

Environmental Report 2004



The Kansai Electric Power Co., Inc.

Overview of Kansai Electric

Company name The Kansai Electric Power Company, Incorporated

Headquarters 3-3-22 Nakanoshima, Kita-ku, Osaka, 530-8270
TEL: 06-6441-8821
<http://www.kepco.co.jp/>

Date of establishment May 1, 1951

Capital ·489.32 billion (as of March 31, 2003)

Chairman of the Board of Directors Yoshihisa Akiyama

President and Director Yohsaku Fuji

Main business Electric power industry

Kansai Electric's service area: Osaka Prefecture, Kyoto Prefecture, excluded in Hyogo Prefecture, Nara Prefecture, Shiga Prefecture, Wakayama Prefecture, Mie Prefecture, and portions of Gifu Prefecture and Fukui Prefecture

Number of group companies 85 affiliates
(as of March 31, 2004)
1 time sharing system company

Number of employees 33,935 (consolidated), 21,031 (single)
(as of end of fiscal 2003)

Annual power sales 140,246 million kWh
(fiscal 2003)

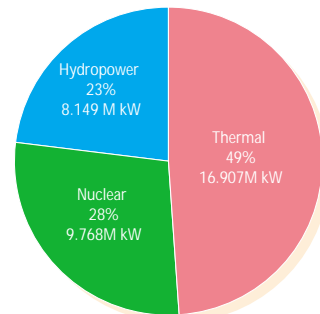
Sales figures ·2,540,156 million (consolidated), ·2,375,239 million (single)
(fiscal 2003)

Current profit ·187,380 million (consolidated), ·188,833 million (single)
(fiscal 2003)

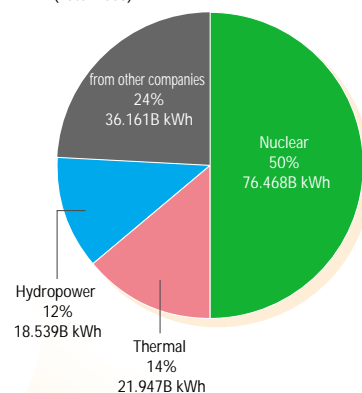
Current term net profit ·90,111 million (consolidated), ·118,448 million (single)
(fiscal 2003)

Gross assets ·7,150,826 million (consolidated), ·6,540,844 million (single)
(as of end of fiscal 2003)

System capacity
(As of March 31, 2004)



Generated power supply
(fiscal 2003)

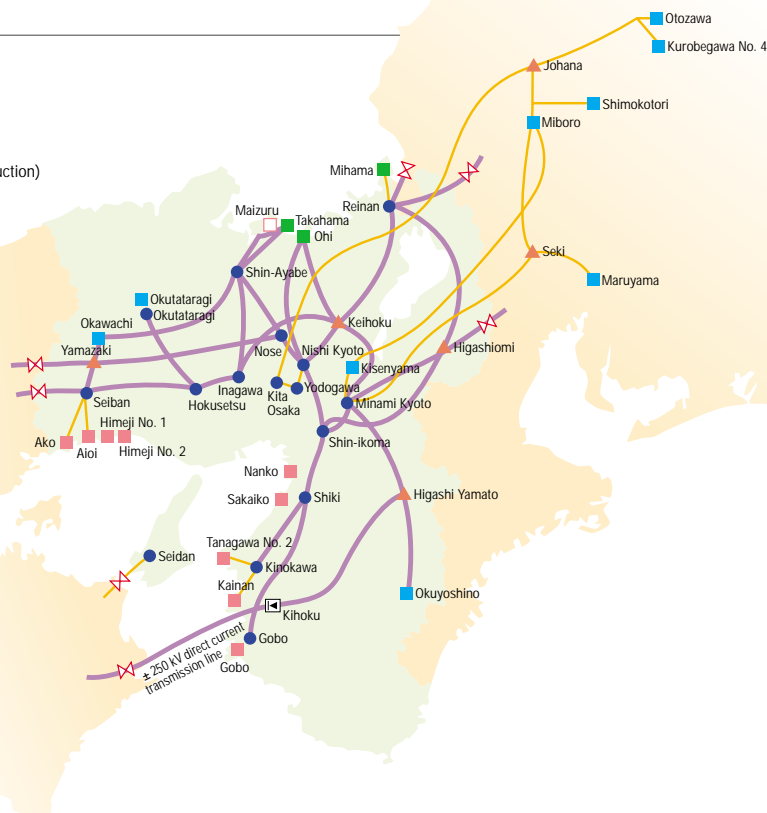


System map

(as of March 31, 2004)

Legend

- Hydropower station
- Thermal power station (□ including under construction)
- Nuclear power station
- Substation
- ▲ Switching station
- Converter station
- 500 kV transmission line
- 187-275 kV transmission line
- ✂ Tie point with other power companies
- Kansai Electric's service area



Editing Policy

This report concerns socioeconomic efforts, primarily those involving the environment, to have all stakeholders, beginning with our customers, support the Kansai Electric Group.

When preparing the report, we referred to "Sustainability Report Guidelines" (2002 version) of the Global Reporting Initiative (GRI) and "Environmental Report Guidelines" (2003 version) of the Ministry of the Environment.

Concerning the report, we obtained the opinion of a third party, Professor Takashi Gunjima of the Faculty of Economics at Doshisha University. Concerning the group's efforts with the environment, the report contains the opinion of Takeo Inoue, Directors for NPO E-Being.

The report also contains the contents of the conversation between the president Kansai Electric and Toshihiko Goto, Board of Directors for GRI.

When listing the companies of the Kansai Electric Group in this report, the name prior to restructuring was used (see page 81).

Scope of Report

*The report applies to the period from April 1, 2003 through March 31, 2004. Important matters up until the report is published are contained herein (as much as possible).

*Applicable scope: Kansai Electric Power Co., Inc. and Kansai Electric Group companies

*Applicable fields: Environmental, Social, Economical

Publishing Period

Published November 2004.

The 2003 version was published in July 2003.

The 2005 version is scheduled to be published about summer of 2005.

Reference

Concerning the report prepared by the Kansai Electric Group, please use the following tools as well:

*Online version of the Environmental Report 2004
(Can be accessed from Kansai Electric's Web site)

*English version of the Environmental Report 2004
(Scheduled to be published around December 2004)

*Kanden Environmental Report 2004
(Scheduled to be published around November 2004)

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Message

This past August 9, there was a very serious accident at Unit 3 of our Mihama Power Station that cost the lives of five persons and left six gravely injured. I humbly apologize to those who suffered, the bereaved and their families, as well as Kiuchi Instrumentation Co., Ltd. which is where the men worked. I also want to apologize to the people of the local community and elsewhere for the worrying and trouble we caused you.

We fully understand that the path to regaining public trust is a very difficult one, nevertheless all directors and our entire workforce will make every effort to do so under the firm resolution to prevent this kind of accident from ever happening again.

We have always recognized that fulfilling our social commitment as an energy utility of strong public nature is our duty and have long conducted business activities accordingly. Nevertheless, the fact that this accident occurred and we lost the public's trust because of it shows that our activities and schemes are not yet sufficient enough and we need to reexamine ourselves carefully.

We will steadfast fulfill our social commitments as a company by returning to our origins and executing fundamental operations that assuredly, safely and stably deliver electricity products and services. We will take compliance to new depths as a pretext to all activities, promote better communication with society and make our business activities highly transparent.

With regards to environmental problems, we have long been aware of our responsibilities as an energy utility because of the strong relation to the environment that this business has. We have made the environment an important management issue and have come together as the Kansai Electric Group to develop activities. We will be putting even more effort into this area of activity in the future.

One particular area of activity in this regards has been to address global warming, which, in recent years, has been looked at closely as a national problem. We are aggressively working to reduce emissions of greenhouse gases in each the electricity production, transmission and usage stages in order to support an affluent way of life and contribute to the sustainable development of society at the same time. We are also deeply involved with the diffusion of alternative energy sources such as solar power and wind power. Not only are we dealing with global warming through out New ERA Strategy but we also have mid to long-range activities aimed at physically reducing industrial waste destined for landfill disposal in order to help bring about a recycle-oriented society, as well as constructive activities to help protect local environments where we have operations.

This Environmental Report introduces the environmental protection activities of our entire group. It additionally details a broad range of activities that concern our social commitments in non-environmental areas and there is a special section that explains the secondary pipe rupture at the Mihama Power Station's Unit 3 and our failure to report periodic checks at improper treatment of periodic inspections at thermal power stations.

We will continue to read the demands of the times before they materialize and take voluntary concrete steps to protect the environment, amongst which includes preventing global warming. In the future, we also will provide a wide range of information about all of our business activities. I would like everyone to read this report and provide us with their frank opinions, reprimands and advice on the activities of the Kansai Electric Group.

President and Director
Kansai Electric Power Co., Inc.

A handwritten signature in black ink, appearing to read "Yoshimasa Tsuji". The signature is written in a cursive, flowing style.

Concerning the incident involving ruptured secondary pipe at Mihama Power Station's Unit 3

We would like to take this opportunity to offer our sincerest apology for the tragic accident at our Mihama Power Station's Unit 3 whereby 11 people were killed or seriously injured.

We offer our prayers for those who died, and we sincerely wish those who were injured a speedy recovery. We are also determined to do all we can for the bereaved families, those who suffered injuries and their families, as well as Kiuchi Instruments Co., Ltd., the company for which the victims worked.

We would also like to take time to listen to the people of the local community who were inconvenienced by the accident. We will do all we can to remedy the situation.

The contents of this document are current as of October 28, 2004. For the latest information, please visit the Press Release section of our Web Site.

Background

An accident in which secondary piping (*2) in the turbine building (*1) at the Mihama Power Station's Unit 3 (pressurized water light-water reactor, rated electric output 826,000 kW) ruptured while the power station was in operation on August 9, 2004.

The accident occurred at 3:22 pm. The alarm was immediately sounded and emergency output power cutback was implemented at 3:26 pm. The reactor automatically shut down at 3:28 pm.

Because the accident involved rupturing of secondary piping and the nuclear reactor was safely shut down, there was no leakage of radiation to the surrounding environment.

*1: Building containing equipment such as pumps, piping and steam condenser which returns steam to water after it is used to turn the turbine and sends the water to a steam generator.

*2: All commercial nuclear reactors currently in operation in Japan are "light-water reactors." Light-water reactors produce electricity by means of turbines powered by steam produced by heating ordinary water (light water) by nuclear fission of uranium. There are two types of light-water reactors: boiling water reactors, or BWR, and pressurized water reactors, or PWR. BWRs produce electricity by directly routing steam produced in the nuclear reactor to the turbine, whereas PWRs feature water separately flowing through the nuclear reactor and steam (water) that drives the turbine generator. With PWR, the water system that carries water that flows through the nuclear reactor is called the "primary" system, and the system that carries steam (water) that drives the turbine generator is called the "secondary system."



Mihama Power Station

Condition

This accident was caused by rupturing of condensate piping (*1) near the ceiling of the second floor of the turbine room at the Mihama Power Station's Unit 3. When the pipes ruptured, hot water (140°C) pressurized to approximately 9 atmospheres turned to steam, which sprayed out and filled the building. At the time, there were 105 employees of Kansai Electric and cooperating companies in the building to prepare for the 21st periodic inspection (*2) to be implemented August 14. Eleven of them were rushed to the hospital. Five died of their injuries and 6 suffered serious injury.

*1: Piping that runs from the condenser to the air purge in the system whereby steam used to drive the turbine generator is returned to its liquid state by cooling, and the water is reheated and returned to the steam generator.

*2: Inspection carried out once each 13 months in accordance with the Electric Utility Law. Equipment and facilities are inspected to maintain safety, prevent trouble and ensure safe operation of power stations.

Condition of Ruptured Piping

A large rupture 55 mm wide in the axial direction was found at the downstream section of the orifice (*) of the condensate piping. At the time of the accident, the pipes were carrying approximately 885 tons of water in the form of steam.

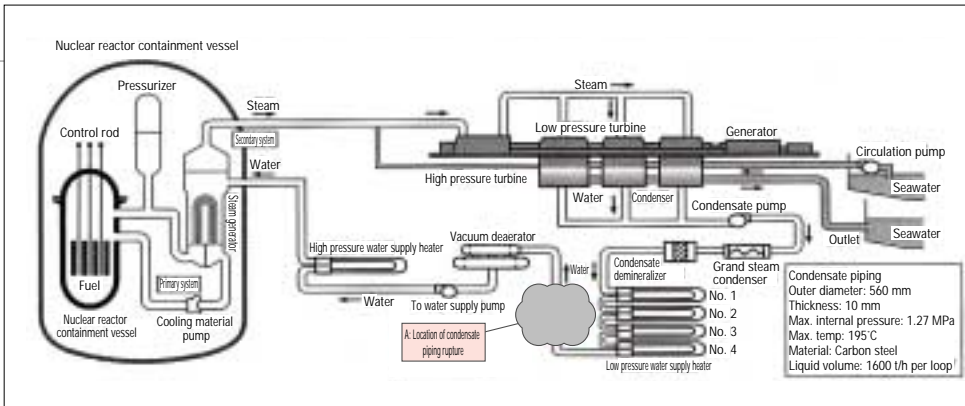
The thickness of the walls of the piping was 10 mm (nominal) when the plant began operating in 1976. Design called for pipes to be at least 4.7 mm thick. The thickness where the walls peeled back due to the force of escaping steam at the site of the rupture was 0.4 mm at the thinnest spot.

*Provided to reduce cross-section of the pipe for measuring the amount of flow due to difference in pressure, the orifice is a stainless steel disk with a donut-shaped opening.



Site of condensate piping rupture

Layout of Mihama No. 3 power station and location of condensate piping rupture (system diagram)



Inspection of secondary system piping using ultrasonic measurement

Cause of Rupture

According to the intermediate summary of the government accident investigation committee of September 27, the cause of the rupture appeared to be tendency of the pipe wall to erode and become thinner at the downstream section of the orifice of the condensate piping. Observation of the inner surface of the piping uncovered a shiny scale-shaped pattern that is indicative of “erosion corrosion” (*), a phenomenon whereby the thickness of the pipe walls is eroded by mutual interaction of corrosion due to mechanical and chemical effect. The committee therefore surmised that the rupture was caused by gradually reduction of the pipe wall thickness due to erosion corrosion along with operation, which caused the pipes not to be strong enough to withstand the internal pressure, resulting in rupture.

*Phenomenon whereby pipe wall thickness erodes due to chemical corrosion and corrosion inside the pipes caused by repeated impact of flowing liquid.

Management of Wall Thickness of Secondary System Piping

Kansai Electric has systematically measured thickness of pipe walls in accordance with “Guidelines for management of wall thickness of secondary system piping in nuclear power stations (PWR) (*)” established in 1990. Systematically measuring and managing wall thickness of the part of the piping that ruptured comes under the guidelines, but it was not registered as a place requiring measurement and was consequently not measured in the past. Kansai Electric was instructed by the Nuclear and Industrial Safety Agency to conduct a survey of approximately 43,000 spots other than the location of the rupture where pipe wall thickness may not have been properly inspected. On August 18, the company presented the Ministry of Economy, Trade and Industry with the “Report on investigation of inspections concerning corrosion erosion” that contained the results of the study.

The study revealed that in addition to the sites where the accident occurred (2 sites in systems A and B), a total of 15 sites failed to be registered on the inspection list.

¹Compiled jointly by power companies since 1990 in light of the accident at the Takahama Power Station’s Unit 2 involving leakage from pipes in the secondary system in 1983, the guidelines involve voluntary inspection of piping in pressurized water reactors (PWR). The guidelines call for establishing a plan for the next inspection based on the results of pipe wall thickness measurements, establishing a plan for replacement if the pipe life has less than 2 years remaining, and replacing the pipes with corrosion-resistant materials.

Inspection of Secondary System Piping at All Nuclear Power Stations

Kansai Electric has systematically shut down nuclear power stations one at a time since August 13, and has conducted ultrasonic measurement (*) of pipe wall thickness at sites similar to the one where the rupture occurred in the presence of representatives from national, prefectural and local governments to confirm the soundness of the pipes.

*Test where the object is penetrated by ultrasonic waves from the surface to the interior of the metal. The ultrasonic waves that bounce back are detected and distance (thickness) is measured from the time.

Operation status of and inspection of plants at the various power stations are as follows:

Mihama Power Station

Replacement or repair was conducted for place (main water supply pipe) at Mihama Unit 1 and 2 places (high pressure discharge pipe and main water supply pipe) at Mihama Unit 2. All piping other than these 3 places was confirmed by the company to be sound.

Mihama Power Station’s Unit 3 is currently shut down due to the accident.

Takahama Power Station

The soundness of the piping at the Takahama Power Station’s Unit 1, Unit 2 and Unit 3 was confirmed by the national government as well as the local town government and government of Fukui Prefecture. The Unit 1 station began operating September 21, the Unit 2 began September 5 and the Unit 3 began September 13.

The soundness of the piping at the Takahama Power Station’s Unit 4 was confirmed by the national government as well as the local town government and government of Fukui Prefecture by inspections that started August 10, 2004. Adjustment operation has been carried out since October 28.

Ohi Power Station

Based on the results of replacement/repair work conducted at one place (Unit 4 low pressure water supply heater drain pipe) at the Ohi Power Station’s Unit 1, soundness of the piping was confirmed by the national government as well as the local town government and government of Fukui Prefecture, and operation commenced on October 16.

Soundness of the piping at the Ohi Power Station’s Unit 2 and 4 was confirmed by the national government as well as the local town government and government of Fukui Prefecture. Operation of Unit 2 commenced on September 22 and Unit 4 on September 5.

Period inspections have been conducted at Ohi Unit 3 since April 20, 2004. As a result of measuring thickness of pipe walls, the company confirmed that the pipes at the power station were sound.

Current Measures

Based on this series of circumstances, Kansai Electric decided to voluntarily manage wall thickness of secondary system pipes. The measures the company is currently taking to prevent reoccurrence and restore public trust in the company are as follows:

(1) Enhance strength of system

In order for the company president to take the lead in finding out the cause of the accident and take measures to prevent reoccurrence, the president was made the director of Nuclear Power Business Headquarters.

Technicians have been stationed in Fukui Prefecture to take care of technical matters.

(2) Ensuring worker safety

Access to plants during operation was restricted immediately following the accident. Fireproof clothing is required in case work must be performed.

Soundness of secondary system piping would be checked, and preparatory work for inspections would not be carried out until the understanding of cooperating companies and the local community is obtained. In the future, after close investigation of priority, importance and contents of work that had been conducted in preparation to periodic inspections during operation. Concerning necessary work, improvements would be planned such as clarifying restrictions and safety measures. The company would also like to obtain the understanding of cooperating companies and the people of local communities.

From the standpoint of accurately implementing rescue activities for accident victims, along with revising the in-house route by which information is conveyed to prevent medical institutions outside the service area from being exposed to or contaminated by radiation, introduce a system to keep tabs on name of workers and cooperating companies in the work area so the person in charge of work can confirm the safety of workers right away, and get an accurate understanding of what workers are in the area in the event of a disaster.

Each power station has been instructed to notify all workers in the station which places are dangerous according to the operation status of the plant.

(3) Thorough reexamination of management of outside orders for management of wall thickness for pipes of secondary system

As a sweeping reform, Kansai Electric has decided to take care of all pipe wall thickness management, with the exception of taking measurements. As for the time up to when responsibility for management transfers from cooperating companies to Kansai Electric, the following measures shall be taken to bolster management of outside orders for the time being:

Based on Kansai Electric's 5-year inspection plan, a cooperating company shall be hired to prepare the plan for periodic inspections. After checking the inspection plan prepared by the cooperating

company, along with hiring the cooperating company to perform the inspections, Kansai Electric shall check inspection results directly against the management guidelines.

Modifications of secondary system piping accompanying modification of facilities shall be changed to a mechanism reflected in wall thickness management for secondary system piping.

The company has decided to improve the system of having Kansai Electric personnel monitor wall thickness testing at the site and better prepare observers.

(4) Fortification of wall thickness management for secondary system piping

Provide reliable pipe wall thickness management and foster awareness of responsibility for equipment by mounting markers on all inspection locations important for pipe wall thickness management that clearly indicate who is responsible for inspection and when the next inspection is to be carried out, as well as letting worker in the area know the management status.

Because some qualifications of technical standards interpretations had been improperly applied for pipe wall thickness management implemented by Kansai Electric, the company as decided to strictly adhere to the numerical values indicated by the technical standards.

Supervisors at the site shall be provided systematic education concerning the importance of pipe wall thickness management for secondary systems.

(5) Improvement and advancement of the system of pipe wall thickness management for secondary systems

In addition to taking back charge of responsibility for pipe wall thickness management for secondary systems, from the standpoint of preventing human error, a 3D skeleton diagram of the piping route and management chart for inspections shall be linked within computers, and along with recording details concerning modifications in the system, the display method shall be enhanced so important modifications can be clearly recognized.

(6) Switch to direct management of auditing on-site work for periodic inspections

In order to further reinforce the ability of Kansai Electric employees to perform maintenance, the company will study and realize establishment of a group dedicated to auditing on-site work for periodic inspections.

(7) Lateral spread of information

Concerning the themes involved in pipe wall thickness management at the various power stations, the company plans to develop a mechanism for lateral spread of information among all power stations as well as lateral spread of information among power companies in the case where inspections on the list failed to be conducted such as in this case.

(8) Sharing of information between Kansai Electric and cooperating companies

In order to maintain and improve exchange of information by increasing exchange of information between Kansai Electric and cooperating companies, the power station supervisor and assistant supervisor, in addition to existing activities, shall facilitate exchange

of information by providing the opportunity for individual dialog with prime contractors, and by having section managers conduct dialog with workers of cooperating companies on a daily basis.

(9) Activities for promoting dialog with local communities

Since it is important for power station technicians and so on to listen directly to how the people of local communities near power stations feel, the company plans to increase the number of opportunities for technicians and so on, as well as the president on down, and management of the main and branch offices to talk with the people of local communities near power stations on a regular basis.

The company also intends to implement these measures without delay and add to them as more facts come to light in the future.

Themes of the Future

(1) Explanation of mechanism by which pipe rupture occurred

Along with confirming occurrence and progress of erosion corrosion at the downstream section of the orifice, analysis and tests are being conducted to verify features of wall thickness erosion in the ruptured pipes.

Behavior of the secondary plant system which actuate automatic shutdown of the nuclear reactor is to be analyzed.

A study of how far-reaching the effects of the pipe rupture accident is to be conducted.

(2) Study of problems involving quality assurance and maintenance management

After the Mihama Power Station's Unit 3 began operating, the section where the rupture occurred was left off the list of places requiring inspection. In order to determine why this was not corrected, a study of pipe wall

thickness management for secondary systems shall be conducted at each stage from establishment of management guidelines to the present from the standpoint of quality assurance and maintenance management.

Based on the actual state of work, stricter outside order management are to be enforced for repair work other than pipe wall thickness management for secondary systems as well.

In order to aim for reliable maintenance work, a nuclear power maintenance function fortification study committee (vice president not in charge of nuclear power department appointed as committee chairman) comprised of concerned Kansai Electric staff and experts outside the company shall be established, problems with the existing system of maintenance shall be arranged and a study of restructuring of the system including manufacturers are to be conducted.

(3) Further improvement and enhancement of pipe wall thickness management for secondary systems

Concerning main places requiring inspection of secondary system piping, plants starting periodic inspection in the future are to change from conducting inspections before remaining life reaches 2 years to conduct inspections when remaining life reaches 5 years plus when remaining life reaches 5 years, continue to perform periodic inspections each time up until piping is replaced and welding repaired. In order to furthermore improve and enhance data on erosion of pipe wall thickness, all places that have not yet been inspected in those sections are to be inspected when periodic inspection are conducted the next three times.

Reexamination by summarization of actual current measurement data and reexamination of management guidelines from the standpoint of whether or not the guidelines act as a manual according to the state of equipment are to be conducted. Along with making the management guidelines more advanced, the company will actively participate in reexamination of guidelines implemented by academic societies and associations.

*Press Release

<http://www.kepco.co.jp/pressre/index.html>

Provides Kansai Electric press releases. Visit this section to get the latest press releases.

*Nuclear Power Station Operation Status

http://www.kepco.co.jp/localinfo/live/n_untent/untent_10.htm

Let's you know the operation status of Kansai Electric nuclear power stations in real time.

Nuclear Power Generation

<http://www.kepco.co.jp/gensi/index.html>

Provides basic knowledge such as how electricity is generated by nuclear power and information on the various nuclear power stations.

Feature

Concerning improper treatment in review of periodic contractors in thermal power stations

We would like to take this opportunity to offer our sincere apology for betraying the trust of our customers and the public due to improper treatment in reviewing periodic contractors in thermal power stations and the Kansai International Airport Kansai Energy Center.

Based on the recognition that all our business activities are founded upon the trust of all the people in local communities surrounding power stations and the population in general, we declared our intention to voluntarily fulfill our obligations to society through thorough compliance in March 2004. It is unfortunate that despite having done so, the following problem occurred.

We intend to do everything in our power to make sure it never happens again and will strive to restore your trust in us.

Details and Study Results

When safety management of the Kansai International Airport Energy Center (hereinafter referred to as the “Kansai Energy Center”) was examined by the Kansai Bureau of the Ministry of Economy, Trade and Industry (hereinafter referred to as “METI Kansai”) (*1), it was pointed out that records of the results of reviewing periodic contractors were not appropriately kept. METI Kansai then conducted its own on-the-spot inspection. We were subsequently instructed by METI Kansai to report the results of the study conducted at the Kansai Energy Center to them on May 31. Kansai Electric also conducted a review of periodic contractors at 10 thermal power stations (*2).

On June 28, we reported results of an additional study of the

Kansai Energy Center and 10 thermal power stations to METI Kansai, and on October 26, we further reported the results of a voluntary review of 36 periodic contractors who had not yet been examined, subsequent to implementing safety management examinations.

As a result of the series of studies, of the approximately 37,300 pages of records subject to examination, there were 101 incidents of noncompliance (see examination results on the following page).

Details	
April 15/16	Safety management review by METI Kansai (Kansai Energy Center)
April 28	Instructed by METI Kansai to collect reports in accordance with Article 106 of the Electric Utility Law.
May 31	Results of study of the Kansai Energy Center reported to METI Kansai. Instructed by METI Kansai to collect reports in accordance with Article 106 of the Electric Utility Law (additional).
June 28	Results of study of the Kansai Energy Center reported to METI Kansai. Results of detailed study of the Kansai Energy Center, results of a review of periodic contractors at 10 thermal power stations, results of study of other report items Instructions from METI Kansai concerning measures for preventing reoccurrence
October 26	Voluntary report of study results to METI Kansai Results of all reviews of periodic contractors (remaining 36 studies) conducted up to June 2004 since initial safety management review.

(*1) System whereby the Japanese government reviews whether studies of periodic contractors have been properly conducted.

(*2) Periodic inspections of equipment that contractor himself is obligated by law to conduct periodically, provided that autonomy is preserved.

***Study results**

*Items not in compliance			No. of incidences
Study results			No. of incidences
Quality record	Test records	Items where recorded measurement values and management standard values had been altered	75
		Items where a record of tests had been prepared without actually conducting the tests	4
	Quality records other than test records	Quality records where the date had been altered	4
		Items here a record of meetings had been prepared without the meetings actually taking place	18
Total			101

Study System

When studies were conducted in accordance with instructions of METI Kansai, along with establishing a committee for studying periodic contractors at thermal power stations whereby the chairman of the committee is the director of thermal power business headquarters, in order to preserve transparency and objectiveness of study method and results, the company obtained the fair and broad-based opinions of a third party, university professors who are experts on quality control. Concerning the voluntary study of 36 applicable studies of periodic contractors, with the president as chairman of the

committee and participation of outside experts such as attorneys and university professors, plus people involved in fields other than thermal power, a committee on voluntary inspections/examinations at thermal power stations was established and a study was conducted.

Safety of Equipment

Concerning soundness of equipment for which records had not been treated properly, it has been confirmed by the investigation that problems had not occurred due to inspection records or reports of contactors or results of test operation subsequent to testing.

Cause and Measures for Preventing Reoccurrence

The main causes of a series non-compliances and measures for preventing reoccurrence are as follows.

In the future we will enhance effectiveness by making our quality control system more adequate, take thorough measures to prevent reoccurrence such as improved communication among thermal power stations, and periodically reporting on these measures to management such as the quality and safety committee.

