please check)

☐ Consumer ☐ Shareholder ☐ Retailer/supplier ☐ Pioneer employee ☐ Investor/institutional investor
☐ Market research ☐ Officer-in-charge of company environmental policy ☐ Government environmental policy official
☐ Educator ☐ Student ☐ Environmental NPO ☐ Other

2. Your level of satisfaction with this Environmental Report. (Please check)

1.Content	☐ Satisfied	☐ Reasonably Satisfied	☐ Adequate	☐ Slightly dissatisfied	☐ Dissatisfied
2.No. of Pages	☐ Satisfied	☐ Prefer slightly less	☐ Adequate	☐ Prefer slightly more	☐ Prefer more
3.Clarity	☐ Satisfied	☐ Reasonably Satisfied	☐ Adequate	☐ Slightly dissatisfied	☐ Dissatisfied
4.Cover design	☐ Satisfied	☐ Reasonably Satisfied	☐ Adequate	☐ Slightly dissatisfied	☐ Dissatisfied
5.Paper quality	☐ Satisfied	☐ Reasonably Satisfied	☐ Adequate	☐ Slightly dissatisfied	☐ Dissatisfied

3. Items of interest to you. (Please check) (Multiple choices are OK)

☐ 2010 Environmental Vision and Environmental Policies, Promotion Structure ☐ Environmental impact and issues to be tackled
☐ Environmental targets and performance

Management Activities ☐ Environmental Management System, Environmental Risk Management, Efforts in Other Countries
☐ Environmental accounting

Products ☐ Environmental Conservation in Pioneer Products ☐ Research & Development
☐ Energy and Resource Saving in Products
☐ Reducing Environmentally Hazardous Substances, Green Procurement
☐ Reducing Environmentally Hazardous Substances in Products ☐ Product Recycling

Facilities ☐ Energy Saving ☐ Protection of the Ozone Layer and PRTR ☐ Recycling at Facilities
☐ Countermeasures for Water/Soil Pollution ☐ Distribution, Sales, Green Purchasing

Social ☐ Social Contributions to the Environment ☐ Environmental Education
☐ Environmental Communication

Columns ☐ Research & Development (corn disk, nata de coco display)
☐ Open House
☐ High-Definition Plasma TV Won an Energy Conservation Award
☐ Omori Plant participated in Eco Festa Wonderland

4. How do you rate Pioneer's environmental preservation activities overall?

☐ Excellent ☐ Good ☐ Average ☐ Poor

5. If you have any other opinions or impressions regarding this Environmental Report of Pioneer's environmental preservation activities, please write them here.

Thank you for your kind cooperation. Last, if you wouldn't mind, complete the following:

The personal information you provide here will be used for our statistics, and for sending any documents you request.
Our privacy protection policy can be found on our homepage: http://www.pioneer.co.jp/privacy/

Name Male/Female Age

Address

E-mail address

Occupation (Company) Division/Dept./Sec.

Your Opinions

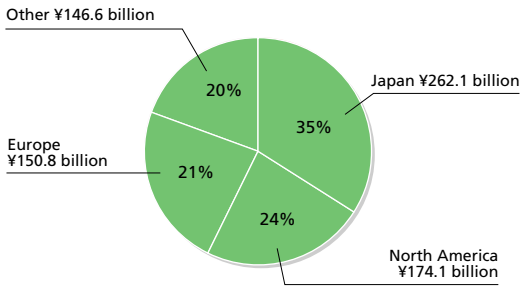
Pioneer Corporation
Environmental Preservation Group
Environmental Preservation Division
Fax: +81-3-3495-4761

CUT

Corporate Profile

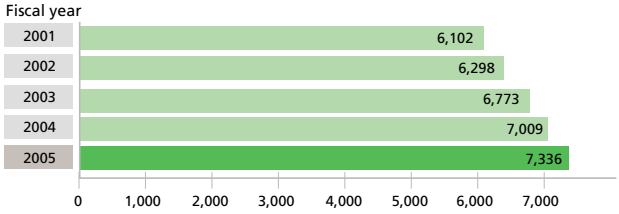
Name	Pioneer Corporation
Headquaters	4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654
Telephone	+81-3-3494-1111
Founded	January 1, 1938
Incorporated	May 8, 1947
Paid-in capital	¥49 billion (as of March 31, 2005)
President and Representative Director	Kaneo Ito
Business Activities	Home electronics, car electronics and related business.

Sales by region



Operating revenue

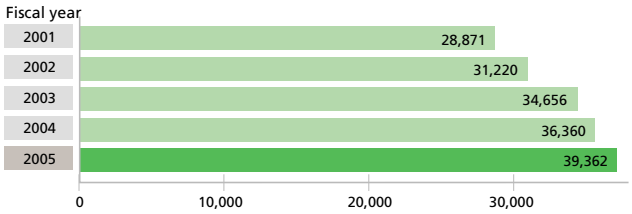
Consolidated (¥100 billion)



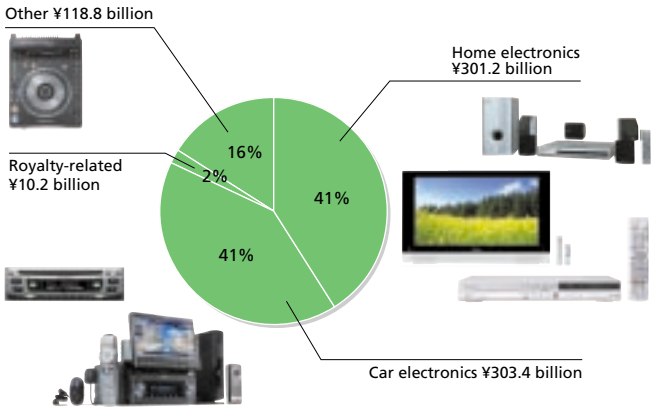
*Operating revenue is the total of net sales and royalty revenue.

Numbers of employees

Consolidated



Business segments



Inquiries

Pioneer Corporation

Environmental Preservation Group
Environmental Preservation Division
4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654
Tel: +81-3-3495-2474 Fax: +81-3-3495-4761
e-mail:environment@post.pioneer.co.jp

Pioneer sound.vision.soul

Pioneer

Pioneer Corporation

This report can also be viewed on Pioneer's web site.
http://www.pioneer.co.jp/environment/e/

To protect the environment, this report is printed on 100% recycled paper with non-VOC inks (containing no Volatile Organic Compounds), by a waterless printing method that generates no harmful wastewater.

Pioneer is a member of the Green Purchasing Network.

Published August 2005