Main causes and measures for preventing reoccurrence

Main causes	Main measures for preventing reoccurrence
Problems involving building of quality control system	Reconstruction of quality control system
Insufficient preparation of mechanism for reviewing periodic contractors	Clarification of operation method and proper establishment of "management standard values" for each inspection item of the "quality record" Construction of a mechanism that does not require transcription
Insufficient management and improper guidance from main thermal power department	Sustained follow up of operation status an reconstruction of quality control system through guidance of top management of thermal power department Conduct training seminar on quality control that includes top management of thermal power department
Insufficient internal check function	Improve and enhance internal check
Problems involving awareness, etc.	Improvement of awareness, etc.
Insufficient awareness of responsibility to explain compliance and quality control	Have entire staff understand the importance of compliance and obligation to explain quality Provide compliance education
Poor flow of ideas in thermal power department	Provide a target box to provide opportunities for power stations to directly express opinions to top management of thermal power department

Management Vision of the Kansai Electric Group

Based on “the spirit of modesty” since being founded in 1951, the Kansai Electric Group has made enhancement of customer service an important management policy and has strived to earn the trust of its customers. Now that the management environment surrounding the group has changed dramatically, you could say we are facing the “2nd founding period” of the Kansai Electric Group. We therefore settled on “Management Vision of the Kansai Electric Group” in March 2004 to continue to challenge endless self-reform to realize “the image to strive for” in the 21st century by once again sharing the customer-oriented spirit of the time when we were founded with the entire group.

We have also ranked “fulfilling our social responsibility as a business” as one of the important mainstays of our efforts to realize the goal of our company to be “Number One in Customer Satisfaction.” Earning the trust of the people is the foundation upon which the Kansai Electric Group grows and develops as a business group that is beneficial to its customers. In order to solidify this trust, we have adopted the “CSR Action Charter of the Kansai Electric Group” and have declared our intention to work as a group to carry out our business activities based on six action principles.

Management Vision of the Kansai Electric Group

The management environment surrounding the group has changed dramatically, but our mission remains unchanged. Based on the customer-oriented spirit, the Kansai Electric Group wants to continue to be a business group that is beneficial to its customers. The group hopes to continue to strive for self-reform without a pause.

The Kansai Electric Group will continue to adapt to achieve our unchanging mission.

Corporate image the Kansai Electric Group strives for

Corporate image The Kansai Electric Group aims to be “Number One in Customer Satisfaction” with energy as the core in the area that serves as the foundation for living.

Action policy The Kansai Electric Group does its utmost to make the customer happy.

To achieve the corporate image we aim for, the Kansai Electric Group:

Provides the best service possible to satisfy the customer.

Fulfills its social obligation as a business.

Has the efforts of each and every employee tied in with pleasing the customer.

Plans to secure the expected profit to grow as a group.

CSR Action Charter of the Kansai Electric Group

Basic philosophy

The business activities of the Kansai Electric Group are supported by the people of local communities, stockholders and investors, business partners, employees and the rest of society in general.

In order to earn the trust of all these people, the Kansai Electric Group is founded upon achieving its mission as a business and achieving sustained growth.

Along with fulfilling its obligation to society to be transparent and in compliance with laws and regulations, the Kansai Electric Group wants to earn the trust of all and contribute to sustained development of society by living up to the expectations of society through out business activities.

Based on this awareness, the Kansai Electric Group plans to fulfill its corporate social responsibility (CSR) by carrying out all business activities in accordance with the following rules.

CSR action rules

Delivery of safe, stable products and services

As a business that functions as an indispensable lifeline for society, the Kansai Electric Group recognizes it is supporting the foundation upon which all our customers carry out their daily living activities, and makes sure that customers are provided with safe, stable products and services on a daily basis.

Advanced initiative to solve environmental problems

As an energy company with deep connection to the environment, the Kansai Electric Group recognizes the impact its business activities have on the environment. Along with working to reduce environmental load of its own activities, the company aims to be on the highest global level.

The company will also carry out cutting edge initiatives aimed at creating a better environment and will actively contribute to building a sustainable society.

Positive contribution to growth and development of local communities

As a business with close ties to local areas, the Kansai Electric Group recognizes that its own development is impossible without development and growth of local communities. Based on this awareness, the Kansai Electric Group contributes to growth and development of local communities through initiatives to invigorate the local economy and community.

Respect for human rights and creation of a pleasant workplace

The Kansai Electric Group recognizes “respect for human rights” as an important obligation based on international consensus. Concerning all of its business activities, the Kansai Electric Group strives to make the workplace safe and pleasant for all people.

Transparent, open business activities

Along with properly reflecting the opinion of society into its business activities, the Kansai Electric Group strives to promote communication with society and conduct business in an open, transparent manner to secure fair business management and fulfill our obligation to keep the people informed.

Full compliance

“Establishment of corporate logic” and “observance of all rules and regulations” are obligations required for living in society. The Kansai Electric Group has created a system to ensure compliance with rules and regulations and is working to maintain and improve the system.

Mission/Responsibility for Stable Supply

In order to provide customers with stable electric power, Kansai Electric takes total responsibility for its products and services from generation to sales. The company is working on a high quality, efficient distribution system that promotes the "best mix" of power sources.

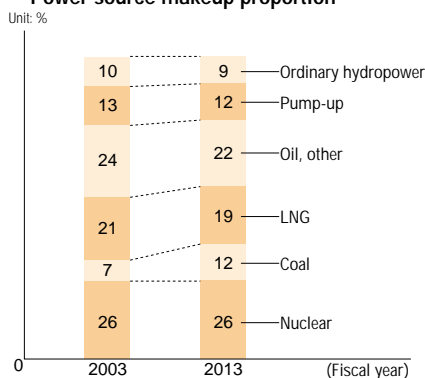
"Best mix" Optimal Combination of Power Sources

Because Japan is poor in natural resources, the country has a weak energy structure that relies on certain forms of energy and imports from overseas. Kansai Electric has therefore strived to put together the optimal combination of energy sources by switching from oil to nuclear power or natural gas so as not to overly depend on certain energy sources.

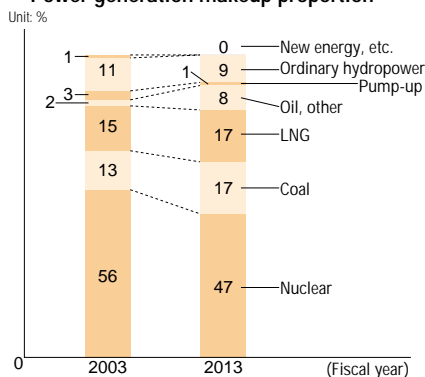
Thus, "best mix" means stably and efficiently supplying electric power by means of the optimal combination of the superior features various methods of generating power such as nuclear power generation, thermal power generation and hydropower generation, based on characteristics such as impact on the environment, cost and coping with variation in power demand.

With safety as an indispensable prerequisite, Kansai Electric promotes the best mix, which is the optimal combination of electric power sources including thermal, hydropower and pump-up power generation, which offers low cost, fuel security and superior environmental characteristics.

Power source makeup proportion



Power generation makeup proportion



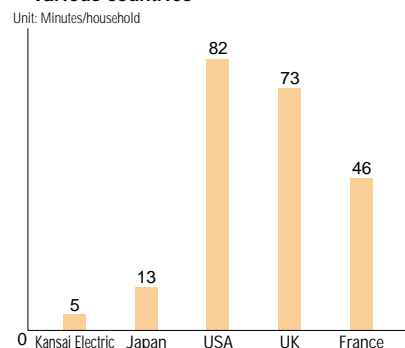
Note 1: Facilities at end of fiscal year and power generation include power received by other companies.
Note 2: Due to rounding off, the total may not add up to 100%.

Realization of High-quality Electric Power Distribution System

Kansai Electric has already succeeded in fortifying its power distribution facilities while pursuing low cost for its system of distributing electric power (transmission, transforming, distribution) efficiently and reliably. As a result, the quality of the company's electricity is among the best in the world.

Kansai Electric will continue to take measures to observe rules and prevent accidents owing to human error while maintain trust in its supply of electric power so that people in the areas supplied by Kansai Electric will not be inconvenienced.

Annual power outages per household in various countries



*All figures are from fiscal 2000. Figures from foreign countries are adopted from the current state of the electric power business (Federation of Electric Power Companies of Japan).

Aiming for Electricity Supply that can Stand up to Earthquakes - Getting over the Great Hanshin Awaji Earthquake

TOPICS

As a designated public institution based on the "Disaster Countermeasures Basic Law", Kansai Electric has created its "Disaster Prevention Work Plan" and is striving to prepare electricity supply facilities that can withstand disasters. The company is also preparing company rules and training personnel in preparation of disasters resulting from typhoons, earthquakes, etc.

The Emergency Disaster Team takes control in the event of a disaster and works to restore power in coordination with the administration, police, fire department, etc.

Our power generating facilities were seriously impaired by the Great Hanshin Awaji Earthquake that struck on January 17, 1995. At that time 2.6 million households lost power. It

took six days to complete emergency transmission. Having learned a lesson from this, Kansai Electric has established a plan for quick restoration of power by reviewing our first response system and information communications system. This will improve the company's ability to respond swiftly and accurately in the event of a disaster.

In addition to this, the company is promoting measures to deal with Tokai earthquakes in compliance with the "Large Scale Earthquake Countermeasures Special Measures Law" and measures to deal with tidal waves in compliance with the "Special Measures Law Concerning Promotion of Countermeasures against Earthquakes Related to Tonankai/Nankai Earthquakes."



Disaster training



Electric wiring restoration

Safe/Stable Operation for Nuclear Power Generation

Based on its quality assurance system that places priority on safety, Kansai Electric is striving for sustained safe and stable operation for nuclear power generation. The company aims to be a nuclear power energy supplier that has earned trust of all, especially the people living near nuclear power stations.

Ensuring Safety of Nuclear Power

In order to prevent accidents involving radiation at nuclear power stations, Kansai Electric is making doubly sure that everything is secure by taking redundant safety measures.

In line with the “Law For Measures Against Nuclear Accidents”, Kansai Electric has adopted an Accident Response Plan drawn up through consultation with local communities that spells out action to take in a nuclear emergency. The plan is reexamined each year to make adjustment or improve on what could be done in the event of a nuclear emergency.

As indicated in the action response plan, each nuclear power plant stages drills once a year to ensure preparedness in the event of a nuclear accident.

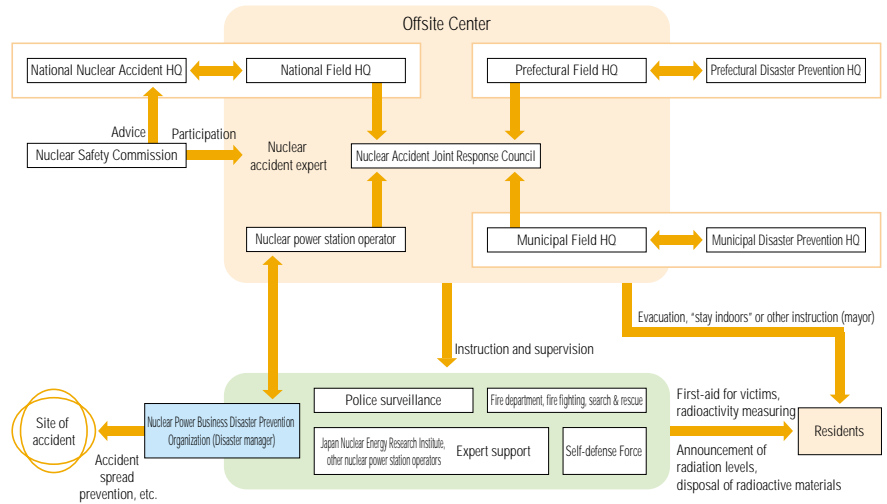
The national and local governments play an active part in these drills as they serve to strengthen coordination.

*The law provides a framework of cooperation that allows national and local governments, power companies and related organizations to build a defense against nuclear accidents that threaten surrounding areas.



Accident response

Accident response system

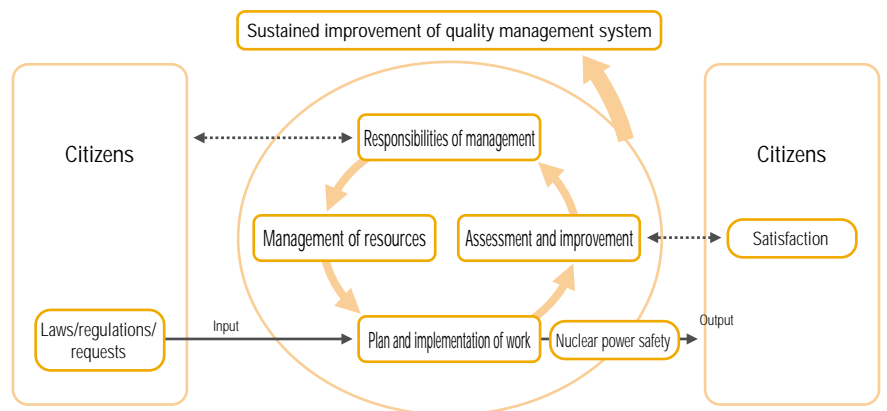


Quality Assurance Activities for Nuclear Power

Based on the steam leakage accident in which the heat transfer tube broke at the Mihama No. 2 power station and the MOX fuel data problem at BNFL in the UK, in accordance with legal requirements and private standard “Quality Assurance Regulations Concerning Safety at Nuclear Power Stations”, the Quality Assurance Regulations Concerning Safety at Nuclear Power Stations” was enacted in October 2003 and a quality management system for nuclear power was prepared, but a secondary pipe breakage accident

occurred at the Mihama No. 3 station. Kansai Electric takes these accidents very seriously. Along with doing our utmost to determine the causes of the accidents and taking countermeasure to prevent reoccurrence, the company is reconstructing the quality management system with priority on safety.

Quality management system



→ Activities for adding value

----- Information flow

Adapted from Quality Assurance Regulations Concerning Safety at Nuclear Power Stations published by Japan Electric Association (JEAC4111-2003)

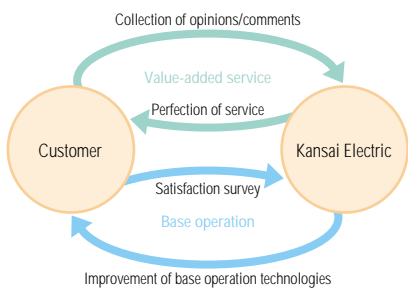
Aiming to Enhance Customer Service

The Kansai Electric Group will provide solution service that is intimately related to the customer's daily living in order to provide optimal service to satisfy the customer and earn the customer's trust.

Enhancement of Customer Service

By reliably carrying out every duties on a daily basis, in order to maintain the highest customer satisfaction possible, through means of listening to customers opinions and comments to improve service (Web site and call center) and means of quantitatively assessing/analyzing customer satisfaction (customer satisfaction survey), Kansai Electric aims to be "Number One in Customer Satisfaction" by providing customers with products and services that exceed their expectations.

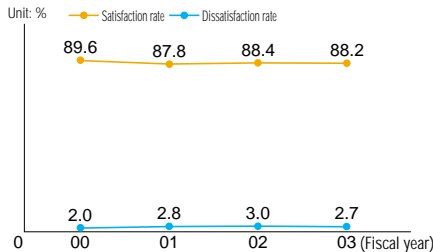
Philosophy of customer service enhancement



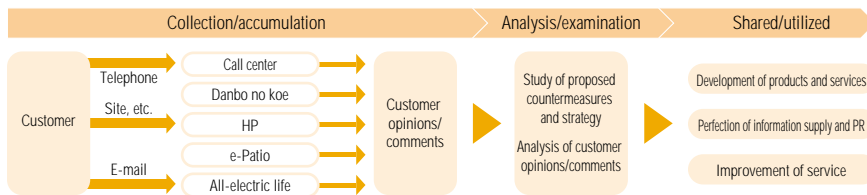
Customer Satisfaction Survey

Kansai Electric has conducted a telephone survey of customer satisfaction by contacting each customer who applies for something at Kansai Electric since 1993. By asking customers their impression of the person handling their business and what they thought of the treatment they received, our sales offices are able to get an objective picture of their own service level, thereby enabling them to verify the results of improvements and discover new points that need to be improved. Kansai Electric is furthermore working to improve the service level by establishing things that need to be emphasized and targets for the next period.

Transition of Customer Satisfaction



Effective use of customer opinions/comments



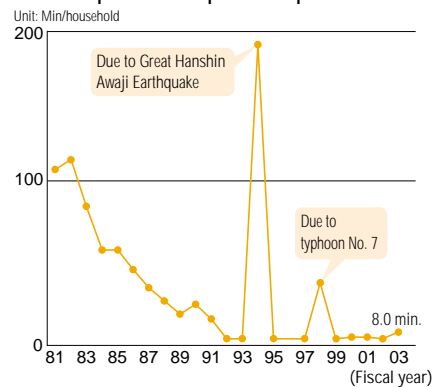
To Have Customers Use Electricity Without Worry

In order to provide customers with stable, high-quality electricity, Kansai Electric works on maintenance and improvement of electric power equipment on a daily basis, periodically conducts training of maintenance workers for emergencies to ensure quick restoration of power in the event of an accident that interrupts power. The company also strives to respond quickly and properly when a customer requests service such as by directly visits by Kansai Electric personnel, etc.



Periodically conducts training of maintenance workers

Annual power interruption time per household



Workers' opinions Aiming to respond in a manner that leaves customers with a good impression



Kobe Sales Office, Kobe Customer Center
Mai Kibamoto(left), Maya Yonetani (right)

Returning to the origin, we would like to express our sincere gratitude to our customers. The time we spend with customers taking calls and so on is relatively short, so we are always thinking of ways we can please the customer. We can always be courteous whenever talking with customers. It all begins with noticing.



Respond in a manner that leaves customers

Providing Solution Service

In addition to supplying energy for business and households and supplying IT service, the Kansai Electric Group provides total solution service that is closer to the customer's living such services intimately related to the customer's lifestyle, maintenance of the customer's equipment and suggestions on how to use energy to better suit the customer's needs.

In addition to stably providing services

that support the living base for residential customers, the Kansai Electric Group wants to provide the customer with ease of mind by responding to the needs of each and every customer.

The group hopes to be of service to business customers by supporting utilities in general that support the customer's business.

TOPICS Safety of Various Service Supplied by the Kansai Electric Group and Stable Delivery

As a solution service business intimately related to our customers' businesses and daily living, the Kansai Electric Group provides various products and services other than electricity. The group strives to earn the trust of customers by providing stable and safe products and services.

Information Telecommunications Service

K-Opticom Corporation, which forms the nucleus of the Kansai Electric Group's information telecommunications business is a telecommunications service that provides telecommunications via optical fiber or dedicated line. The services provided by the company include Internet connection, IP telephone, optical broadcasting and other telecommunications services that are indispensable for business and daily living. To stably provide such services which are becoming increasingly important as a lifeline, along with being monitored around the clock at the service operation center, the company has prepared a system for speedy response in case of emergence for the entire service area.



Service operation center of K-Opticom Corporation

Gas Business

In order to provide optimal energy solutions for customers, in addition to electricity, the Kansai Electric Group supplies gas and fuel for cogeneration (oil). When supplying gas for example the group has prepared a system for quick response using all electric power system center and power stations in the Kinki area in the event of an emergency such as gas leak and makes doubly sure to provide security by providing organized training and education for safety personnel and preparing and safety management system based on safety regulations (gas work).

Home Security Service

As one of the services related to daily living provided by the Kansai Electric Group, KANDEN Security of Society, Inc. (KANDEN SOS) provides home security service whereby when a sensor installed at the customer's home detects an abnormality, it transmits a signal to the monitor center and security guards of a collaborating security service are sent to investigate. Along with using the Kansai Electric Group's information telecommunications technology and optical fiber network, the system includes a backup line in case out a communications interruption to form a reliable, highly stable security network.

Environmental Policy

The Kansai Electric Group CSR Action Constitution (extract)

Addressing Global Environmental Problems

As an energy supplier with ties to the environment, the Kansai Electric Group aims for the world's highest level by recognizing the size of the impact of its business activities on the global environment and by working to reduce the load placed on the environment by its own business activities. The Kansai Electric Group furthermore has taken advanced initiatives to create a better environment and actively contributes to building a sustainable society.



Philosophy

Five Basic Principles of the Action Plan for Global Environmental Considerations (Adopted in 1990)

Kansai Electric is well aware of our big responsibilities and an energy provider. As we strive to deliver an affluent way of life to people in our service area, we are staking a serious challenge to protecting the global environment on the corporate level. In all aspects of our operations, we are investigating advanced means of global environmental protection and taking action immediately in areas we can be effective.

- 1 Reduction of environmental impact
- 2 Promotion of effective and efficient use of energy and resources
- 3 Development of advanced technology
- 4 Coordination of efforts throughout the Kansai Electric Group
- 5 Creation of a new corporate culture to support harmonious coexistence with the global environment

Action Guide

Action Plan for Global Environmental Considerations (Adopted in 1991, revised in 2000)

Action 1

Consideration for the environment in all areas of our business

- 1 Address global environmental problems
 - a. Measures to prevent global warming (new ERA strategy)
 - Efficiency: Efforts to increase energy efficiency by society as a whole
 - Reduction: Reducing greenhouse gas emissions in power supply
 - Activities abroad: Activities carried out abroad to prevent global warming
 - b. Protecting the ozone layer
- 2 Addressing local environmental problems
 - a. Measures to prevent air pollution
 - b. Measures to prevent water pollution
 - c. Measures against chemical substances, etc.

Action 2

Activities aimed at building a recycle-oriented society

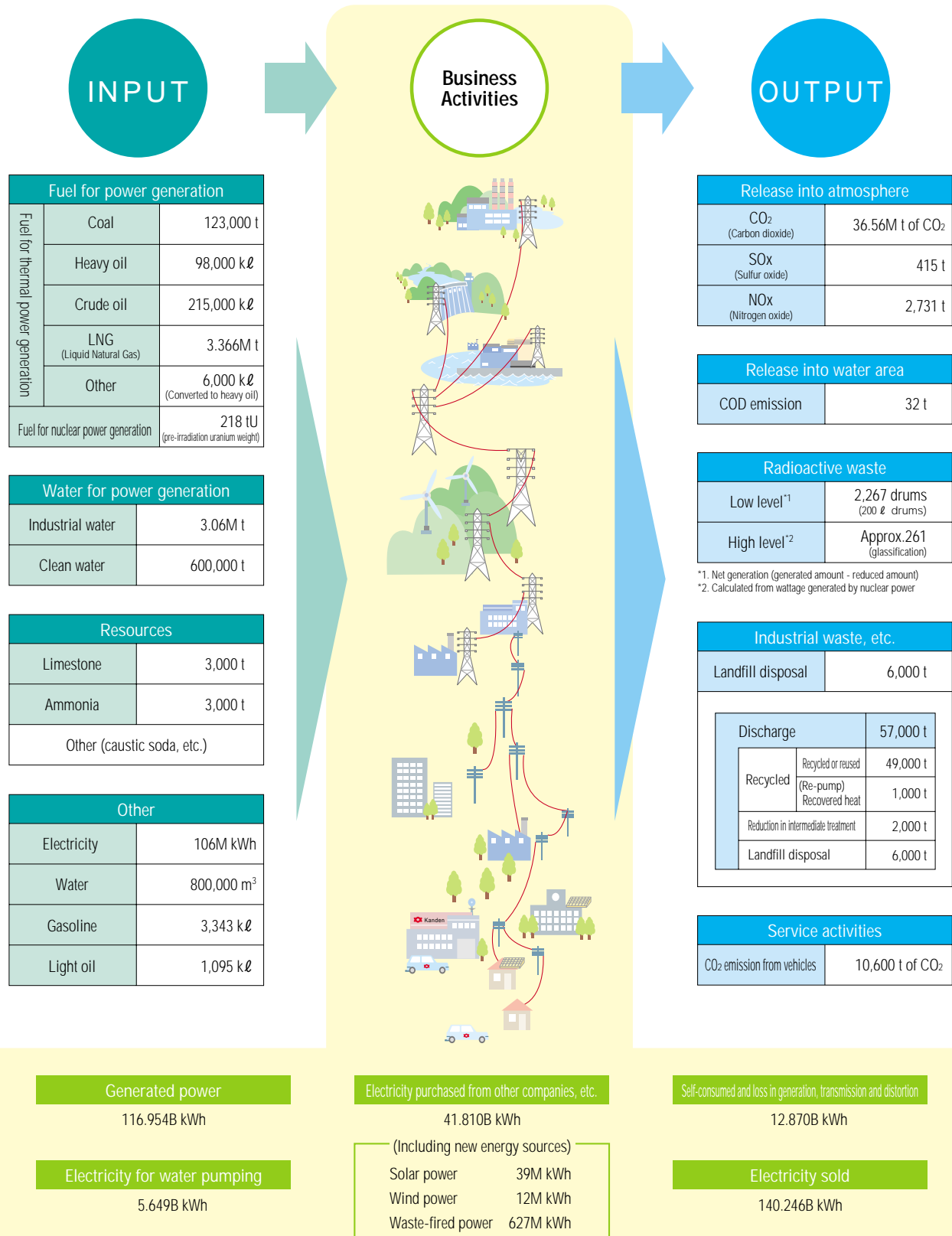
- 1 Promoting business activities suitable for a recycling-oriented society
- 2 Earnest exchange and cooperation with external groups
- 3 Raising employee awareness of their responsibility as global citizens and encouraging them to develop good daily practices



Concrete Action Plans

Eco Action (Adopted every year)

Kansai Electric is working hard to quantitatively identify the full picture of the environmental load caused by our business activities so that we can reduce the load.



Targets and Performance

Each year Kansai Electric draws up companywide concrete action plan "Eco Action" that establishes numerical targets for three years to come in accordance with the environmental policy.

Eco Action 2004 (companywide concrete action plan) [adopted in March 2004]

Item		Targets and performance for 2003		
		Targets	Performance	
Environmental management	Adoption/expansion of system in compliance with ISO standards	Maintenance/increase of number of conforming locations	17 locations	
Measures for dealing with problems concerning the global environment	Amount of CO ₂ emitted for the amount of power used	Approx. 0.34 kg of CO ₂ /kWh (expected)	0.261 kg-of CO ₂ /kWh	
	Improvement of equipment utilization factor of nuclear power stations	At least 85%	89.1%	
	Maintenance/improvement of heat efficiency of thermal power stations	At least 42%	42.3%	
	Output increase by refurbishing hydropower stations (cumulative total form 1989 to present)	38,752kW	38,752kW	
	Reduction of total loss (transmission/distribution loss)	Reduce as much as possible	8.4%	
	Suppression of SF ₆ gas emission (gas recovery rate for equipment inspection)	95%	97%	
	Power demand load averaging	Increase in all-electric home accounts (Happy e Plan, etc.)	250,000 accounts	260,000 accounts
		Increase in regenerative adjustment accounts	6,600 accounts	6,415 accounts
	Utilization of unused energy (location where heat is supplied)	11 locations	11 locations	
Development/diffusion of new energy	610M kWh	At least 610M kWh		
Measures for dealing with problems concerning the regional environment	Amount of SO _x and NO _x emitted for the amount of power generated	SO _x	Maintained at approx. current level 5-yr. avg. 1998 - 2002 SO _x : 0.02 g/kWh (Kansai Electric) (Thermal power 0.06 g/kWh) NO _x : 0.04 g/kWh (Kansai Electric) (Thermal power 0.14 g/kWh)	
		NO _x	0.004 g/kWh (Kansai Electric)	
			0.019 g/kWh (thermal power)	
			0.023 g/kWh (Kansai Electric)	
0.124 g/kWh (thermal power)				
Promotion of recycling-oriented business activities	Improvement of resource recycling rate for industrial waste	90%	86%	
	Amount of industrial waste disposed of as landfill (compared with 2000)	-	6,476 t	
	Green procurement of office supplies (43 applicable items)	100%	99%	
	Introduction of low-pollution vehicles (number of low-pollution vehicles among the total number of vehicles)	30%	29.7%	
	Energy savings and resource savings (In-house use) (compared with 2000)	Reduction of amount of electricity used in offices	4% reduction	10.7% reduction
		Reduction of amount of utility water	3% reduction	23.1% reduction
		Improvement of vehicle fuel consumption	Improve as much as possible	9.3 km/ℓ
Reduction of amount of copy paper used		12% reduction	9.7% reduction	

*Points modified since last environmental report

**Amount of industrial waste disposed of as landfill* was added to include target values in conjunction with the Kansai Electric Recycling Activities Promotion Plan (March 2004).

**Promotion of peak-cut-type equipment* and *Using LNG (Ratio of LNG to thermal fuel)* have been eliminated because targets have been met.

Targets for 2004 and beyond				Targets and action plans up to fiscal 2010	page
Fiscal 2004	Fiscal 2005	Fiscal 2006			
Maintenance/increase in number of conforming locations				Devise continual improvement of environmental management system	P. 21
0.34 kg-of CO ₂ /kWh (expected)				Attain about 0.34 kg of CO ₂ /kWh at Kansai Electric by 2010 in order to attain target value for all electricity business (0.34 kg of CO ₂ /kWh by 2010). Promote New ERA Strategy to continually attain targets.	P. 26
At least 85%				Make efforts to ensure continual, safe, stable operation for nuclear power.	P. 31
At least 42%				The target of thermal efficiency rate of 42% was achieved by using primarily high-efficiency combined plants while working to improve application aspects such as shortening start-up time at conventional plants. Now we need to maintain/improve the thermal efficiency rate.	P. 31
46,452kW	46,452kW	49,852kW		Targets were achieved to carry out refurbishing work according to schedule. Subsequent refurbishing work and other large scale improvement projects are to be carried out aiming to increase output to 49,852 kW in 2006.	P. 32
Reduce as much as possible				The same level as the previous year was maintained. Next we will devise ways to minimize loss form both aspects of equipment formation and use.	P. 32
97%	97%	97%		A high recovery rate was achieved by efficiently recovering when performing inspections. Next we will maintain approx. 97%, which is the target for the electricity business on the whole.	P. 32
610,000 accounts	714,000 accounts	841,000 accounts		The number of regenerative adjustment accounts was just short of the target value. Next we hope to further popularize regenerative adjustment and further increase the number of accounts.	P. 28
7,400 accounts	8,400 accounts	9,400 accounts			P. 27
12 locations				We hope to start projects at 12 locations by new introduction.	P. 30
At least 660M kWh	At least 710M kWh	At least 760M kWh		Targets were achieved due to purchase of electric power from new energy sources. Next we will work on popularization/development of new energy by promoting autonomous development and by PR for the Green Power Fund.	P. 29
Promote growth of Kansai Green Electricity Fund					P. 30
Maintain at approx. current level 5-yr. avg. 1998 - 2002 SOx: 0.02 g/kWh (Kansai Electric) (Thermal power 0.05 g/kWh) NOx: 0.04 g/kWh (Kansai Electric) (Thermal power 0.14 g/kWh)				This was improved in comparison with the previous year by increase in power rate of LNG thermal power generation. We will continue to maintain the current status, which is the highest level in the world.	P. 39
90%				Due to reduction of soot emitted from thermal power stations, the recycling rate fell short of the target value. Next we hope to reduce zero emission of industrial waste disposed of as landfill in the medium-to long term.	P. 43
Half reduction (max. 4,500 t)					
100%				Fell just short of target values. Next we will increase the number of applicable items.	P. 47
35%	40%	45%		Fell just short of target values. In the future we will introduce/increase the number of hybrid vehicles and low emission vehicles (LEV) in addition to electric vehicles.	P. 47
12% reduction	13% reduction	14% reduction		The mount of copy paper used fell just short of target values. We plan to promote activities to further reduce the amount of paper used at all of our facilities.	P. 47
24% reduction	25% reduction	26% reduction			
Improve as much as possible					
11% reduction	12% reduction	13% reduction			

Environmental Management

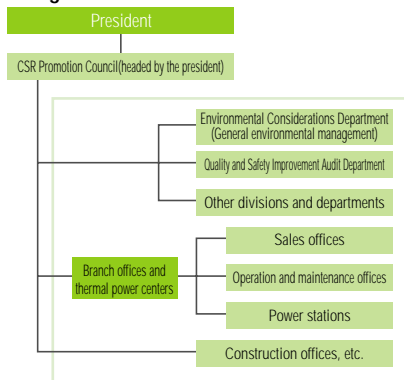
A more complete environmental management system is being devised based on the philosophy of TQM (total management system), in order to maintain more efficient measures while strictly observing pertinent laws and regulations.

Environmental Improvement Activities Based on the Environmental Management System

Based on the CSR Promotion Council headed by the president of Kansai Electric, with the Environmental Considerations Department in charge of environmental issues in general, those in charge of environmental management are positioned in each organization. Based on the concrete action plan Eco Action, companywide environmental improvement activities are carried out in accordance with the PDCA cycle.

Kansai Electric also has about 250 environmental project promotion staff who impart environmental education in the workplace, do PR activities outside the company and a number of other chores aimed at helping the individual departments take up environmental activities of their own.

Organization



Global environmental project promotion staff (Approx. 250)

Introduction of ISO14001 standards

The environmental management system that complies with ISO14001 we started building for our thermal power stations in 1997 is now complete. We are also trying to expand the system to cover our nuclear and conventional power stations. We have worked on improving the system by having experts from other plants and from outside the company participate in internal audits of our thermal power stations that have voluntarily declared their data since 2002.

In order to have our initiatives objectively evaluated, as of March 2004, we have obtained external certification at 10 of our operations.

Locations acquiring external certification

(Fiscal 2003)

Name	Date registered
Himeji No 1 Power Station (thermal)	March 24, 2000
Kainan Power Station (thermal)	October 27, 2000
Himeji No 2 Power Station (thermal)	March 23, 2001
Sakaiko Power Station (thermal)	February 22, 2002
Wakayama Power Station, Tanabe Electric Power SC	February 22, 2002
Nanko Power Station (thermal)	March 29, 2002
Himeji LNG Management Office	March 29, 2002
Himeji Operation and maintenance Office	March 29, 2002
Ohji Nuclear Power Station	October 25, 2002
Customer Headquarters, Technical Test Center	January 26, 2004

Strict observance of environmental laws and ordinances

In 1997, requirements for environmental impact assessment were strengthened by ministerial decision. Since that time, Kansai Electric has conducted 16 environmental impact assessments.

Following passage of the Environmental Impact Assessment Law in 1997 and revisions to the Electric Utilities Industry Law, specific procedures were added to assessments for power stations.

Based on these procedures, we are currently evaluating environmental impact concerning upgrading our Sakaiko Power Station to combined cycle power generation.

Kansai Electric's facilities strictly observe laws, ordinances and Agreement on Environmental Protection concluded with local communities near our power stations.

Main laws, ordinances and agreements

Main Environmental Laws

- Air Pollution Control Law
- Water Pollution Control Law
- Noise Regulation Law
- Vibrations Regulation Law
- Offensive Odor Control Law
- Waste Disposal and Public Cleansing Law

Main Ordinances

- Ordinance Pertaining to the Protection of the Living Environment in Osaka Prefecture
- Ordinance Pertaining to the Protection and Creation of the Environment (Hyogo Prefecture)
- Law on the Protection and Fostering of the Environment of Kyoto Prefecture
- Ordinance Pertaining to the Prevention of Environmental Pollution in Wakayama Prefecture
- Ordinance Pertaining to the Prevention of Environmental Pollution in Fukui Prefecture

Main Agreements

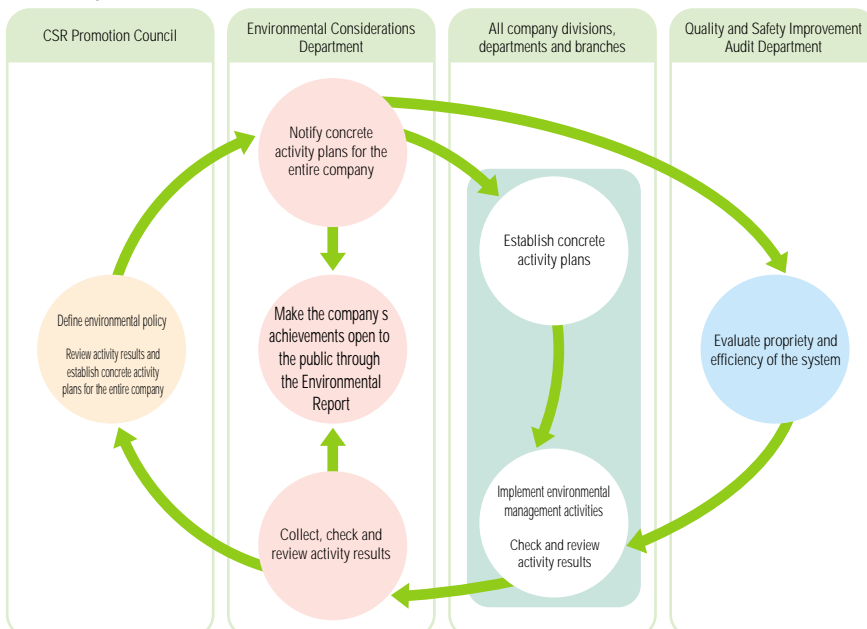
11 environmental protection agreements for thermal power stations

- Agreement on Pollution Prevention at Nanko Power Station (Power stations in Nanko, Sakaiko and Osaka)
- Agreement on Environmental Protection (Himeji No. 1 and No. 2)
- Agreement on pollution Prevention (Kainan Power Station)
- Agreement on Environmental Protection at Maizuru Power Station (Maizuru Power Station)

3 safety agreements for nuclear power stations

- Agreement on Environmental Safety for Area Around Nuclear Power Stations (Nuclear power stations in Mihama, Ohji and Takahama)

PDCA cycle



Environmental education

In order to promote and improve environmental protection activities in all business fields, Kansai Electric is working hard to develop human resources that can create and implement voluntary and constructive activities in accordance with their own position and responsibilities in their respective workplace. Companywide training has been implemented since fiscal 2004 using the e learning system.

Educational programs for employees (imparted by Kansai Electric)

Program	Description
Environmental staff training	Implemented September 2003. Provided staff in charge at various locations (38 participants) with knowledge of what is going on inside and outside the company.
Internal environmental audit training	Implemented August 2003. Provided Internal auditors in charge at various locations (22 participants) with knowledge auditing techniques, etc.
ISO14001 staff training	Implemented October 2003. Provided staff with knowledge of environmental sampling and assessment methods.

Award of excellence in environmental action promotion

In order to promote and improve environmental protection activities in all business fields, Kansai Electric is working hard to develop human resources that can create and implement voluntary and constructive activities in accordance with their own position and responsibilities in their respective workplace. Companywide training has been implemented since fiscal 2004 using the e learning system.

Award-winning business sites (fiscal 2003)

Award	Business site
Excellence Award	Hanshin sales office, Hokuriku branch
Special Award	Hokusetsu sales office

Promotion of Environmental Management Activities as a Group

The entire Kansai Electric Group is working together to strengthen risk management by enhancing environmental management and increasing group profits by promotion of eco business.

Kansai Electric is fortifying the linkage among the various companies belonging to the group through various opportunities such as support for eco business expansion using all sorts of environmental technologies and expertise and sharing information by holding information meetings. Based on the philosophy of CSR, Kansai Electric intends to continue to pursue environmental management activities as a group.

Acquisition of ISO14001 certification

Six companies of the Kansai Electric Group have obtained ISO14001 certification.

Kansai Electric aims to build an environmental management system for the entire group based on the actual state of each company.

Company that have acquired ISO14001 certification (As of March 31, 2004)

Company	When acquired
KANSAI ENVIRONMENTAL ENGINEERING CENTER CO., LTD.	May 1996
KINDEN CORPORATION	September 1999
NEWJEC INC.	January 2000
Kansai Tech Corp.	February 2002
Osaka Rinkai Netsu Kyokyu Co., Ltd.	January 2003
The Kanden Kogyo, Inc.	November 2003

Gathering environmental load data

Kansai Electric has gathered data on 23 group companies which are expected to have a high environmental load (electricity/water consumption, vehicle fuel consumption, air and water polluting substances, industrial waste, etc.) and has disclosed the data to the public since fiscal 2002. Three more companies were added in fiscal 2003, so environmental load data is now being managed for 26 companies.

In fiscal 2004, Kansai Electric is considering improvement of the management system and expansion of the range of application in order to reduce environmental load for the entire group.

Environmental load data of group companies(26 companies)

Item	Fiscal 2003 results
Electricity consumption	363M kWh
Water consumption	1,487M m ³
Gasoline consumption	4,503kℓ
Light oil consumption	4,504kℓ
Industrial waste discharge	58,000 t
(Re-pump) Landfill disposal	24,000 t
CO ₂ emission	164,000 t

[26 applicable group companies]
Wakayama Kyodo Power Co.,Inc., K-Opticom Corp., Kanden Information Systems Co.,Inc., KIA Heating & Cooling Supply Co.,Ltd., Osaka Rinkai Energy Service Corp., Wakayama Marina City Energy Service Co.,Ltd., Kanden Gas And Cogeneration Co.,Inc., Kanden Energy Development Co.,Inc., KOBE HEATING AND COOLING SUPPLY Co.,Ltd., The Kanden Industries ,Inc., KANDEN REAL ESTATE CO.,LTD., TOKO SEIKI CO.,LTD., NIHON ARM CO.,LTD., KINKI CONCRETE INDUSTRIES CO.,LTD., KINDEN CORP., Kansai Tech Corp., The Kanden Kogyo ,Inc., NEWJEC INC., KANSAI ENVIRONMENTAL ENGINEERING CENTER CO.,LTD., Kansai Electrical Instruments Co.,Ltd., SONODA INSTRUMENTS INC., The Kanden Services Co.,Inc., The Kanden Seisakusho Co.,Ltd., KANDEN KAKOH CO.,Inc., KANDEN AMENIX CO.,LTD., Kurobe Gorge Railway Co.,Ltd.

TOPICS Fiscal 2004 Osaka Environmental Award First Prize (business department)*

Kansai Electric is the first company in the energy industry to acquire the Eco Leaf Environmental Label. The company has been acclaimed for raising awareness of the environment, and received the Osaka Environmental Award First Prize in June

2004. The Kanden Kogyo, Inc., also a member of the Kansai Electric Group, was praised for reusing air-conditioning filters by employing ultrasonic cleaning and received the incentive award.

*Sponsored by the Rich Environment Creation Council of Osaka Prefecture (headed by Osaka Governor Fusae Ohta, the award is presented to businesses for exemplary voluntary environmental conservation activities.



Award certificate

Environmental Accounting

Kansai Electric introduced its own original system of environmental accounting in 1999 and has since disclosed the results to the public. As a test, the company has totaled the cost of environmental protection activities for some of the companies belonging to the group. The company intends to further improve on environmental accounting for the group in the future.

Environmental protection costs

Units: ¥100 million

Category	Investment		Expense		Main items
	Fiscal 2003	Fiscal 2002	Fiscal 2003	Fiscal 2002	
I. Cost of environmental management	0.2	-	44.9	53.4	
1. Environmental management	0.2	-	1.5	0.8	Preparation of environmental reports, internal education programs, acquisition of external certifications such as ISO
2. Environmental advertising	-	-	1.1	1.4	Monthly events related to the environment, PR work on energy conservation
3. Labor costs	-	-	42.2	51.2	
II. Cost of measures against global environmental problems	7.3	1.8	12.5	9.2	System linkage to wind power generation, purchase of excess electricity from new energy sources
III. Cost of conservation of regional environments	278.3	328.4	202.9	240.4	
1. Monitoring and measuring of environmental impact	6.2	7.5	20.4	19.6	Measurement and management of radioactivity levels, measurement and research of substance concentration in the environment
2. Pollution prevention	209.7	208.1	140.3	172.1	Measures for preventing air and water pollution
3. Natural environment protection and harmonization	62.4	112.8	42.2	48.7	Burying of transmission cables, planting projects
IV. Cost of building a recycle-oriented society	24.7	18.8	63.0	65.1	
1. Treatment and recycling of industrial waste	17.2	12.6	14.4	14.3	Industrial waste and PCB treatment
2. Treatment and recycling of general waste	-	0.6	0.2	0.2	Recycling of old paper
3. Treatment of radioactive waste	7.5	5.6	48.1	50.2	Low level radioactive waste treatment
4. Green purchasing	0.0	0.0	0.3	0.4	Leasing of low-pollution vehicles
V. Cost of research and development	-	0.0	18.5	20.0	CO ₂ measures
VI. Other costs	2.0	4.9	12.7	12.7	
1. Coexistence with local communities and support for environmental education	-	-	3.5	2.9	Membership in environmental organizations, donations for events
2. International activities	2.0	4.9	0.0	0.0	Donations to environment funds overseas
3. Environmental subsidies and donations	-	-	9.1	9.8	Levies on pollution levels
Total	312.5	353.9	354.3	400.9	
Total investment for the concerned period	2,551	3,265	-	-	
Total running costs for electric utilities business during the concerned period	-	-	20,297	21,552	

In accordance with formulation of our calculation guidelines, the results for 2002 have been altered.
 Note: "Environmental Accounting Guidelines, 2002 edition" (Ministry of the Environment) was used as a reference. Depreciation was not used as a factor in figuring cost. Complex cost was figured by using one of the following 3 methods: 1. balance tabulation, 2. pro rata tabulation based on rational standards or 3. pro rata tabulation based on simple standards. The total of individual environmental preservation initiatives has been used as a factor in figuring cost involving nuclear power generation (managing/measuring radiation, treating low-level radioactive waste, etc.). Totals may not add up exactly due to rounding off of figures.

Effect of environmental protection activities

Category	Item (unit)	Fiscal 2003 (A)	Fiscal 2002 (B)	Result (A - B)	Against 1990 (or accumulative total)	
I. Environmental management	Acquisition of external certification such as ISO (facilities)	10	12	2	-	
II. Global environmental protection	CO ₂ emissions (10,000 tons of CO ₂)	3,656	3,684	28	605	
	CO ₂ emissions per unit of power (kg of CO ₂ /kWh)	0.261	0.260	0.001	0.093	
III. Regional environmental protection	Pollution prevention	SO _x emissions (t)	415	1,332	917	10,882
		SO _x emissions per unit of power (g/kWh)	0.004	0.011	0.007	0.088
		NO _x emissions (t)	2,731	3,740	1,009	12,315
		NO _x emissions per unit of power (g/kWh)	0.023	0.031	0.008	0.100
	Environmental harmonization	Extended length of buried cable (km)	134	178	44	(12,862)
		Forested area (1,000 m ²)	41	4	37	(3,628) ¹
IV. Building of a recycle-oriented society	Industrial waste discharge (1,000 t)	57	50	7	82	
	Industrial waste recycle rate (%)	86	85	1	9	
	Low level radioactive waste (drum cans)	2,267	1,078	1,189	(118,095)	
	Introduction of electric vehicles (total number of vehicles)	162	175	13	-	
V. Other	Forestation (10,000 trees)	2.0	2.4	0.4	(33.7) ²	
	Beautification activities (no. of cases)	308	841	533	(6,450) ³	

Note: CO₂ emissions include those of other companies. SO_x and NO_x emissions are only for self-generated power. CO₂ emission per unit of power is based on amount of energy sold. SO_x and NO_x emission per unit of power is based on amount of power generated.
¹ Fiscal 2002 not yet cumulative area altered along with modification of totaling method. ² Total of fiscal 1993 and subsequent. ³ Total of fiscal 1996 and subsequent

Economic effect of environmental protection efforts

Units: ¥100 million

Category		Fiscal 2003	Fiscal 2002	Main items
Revenue	Revenue from recycle business	0.0	0.0	Sales of desulfurizing gypsum for flue gas
Expenditure	Cost reduction by energy saving	44.7	79.8	Reduction in fuel consumption by improving heat efficiency of thermal power stations*
	Cost reduction by material reuse and recycling	52.3	49.8	Cost reduction by reusing utility pole transformers, etc.
	Other	0.2	0.2	Reduction in pollution load levies by reducing SOx emissions
Total		97.2	129.8	

*The reduced fuel consumption for this year was calculated from the heat efficiency improvement compared against 1990 levels.

Accounting results for 2003

As for environmental protection cost for 2003, there was a reduction in amount invested due to reduction in underground cable construction and so on; investment decreased a total of ¥4.1B in comparison to the previous period. Because of a decrease in maintenance and operation cost of pollution prevention-related equipment due to a decrease in thermal power generation, expenditure decreased by a total of ¥4.7B in comparison to the previous period.

Concerning environmental prevention effect, on the other hand, due to high level operation of nuclear power stations and decrease in amount of thermal power generation, CO₂, SO_x and NO_x emissions decreased in comparison to the previous period.

Due to a decrease in amount of thermal power generation, economic effect accompanying environmental protection measures also decreased a total of ¥3.3B in comparison to the previous period.

Group initiatives with environmental accounting

Total environmental protection cost of 11 group companies was ¥800M; this means each company spent an average of ¥70M.

The group intends to further improve environmental accounting by expanding the number of applicable group companies, improving accuracy of calculation methods and determining economic effect.

11 group companies for which economic effect was totaled
Wakayama Kyodo Power Co.,Inc., Osaka Rinkai Energy Service Corp., Wakayama Marina City Energy Service Co.,Ltd., KOBE HEATING AND COOLING SUPPLY Co.,Ltd., TOKO SEIKI CO.,LTD., KINDEN CORP., Kansai Tech Corp., The Kanden Kogyo ,Inc., NEWJEC INC., KANSAI ENVIRONMENTAL ENGINEERING CENTER CO.,LTD., KANDEN KAKOH CO.,Inc.

Evaluation of Eco-efficiency

Kansai Electric estimates eco-efficiency which expresses the correlation of economic value produced by business activities and environmental load discharged by business activities.

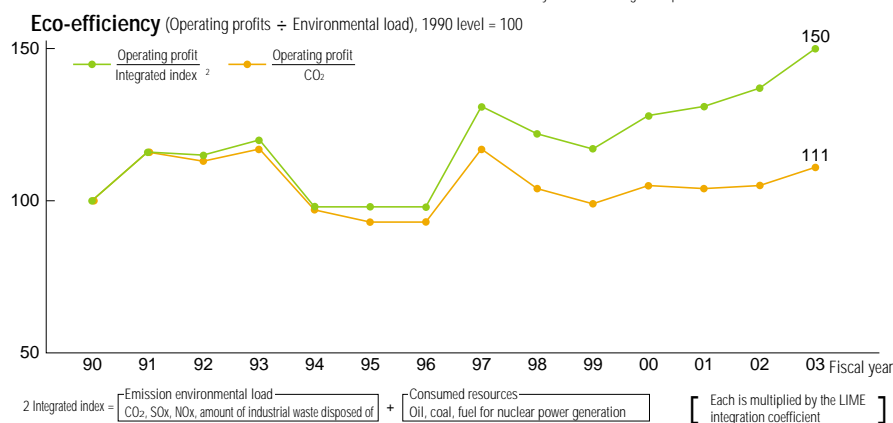
This fiscal year the company began integrating environmental load using the Japanese version of damage calculation impact assessment method "LIME ¹" developed by the LCA national project of the Ministry of the Economy, Trade and Industry. Because of the nature of our business, integrated environmental load is calculated using operating profit for clerical accounting of economic value concerning emission of CO₂, SO_x, NO_x which have a huge impact on the environment, amount of industrial waste disposed of plus amount of

resources consumed such as crude oil.

Compared with 1990 levels, eco-efficiency for 2003 improved 50 points. This was due to the fact that CO₂ and other environmental load was dramatically decreased by the effect of nuclear power.

In order to promote business activities that aim to support both decrease of environmental impact and increase of economic value, Kansai Electric wants to determine and evaluate eco-efficiency.

¹ CO₂ is an environmental load substance. This method calls for scientifically analyzing the impact on environmental problems such as global warming and depletion of the ozone layer, calculating damage to human health and the ecosystem and ranking the importance.



Group environmental protection cost (expense)

(¥100 million)

Category	Main items	Fiscal 2003
Environmental management cost	Preparation/utilization of environmental management system (ISO14001)	613
Regional environmental protection cost	Maintenance/management of air/water pollution prevention equipment	18
Recycling-oriented society building cost	Disposal/recycling of industrial/ordinary waste	58
Other cost	Charges for pollution load	116
Total		805
Average environmental protection cost per company		73

Addressing Global Environmental Problems (New ERA Strategy)

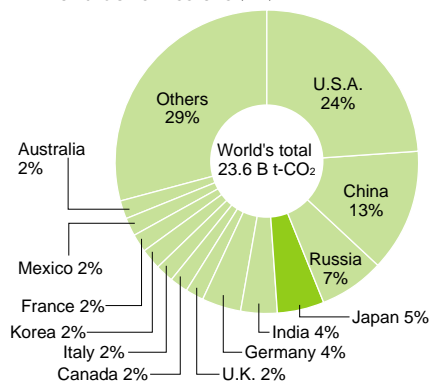
Kansai Electric is expanding its initiatives to use energy more efficiently and reduce greenhouse gases by promoting its "New ERA Strategy" to prevent global warming.

CO₂ Emissions Around the World and in Japan

The world as a whole emits about 23.6 billion t-CO₂ (figure for 2001), of which Japan accounts for about 5%. Emissions of CO₂ in Japan are climbing markedly compared to 1990 levels in the private and transportation sectors.

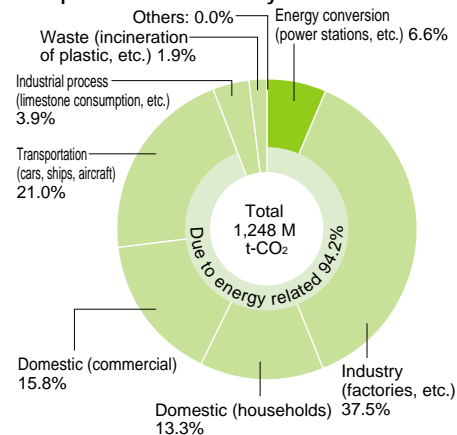
The Kyoto Protocol was adopted at the third Conference of the Parties to the UNFCCC (COP3) held in Kyoto in December 1997. Japan signed the protocol in June 2002 agreeing to reduce the amount of greenhouse gases emitted from 2008 to 2012 by 6% in comparison to 1990 levels.

World CO₂ emissions (2001)



Source: Energy and economic statistics for 2004
The Institute of Energy Economics, Japan

Japan's CO₂ emissions by sector (2002)



Source: Assembled from Ministry of Environment data.
Note: Amount emitted in conjunction with generating electricity is allotted to the ultimate demand sector in accordance with amount of power consumed. The percentages given are percentage relative to emission volume. "Others" includes error when distributing power and consumption of lubricating oil, etc.

Measures for Reducing CO₂ Emissions in the Electric Utility Industry

Environmental plan of action for the electric power industry

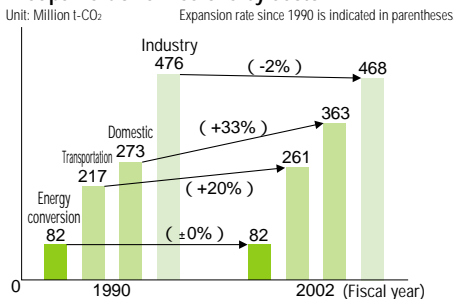
The Federation of Electric Power Companies of Japan adopted and released the Environmental Action Plan of Japanese Electric utility industry in November 1996. The plan went through its 7th review in September 2004.

The plan raises as the reduction target to "by fiscal 2010, we aim to further reduce CO₂ emissions intensity (emissions per unit of user end electricity) by approximately 20% from the fiscal 1990 level, to about 0.34kg-CO₂/kWh".

Kansai Electric has carried out various initiatives for achieving these targets. Besides redoubling our efforts with "Promotion of nuclear power on the precondition of ensuring safety and restoring trust", "Further increase in the efficiency of thermal power, and reviewing thermal power plant operating methods" and "Efforts for Using the Kyoto Mechanisms*", Kansai Electric will continue to strive to promote energy savings and use of natural energy.

*Indicates emission trading (ET), joint implementation (JI) and clean development mechanism (CDM) established by the Kyoto Protocol.

Japan's CO₂ emissions by sector



Source: Assembled from Ministry of Environment data.

TOPICS Selection of "Climate Leadership Index" top 50 companies

In May 2004, Kansai Electric was included in the best 50 companies for initiatives for addressing the problem of global warming and disclosure of related data by the Carbon Disclosure Project* funded by a group of the world's most prominent corporate investors. Kansai Electric was the only company from the Japanese energy industry selected.

*Project for getting companies to disclose information about their awareness and measures they are taking to address the problem of global warming. This project is sponsored by 95 corporate investors from all over the world. The project targets the top 500 companies in aggregate market value. The total operating assets of the project is in excess of \$1 trillion (about ¥1.1 quadrillion), which is on par with the gross domestic product (GDP) of the United States.

Electric Power companies selected (8 companies)

- *American Electric Power (U.S.)
- *Endesa (Spain)
- *Energy (U.S.)
- *Iberdrola (Spain)
- *Florida Power and light (U.S.)
- *Kansai Electric (Japan)
- *Public Service Enterprise Group (U.S.)
- *Scottish Power (U.K.)

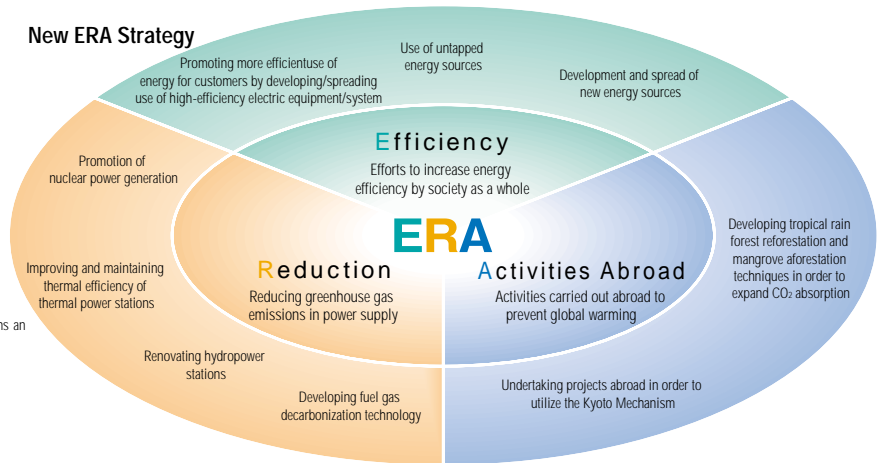
Two Japanese companies other than Kansai Electric

- *Nippon Steel Corp.
- *Mitsui & CO., Ltd.

Kansai Electric's Action Against Global Warming – New ERA Strategy

Kansai Electric has raised and is actively expanding its "New ERA Strategy", a general measure for reducing greenhouse gases. We are implementing a good balance of various measures.

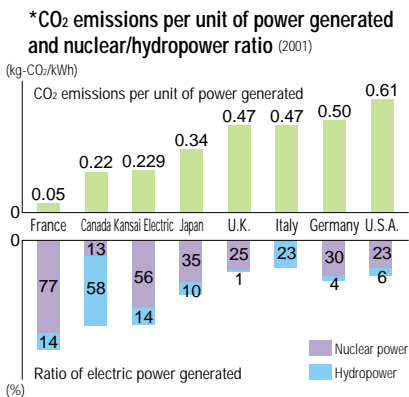
ERA is an acronym that stands for Efficiency, Reduction and Activities Abroad. Era means an "era" or period, and contains the nuance of the start of a new era.



CO₂ Reduction Targets and Performance

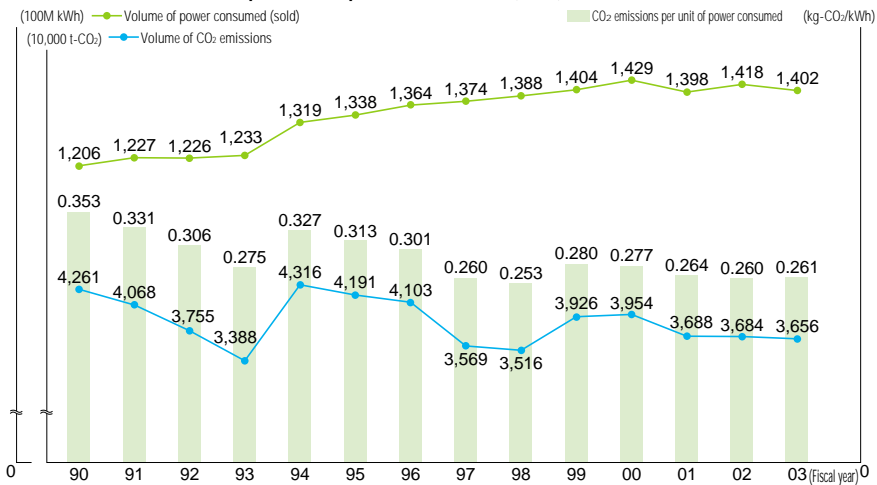
In keeping with the targets of the electric power industry as a whole, the numerical targets of Kansai Electric for reducing CO₂ is to reduce the amount of CO₂ emitted relative to the amount of power used (sold) (CO₂ emission unit) in 2010 to 0.34 kg of CO₂/kWh.

By maintaining equipment use rate of nuclear power stations, which do not produce CO₂ when generating electricity, at about 90%, the amount of CO₂ emitted relative to the amount of power used (sold) (CO₂ emission unit) for 2003 was 0.261 kg-CO₂/kWh. This is the lowest level among all domestic electric power companies.



Sources for foreign countries: Energy Balances of OECD Countries 2000-2001
 Source for Japan: Survey by the Federation of Electric Power Companies. Actual results for Kansai Electric for fiscal year 2003.
 Compared CO₂ emissions per unit of power generated of Kansai Electric to those of Europe and U.S., we are in the third level behind France, high ratio of nuclear power, and Canada, high ratio of hydropower.

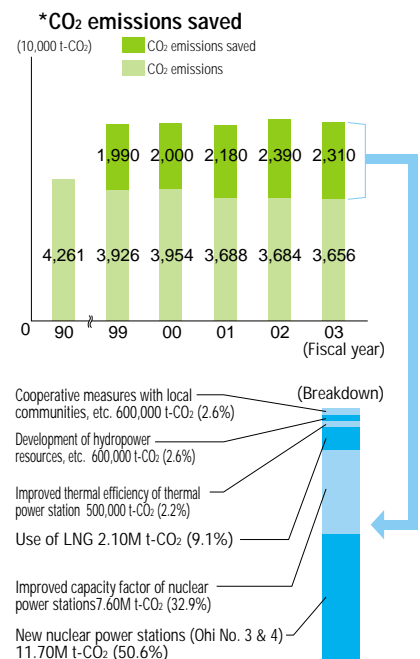
Trend of CO₂ emissions per unit of power consumed (sold)



Compared to fiscal 1990, the volume of power consumed increases by 16%, while the volume of CO₂ emissions reduced by 14%.

Effect of Avoiding CO₂ Emissions

In 2003, Kansai Electric avoided emitting about 23.10 million t-CO₂ compared to 1990 levels, of which nuclear power generation accounted for about 80%. This amount is equivalent to about 2% of the 1.248 billion t-of CO₂ (2002) that Japan generates annually. When converted into a quantity of oil, it is 8.30M kℓ or about 1.6 times the fuel Kansai Electric consumed in 2003.



Note: Percentages are calculated against total amounts.

Efficiency Efforts to Increase Energy Efficiency by Society as a Whole

Kansai Electric is working on developing and spreading new forms of energy and suggesting to customers ways to conserve energy in order to have energy used more efficiently by society as a whole.

Promoting More Efficient use of Energy for Customers

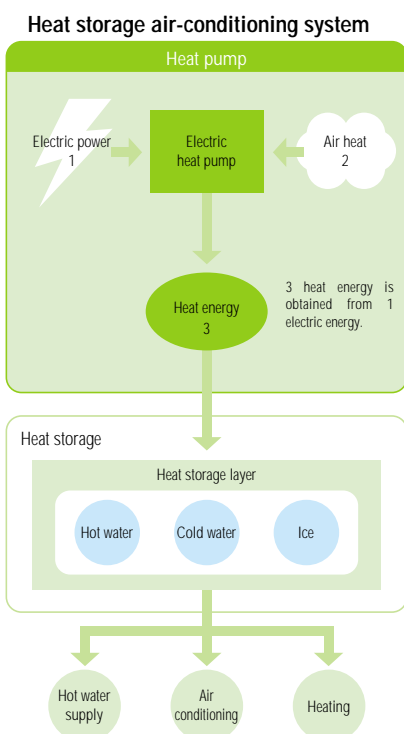
Kansai Electric promotes more efficient use of energy by customers by developing/spreading use of high-efficiency equipment/systems, making suggestions to help customers improve equipment operations methods, and promoting leveling of nighttime electric power consumption (load leveling).

Heat pump technology and heat storage systems

Promoting energy conservation for supplying heated water and air-conditioning, which account for 54% of energy used in the private sector (commercial sector, household sector) for which consumption continues to increase is an urgent theme.

The primary means of solving this problem focuses on heat pump technology, which uses air heat, a clean, recyclable source of energy and can use three times as much energy as is introduced.

In addition there are heat storage systems that utilize cheap nighttime power that produces little CO₂ emission. The system uses heat energy stored at night during the daytime.



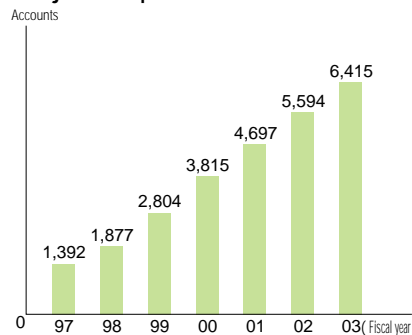
Initiatives with corporate customers

Activities for encouraging the use of heat storage systems

For customers in the industrial and commercial sectors, we recommend the Eco Ice and Eco Ice mini ice type heat storage air-conditioning systems, the heat storage heat pump hot water supply system and commercial electric kitchen. These offer an assortment of variations that can be selected according to application and scale. Applications range from office buildings to hotels, hospitals, stores and factories.

We also offer heat storage and adjustment plan that provide discounts up to 60% on electric power charges if you introduce a heat storage system. In recent years, the number of accounts has risen to approximately 1,000 new accounts per year. The number of accounts exceeded 6,000 at the end of fiscal 2003.

Number of accounts for heat storage and adjustment plan



Services such as energy consulting service
Kansai Electric offers energy consulting service for our customers equipment, which takes advantage of the Kansai Electric Group's technology and expertise, to help the customers understand the features of electricity and let the customers know the best way to use their equipments. By the end of 2003, 443 energy diagnoses had been conducted.

Kansai Electric also offers a heat storage trust system and e Pack lease service for corporations, so energy can be used effectively in accordance with the customer's needs.



Diagnosis of customer's equipment

TOPICS High Environmental Efficiency Service PSS

Product Service System, or PSS, is a set of services that satisfy the customer's needs rather than selling substantial products only, and is also an environmental business model that provides the function itself. PSS promotes the move from products to services for society and is currently attracting attention as a system that holds great potential for reducing environmental load.

Kansai Electric's e Pack electric equipment and facilities lease service for

out corporate customers (see above) and our HAP-e Package hot water equipment and IH cooking heaters for households (see P28) are services that include elements of PSS.

Initiatives concerning general household customers

Activates for spreading the use of electric water heaters and eco units

Kansai Electric is working on spreading and expanding use of our Eco Cute products that employ heat pump technology together with electric water heaters which are the representative device using nighttime electricity.

Eco Cute is a heat pump system that can obtain 3 heat energy from 1 electric energy and is a hot water supply device that efficiently heats water. It is also a device that is friendly to the global environment and saves energy by using CO₂ with a small global warming factor that doesn't destroy the ozone layer as refrigerant.



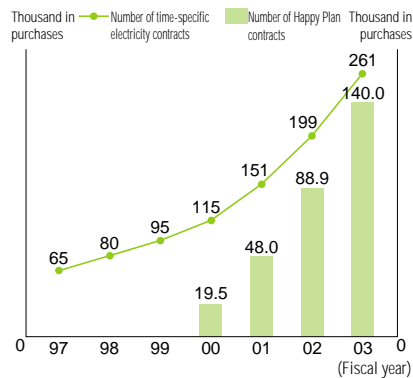
Eco Cute

HAP-e Time and HAP-e Package services

In addition to HAP-e (Happy) Time and Time-specific electricity contracts to provide customers with cheap nighttime electricity, in

order to have customers switch to all electric power, Kansai Electric proposes a special fee menu that matches the customer's lifestyle such as HAP-e Time fee and HAP-e Plan that further offers a 10% discount. The number of customers taking advantage of these services is increasing year by year.

Time-specific electricity contracts and HAP-e Plan contracts

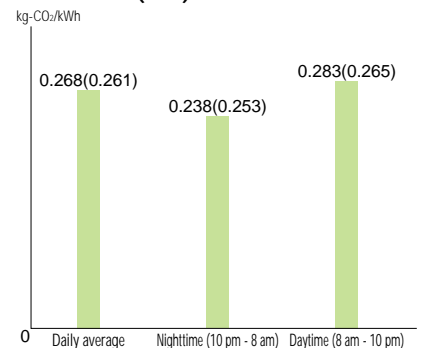


The HAP-e Package lease system of electric water heating equipment and IH cooking heaters requires no initial cost, so it is rapidly spreading. The cumulative number of contracts at the end of fiscal 2003 has already exceeded 14,000.

Promotion of load leveling

With the increase in air conditioning demand of recent years, power consumption has come to differ greatly between daytime and nighttime use. By balancing between day and night, Kansai Electric can efficiently use equipment and reduce emissions of CO₂. Therefore, Kansai Electric is encouraging customers to use nighttime electricity by proposing heat storage adjustment contracts that shift daytime demand peak to nighttime, etc.

CO₂ emissions per unit of power consumed (sold)



*Average demand over six years from fiscal 1999 to 2003. Figures in parentheses are for fiscal 2003 only

TOPICS Acquisition of Eco Leaf Environmental Label

In July 2003, the electricity provided to customers received certification of the Eco Leaf Environmental Label promoted by the Japan Environmental Management Association for Industry (JEMAI). The label certifies that environmental load data of the product life cycle from procurement of raw materials to disposal is quantitatively calculated and has been examined and certified by a judgment committee formed of consumer representatives and knowledgeable persons. This is the first time a product with no concrete form such as electricity has been certified. Kansai Electric will continue to strive to disclose environmental data and provide its customers with electricity in a transparent and dependable manner.

Certified environmental data



Product:	System electric power
Spec:	60 Hz
Target fiscal year:	2003
Global warming load for life cycle:	0.309kg of CO ₂ /kWh
CO ₂ emission for electricity generation:	
	0.261kg of CO ₂ /kWh(Daily average)
	0.265kg of CO ₂ /kWh(Daytime)
	0.253kg of CO ₂ /kWh(Nighttime)

Fiscal 2003 data was certified July 2004, and has been subsequently updated.
<http://www.kepeco.co.jp/pressre/2004/0712-3j.html>

Development and Spread of New Energy Sources

For the diffusion of new energy sources

While generation of electricity by solar and wind power does not emit CO₂, it is affected by the weather and it costs more than other sources of power. In Japan, which has almost no energy resources, spread of generation of electricity by solar and wind power is being promoted on the national level. Japan leads the world in introduction of solar power electricity generation.

In April 2003, the Special Measures for Use of New Energy Sources in the Electric Power Industry (RPS Law)*, was fully implemented. The law calls for introduction of new energy sources by those in the electricity business.

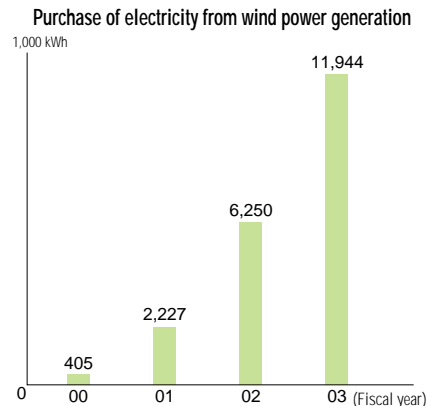
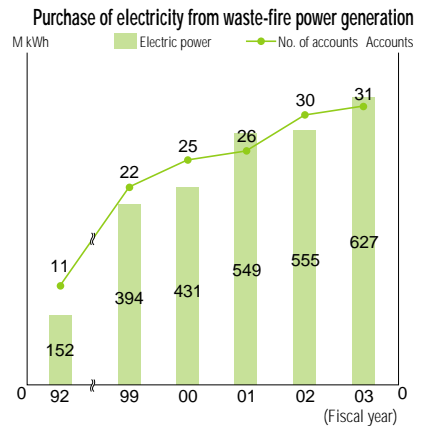
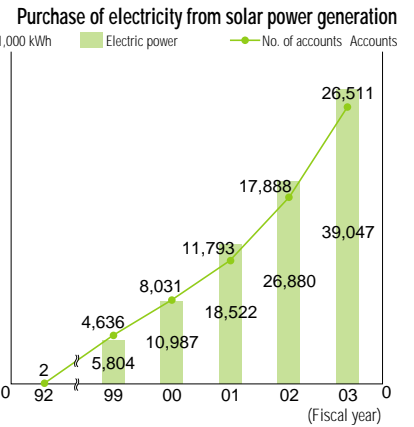
As of the end of fiscal 2003, Kansai Electric has introduced solar power electricity generation equipment capable of producing 765 kWh and wind power electricity generation equipment capable of producing 154 kWh. As in the past, we continue to support the spread of new energy sources by purchasing electricity produced by wind and solar power and cooperation with the Kansai Green Power Fund.

Other companies belonging to the Kansai Electric Group, such as Kanden Gas and Cogeneration CO., Inc. which has started studying the possibility of generating electricity by biomass, will continue to work on developing and spreading new energy sources.

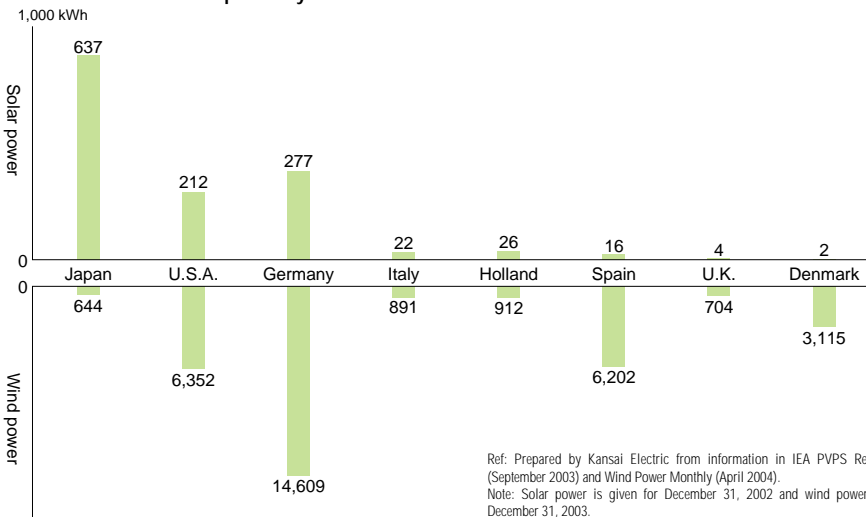
*RPS Law
Law that obligates electric power companies to use a certain percentage of power generated by new energy sources according to the amount of electric power sold each year.

Introduction of electric power purchase system

Kansai Electric has introduced a system of purchasing electric power produced from solar power, wind power and waste. The number of incidence of purchase and amount of electric power purchased increases year by year. The amount of electric power produced by solar power and wind power in particular has increased dramatically.



Use of solar and wind power by nation



Ref: Prepared by Kansai Electric from information in IEA PVPS Report (September 2003) and Wind Power Monthly (April 2004).
Note: Solar power is given for December 31, 2002 and wind power for December 31, 2003.

TOPICS Initiatives with Voluntary Development of New Energy Sources

In February 2004, Kansai Electric teamed up with Eco Power Co., Ltd., to form a joint venture concerning wind power generation. Eco Power belongs to the Ebara Corporation Group, and is a leading company in the wind power electric power generation market that has the wind power electricity generating equipment of the highest class in the country.

Both companies will take advantage of abundant management resources to promote wind power development.

Wind power electricity generation equipment



Cooperation with the Kansai Green Power Fund

The Kansai Green Power Fund* was created in October 2000 on a proposal made by Kansai Electric. It was set up to promote the use and spread of new energies. The Fund basically provides financial aid for the construction of solar and wind power generation systems for public or business use, from donations received from our customers. By fiscal 2003, the Fund had provided financial assistance for a total of 33 solar power generators and 2 wind power generators.

Kansai Electric matches the donations that customers give yen-for-yen. We are collaborating in other constructive ways too, by handling PR activities, accepting and depositing donations, and more.

*To join the Kansai Green Power Fund, contact your nearest Kansai Electric sales office.



Solar power generation equipment (Shiga Prefecture, Ohmi Bridge)

Aid recipients for 2003

Solar power generation*	
Recipient	Output capacity
Asago-cho Yamaguchi Elementary School (Hyogo) Other 21 recipients	320.792 kW (Total output: 240.792 kW)

Wind power generation	
Recipient	Output capacity
Hotel New Awaji (Hyogo)	2,000 kW

Aid recipients for 2004

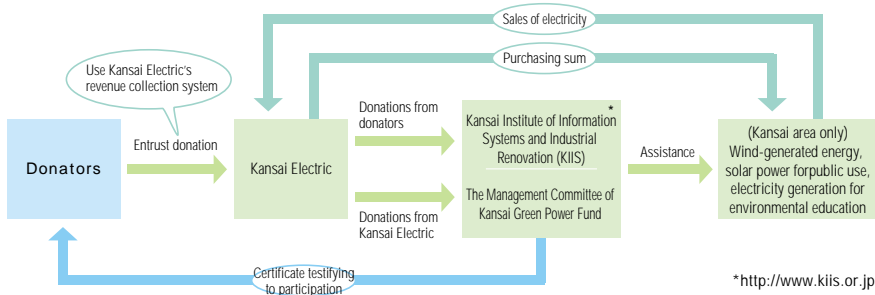
Solar power generation*	
Recipient	Output capacity
Ibaraki City Lifetime Training Center (Osaka Prefecture, Ibaraki City) Other 13 recipients	1,054.49 kW (Total output: 207.49 kW)

Wind power generation	
Recipient	Output capacity
Hirogawa-cho wind power generator (Wakayama Prefecture, Arida-gun, Hirogawa-cho)	1,500 kW

Electricity generation for environmental education	
Recipient	Output capacity
Maizuru City Takano Elementary School (Kyoto Prefecture, Maizuru City) Other 2 recipients	4.16 kW

*The upper limit for aid per incident is 20 kW for solar power generation.

Structure of Kansai Green Power Fund



Use of Untapped Energy Sources

There are many sources of energy that disappear without ever being used, such as river temperature differential and heat emitted from transformers and buildings. Kansai Electric is involved in supplying heat by making effective use of such untapped energy sources.

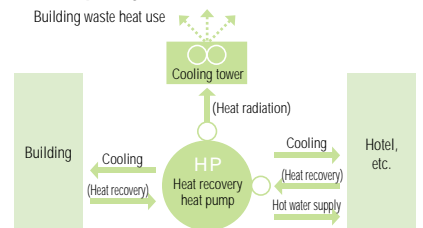
The project has currently grown to 11 locations, and in December 2004, we plan to introduce regional heat supply using heat from transformers and river water in the 3-chome section of Nakanoshima in Osaka.

Regional Heating Service Area



Utility tunnel and pipes

Example System



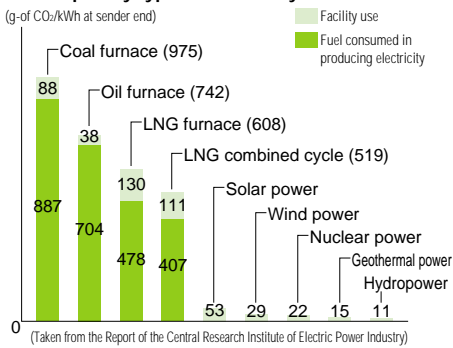
Reduction Reducing Greenhouse Gas Emissions in Power Supply

Kansai Electric is aggressively pursuing reduction of greenhouse gas emissions in power supply to maintain/improve thermal efficiency of thermal power generation and best mix of power sources, primarily nuclear power.

Nuclear Power Generation that does not Emit CO₂

Nuclear power generation is a superior method of generating electric power that does not emit CO₂ when producing electricity. Kansai Electric is actively addressing the problem of global warming by promoting nuclear power generation providing safe and stable operation is secured.

Units and comparison of CO₂ emissions in Japan by type of electricity source



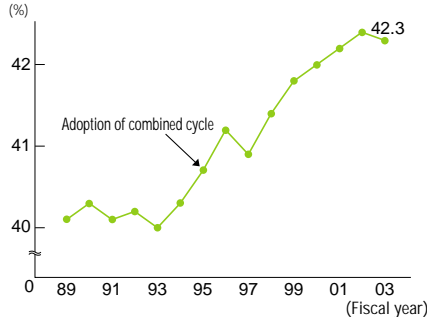
Calculations take into account all energy consumed, not just the fuel burnt in producing the electricity but also the energy consumed in obtaining the basic fuel for the construction of facilities, transportation of fuel, refining, use and maintenance.

Improving and Maintaining Thermal Efficiency of Thermal Power Stations

Combined cycle generating system

In addition to taking measures to improve equipment and operation for steam turbine plants, Kansai Electric is striving to maintain/improve overall thermal efficiency of thermal power plants by introducing high-efficiency combined cycle generation (54% thermal efficiency) at the Himeji No. 1 power plant.

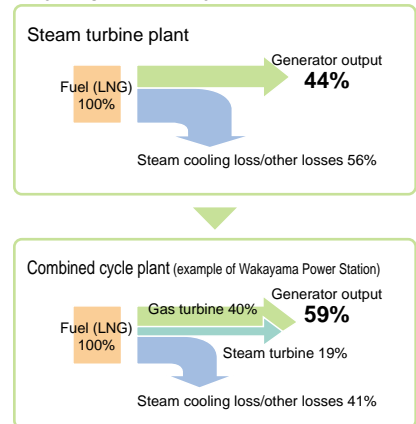
Kansai Electric's thermal power gross transmission thermal efficiency



In recent years, we have introduced highly efficient combined cycle power generation with a thermal efficiency of 54%. By operating existing equipment, gross thermal efficiency is approximately 42% at all thermal power stations.

incorporating state-of-the-art 1500°C class (combustor exit temperature) gas turbines. We expect that this will raise the gross thermal efficiency to the world's highest level, at about 59%, and will reduce CO₂ emissions from electricity generation by about 25% compared to conventional LNG power generation.

Gross thermal efficiency of combined cycle generation system



Combined cycle power generation
 As the name suggests, two power generation systems are combined into one. Hot exhaust from a gas turbine is routed to a heat recovery boiler, where it is used to generate steam to run a steam turbine. Effective combination of these two generation cycles can improve the thermal efficiency of the entire generation facility.

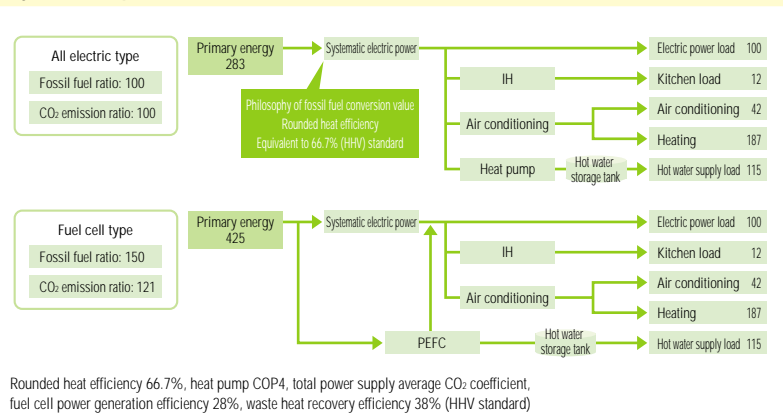
State-of-the-art gas turbines

We are planning to adopt combined cycle power generation at our Wakayama Power Station

TOPICS Comparison of CO₂ Emission Volume and Fossil Fuel Consumption for Systematic Power Supply System and Fuel Cell Type.

A comparison of a systematic power system *¹ and fuel cell type *² under the same conditions such as hot water supply shows that the all-electric type consumes less fossil fuel and emits less CO₂. Other cogeneration systems are also introducing high energy efficiency, decentralized power supplies. It is assumed that efficiency deteriorates for those used for generating electricity only and those that do not sufficiently utilize waste heat, and there is a need to consider NO_x produced by the customer side and the production of contaminants that cause air pollution. (Adopted from the Federation of Electric Power Companies of Japan pamphlet.)

System comparison When fossil fuel conversion value (66.7%) is used

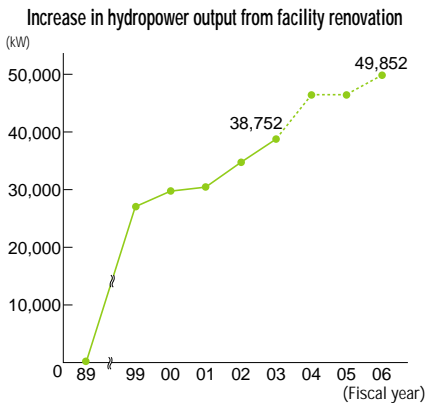


*1: Consists of systematic electric power + heat pump.

*2: Consists of fuel cell (PEFC) + cogeneration + systematic electric power. System is fossil fuel improved type.

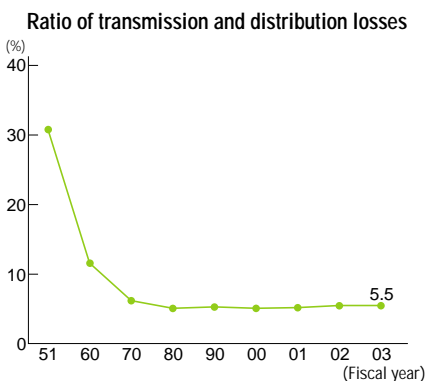
Renovating Hydropower Stations

Hydropower is a clean energy resource that is purely domestic. Kansai Electric is therefore promoting various activities to increase output. This includes replacing obsolete facilities in already-existing power stations with more efficient water turbines and, in rivers with an ample amount of water, using the maximum amount of water for power generation. From fiscal 1989 through fiscal 2003, output by our hydro power stations increased to 38,752 kWh. And, we plan to further increase output to 49,852 kWh in 2006.



Reducing Transmission and Distribution Losses

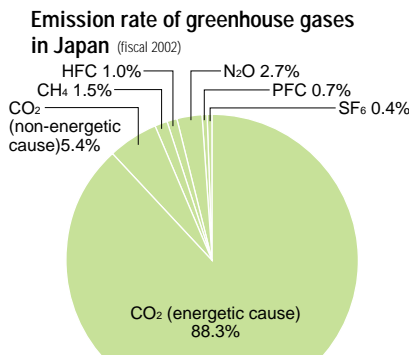
The electricity we generate loses some electrical energy as heat in transmission and distribution to the customer. To reduce this loss, Kansai Electric has turned to technological innovation for boosting transmission voltage and capacity. These efforts have paid off as we are maintaining transmission and distribution loss at a low level.



Suppressing Emission of Greenhouse Gases other than CO₂

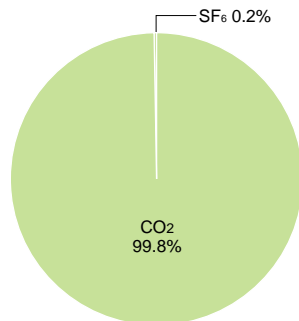
Emissions of greenhouse gases

Targets for reducing carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆) were settled upon the COP3 in December 1997. CO₂ accounts for about 90% of all greenhouse gases emitted by Japan and more than 99% of that emitted by Kansai Electric. Other than CO₂, we emit small amounts of SF₆, which is used in insulation of electrical equipment. Apart from that, we emit hardly any greenhouse gases.



Note: Emission rate was calculated as carbon dioxide equivalent (IPCC, 1995) using global warming coefficient.
Source: Assembled from data Ministry of Environment

Emission rate of greenhouse gases at Kansai Electric (fiscal 2003)



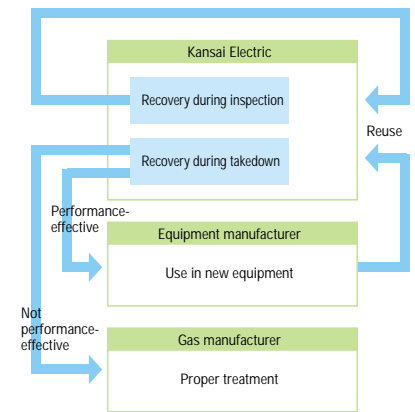
Note: Emission rate was calculated as carbon dioxide equivalent (IPCC, 1995) using global warming coefficient.

Reducing emissions of SF₆

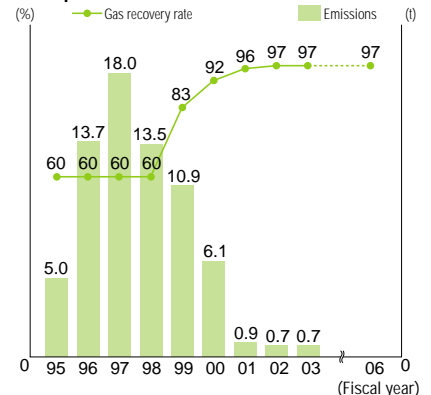
Kansai Electric overhauls SF₆ gas insulated equipment* such as gas circuit breakers and insulated switchgears once every 18 years. With the cooperation of electric equipment manufacturers who recover and use SF₆ gas, we have reduced the amount of SF₆ gas that is released into the atmosphere. Moreover, Kansai Electric developed auxiliary equipment for recovering any residual SF₆ left over in the SF₆ recovery system itself. When this auxiliary equipment is used, recovery can be boosted to 97% or higher.

*SF₆ is widely used as a high performance insulating gas because it helps downsize electric equipment and is safe to humans.

How SF₆ gas is recovered and reused (Image)



SF₆ gas recovery rate during apparatus inspection



Technological Development with the Goal of Reducing CO₂ Emissions

Kansai Electric has worked together with MITSUBISHI HEAVY INDUSTRIES, LTD., on developing technologies to separate and recover CO₂ (flue gas decarbonization). Beginning with application to global warming problems such as CO₂ carbon layer fixing and landfill disposal, this technology is expected to be widely used in the future as a CO₂ supply source such as industrial raw materials, and the research is also expected to contribute to effective use of CO₂ both within Japan and overseas.

Developing flue gas CO₂ recovery technology

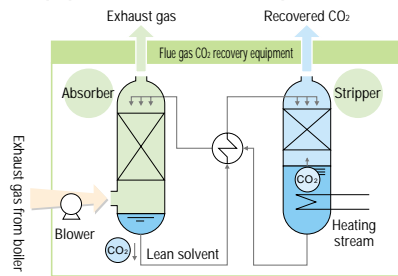
With the goal of eliminating CO₂ from flue gas at thermal power stations, Kansai Electric has been researching chemical absorption methods, by operating a flue gas CO₂ recovery pilot plant at Nanko Power Station. We have established highly efficient technology for separating and recovering CO₂ and patented the technology in Japan, the USA, Europe and many countries in Asia. And, this CO₂ recovery technology has been applied to a urea production plant in Malaysia.

Research continues today on ways to reduce the costs of CO₂ separation and recovery.



Flue gas CO₂ recovery pilot plant (Nanko Power Station)

Mechanism of flue gas CO₂ recovery equipment (chemical absorption method)

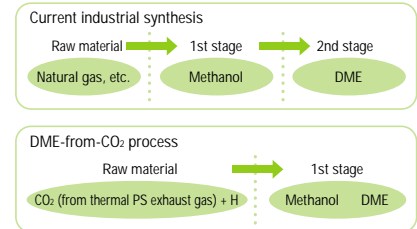


Development of technology for the effective use of CO₂

To expand the use of CO₂ recovery technology, Kansai Electric is promoting research and development into synthesizing dimethyl ether (DME) from CO₂ recovered by flue gas decarbonization systems.

DME offers expectations as a new clean fuel alternative from LPG and light oil. Though in general DME is produced from fossil fuel natural gas, our research is looking to synthesize it from CO₂ and hydrogen.

Making DME from CO₂



Whereas the current industrial method synthesizes DME by through a 2-stage process using natural gas as a raw material, DME is directly synthesized by causing CO₂ to react with hydrogen. This enables more compact synthesizing equipment.

What our staff has to say "CO₂ can be used effectively." Searching for possibilities through research.



R&D Department
Electric Power Technology Research Laboratory
Environmental Technology research Center
Ikuko Ogawa

In addition to synthesizing of dimethyl ether mentioned above, Kansai Electric is attempting to use raw materials and synthesize intermediates for drugs and so on as part of its development of technologies to use CO₂ effectively. It would be a significant development if compounds with high added value taken into the molecule can be synthesized using recovered CO₂ as a raw material. Kansai Electric hopes to continue to search for methods of using CO₂ effectively in even more diverse ways.



At work in laboratory

Development of Advanced Technology for Next-generation Energy Supply

R&D into SOFC

Fuel cells chemically react hydrogen and oxygen to directly produce electricity. They are highly efficient with minimal loss in energy conversion, so they are expected to have a lot of potential as a new decentralized electric power generation system.

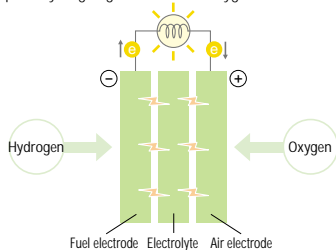
Compared with phosphorous acid fuel cells (PAFC) and solid high polymer fuel cells (PEFC), solid oxide fuel cells (SOFC) have a very high power generation efficiency. They therefore have the potential to replace existing decentralized power generations systems.

Concerning low temperature-actuated SOFC that can use inexpensive metal, Kansai Electric is working on preparing its "tens of kW system" (for medium size stores and small factories), scheduled for release some time before the end of fiscal 2006.

Overview of fuel cells

The principle by which fuel cells produce electricity is reverse reaction of electrical decomposition of water.

Hydrogen and oxygen are produced by placing positive and negative electrodes in water and passing electricity through the water. A fuel cell oppositely produces electricity when supplied hydrogen gas and air, i.e. oxygen.



Features of solid oxide fuel cells (SOFC)

Highest electricity generation efficiency of all fuel cells
 → Has potential to realize high electricity generation efficiency for a wide range of applications.

Performance doesn't tend to deteriorate due to corrosion; doesn't require expensive materials (precious metal).
 → Offers long life and low cost.

Able to directly generate electricity by hydrocarbon and carbon monoxide.
 → Enable use of a wide range of fuels.

Internal modification is possible.
 → Enables simple system configuration.

Produces a minimum of NOx and SOx; produces minimal noise and vibration.
 → Environment friendly.

Development of next-generation semiconductors (SiC)

Silicon (Si) power semiconductors are used as components in the circuits of almost all equipment that controls electric power. As manufacturers aim to increase capacity and voltage to contribute help reduce transmission and distribution power loss, Si power semiconductors are currently limited in terms of performance because energy loss is large. Silicon carbide (SiC) semiconductors, on the other hand, hold great potential as the next generation of semiconductors because they offer superior durability and minimal loss.

Kansai Electric is the first company to succeed in developing an inverter using SiC semiconductors. If SiC inverters are perfected enough for practical application, if Si inverters are replaced by the SiC variety in the future, power loss due to transmission and distribution can be reduced to less than half of the present loss, thereby contributing to reduction of CO₂ emission and saving energy for the industry in general.

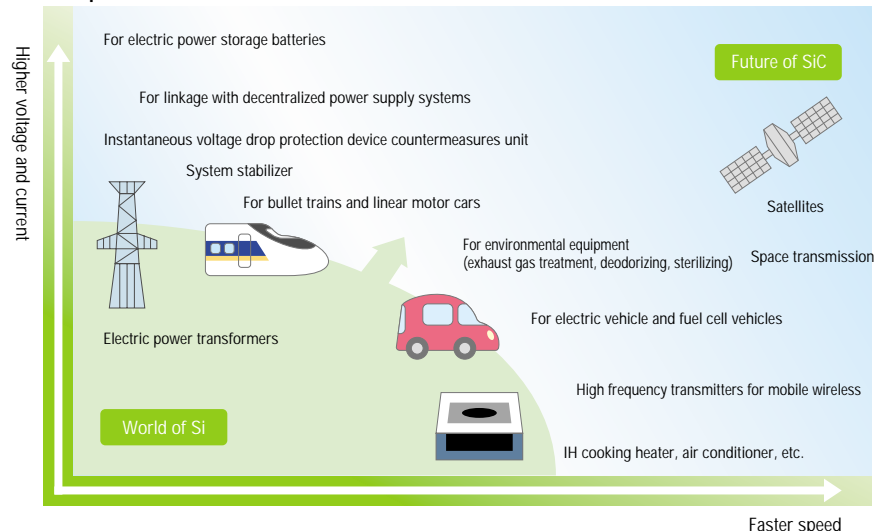
In the future, the company is hoping to increase capacity of SiC inverters for

electric power-related equipment so they can be used for various applications including industrial motors, decentralized power supplies such as fuel cells, bullet train and linear motor cars, and improve SiC inverters enough to market a VA class general purpose inverter of several hundred kVA by the end of 2006.



12 kVA class SiC 3-phase inverter

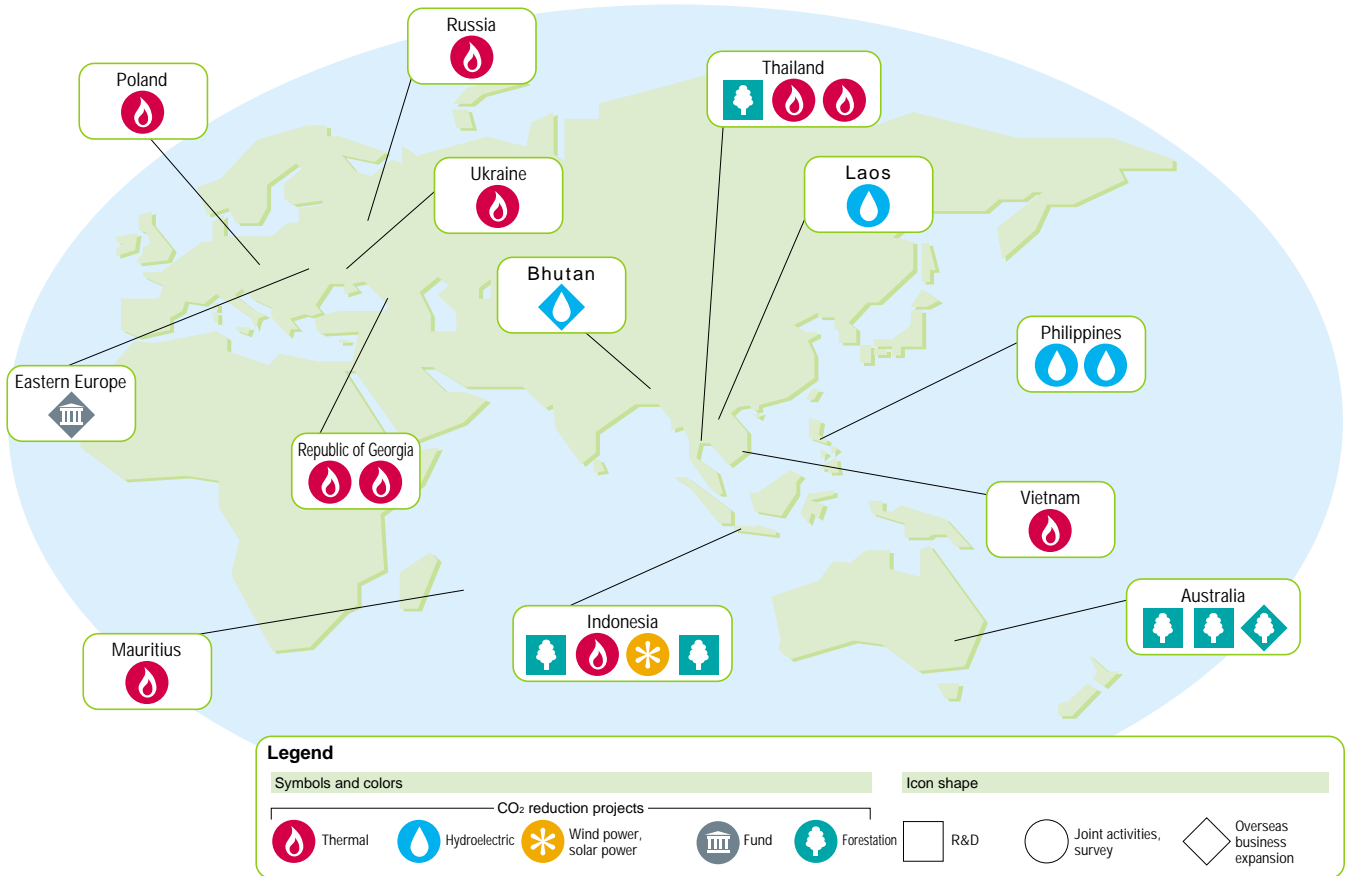
Future potential of SiC semiconductors



Si power semiconductors are currently used to control electric power in various fields. In the future, as SiC power semiconductors are improved enough for practical use and manufacturing cost is reduced, if Si power semiconductors are replaced by the SiC variety, they would be expected to contribute largely to energy saving for industry in general.

Activities Abroad Activities Carried Out Abroad to Prevent Global Warming

Utilizing its technical expertise, experiences and know-how cultivated over the years, Kansai Electric is developing projects overseas with the aim of those projects to the Kyoto Mechanism which is a cost-effective way to reduce greenhouse gases.



Research and Development for Expanding Natural Sinks

The Kansai Electric Group has been conducting research and development of forestation technologies for restoring nature destroyed in various areas on the world along with radical economic activities.

Through these activities, the group has simultaneously realized contribution to the global environment aimed at expanding CO₂ sinks and contribution to the global environment by forestation of devastated areas.

Development of technologies for mangroves planting and tropical rain forests reforestation

We have been conducting research of forestation technologies since fiscal 1992 using the symbiotic relationship of lauan and mycorrhizal fungi, which is a native species of the tropics in Indonesia.

We have also worked on restoring coastal ecosystem and forestation of devastated lands in Thailand since fiscal 2000 by developing mangrove planting technologies.

Outline of joint project in Indonesia

Project name	Tropical Rainforest Restoration Technology Development Project
Participating companies	Kansai Electric, Kansai Environmental Engineering Center, Gadjah Mada University
Description	Research and development to raise survival rate and growth speed of lauan saplings utilizing the symbiotic relationship of lauan and mycorrhizal fungi. It has become known that the fungi approximately double the growth rate (area) and improve survival rate by approximately 5 times. About 80 ha of trees have been planted thus far.
Duration	Fiscal 1992 to fiscal 2001



Four-month-old saplings have been treated with fungi and grow at twice the rate of untreated ones. (left two trees)

Outline of project in Thailand

Project name	Mangrove Ecosystem Restoration Reforestation Technology Development project
Participating companies	Kansai Electric, Kansai Environmental Engineering Center, Department of Marine and Coastal Resources of Thailand
Description	Development of technologies for planting mangroves in seacoasts that have changed to desolate areas due to shrimp cultivation, etc. About 83 ha of (250,000) trees have been planted thus far.
Duration	1st phase: Fiscal 2000 to fiscal 2003 2nd phase: Fiscal 2004 to fiscal 2006



Site of abandoned shrimp pond 3 years after the trees were planted (March 2004)

Model Development of Carbon Sequestration Project by Forestation and Carbonization

In 2002, the Kansai Electric Group began research on a project to sequester carbon by forestation and carbonization (CFC), which are seeking to realize sustainable wood production and effective atmospheric CO₂ sequestration simultaneously. The ultimate goal is to prove this carbon



Use the charcoal as Soil conditioner

sequestration project model can be economically feasible.

Outline of Project in Indonesia

Project name	Model Development of Carbon Sequestration Project by Forestation and Carbonization (CFC)
Participating companies	Kansai Electric, Kansai Environmental Engineering Center, PT. Musi Hutan Persada, PT. Tanjungenim Lestali Pulp and Paper
Description	Convert wood residue from local plantation area and waste from pulp mills to charcoal and use the charcoal as soil conditioner, etc., in plantation area. Develop model carbon sequestration project that simultaneously enables sustainable wood production and effective CO ₂ sequestration.
Duration	Fiscal 2002 to fiscal 2004

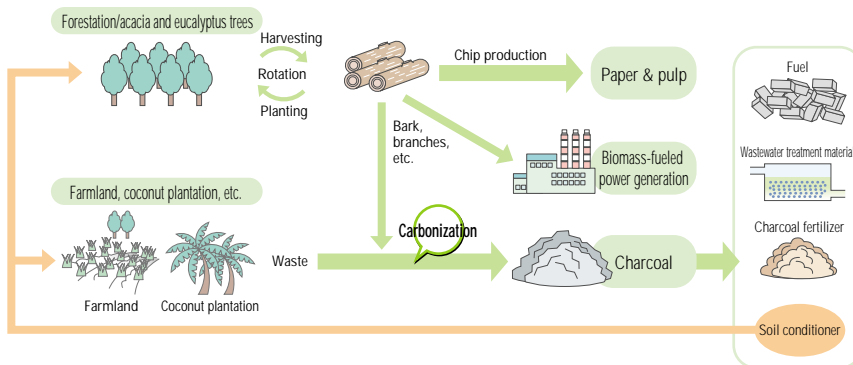
Joint research using forestation technology of Kansai Electric

Since fiscal 2000, a group of Kansai Electric and three other companies has been carrying out a joint Japan-Australia project to develop and test technologies for growing forests of high CO₂ fixation capacity on the site of an open-cut coal mine in Australia.

Outline of project in Australia

Project name	Open-cut Coal Mine Rehabilitation Project
Participating companies	Kansai Electric, Japan Coal Energy Center, Idemitsu Kosan Co., Ltd., Electric Power Development Co., Ltd.
Description	Carried out under auspices of the New Energy and Industrial Technology Development Organization (NEDO). At open-cut coal mines, nutrients in soil have eluviated and hence it is difficult to plant to grow. About 28ha (13,000 eucalyptus trees) have been planted, using by mycorrhizal fungi and charcoal developed by the Kansai Electric Group.
Duration	Fiscal 2000 to fiscal 2004

Carbon sequestration by forestation and carbonization (CFC)



Initial planting (December 2000)



Tree growing to height of 7 m (as of July 2004)

TOPICS Research of CO₂ Sequestration and Effective Use by Making Charcoal from Bamboo in the Maizuru Area

Kansai Electric has conducted research to prove the effectiveness of making charcoal from bamboo and sequestering CO₂ in the bamboo charcoal in the Maizuru area. The research includes life cycle assessment (LCA) of the amount of CO₂ sequestered and assessment of business potential by effective use. Damage of forests cause by bamboo spread has become a problem all across the country. There are high hopes for the results of this research.

Description of research using bamboo charcoal

- Making charcoal from bamboo
- Purifying water with bamboo charcoal
- Soil conditioner using bamboo charcoal
- Use of bamboo charcoal compost in agriculture
- Seaweed bed formation using bamboo charcoal

Looking to Apply CO₂ Recovery Technology Abroad

Kansai Electric has worked together with Mitsubishi Heavy Industries, Ltd., on developing technologies to separate and recover CO₂ (flue gas decarburization) since 1990, and has conducted research on effective use.

Development of Technology for CO₂ Coal Seam Sequestration

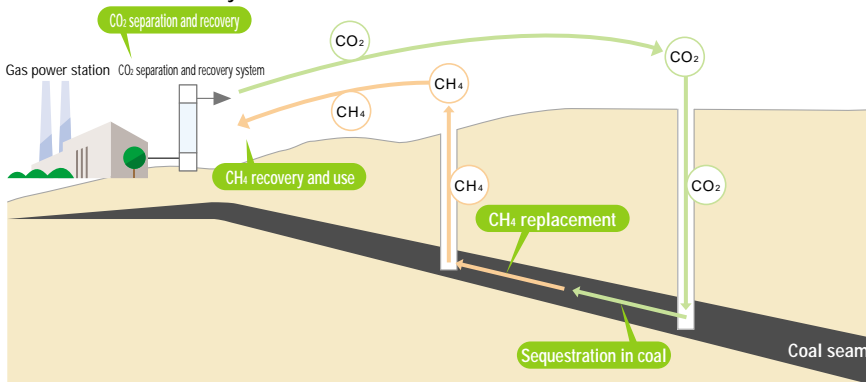
The Kansai Electric Group has been taking part in the CO₂ sequestration and Effective Utilization program of Ministry of Economy, Trade and Industry since 2002.

In the future, monitoring technologies will be studied and proven and studies will be conducted to turn it into a business.

Outline of development of technology for CO₂ coal seam sequestration

Project name	Development of Technology for CO ₂ Coal Layer Fixation
Participating companies	Kansai Electric, Kansai Environmental Engineers Center
Description	Utilize exchange mechanism of methane (CH ₄) and CO ₂ in coal layer. Sequester CO ₂ collected from thermal power stations in the coal layer, collect as CH ₄ and effectively use.
Duration	Fiscal 2002 to fiscal 2007 (scheduled)

CO₂ fixation in coal layer



Research into possible overseas applications

In 2001, Kansai Electric began research on ways to improve the efficiency of oil extraction by injecting CO₂ into oil fields; the jointly developed technology has attracted the attention of the CCP*.

Decarburization technology is expected to contribute greatly to the effective use of CO₂ overseas.

*CCP (CO₂ Capture Project): International consortium of 8 major oil companies (BP, Amoco, ENI, Norsk, Hydro, ChevronTexaco, EnCana, Shell, Statoil, Suncor).

Research into decarburization technology applications

Project name	CCP (CO ₂ Capture Project)
Participating companies	Kansai Electric, MITSUBISHI HEAVY INDUSTRIES, LTD. KPS (Norway)
Description	Kansai Electric was entrusted research aiming to improve efficiency of enhanced oil recovery (EOR) by pumping CO ₂ into oil fields. Reduce cost of CO ₂ fixation by combining CO ₂ recovery technology from Kansai Electric and MHI with membrane technology from KPS.
Duration	Fiscal 2001 to fiscal 2002

Business Study and Activities for Making Use of Kyoto Mechanism

Kansai Electric has taken part in 10 studies such as the "basic study for promoting joint implementation" of the New Energy and Industrial Technology Development Organization (NEDO) since fiscal 1998. We hope to discover business opportunities that can be expected by making use of the Kyoto Mechanism in the future.

Implementation of CDM project in Kingdom of Bhutan

In order to contribute to sustainable development of the community of the Kingdom of Bhutan and to formulation of rule regarding Clean Development Mechanism, Kansai Electric is participating in the project as a project leader of e7 (See page 38). The project was approved as a CDM project by the Government of Japan and the Royal Government of Bhutan.

Outline of project in Bhutan

Project name	e7 Bhutan Micro Hydro Power CDM Project
Participating companies	Kansai Electric (Project leader), American Electric Power (USA), EDF (France), Hydro Quebec (Canada)
Description	The four participating companies construct a run-of-river micro hydro power station with a power generation capacity of 70kW in an un electrified Chendebji village.
Expected effect	Approx. 500t-CO ₂ /year



Chendebji village

TOPICS Contributing to Development of Local Community

The Kansai Electric Group hopes the reforestation project will contribute to sustainable development of local community, and that the local people will voluntarily take part in planting trees. As a system whereby stable profit can be obtained by

reforestation activities of the local people, research and development of agroforestry (combined management method of agriculture and forestry) and silvofisheries (combined management method of fishery and forestry) being conducted.



Agroforestry mixing oil palm with lauan in Indonesia

Development of Overseas Projects that Contribute to Prevention of Global Warming

Kansai Electric hopes to simultaneously pursue profitability/efficiency and contribute to prevention of global warming by actively working to develop ecological forestry as an overseas business.

Investing in the dexia-fondelec energy efficiency and emissions reduction fund, L.P.

Since January 2000, Kansai Electric has been participating in the Dexia-FondElec Energy Efficiency and Emissions Reduction Fund, L.P. promoted by the European Bank for Reconstruction and Development. Twenty projects have currently been started. The projects are mainly promoted to create revenue through improved energy efficiency (ESCO) and the installation of high efficiency gas turbines, but they also aim to reduce greenhouse gases.

Outline of the Eastern Europe investment fund project

Project name	Dexia-FondElec Energy Efficiency and Emissions Reduction Fund, L.P.
Investors	European Bank for Reconstruction and Development, Kansai Electric, Dexint, Marubeni Corporation, Electric Power Development Co., Ltd., Mitsui & Co., Ltd.
Investment manager	FondElec (Connecticut, USA)
Description	Invest in the energy businesses of 26 Eastern European countries, thereby reducing the emission of greenhouse gases. Projects are currently progressing in Poland (4 projects), Hungary (13 projects), Croatia, Slovakia and Bosnia (1 project each). The projects eventually aim for the acquisition of emission reduction credits for greenhouse gases.
Fund size	71 million euros
Duration	2000 - 2009 (extended a maximum of two years)

Developing environmental tree planting project

As the result of clear-cutting of native vegetation, soil salinity has expanded and damaged the crops in Australia.

To remedy the situation, Kansai Electric started an environmental tree planting project in the suburbs of Perth in southwest Australia in fiscal 2002. The project aims to expand CO₂ sinks and at the same time prevent salinity problem.

We are now considering taking advantage of

the experience gained through this project, and applying it to environmental tree planting projects in arid region such as China and the Middle East emerged where salinity problem has emerged.

*In Australia, many areas of farmlands have become deteriorated by soil salinity which is caused by rising of ground water level that contains salt.

Outline of environmental tree planting projects in Australia

Project name	Environmental Planting to Prevent Soil Salinity Problem
Participating companies	Kansai Electric, Kansai Environmental Engineering Center, Oil Mallee Company
Description	To achieve expansion of natural CO ₂ sinks and prevention of salinity problem simultaneously by planting 25 million mallee eucalyptus trees in 1,000 ha as left-shape with using tree planting technologies that Kansai Electric has accumulated such as utilization of fungi and charcoal.
Duration	Fiscal 2002 to fiscal 2022 (planned)
Expected effect	CO ₂ absorption: Approx. 860,000 t-CO ₂ over a 20-year period



Image of soil salinity



One year after planting trees (as of August 2004)

Promoting Worldwide Technical Cooperation

The role that must be played by electric power companies in the field of technology transfer related to environmental conservation, energy conservation, nuclear power generation, and activities to prevent global warming on a global scale is increasing.

As a member of the group of leading electric utilities in the G7 countries (e7), World Business Council for Sustainable Development (WBCSD), World Energy Council (WEC) and International Council on Large Electric systems (CIGRE), Kansai Electric actively participates in international conferences and supplying assistance for developing countries.

Kansai Electric is also cooperating internally for the global safety of nuclear power by providing technical support to China and other nations. We believe our support and cooperation can contribute to the development of nuclear power.

e7 (a group of leading electric utilities in the G7 countries)

Established	1992
Outline of activities	Taking the initiative to organize international cooperation for actions to curb and reduce greenhouse gas emissions in order to play the role of promoting conservation of the global environment and sustainable development of energy.
Membership	American Electric Power (USA), EDF (France), ENEL (Italy), Hydro Quebec (Canada), Ontario Power Generation (Canada), RWE (Germany), Tokyo Electric (Japan), Kansai Electric (Japan), Scottish Power (UK)

WBCSD (World Business Council for Sustainable Development)

Established	1995
Outline of activities	Conducting seminars and producing papers that support the WBCSD's commitment to sustainable development, such as "Climate and Energy", "Eco-Efficiency", "Social Trust", and "Standardization of greenhouse gas emission calculation method".
Membership	This coalition represents about 160 companies from 30 countries.

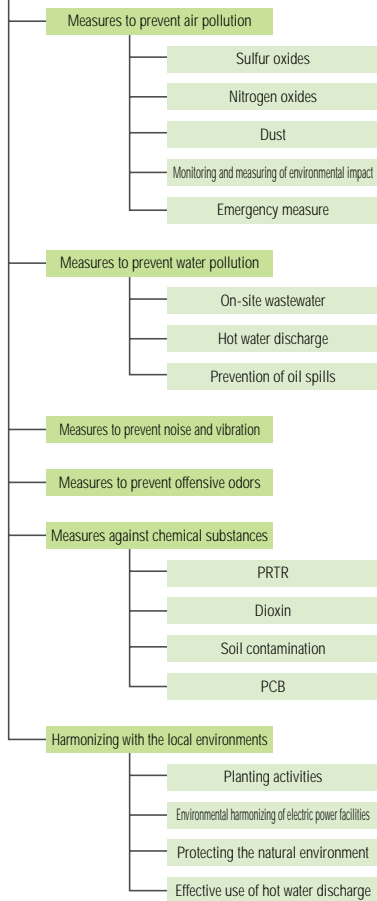
Addressing Local Environmental Problems

Kansai Electric takes environmental protection into consideration with all plants and systems and is working to create a better environment in order to live and prosper with the local communities that host us.

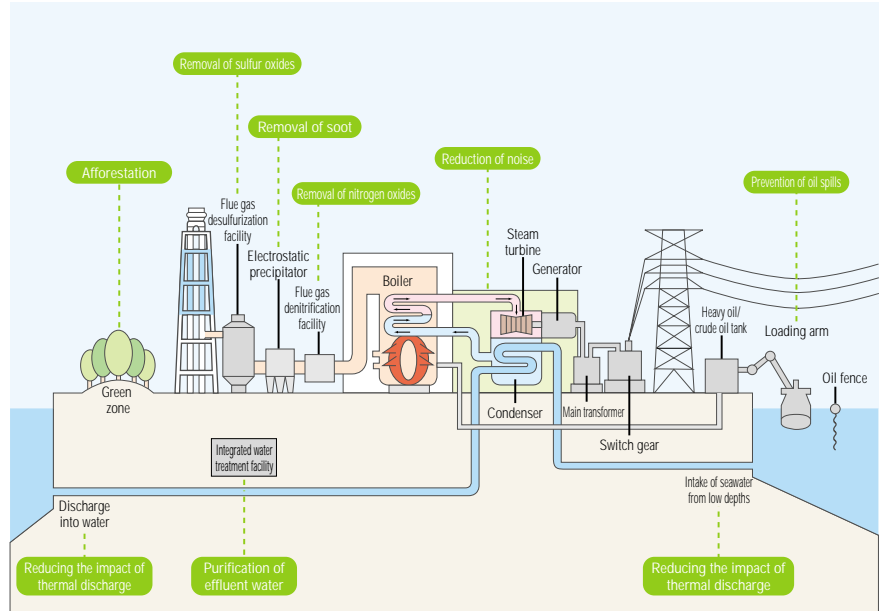
Efforts for Local Protection

Kansai Electric long ago started taking action against air and water pollution, and is now also carefully addressing new issues such as chemical pollution. Based on environmental protection agreements our thermal power stations take measures to prevent air pollution, water pollution, noise and vibration. We also monitor the local environment to confirm the effectiveness of the measures. Kansai Electric is also searching for greater harmony between our operations and local environments by planting greenery and adapting infrastructure to maintain scenery.

Environmental protection measures



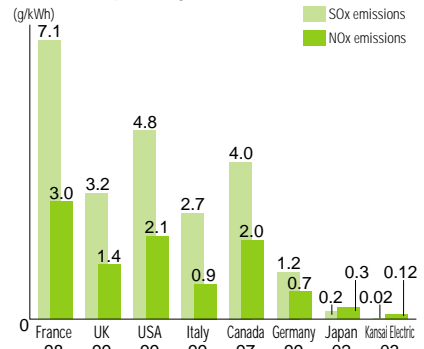
Main environmental protection system in a thermal power station



Measures to Prevent Air Pollution

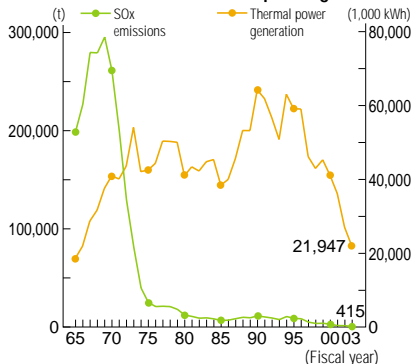
Kansai Electric uses low sulfur heavy and crude oil and liquid natural gas (LNG) and low nitrogen fuels (LNG, high quality oil, etc.) that contain no sulfur at all as fuel for thermal power generation. We also minimize emission of nitrogen oxide (NOx) and sulfur oxide (SOx) by using flue gas desulfurization and denitrification equipment. As a result, the amount of SOx and NOx per certain volume of electricity produced by thermal power generation emitted by Kansai Electric is markedly low, and is of the highest standards even in global terms. Soot emission is also minimized by high performance electric dust filters.

SOx and NOx emissions per unit of thermal power generated

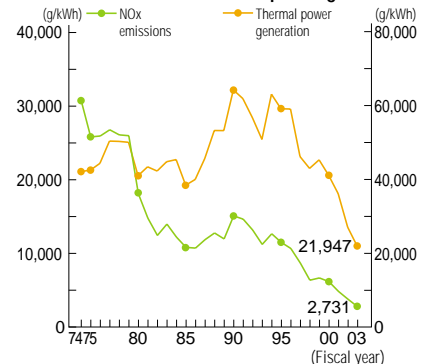


Sources for foreign countries: OECD Environmental Data compendium/2002 Energy Balances of OECD Countries 1996, 1997-98 1998-99, 1999-2000 (1996 values given for Canada)
Sources for Japan: Survey by Federation of Electric Power Companies

SOx emissions and thermal power generation



NOx emissions and thermal power generation



Measures to Prevent Water Pollution

Kansai Electric uses various equipment to thoroughly purify wastewater released from thermal power stations. At some of our power stations, ultimately treated water is effectively used by recycling as water for desulfurization equipment. We also take measures to prevent water pollution such as providing an oil barricade or oil fences when pumping oil ashore from a tanker.



Oil fence

Hot water discharge

Seawater used for cooling at power stations is cooled to about 7°C warmer than the surrounding sea before release. The water intake port is also located so that water intake and discharge water do not disturb marine wildlife.

Measures to prevent noise, vibration and offensive odors

Kansai Electric locates equipment for power stations and substations on site and as far away from perimeters as possible. The foundations underneath this equipment are also strong. Additional efforts are made to prevent noise and vibration from going beyond property lines such as by installing silencers and soundproof walls, and designing equipment for quieter running.

At power stations, Kansai Electric injects ammonia into flue gas denitrification systems and electric dust catchers. An automated unit controls ammonia injection to the proper level so as to keep ammonia concentration of the flue gas low all the time. And, ammonia concentration is measured periodically.

Measures Against Chemical Substances

PRTR

Kansai Electric has always properly managed chemical substances and has voluntarily managed chemical substances since 1997, before the PRTR Law went into effect. Those results have been disclosed since 2000.

We have also prepared a PRTR Chemical Handbook that is used to accurately know and manage the chemicals used by us and group companies.

Polychlorinated biphenyl (PCB)

PCB, an insulating material used with electric equipment like transformers, was discovered to be harmful after an outbreak of Kanemi oil disease in 1968. Since that time, it has been regulated and careful handling is mandatory by law. Kansai Electric keeps it in a special storage facility. We began treating a low concentration of PCB in utility pole transformers in full earnest in April 2004. As for high voltage transformers and condensers that have a high concentration of PCB, we are studying plans to adequately treat the PCB by the deadline specified by law (2016).

The problem of traces of PCB being found in heavy electrical machinery, etc., is now being studied by a committee established by the government to come up with measures to deal with the problem. Kansai Electric is however properly managing equipment in which traces of PCBs were detected.

Storage of low concentration PCB (utility pole transformers) (March 31, 2004)

	Insulating oil (Unit: 10,000 kℓ)	Transformer case (Unit: 10,000 cases)
Applicable equipment	10	24
Amount stored	5.6	16.5
Amount treated	0.2	0.3
Amount scheduled to be stored	4.2	7.2

Storage of high concentration PCB (high voltage transformers, condensers) (March 31, 2004)

Amount stored	5,449
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Soil contamination

Kansai Electric is working to prevent soil pollution by strictly observing laws and regulation concerning soil pollution (Water Pollution Control Law, Waste Management and Public Cleansing Law, PRTR Law, etc.).

Also, prior to converting land over to other uses, we do soil test and take the proper measures against contamination as prescribed by the Soil Contamination Law that was enacted in February 2003.

As for the planned site of our new power station in Wakayama, we tested the site ourselves because it has been used for waste landfill. We detected a comparatively high concentration of dioxins (max. 25,000 pg-TEQ/g) in some of the buried incinerated waste and sludge. We have sought the advice of experts and have taken measures to prevent the waste from being dispersed in the air or run off by water. Findings have been reported to governmental authorities and disclosed to the general public.

Dioxins

Concerning dioxins, Kansai Electric has taken various approaches including recycling to reduce the amount of waste we generate and subsequently the amount of waste that is treated by incineration. We are also gradually shutting down our incinerators. In fact, of the 430 that were running in 1997, only 14 remained in 2002. As a result of voluntary measures, it has been confirmed that almost no dioxin is discharged from our thermal power stations.

Dioxin measurement results (Fiscal 2003)

	Combustion capacity	Standard values for discharge (Unit: ng-TEQ/m ³ h)	No. of facilities (Unit: facilities)	Result of measurements of concentrations of dioxins (Unit: ng-TEQ/m ³ N)
Waste product incinerator	Over 200 kg/h	5	1	0.00062
		10	2	0.00075 - 0.017
	Less than 200 kg/h	5	4	0.000014 ~ 0.082
	Over 50 kg/h	10	7	0.037 - 7.5

Harmonizing with the Local Environment

Ecological greening method

Kansai Electric is contributing to creating a “green network” in local areas, working to produce “biotopes” by creating an environment where insects such as dragon flies and fireflies can live, and build green areas by the “ecological greening method*” that aims to create environments around thermal and nuclear power stations that have the effect of a natural forest.

We also contribute to improving the scenery through “rooftop greenery” for relaxation such as the one on the roof of the Kansai Electric Hospital.

*Ecological Greening Method
In order to grow a near-natural forest in as little time as possible, a mix of saplings of species suitable for the area are carefully selected and densely planted.



*Ecologically planted area around the Gobo Power Station



Greening at Nara branch office



Visitors calmly watching fireflies at the Himeji No. 1 Power Station

Environmental harmony with electric power facilities

In the construction and maintenance of electric power facilities, Kansai Electric takes due consideration for urban plans and regional development plans, and strives to design structures to blend in with the surrounding cityscape as a means of protecting the scenery and harmonizing with the environment.



Designed as a monument, the smokestack at the Nanko Power Station lights up different each season.



High voltage towers use minimal lighting in order to blend into the surroundings.



Power lines buried underground

Effective use of hot wastewater

Kansai Electric strives to prove the safety and effectiveness of hot wastewater by effectively utilizing the thermal energy in water used to cool equipment at power stations.

Using for newly hatched fish

Kansai Electric cultivates important regional shellfish such as abalone. The cultivated shellfish are released into the waters near power stations to support the local fishing industry.



Abalone are attached to oyster shells and released (Takahama Power Station).

Using for cultivation of Orchids

Orchids are cultivated and exhibited in a greenhouse equipped with a heat pump heat recovery system that uses thermal energy from hot wastewater.



Orchids growing at the Takahama Power Station

TOPICS Environmental Protection Measures at Maizuru Power Station

While building the Maizuru Power Station that uses coal for fuel, Kansai Electric is taking various measures to coexist with the abundant nature, not to mention environmental protection measures.



Power station under construction
(Designed to blend harmoniously with the surrounding islands and mountains, the station will resemble a majestic crane.)

Floating PR center that blends in with the scenery

This is the first time we have used boat to house Kansai Electric PR presentation. The boat fits the image of Maizuru, which has several important harbors. In addition to information on the way the Maizuru Power Station will generate electricity and environmental technologies, the center contains an exhibition of energy and environmental problems.



PR center El Mari Maizuru

Protection of rare plants

On the site of the Maizuru Power Station that is currently under construction was discovered epimedium sempervirens, an extremely rare species of plant. Kansai Electric decided to transplant it into a natural forest on the premises of the power station and monitor growth from there.



Epimedium sempervirens

Reducing land modification in natural areas

The site where the Maizuru Power Station is currently under construction is partially located inside the Wakasa-wan Quasi National Park, therefore it was decided to make good use of the different elevations of the terrain to create a 2-level site. We were thereby able to greatly minimize the amount of reclamation from the sea and land modification on the shore. Additionally, only the bare minimum of forested area was felled, which made it possible to preserve part of the existing forest and nearby tangerine groves.

Effective use of coal ash and gypsum

The coal ash recovered from the electric dust catcher and gypsum recovered from the flue gas desulfurizer are effectively used as raw materials for making cement.

TOPICS Effective Use of Dredged Sand for a Tidal Flat

Kansai Electric has made effective use of sand dredged to build a pier for the Sakai LNG Center to build an artificial tidal flat. This is the result of trying to improve the local environment by creating a habitat for marine life and birds and to enhance water cleaning function by dredging in cooperation with the Port of Hannan project of the Osaka Prefecture Bay and Harbor Bureau.

A completion ceremony was held in March 2003 under the joint auspices of Osaka Prefecture and Kansai Electric. The local mayor and representative of the local fishing cooperative were invited to attend.

International research project

"Research of experimental creation of tidal flat in Hannan district 2", which is a joint research project involving four publicly recruited private companies, is currently being conducted at the artificial tidal flat as part of the "project to restore tidal flats for coastal cities" being promoted by the National Institute for Land and Infrastructure Management of the Ministry of Land, Infrastructure and Transport.

The research involves the collaboration of industry, government and academia, including Osaka Prefecture, Osaka City University, Independent Administrative Institution Port and Airport Research Institute, as well as the National Institute for Land and Infrastructure Management and private businesses. The results of the phragmites reed community development experiment and

monitoring the tidal flats to see how wildlife has taken to it are scheduled to be put together for presentation in one or two years.



Artificial tidal flats

Promoting Business Activities Suitable for a Recycle-Oriented Society

Based on the "Kansai Electric Recycling Business Activities Promotion Plan", along with promoting the "3 R's" (Reduce, Reuse and Recycle) and green procurement, the company is promoting activities to achieve zero emission of waste intermediately disposed of as landfill.

Promoting "3 R's" Activities

Kansai Electric has set an intermediate target of reducing waste disposed of as landfill to 4,500 tons or less in fiscal 2005 (50% reduction compared with fiscal 2000) and has promoted reduction and recycling of waste in all business activities.

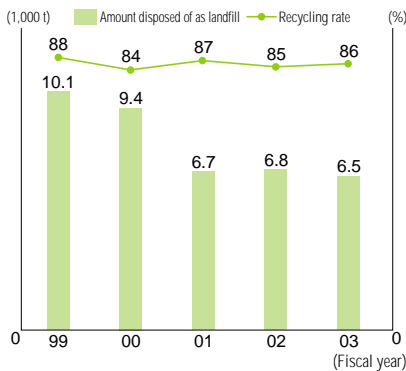
Results of efforts to deal with industrial waste

Results for fiscal 2003

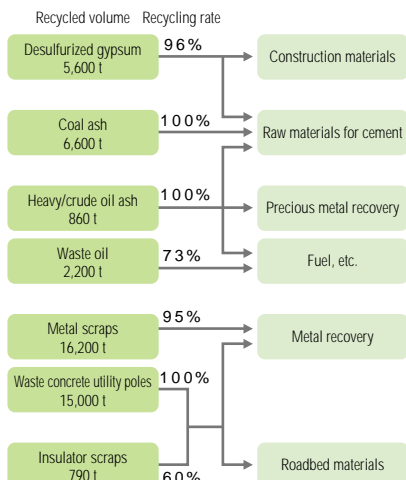
Disposed of as landfill: 6,476 t
Recycle rate: 86%

The amount of industrial waste disposed of as landfill in fiscal 2003 was reduced by about 4% in comparison with the previous year. The recycling rate was also improved by about 1% in comparison with the previous year. This is due to the fact that discharge of waste that is difficult to recycle has been reduced and the effect of promoting recycling.

Amount of industrial waste disposed of as landfill and recycling rate of industrial waste



Recycling examples



Example initiatives

Reduce

Suppress production of waste cloth

Results of fiscal 2003

Amount suppressed: About 20 t

We have suppressed production of waste cloth by renting the waste cloth used for inspection and cleaning from a contract supplier.



Rental waste cloth

Reuse

Repair/reuse of materials used in transmission/distribution of electricity

Kansai Electric checks equipment and parts removed before its life is spent and reuses it as is or repairs salvageable equipment and parts.

Results of reusing main materials used in transmission/distribution of electricity (Fiscal 2003)

Name	Recycle rate (%)
Concrete utility poles	50
Transformers	90
High pressure glass	51
Steel crossarm	62

Recycle

Recycling of construction waste

Kansai Electric has strived to recycle construction waste when demolishing small capacity thermal power stations that began in September 2002.

The company has strived to effectively use massive quantities of waste concrete produced when tearing down buildings on its own grounds as land grading.

Results of recycling waste materials from demolition of power stations

	Amount recycled
Concrete	169,000 t
Asphalt	1,000 t
Wood	3,000 t
Metal	164,000 t

Demolished power stations are Himeji power station (No. 1 - 4), Amagasaki No. 3 power station, Amagasaki Higashii power station, Kasugade power station, Tanagawa power station
Overall duration: September 2002 to March 2004



Before

Tanagawa Power Station



After

Tanagawa Power Station after being graded with recycled materials

Recycle

Recycling PCB waste

The Waste Disposal Law of 1976 approved of high temperature incineration as treatment for PCB, but years went by without treatment advancing.

Together with group company Kansai Tech, Kansai Electric developed original chemical treatment technology that generates no combustion gases and the concerned governmental agencies evaluated as practical. Then, in 1998 when Waste Disposal and Public Cleansing Law was amended, it was approved as one technique for treating PCB. Today, we are building a treatment facility that will apply this technology to the low concentration PCB of utility pole transformers. It is also planned to effectively use the insulation oil - once rendered harmless by treatment - for fuel, etc.

Recycle center for utility pole transformers

Kansai Electric completed construction of its utility pole transformer recycling center for rendering transformer insulation oil etc, that contains minute quantities of PCB harmless and recycling the transformer materials. The center passed inspection prior to being used as a facility for disposal of industrial waste by the city of Osaka in January 2004. After having all parties involved in the project confirm that the facility is capable of stable, uninterrupted operation while providing the originally planned performance, safety and environmental protection properties. The facility began operating in April 2004.



Recycle center for utility pole transformers

Recycle

Recycling gas turbine intake filters

Fiscal 2003 results

Amount of resources recycled: Approx. 70 t

After periodically replacing intake filters installed where gas turbine generators (air compressors) take in air, the filters are recycled as metal material and roadbed material.



Intake filter (Himeji No. 1 Power Station)

Sharing of waste 3R information within the group

In order to share information concerning waste 3R within the group, Kansai Electric has prepared a database and makes use of company LAN and the Internet.

The database contains a "bulletin board" that provides information about pertinent laws and regulations and "interpretation of laws and regulations" that gives questionable interpretations of laws and regulations, and "3R examples" that gives an introduction to 3R activities. The database provides the necessary information in a timely and speedy manner, and helps promote waste 3R activities for the entire group.



Database screen

Results with efforts to reduce office waste

Offices discharge lots of resource waste such as copy paper, newspapers, magazines, cardboard and drink containers. Kansai Electric actively strives to reduce and recycle office waste.

Example initiatives

Activities to reduce and recycle office waste for the entire group

Kansai Electric has worked to reduce and recycle office waste at our main office building, Osaka Kita branch office building, Osaka Minami branch office building, with the cooperation of the owner of the buildings, Kansai Electric Industrial, Ltd. We received the fiscal 2003 "Superior Waste Reduction Building" seal* from the director of the Osaka City Environment Bureau.

*Kansai has received the "Superior Waste Reduction Building" presented for buildings achieving superior results with reducing and recycling waste five years consecutively.

Results of discharging and recycling office waste (fiscal 2003)

	Main office building	Osaka Kita branch office building	Osaka Minami branch office building
Copy paper	189	79	85
Newspaper	105	34	4
Drink containers	28	9	4
Other	14	0	0
Amount recycles	336	122	93
Total amount discharged	544	150	94
Recycle rate (%)	62	81	99



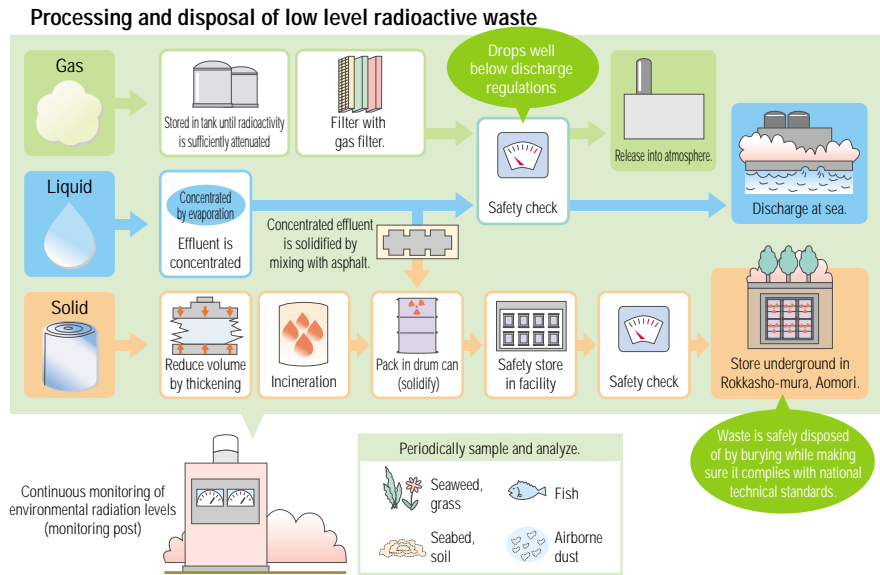
Superior Waste Reduction Seal (right), Superior Waste Reduction Building Seal (left)

Treatment of Radioactive Waste

Low level radioactive waste

Depending on their nature, radioactivity of radioactive gases and liquids produced at nuclear power stations is attenuated by filtering and storage in tanks. Those whose concentration of radioactive substances is low enough are released into the air or sea while monitoring radioactivity.

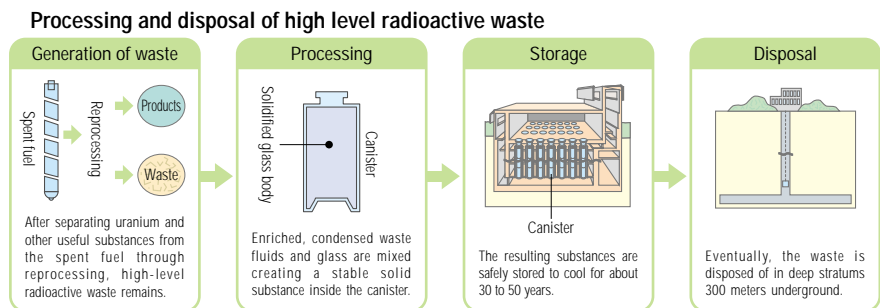
The volume of solid radioactive waste is reduced by incineration, etc., and the remains are loaded into drums. After being safely stored, they are disposed of by burying in accordance with government technical standards so they don't affect our living environment in the future.



High level radioactive waste

High level radioactive waste produced in the reprocessing of spent fuel is stored for 30 to 50 years to allow it to cool. The policy after that is to ultimately bury it at least 300 meters below ground. Kansai Electric the safety of buried radioactive waste, by scientific prediction using various scenarios involving the uncertainties of what may happen over on extended period of time.

At present, the Nuclear Waste Management Organization of Japan* (approved by the Minister of Economy, Trade and Industry is making preparations to select a final disposal site.



Disposal site selection

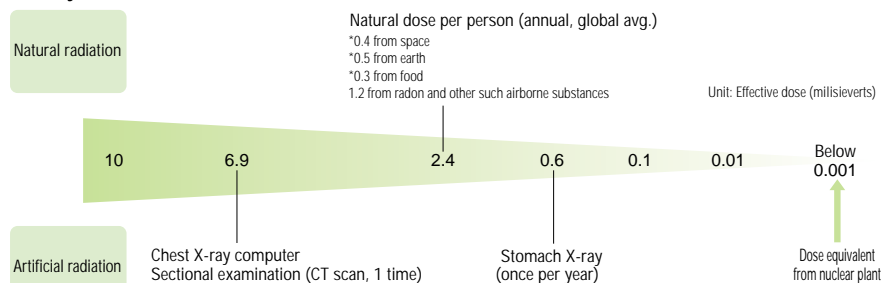


*<http://numo.or.jp/>

Monitoring and measurement of radioactivity and radioactive materials

In order to make sure that the amounts of radiation produced in the running of our nuclear power stations do not reach a level where they may become a problem, radiation and radioactive materials are monitored.

Daily life and radiation



Radiation dose received by the public living near nuclear power stations that is emitted by radioactive waste is less than 0.001 millisieverts per year. This is extremely low compared to the amount of natural radiation received (2.4 millisieverts per year).

Establishment of Atomic Fuel Cycle

Having limited natural resources, Japan's basic energy policy is to recycle used fuel to effectively recover useful materials such as plutonium and uranium. The Energy Basic Plan decided at a ministerial cabinet meeting in October 2003 clearly states "promotion of nuclear power generation as a mainstay power source of the premise that safety is ensured" and "promotion of the Pluthermal* Plan as the mainstay for the time being" as the energy policy.

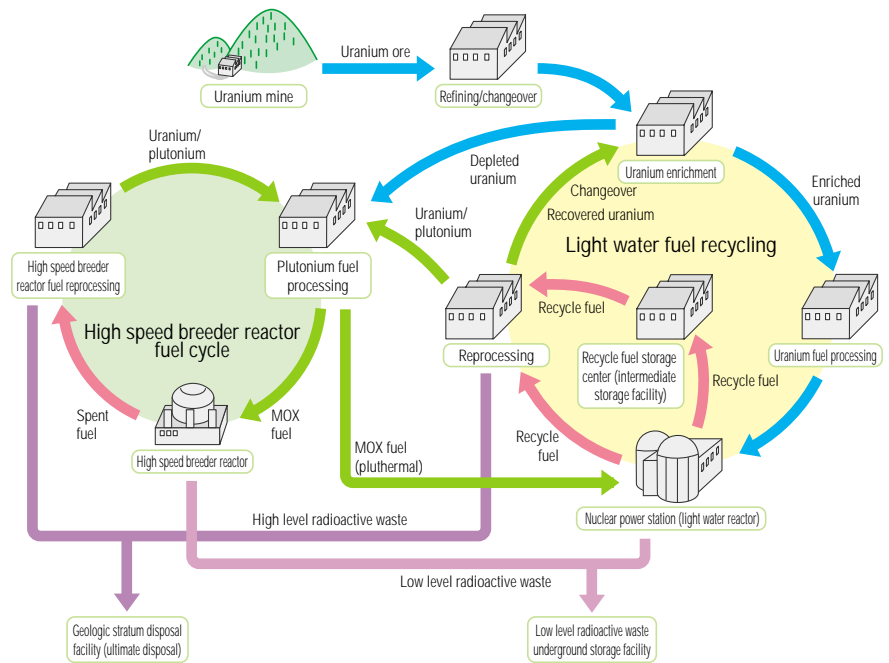
In line with this policy, Kansai Electric is striving to proceed to aid in establishment of Japan's atomic fuel cycle. The company intends to proceed with its Pluthermal Plan while obtaining the understanding of all the people, particularly those living near nuclear power stations.

*Plutonium which has been collected by reprocessing used fuel is mixed with uranium to form MOX fuel (mixed oxide fuels) and then reused in nuclear reactors (light-water reactor: thermal reactor).

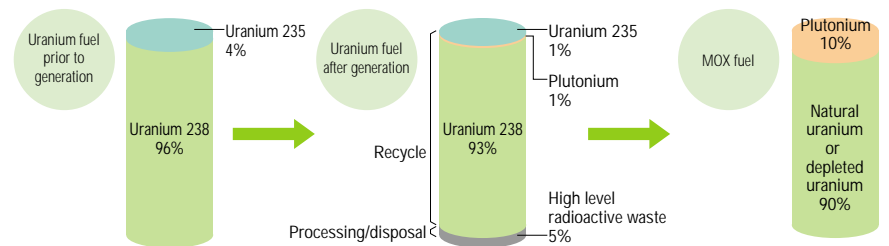
Recycle fuel storage center

The recycle fuel storage center is a facility for properly storing recycle fuel that can be reused as an energy resource for a certain period of time until it is reprocessed. About 900 to 1000 tons of uranium per year is currently produced in Japan. If you take into account the capacity of the reprocessing plant (Japan Fuel) being constructed at Rokkasho-mura in Aomori Prefecture (800 tons of uranium per year), it shows that additional facilities for storing recycle fuel away from power stations will be required.

Atomic fuel cycle



Recycle fuel



Uranium and plutonium can be recovered from fuel used at nuclear power stations (recycle fuel) by reprocessing and used again as fuel. Radioactive waste that cannot be reprocessed and reused accounts for less than 5% of recycle fuel. The rest of the more than 95% is uranium and plutonium that can be reused. Because it is poor in natural resources, Japan must effectively reuse this fuel.

Promotion of Green Purchasing

As part of its green purchasing promotion policy (settled upon in 1999), Kansai Electric has made company-wide effort to give preference in purchasing to products and services that place a low load on the environment. Green purchasing will be spread to the entire group beginning with 2004.

Office supplies, etc.

In April 2001, green purchasing was started with office supplies and targeted the purchase of copy paper, OA equipment, stationary and documents across the entire company. The green purchasing target was subsequently expanded to all office supplies and activities are being promoted even more aggressively.

Office supplies green purchase targets and results (fiscal 2003)

Item	Green purchase rate*	
	Target	Result
Office supplies (43 items)	100%	99%
	Breakdown	
		Copy paper 100%
		OA equipment (5 items) 100%
		Stationary (26 items) 92%
		Fixtures and furniture (11 items) 90%

*Purchase rate is calculated from price of purchase.

Work clothes

Kansai Electric has fully adopted work clothes made from recycled plastic bottles for all sales offices and power stations. 26,000 sets of work clothes were purchases in a 3-year period beginning in fiscal 2001.

Vehicles

In addition to electric vehicles, Kansai Electric is aggressively introducing low emission vehicles (LEV) and hybrid vehicles to its fleet. In fiscal 2003, of 306 vehicles whose leases were renewed, 280 were replaced by LEV or hybrid vehicles.

Power generation equipment purchases

In June 2002, Kansai Electric adopted Green Purchasing Guidelines for power generation equipment, hence starting green purchasing for 84 items in fiscal 2003. The company has set in fiscal 2004 a target of increasing the number of items applicable for green purchasing to 92 or more.

Green purchasing results for major equipment (fiscal 2003)

Item	Purchased quantity
Recycled vinyl insulated cable	11.7 km
Recycled polyethylene insulation conduit (PE conduit)	17,661 units
Resin drum spools	1,829 units
Recycled branch guards	22,400 units
Recycled plastic protective plate for buried conduit	6,096 units
Pet bottle recycled grassproof sheet	10,305 m ²
Water-permeable pavement (made from used insulators)	357 m ²

Coordination with outside organizations

Kansai Electric is also promoting activities in cooperation with outside organizations like the Kansai Economic Federation and the Green Purchase Network (GPN). Also, as local networks, the Shiga Branch Office is constructively working with the Shiga Green Purchase Network, while the Wakasa Branch Office is participating in the Green Purchase Network of Fukui.

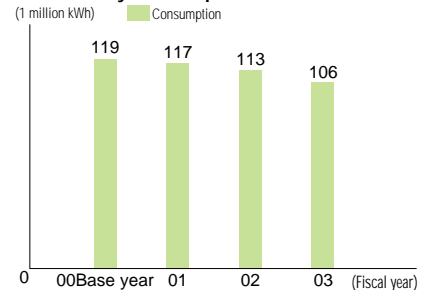


Representatives of the Shiga Branch Office, presenting activities of Kansai Electric at the General Meeting of Shiga GPN (May 2003)

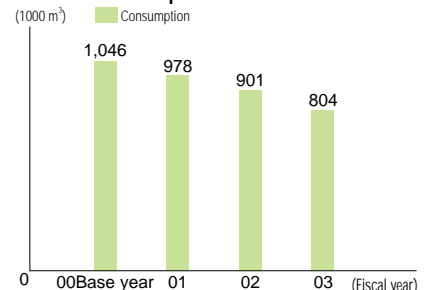
Energy Conservation and Resource-Saving Activities with Office Supplies

Electricity and water are indispensable to everyday operations, so at all businesses, Kansai Electric is using resources carefully and consolidating efforts to reduce use. As a part of this effort, company-wide targets have been set for electricity, water, copy paper and vehicle fuel.

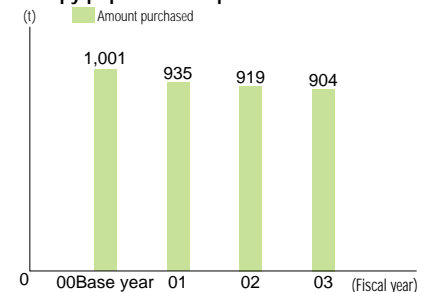
Electricity consumption of offices



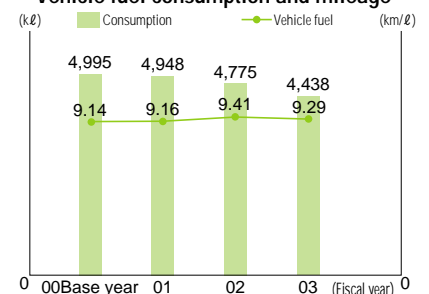
Water consumption



Copy paper consumption



Vehicle fuel consumption and mileage



TOPICS Green Purchasing Award

Kansai Electric received the 6th Green Purchasing Award in November 2003 presented by the Green Purchase Network for outstanding green purchasing in the electric power business.



6th Green Purchasing Award

TOPICS Kobe Kansai Electric Building receives Environmental/Energy Conservation Building Award

In February 2004, the Kobe Kansai Electric Building received the Environmental/Energy Conservation Building Award from the Institute for Building Environment and Energy Conservation, which is an outside organization of the Ministry of Land, Infrastructure and Transport. This award is presented for buildings with superior environmental performance and energy efficiency. The Kobe Kansai Electric Building was rebuilt for superior energy conservation and to be able to withstand natural disasters. The environment friendly building takes advantage of natural energy such as solar lights and roof water. For air conditioning, the building uses an Eco Ice ice storage thermal air conditioning system that conserves energy, has a CO₂ reducing effect and is economical. The building is designed to make efficient use of energy and resources.

- Light** The building is equipped with a solar battery capable of generating 18kW of electric power.
- Heat** The windows are made of double panes of glass to prevent heat from getting in or out.
- Wind** The entire building is naturally ventilated using draft power of a radiotelegraph tower.
- Energy** The building employs eco ice to shift 100% of air-conditioning demand to nighttime. The building is also designed for effective use of natural light. Output of equipment is adjusted by optical sensors to reduce lighting energy.
- Energy source** Old glass tiles and glass waste are reused as filler for the panels of the OA floor.
- Water** Well water is used as a source of water for air-conditioning and general service water.



Kobe Kansai Electric Building

TOPICS Environment-friendly design of main office building that aims to be a model building for environmental coexistence

The New Kansai Electric Building (tentative name) which is designed to be a model building for environmental coexistence incorporates technologies to conserve energy and use natural energy.



New Kansai Electric Building

The New Kansai Electric Building (tentative name) has been selected as the Osaka Prefecture Heat Island Model Project.

Effective use of energy (Promotion of energy conservation)

- Eco frame
- Lighting window
- Low-e laminated glass
- Climber blind
- Natural ventilation
- Intelligent lighting
- Task & ambient air conditioning
- Waste conveyor
- Reuse of wastewater and rainwater
- Local air conditioning and heating

Positive use of natural energy

- Lighting window
- Solar power generation
- Natural ventilation
- Intelligent lighting
- Reuse of wastewater and rainwater
- Local air conditioning and heating (using river water)

Promotion of load leveling

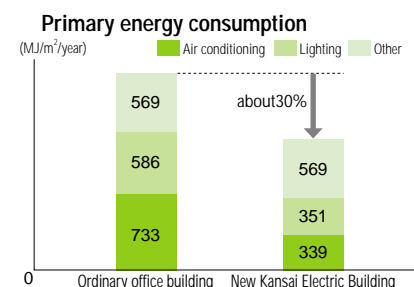
- Solar power generation
- Building heat storage
- Solid heat storage: hot water supply system
- Local air conditioning and heating (using large scale ice storage)

Effective use of resources (thorough recycling)

- Waste conveyor
- Reuse of wastewater and rainwater
- Eco material

Energy conserving effect

Compared with ordinary office buildings, primary energy consumption on work floors is reduced by 30%.



Environmental Communication

Along with promoting various ecological activities together with local people, Kansai Electric actively promotes face-to-face communication activities to enhance work and take advantage of mutual understanding.

Grass-roots Exchange Activities

Everyone's Eco-Friendly Campaign

Since 1993, Kansai Electric has taken part in the Everyone's 1-2-3 Campaign, which calls for participants to plant trees, reduce paper waste and collect empty cans for recycling. This success led to the start of the New Everyone's 1-2-3 Campaign, which comprises the three activities of tree planting, resource and energy conservation in the office, and community beautification. Based on the positive experiences of these predecessor drives, we started the Everyone's Eco-Friendly Campaign in 2000 to promote a variety of environmental contribution activities in cooperation with local communities.



Planting trees together with elementary school children. In 2003, Kansai Electric planted 20,000 trees in public places such as school grounds and parks. The company has planted a total of 337,000 trees since 1993.



Clean-up nearby a business site. In 2003, Kansai Electric staged 308 clean-ups.

100,000 People's Eco-Family Campaign

In the 100,000 People's Eco-Family Campaign that has been running since 1998, employees of Kansai Electric and their families have been doing what they can at home to conserve energy such as setting air conditioners to 28°C and heaters to 20°C. In 2003, the company started introducing to the general public examples of energy reduction activities and the resulting effect from information in the company's database, as well as activities aimed at getting people to think about energy conservation in the household budget.



Leaflets (left and middle) and stickers (right) for the 100,000 People's Eco-Family Campaign



Guide window to the company's database

During environment month

In response to the call from the Environment Agency (now the Ministry of the Environment), Kansai Electric made June Environment Month in 1975. Throughout the month, the company imparts various activities in various locations where we interact with the general public such as staging symposiums on the theme of environmental problems with the support of Osaka Prefecture and Osaka City. In 2003, we expanded the sphere of activities to group companies, calling it the Kansai Electric Group Environment Month.



Environment Month Symposium

Support for energy and environmental education

Kansai Electric creates children's pamphlets, videos and CD-ROMs that explain about energy and environmental problems in an easy-to-understand manner. Moreover, employees from Kansai Electric visit schools to talk about energy and environmental problems as part of the visiting classroom (staged about 920 times for 40,000 students in 2003). We also give tours of our facilities (about 480 tours for 23,000 persons in 2003) and stage seminars for educators. We also have a corner on the company website where children can learn about energy and the environment on their own.

Activities in Local Communities

Clams released at the Mihama Power Station

Employees from the Mihama Power Station released clams into the sea at the nearby Nyu Beach with the help of elementary school and daycare kids from the local area. That day, about 40 persons showed and, after cleaning up the beachfront, released about 6,400 baby clams into the sea.



Tree planting by the Hanshin Office

Staff from the Hanshin Office planted trees with the help of the Amagasaki School for the Physically Challenged. Together with students, they planted about 560 (13 classes) dogwoods and other types of trees in the city.



Jintsukawa Power System Center gives away flower bulbs

Employees from Jintsukawa Power System Center visited daycare centers and welfare centers for the elderly in Osawano, Toyama Prefecture, to give away sets of tulip and crocus bulbs.



Tokai Office releases fry

With the cooperation of local residents, the Tokai Office released ayu fry and other fish into the Kiso River as part of a river environment protection effort.



Shiga Office stages Kanden Lake Biwa AID 2004

With the support of the local government, the Shiga Office played an environment video and staged a piano concert for about 1,600 students and teachers from local elementary schools in Minakuchi, Shiga Prefecture.



Flower giveaway by the Hokusetsu Office

When it came time to replace the flowers in front of the Hokusetsu Office, employees gave away flowers, seedlings and eco goods to people from the local community.



Cooperation with Environmental Protection Groups

Kansai Electric believes that partnerships amongst governments, businesses, residents and organizations are important towards developing environmental protection activities. For this reason, we like working with NPOs as both sides bring to the table abilities and resources that compliment one another.



Environment and energy class for elementary schools organized in cohort with an NPO

Environmental Cooperation with Outside Groups

Kansai Electric makes proposals to environmental authorities and constructively participates in a wide range of research activities through tie-ups with diverse organizations to note the Osaka Chamber of Commerce and Industry, Global Environmental Forum, Kansai, and Kansai Economic Federation. The Kansai Economic Federation is involved with green purchasing and appropriate cooling and heating initiatives, to which Kansai Electric adds its constructive participation.



Poster on appropriate cooling and heating

TOPICS Stakeholders' Meeting with Housewives and Students

Kansai Electric places a high value on face-to-face communications with stakeholders in our existence and operations. By listening to what they have to say, we can find ways to improve our activities and understand one another on a better plane.

From March to July 2004, we held stakeholders' meetings with housewives and students from the Kansai. Like last year, NPO e-Being agreed to serve as coordinator of cooperation between industry, government and academics. Participants toured our facilities and shared their opinions with us at the ATC Green Eco Plaza.

Talking with Housewives

In March 2004, three encounters were staged with housewives from the Kansai. They visited a thermal power station and observed a visiting classroom so that they could share their opinions on what energy and environmental problems there were in their worlds and what each family could do about them.



First encounter: Housewives visit Kanden El Heart (left) where physically challenged persons are given opportunities to work, and the Nanko Power Station (right), a key thermal power station in the Kansai Electric grid.



Second encounter: Housewives observe a visiting classroom at Shukugawa Elementary School.



Third encounter: Housewives share their opinions of the activities with Kansai Electric staff.

Participating housewives (Honorifics omitted)

Setsuko Amano, Michiko Iwamoto, Natsue Kuwajima, Kazuko Takamura, Yoshiko Takenaka, Yuriko Nakagawa, Masako Fuji, Ikuko Mitsuyama

Some of the major comments

I was impressed how persons with physical disabilities worked in proportion to their abilities and with complete respect for one another.

The visit to the power station gave me the opportunity to think about energy again. Energy is absolutely necessary for a convenient lifestyle, but we must all think of ways to provide it and use it without burdening the planet.

I was hoping to hear more about nuclear power and new energy sources rather than just thermal power generation.

I was left thinking that it would be a good idea to make it a habit with children to conserve energy in daily routines and activities.

There is a substation and many utility towers near my home, so I was naturally worried about electromagnetic radiation, but after hearing the talks by Kansai Electric, I feel a lot safer now.

I had wanted to see more what people are doing to save energy in their daily lifestyles.

Talking with Students

As we did last year, students from the Kansai were invited over a period from March to December 2004 to help us prepare the Kanden Environmental Report, which reports on our environmental activities. Since reports tend to be overly technical, they provided their opinions on what ordinary people want to know and how that information can be conveyed in an easy to understand manner, from the position of the reader.



Participating students (Honorifics omitted)

(Above photo, from left)
 Koki Ohashi and Koichiro Ogata, Doshisha University Faculty of Economics
 Kodai Shirayama and Naoko Kajimoto, Osaka University Graduate School
 Daisuke Hirasawa, Ritsumeikan University College of Letters
 Akiko Matsumura, Doshisha University Faculty of Economics
 (Not pictured)
 Natsuki Tanaka, Kwansai Gakuin University School of Economics
 Masashi Toyama and Hirokazu Yamaoka, Ritsumeikan University College of International Relations
 Nanako Tenjin, Doshisha University Faculty of Economics
 An Hui Gyeong, Kyoto University Graduate School of Global Studies

Some of the major comments

It would be better if, in the beginning, people could see how wasting electricity affects the global environment.

I would like an introduction to things that ordinary people are doing about the environment and energy.

Whatever content is included, we need a format and composition that keeps the reader interested.



Our application of comments

We added an illustration that gives a full picture of the flow from energy production to consumption and how it relates to global warming at each stage.

We introduced activities done in the home such as energy-saving and the effect they have.

We gave our questionnaire a format that made it seem like we were conversing with the customer.



I want to express my appreciation to everyone who participated in this project: to the students for sharing their pains and wisdom, the housewives for seriously conveying their concerns and the people from Kansai Electric for humbly subjecting themselves to this attack. It was a great pleasure to be a part of this activity.

Momoko Sugahara, NPO E-Being

Comment from Kansai Electric

We continued this style of environmental communication from last year. It was our hope this year to have the participating housewives talk to others far and wide about energy and environmental problems. Though we extensively publicize our environmental activities through our branches and offices, we strongly sense the importance of talking directly with customers. Kansai Electric will continue this style of environmental communication in order to gain an understanding of all of our business activities.

From the Perspective of an Environmental NPO - Opinion-Sharing Meetings with Kansai Electric

The environmental communication activities of Kansai Electric expanded this year by talking not only with students but also housewives and adding the Kanden L-Heart workplace for physically challenged persons to the power station tour.

Seeing is believing. Taking the time to talk face-to-face brings out the truth. Because it's real and not virtual, it has meaning and impact. It was a great opportunity to experience what students and housewives are aware of, and understand and relate to Kansai Electric as if up-close when it can seem so distant.

It is important to take dialog with the whole span of stakeholders to a deeper level as it provides a portal for environmental communication. Moreover, I hope Kansai Electric openly accepts what society expects of it as learned from this type of communication and that it serves them not only in dealing with environmental problems but also in fulfilling their social responsibilities more broadly as a company.



Takeo Inoue
Director, NPO E-Being

NPO E-Being
Director: Takeo Inoue
(Environment counselor, alternate EMS inspector, etc.)

Tel: (06) 6614-1731
URL: www.e-being.jp

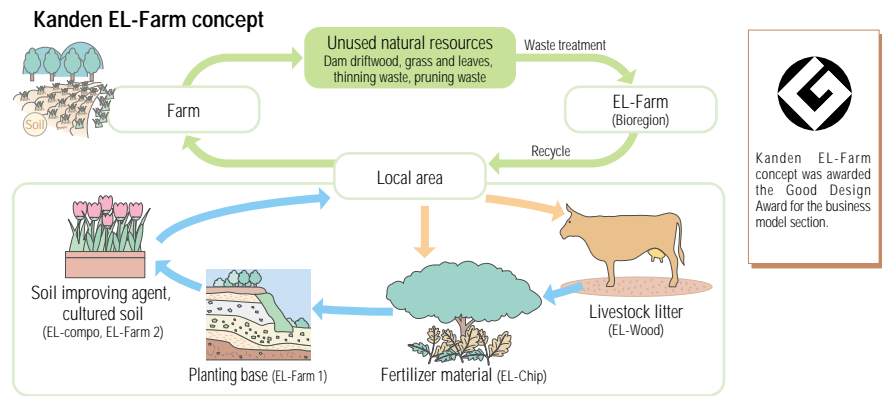
Developing the Eco-Business

The Kansai Electric Group has strived to carry out environmental protection activities such as forestation and environmental assessment. Kansai Electric has created a new "eco-business" by taking advantage of its expertise and management resources, and is aggressively promoting environmental recycling projects and so on.

Kanden-el-farm, Inc.

Recycling of driftwood collected from dam reservoirs

Kanden-el-farm, Inc. was the first venture company to come from Kansai Electric's Entrepreneurial Opportunity System. Their business is to recycle driftwood and leaves collected from dam reservoirs, lumbered wood from the local area and tree trimmings. Their main products are a soil improving agent known as EL-Compo and a cultured soil called EL-Farm 2. They also have developed and are selling a gardening pot set called EL-Pianta.

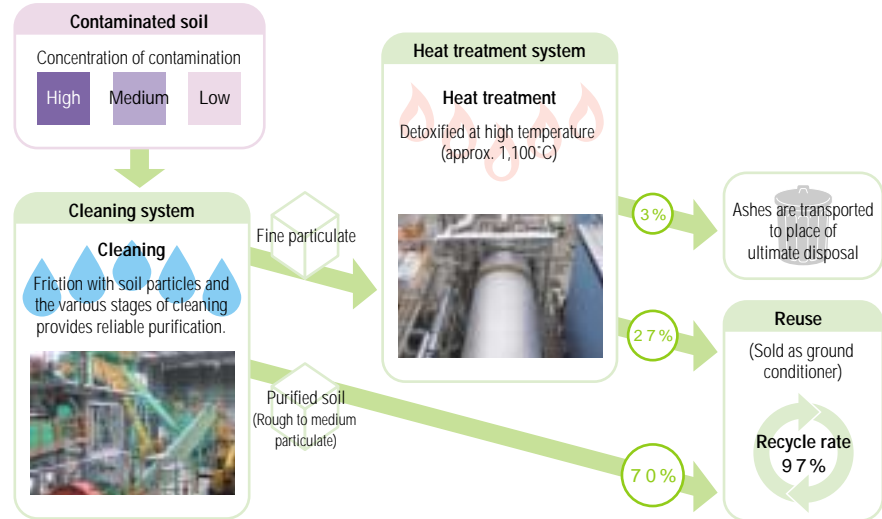


KANDEN GEO-RE Co., Ltd.

Purification of contaminated soil

KANDEN GEO-RE, Co., Ltd., was established in October 2003 in cooperation with Kobe Steel, Ltd. Using the first-of-its-kind low-cost, efficient purification system developed in cooperation with KOBE STEEL, LTD., KANDEN GEO-RE has begun participating in the soil purification business. The company will someday provide various services ranging from testing/analyzing soil and consulting to purification and sales of purified soil. The purification plant built in Amagasaki City in Hyogo Prefecture has been in operation since the end of September 2004.

Uninterrupted treatment system that combines "cleaning" with "heat treatment"

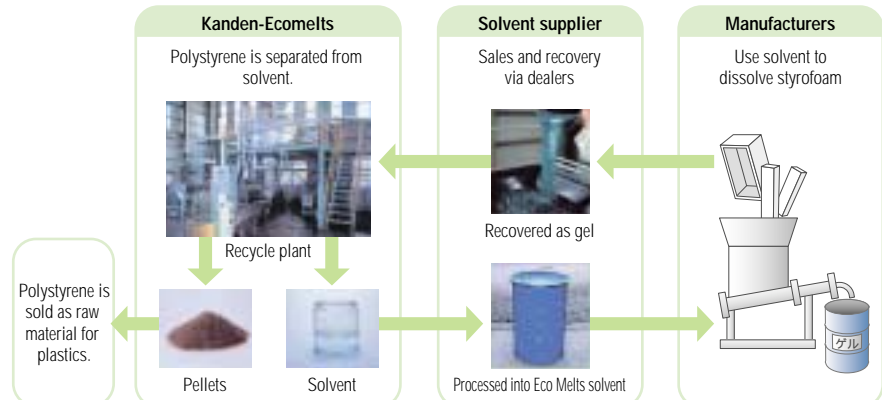


Kanden-Ecomelts Co., Ltd.

Recycle polystyrene

Kanden-Ecomelts Co., Ltd., was established in December 2002 as a venture company to recycle polystyrene contained in waste such as Styrofoam. Kanden-Ecomelts dissolves and makes pellets of polystyrene from Styrofoam products, etc., that used to be incinerated or disposed of as landfill and sells them as a raw material for plastics.

How waste polystyrene is made into raw material for plastics



MOSS WORKS KANDEN CO., LTD

Production and sale of rooftop garden products

In recent years, the heat island phenomenon has gotten worse in large urban areas, yet one solution that is grabbing attention is the rooftop garden. MOSS WORKS KANDEN sells rooftop garden products that utilize a lightweight and conveniently portable "growth mat" for growing sedum and lichens that are strong against heat and require little maintenance. Their nursery is located on the grounds of the Tanagawa No. 2 Thermal Power Station.



Rooftop garden at Itami Airport

KANSAI ENVIRONMENTAL ENGINEERING CENTER CO., LTD.

Developing soil and ground water pollution testing and recovery business Developing recycling business

As the Nature Recycling Promotion Law has gone into effect, the KANSAI ENVIRONMENTAL ENGINEERING CENTER CO., LTD., has come to play an important role in preserving wildlife diversity. The company has collected basic data and conducted surveys of the current situation create and maintain/manage, restore and preserve the natural environment and ecosystems that have been lost including rivers, forests, wetlands and mountains. Assessments and studies of characteristics of the natural environment, the ability of nature to recover from damage and the delicate balance of ecosystems are conducted based on the data obtained.



Wetlands measuring equipment. Seed traps, etc.

KINDEN CORPORATION

Development of new energy business

KINDEN CORPORATION is actively involved in new sources of energy that are friendly to the environment. The company is working on a wind power electricity generation system that includes everything from site surveys to design, procurement of materials, construction and maintenance, and has continued to show results. In fiscal 2003, construction of a 2,000 kW wind power electricity generation facility, the largest in Japan, was completed. A wind arm capable of producing total output of 9,000 kW (Mushigamine Wind Power Station, Ishikawa Prefecture) is currently under construction and is scheduled for completion in the fall of 2004.



Wind power electricity generation equipment at Hotel New Awaji (2,000 kW)

The Kanden Kogyo, Inc

Developing the air conditioning filter business

Kanden Kogyo cleans medium performance air conditioner filters for buildings and factories by ultrasonic wave and reuses them. With Kanden Kogyo technology, filters can be washed 3 to 5 times. This reduces waste to 1/3 - 1/5 and helps to cut costs that normally would be spent on new purchases.

This initiative has received high acclaim, and the company was awarded the "Osaka Environmental Award, Incentive Prize" for fiscal 2004 by the Osaka Citizen's Council (headed by the Governor of Osaka Prefecture).



Automatic ultrasonic filter cleaning machine

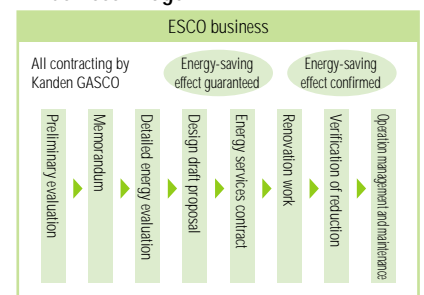
Kanden Gas And Cogeneration Co., Inc.

Developing the "energy services company" business

Kanden Gas And Cogeneration (Kanden GASCO) sells gas for Kansai Electric and proposes the best energy system to customers. As a part of their business activities, they are involved in ESCO (Energy Services Company) business. They are helping customers to save energy by proposing the best energy system for their needs and by providing them with total energy support. In a public bidding for work at the Osaka Emergency and General Treatment Center, Kanden GASCO was selected as the best proposal.

<http://www.k-gasco.co.jp/>

Business image



The Kansai Electric Group consisting of 29 companies that support the electric business was reformed as 12 companies on October 1, 2004 (see page 81).

KANSAI ENVIRONMENTAL ENGINEERING CENTER CO., LTD., mentioned on the left was reformed as "THE GENERAL ENVIRONMENT TECHNOS CO., LTD.", and The Kanden Kogyo, Inc. was reformed as "Kanden Plant Corp."



Contributing to Society as a Corporate Citizen

With our business deeply rooted in local communities and lifestyles, Kansai Electric is more than happy to work with local communities and contribute in whatever way we can.

Welfare for the Physically Challenged

Our wish is for a society where everyone, whether physically or mentally challenged or not, can feel the joy of life. In this regards, Kansai Electric has activities targeted at a "world where people can live without emotional barriers". At "Kanden Collabo Art 21", Kansai Electric works in cooperation with the "Tanpopo no Ie" and social welfare councils from various areas to support the artistic activities of physically challenged persons in the Kansai area. Kanden Collabo Art 21 gives people afflicted with physical disabilities a chance to exhibit their artwork and receive awards.



Kanden Collabo Art 21

Support for the Arts and Culture

Every year, Kansai Electric sponsors concerts in various communities so that local residents can enjoy classical music and opera performed by orchestras and troupes from the local area. This is one more way that the company shows its appreciation to customers and, at the same time, allows us to support cultural activities in the Kansai.



Kanden Classic Special

P-ORITO

Various Modes of Interaction Rooted in Local Communities

All of Kansai Electric's business locations interact with the communities that support them as a way of making the company more familiar to customers. This includes having employees volunteer to help manage local festivals and sporting events, as well as providing electric vehicles that generate no gas emissions for marathons, and more. The company also cooperates with local residents and citizens groups across a broad range of clean-up activities aimed at environmental beautification. Not only do we help clean up around our business sites but also in scenic areas, along beaches and rivers, and around social welfare facilities in the local area.

Main Activities for Local Communities

Cooperation in marathons and other events

Kansai Electric employees volunteer their time to help organize the Mihama Itsuki Marathon and a number of other events. In addition to this, the company lends electric vehicles from our fleet for use in the Ujigawa Marathon, Kakogawa Marathon and Biwako Jogging Concert.

Cooperation in local and traditional events

Kansai Electric is intricately involved with a broad spectrum of the local community, which includes our participation in summertime and traditional festivals such as Kobe Luminarie, Kyoto Aoi Matsuri and Tsumago-shuku Bunka Bunsei Epoch Procession.

Clean-up activities

Kansai Electric helps to clean up scenic areas such as along the Kino River in Wakayama Prefecture and Suma Beach in Hyogo Prefecture, as well as taking part in the clean-up crew for special events like the Tenjin Festival of Osaka.



Mihama Itsuki Marathon



Clean-up activity



Volunteering for outdoor event

Support for Volunteer Activities of Company Employees

In order to support employees that spontaneously give to society through volunteer activities, Kansai Electric has a system whereby employees can take time off to participate in volunteer work. The company also has a gift matching program and awards employees for their contributions to society. And, the company provides information aimed at encouraging such activities.

Holidays taken for volunteer activities (fiscal 2003)
130 activities for a total of 198 days

Kansai Electric recognizes as special leave half or all of the working days within an annual limit that employees take off to participate in social contribution activities that meet specific requirements.

Matching gifts (fiscal 2003)
11 instances for a total of 1.04 million

Kansai Electric matches the donations that employees make individually or through workplace fund-raising activities to support public organizations that meet specific requirements.

Environmental Activities in Cooperation with Local Communities

Kansai Electric cooperates with local communities and groups via a broad range of activities that enable both the company and participants to think about the importance of environmental problems and what each individual can do to help.

Spreading awareness about energy conservation

On our website, Kansai Electric has added a corner entitled "Energy-saving Solutions: Housewife Challenger" that offers an entertaining way to learn about energy conservation. The company also directs a lot of effort into publishing pamphlets and producing PR items. And, there is still a broad range of activities where we are spreading the word about energy-saving such as by advertising in the mass-media and in-house publications, and cosponsoring exhibits on efficient energy utilization in cooperation with The Energy Conservation Center, Japan, and others.



Website and PR items about energy conservation
<http://www.kepco.co.jp/sho-ene/>

Support for test research and international exchange

Kansai Electric provides grants for test research and international exchange activities to researchers from universities and institutes in the Kansai through the offices of the Kansai Research Foundation for Technology Promotion (KRF). In the twelve years since their founding to 2003, KRF dolled out 481 grants worth approximately 500 billion. Kansai Electric helped to found the organization in 1992 and has since been a major supporter of their work.



Grant presentation ceremony (Courtesy of the Denki Shimbun Newspaper)

TOPICS Taking Part in Flood Recovery Efforts in Fukui

In July 2004, torrential rains brought flooding to the Reihoku area of Fukui Prefecture. Employees from the Wakasa Office and offices and affiliates under the jurisdiction of the Kyoto Office made their way to the stricken area to help in the recovery effort. Work involved removing debris and mud from roads and homes, and clearing away destroyed furniture, home appliances and tatami mats so that residents could get back to a normal way of life as quickly as possible. The local residents were

very grateful to our employees for having come so far to help.



Recovery work



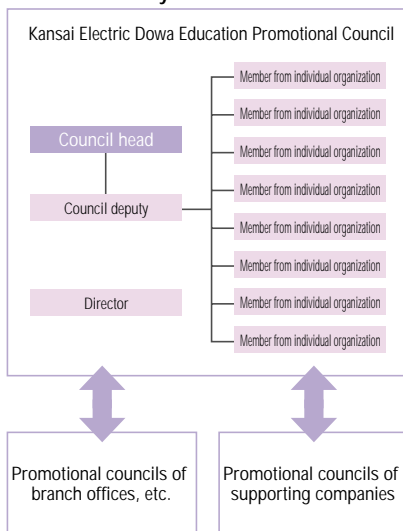
Respect for Human Rights

The Kansai Electric Group wants to have a proper understanding of the human rights of each and every employee, and do what it can, as a business, to create a company and society free of discrimination and strongly against sexual harassment.

Basic Policy on Human Rights

In order to eliminate discrimination of all kinds including Japan's dowa issue and recognize our social responsibilities as a company, each and every employee must have a correct and profound understanding of human rights. Kansai Electric is aggressively involved as a business in creating a happy rewarding workplace, building attitudes that do not tolerate discrimination and ridding society of discrimination. Kansai Electric understands international standards for human rights and takes it seriously to eliminate forced labor and child labor, and prevent sexual harassment in the workplace as well as discrimination against HIV carriers. We will continue to strengthen cooperation within the group and enhance human rights awareness in all group companies through the support of awareness activities and more.

Promotional System



Human Rights Awareness Development for All Employees

Kansai Electric continues to impart education on human rights as an awareness activity for the entire workforce. In fiscal 2003, 23,145 persons took part in the program. Moreover, other efforts were made to raise awareness of human rights such as announcing Human Rights Week and staging a contest to search out human rights slogans, which received 9,430 entries. The winner was "Get a grip on discrimination by not feeling or saying anything discriminatory." Similarly, a variety of awareness activities will be promoted in 2004.



Human rights awareness poster



Jinken human rights awareness publications



Human rights seminar

Human rights education (fiscal 2004 plans)

Activity	Description
Awareness and education for all employees	Educational opportunities will be offered to all employees at least once a year. Programs will be organized by division and level.
Development of internal human rights promotional leaders	In order to develop leaders for promoting internal education, people will be sent to outside seminars, etc.
Questionnaire on human rights awareness	A questionnaire will be used to understand the level of employee understanding of human rights issues. The data will be utilized in future activities and to create a happy workplace environment where human rights are respected.
Activities during Constitution Week and Human Rights Week	As a part of awareness activities, seminars and a human rights slogan contest will be staged. Human rights awareness will be promoted by making these learning opportunities available to all employees.
Review internal practices	If daily practices require improvement from the perspective of human rights, they will be quickly corrected to raise awareness.
Information provision, support and cooperation for group companies	Information, support and cooperation will be constructively provided to group companies in order to further enhance human rights awareness.

Safety and Sanitation Activities

The safety and health of our employees is one of the foundations for our existence as a company. That is why Kansai Electric is endeavoring to build a workplace where employees can work safely and maintain good health.

Safety and Sanitation Management Policy and Action Plans

In order to build a corporate environment where employees can work safely and maintain their health, Kansai Electric is endeavoring to eliminate accidents of all kinds and inject vitality into the workplace. Specifically, the company fully complies with the Law on Industrial Safety and Hygiene and all associated regulations, but on top of this, we have our own safety and sanitation management policy and action plans, and develop activities on our own.

2001 - 2004

Main Points of Kansai Electric's Policy on Safety and Sanitation Management

Safety Related

1. Preparation of a solid base for the management of safety
2. Encouragement of activities that boost safety in cooperating companies

Sanitation Related

1. Promotion of mental healthcare for the age of competition
2. Promotion of supportive measures that assist personal responsibility for one's health
3. Strengthening of foundations of our health support system

Safety and Sanitation Council Meetings

Every month, labor and management meet as the Safety and Sanitation Council to discuss matters concerning safety and sanitation. The meetings aim to build a corporate environment where employees can work safely and maintain their health.

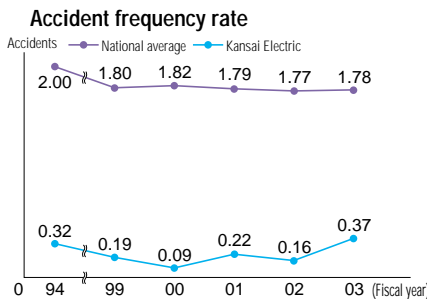
Safety Activities of the Kansai Electric Group

A wide range of safety activities have been and continue to be developed in order to build a safety net around the Kansai Electric Group. This safety net serves the purpose of guaranteeing the safety of everyone involved with us including personnel from group companies, contractors and customers. More specifically, a meeting is held every year to promote the safety net. At this meeting, representatives from across the Kansai Electric Group share opinions on how to eliminate accidents. Unfortunately, despite these efforts, personnel of a cooperating company were killed and injured when a secondary steam pipe ruptured at the Mihama Power Station this year. To prevent this and other kinds of accidents from reoccurring, the cause and preventative measures will be carefully examined.

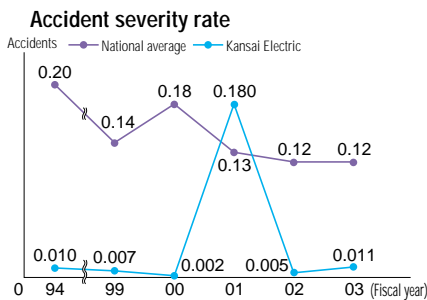
Safety and Sanitation Activities

Accident prevention measures and education

To prevent occupational accidents, Kansai Electric has built a corporate environment with events and education for improving the safety of equipment and raising safety awareness. As a result, the company's annual rate of on-the-job accidents is lower than the national average. Moreover, we will continue to devise activities and dedicate an increased effort to accident prevention.



*Accident frequency rate: Indicator of accident frequency widely used around the world. It is calculated as the number of total accidents resulting in missed days of work per 1 million working hours.



Accident severity rate: Indicator of accident severity. It is calculated as the number of total days of work missed because of accident per 1 million working hours.

Dealing with the human factor

If an accident occurs, it is analyzed, measures are studied to prevent reoccurrence and then those measures are developed horizontally across the company. Moreover, all business sites impart human factor training at safety and sanitation meetings.

Driver's licenses required

Before anyone can drive a company vehicle, they must go through training and testing. The company's system for ensuring safe driving provides also for periodic follow-up, so that absolute safety is ensured when our vehicles are on the road.

Mental healthcare

Mental healthcare is extremely important because of the growing stress in society. To counter stress-related problems, Kansai Electric provides education in mental healthcare and counseling services.

Support for personal health management

From the viewpoint of preventing habitual diseases such as hyperlipemia and high blood pressure, Kansai Electric provides health guidance that encourages regular exercise and good eating habits, as well as support for those who want to quit smoking. These efforts are aimed at helping employees maintain and improve their health.

TOPICS Cross-Company Safety and Sanitation Conference

A Summer Safety and Sanitation Campaign was staged during the scorching heat of July and August as an activity for helping employees maintain their health in this hot period of the every year. The campaign began on July 1 with a Cross-Company Safety and Sanitation Conference that focused on raising awareness of safety and sanitation, and build feelings of solidarity.



Cross-Company Safety and Sanitation Conference

Equal Opportunities of Employment and a Friendly Workplace

In line with related laws, the entire Kansai Electric Group undertakes activities that ensure "fair and impartial employment opportunities" based on individual abilities and suitability, and that "build a friendly workplace".

Thinking on Human Resource Activation Initiatives

Improving Desire and Enthusiasm

Kansai Electric rebuilt the personnel system on the concepts that "Things will change if you try," "You can do it if you want it," and "Stability and security come from a hard day's work." Our activities are directed at making all employees feel enthusiastic about their work and their position as an independent member of society.

Training an Independent-minded Workforce

Training is systematically imparted according to employee ability with the objective of improving disposition, attitude and skill, and acquiring and enhancing the specialized knowledge for assuredly executing work. Our end target is a workforce of strong- and independent-minded people.

Promoting Equal Employment Opportunities for Both Men and Women

Throughout the work cycle from hiring to retirement, Kansai Electric uses people indifferent of gender. Particularly since 1986, following the enactment of the Equal Employment Opportunity Law, the scope of work handled by women has expanded to include the constructive deployment of women in equipment operation and maintenance jobs. Moreover, after that same law was amended in 1999, we formed a working group for women employees to share opinions and started sexual harassment counseling services, as part of a greater effort to create an employment environment in which women can fully exhibit their abilities.

Kansai Electric will continue to utilize our human resources indiscriminate of gender, award job opportunities based on desire and ability, and determine promotions based on performance.

Employing the Elderly

In April 2001, Kansai Electric launched the e-Staff Program that rehires persons who are approaching retirement age. The program replaced an earlier rehiring program started in 1996. Broader in scope, the new support program offers persons aged 60 and over who still have a strong desire to work a place where they can apply the knowledge and experiences they have accumulated, hence helping them to lead a more fulfilling life. Since the program's inception, we have rehired about 20 retirees every year. Kansai Electric wants to continue to use the program constructively.

Workers' opinions Accepting opinions put forth from the workplace



Osaka Kita Branch Office, Osaka Kita Substation,
Kujo Control Center
Keiko Masuhara

I'm currently working in operations at a Control Center. We have three shifts over a 24 hour period to monitor, operate and restore trouble at substations. Recently, the job environment for women has greatly changed, but it is important to upgrade soft measures so that women doing the night shift do not feel afraid. I'd like to see a

company that accepts opinions put forth from frontline workplaces and that utilizes women more.

Workers' opinions New desire



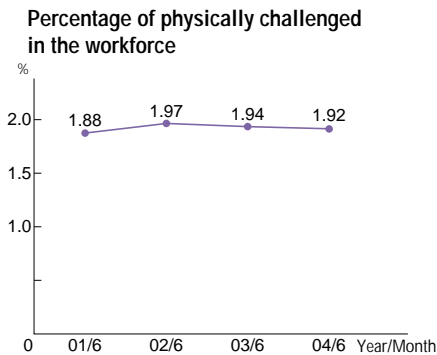
Kobe Branch Office, Hanshin Sales Office,
Sanda Network Engineering Center
Toshiaki Yamashita

I was picked up under the e-Staff program in May 2003 and am now engaged in transmission equipment tests, which is what I was doing before retirement. Everyday, I am happy with the job as a secondary workplace and carefully, swiftly and accurately try to handle the job from the customer's perspective. It is a great

opportunity to pass on the skill and know-how I learned to successors. I hope this program is used more in the future.

Employing the Physically Challenged

For some time now, Kansai Electric has constructively sought to employ the physically challenged. Two specific efforts have been to create an OA operator position and found Kanden L-Heart. As of June 2004, 1.92% of our workforce was physically challenged, which surpassed the mandatory minimum of 1.8%. The company will make every effort to employ physically challenged persons as a means for encouraging their autonomy and participation in society.



Support for Lifestyle Choices of Employees

Various Working Schedules

In order to support a comfortable lifestyle, Kansai Electric operates a flexible holiday system. The company has introduced a long vacation system for employees to refresh and enjoy themselves, as well as a flexible time system in which the employees

themselves choose when to report to work, which is meant to increase work efficiency. Moreover, to support a happy and secure family life, Kansai Electric gives half-days off and cumulative sick leave.

Retirement Options and Career Change Support

In 1996, Kansai Electric added a volunteer retirement program from the perspective of supporting the diverse lifestyle plans of individual employees. Currently, employees age 45 and over can choose when they want to retire.

Moreover, in order to enhance the autonomy of employees, activate the workplace and change the atmosphere in the company, Kansai Electric created a career change support program in 2001 to support employees age 30 and older who want to change their careers.

Childcare and Nursing Support

In line with today's needs, Kansai Electric offers a variety of choices to support employees both at work and at home. This includes leave of up to 3 years, more than that provided for in the Childcare and Nursing Leave Law, so that employees may take care of small children or ailing family members and still have a job to return to later.

The company is also studying a plan to rehire employees who left the company to

take care of children. Efforts are being directed at improving our childcare and nursing support in order to comply with directives in the Law on Promotion of Next Generation Training and Support Measures enacted in 2003 and to better understand employee needs.

Maintaining Stable Relations between Labor and Management

Kansai Electric has a Union Shop Agreement with the Kansai Electric Labor Union. For more than fifty years, both labor and management have worked for the common goal of "increasing company productivity and improving work conditions alongside that increase". Good labor relations have been built on strong feelings of trust. In order to continue these good relations, efforts are made to understand one another such as holding management confabs on company business plans, etc.

Main management confabs

Management confab	Held every year to promote a mutual understanding of company business plans between labor and management.
Labor-Management confab	Held every year for labor and management to openly share opinions about daily operations, etc.
Business discussion	Held whenever necessary for labor and management to discuss important matters such as organizational restructuring, etc.

TOPICS For a Barrier-free World

Kansai Electric founded Kanden L-Heart on December 9 (Handicap Day), 1993 as a diversified workplace for physically challenged persons who wanted to work. Today, more than 80 persons are engaged in growing flowers and wrapping products, which has caught the eye of many both inside and outside the company. Since its founding, more than 40,000 people have

visited the head office (Suminoe-ku, Osaka), toured the facilities and purchased plants.



Flower planting



Massage



Corporate Governance

Business at Kansai Electric is run properly and efficiently by building a strong company that can beat out the competition while ensuring transparent and sound business operations.

Strategic Approach to Business Issues

The Board of Directors of Kansai Electric meets once monthly as well as whenever demanded by circumstances. They discuss and determine important business matters and oversee the execution of executive duties. Moreover, in order to maintain a strategic forward-looking approach to important business issues, business meetings are held by the chairman, president and vice-president, and a general affairs meeting is held once a week for directors where they discuss important operations and take swift appropriate action.

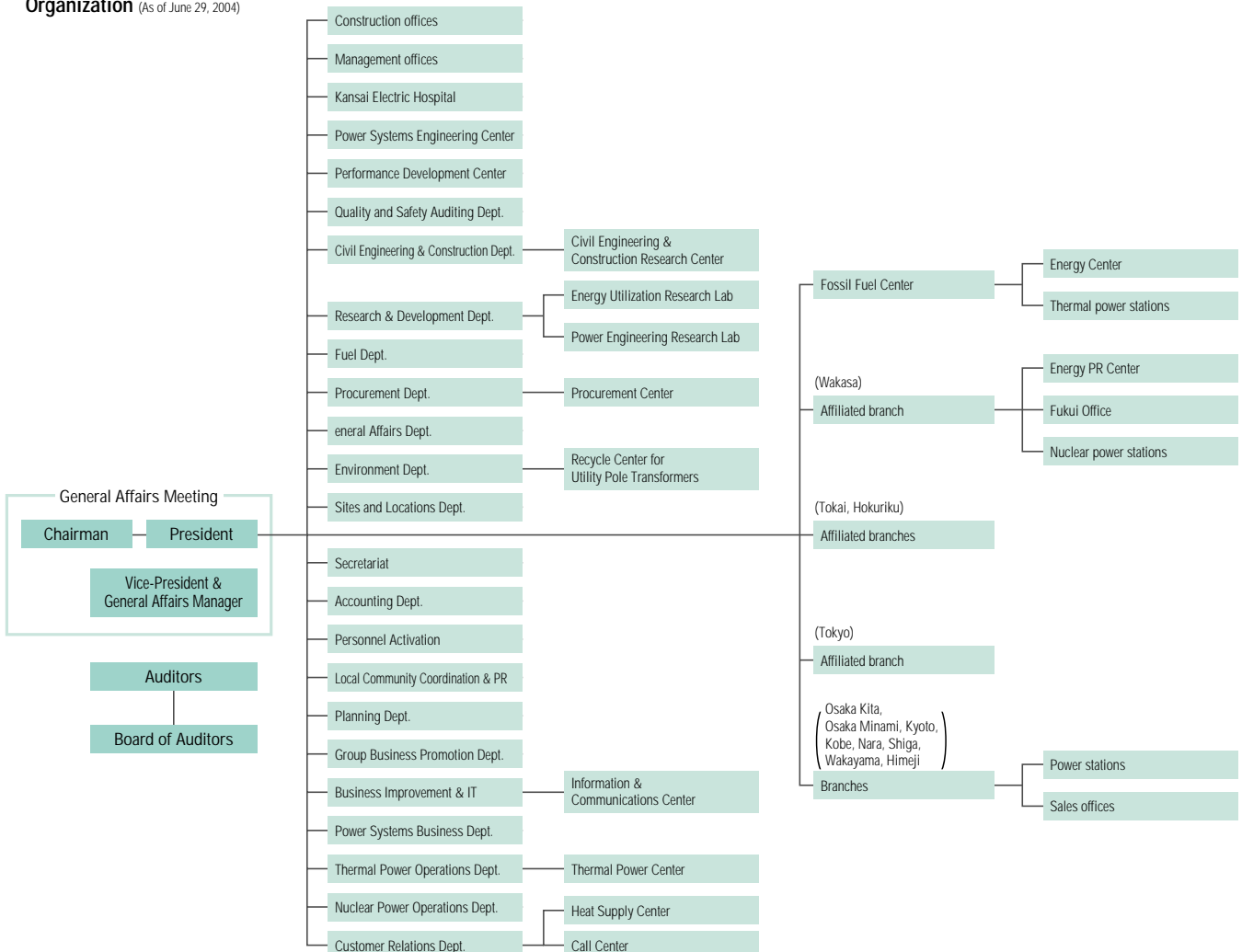
Ensuring Transparent Sound Operations

Kansai Electric has corporate auditors who sit on important meetings of the board of directors and general affairs meetings. There, they provide expert opinions, listen to explanations about important business matters from the directors and examine the state of operations and finances of major business sites, all of which is part of their duty to audit the performance of directors from legal and appropriateness perspectives. Kansai Electric also appoints 3 outside directors and 4 outside auditors, which makes the majority of the 7 auditors from outside the company. (As of June 29, 2004)

Improving Internal Checks

For the purpose of ensuring quality and safety, Kansai Electric formed a Quality and Safety Council that consists also of outside experts. Their job is to improve internal checks such as the internal audits performed by the Quality and Safety Auditing Department and the operations self-checks performed by the various departments.

Organization (As of June 29, 2004)



Plenty of Opportunities to Communicate with Customers

To ensure absolute fairness in business operations and faithfully fulfill our responsibility to explain ourselves to society, Kansai Electric increasingly promotes communications with customers and practices business in a transparent and open manner.

Providing Information to News Organizations

The news carried by TV and newspapers can greatly sway how customers understand and perceive us. Therefore, Kansai Electric constructively provides information to news organizations through regularly scheduled press conferences with the president and other means, and quickly and appropriately responds to news reports in order to release and convey accurate information.

To Promote Understanding of Our Business Activities

Kansai Electric releases information through the media to promote understanding of all business activities of the Kansai Electric Group and to create in the minds of customers a new business image of a company that supports the foundations of all lifestyles and continues to work for customers. The company also publishes a periodical PR magazine entitled Watto that introduces our business activities and addresses topics that concern lifestyles and local communities. Kansai Electric also produces a downloadable magazine called Insight - The Keyword to Unraveling the Times for opinion leaders.



PR magazine Watto



Downloadable magazine Insight
<http://www.kepco.co.jp/insight/>

Interacting with Local Communities at Our PR Center

In order to gain an understanding about our business activities and the electric business amongst local communities that support our operations, and duly communicate with a broader spectrum of these communities, Kansai Electric built several PR facilities, which today are widely used by people from the general public.

* <http://www.kepco.co.jp/pr/>

Interaction on a wall

The EI Park Ohi, the PR facility of the Ohi Power Station, has every year since 1994 put on a Photo, Canvas and Print Contest in which elementary school children enter works that are free, imaginative, fun and enriching. The winning work is painted on the front wall of the facility as a mural some 6 m high and 8 m wide. People from far and near come every year to see the prize production.



Winners of the Photo, Canvas and Print Contest

Customer Events

Kansai Electric stages various events to propose eco-friendly, safe, stable, convenient and comfortable lifestyles to customers.

Events

Event	Description
Lifestyles with Electricity Fair (April - June)	Proposes levels of affluence that are easily attainable with electricity, by showing electric water heaters, etc.
Heat Storage AC Fair (May or June)	Proposes ways to use electric energy such as heat storage systems, etc.
All Electric Campaign (Oct. - Dec.)	Promotes the all-electric home centered on IH cooking gear, etc.



Lifestyles with Electricity Fair



Heat Storage AC Fair

TOPICS Kanden e-Patio Campaign

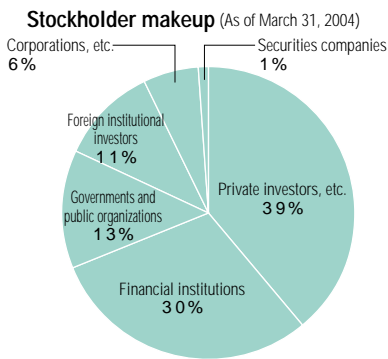
Kansai Electric launched the Kanden e-Patio Internet members' club in July 2002. Taking advantage of the instantaneous interactive nature of the internet, the club provides all kinds of information on events, lifestyles and the Kansai Electric Group via e-magazines and a website (Japanese only). The project also strengthens the company's ability to hear from customers using Internet questionnaires, etc.



Kanden e-Patio website
www.fururu.net/e-patio/index.html

Development of IR Activities

Kansai Electric fairly and swiftly discloses information to all investors. Information is provided in a number of ways, including over the internet, to meet the diverse needs of a diverse investor makeup that includes institutional investors both in Japan and overseas, private investors and public organizations. Moreover, the president holds explanatory meetings and the president and directors periodically travel throughout Japan and overseas to meet with investors. Corporate executives make a constructive effort to talk and listen to investors. And, in an attempt to broaden the contacts with private investors, explanatory meetings are being held for brokers from securities companies.



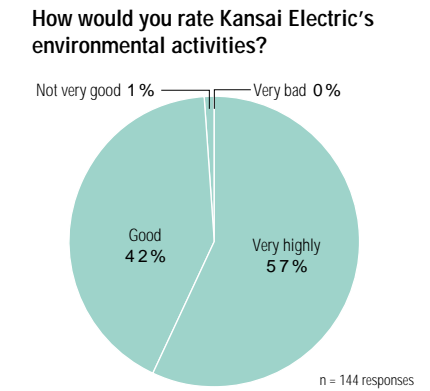
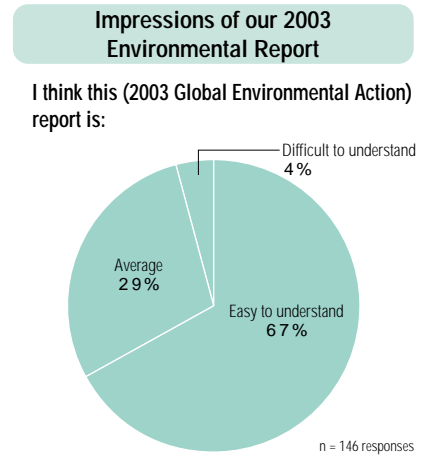
Communication with Customers

The Kansai Electric website posts the content of press conferences as well as messages from the company to customers. It also enables inquiry by e-mail as one of many means for initiating a dialog with customers. Internally, opinions and wishes regarding our business activities that employees hear from customers are accumulated in our intranet under the title of "Dumbo no Koe" (approx. 1.27 million in 2003), and so they are made known to management. Information is shared within the company in order to improve operations. Moreover, branches and affiliated branches hold "energy confabs". While sales offices stage "service confabs" to hear the views of experts and opinion leaders from the local area.

* Corporate website <http://www.kepco.co.jp/>

Communication via Our Environmental Report

We use the opinions that readers provide us through the questionnaire at the end of this report as reference for environmental activities and to improve the report itself.



Standout Opinions and Our Response

I think this (2003 Global Environmental Action) report is: (Reason)

It would good to have articles where we can see someone's face like an interview. I'd like to see more said about new energy sources. A clear explanation is needed on the safety of nuclear power and radioactive waste. The digest should be even simpler. I wish you would make it easy enough for children to read so that it could be used as a teaching tool.

How would you rate Kansai Electric's environmental activities? (Reason)

I want you to ensure the absolute safety of nuclear power and disclose all information about it. You should promote new energy sources such as wind power more. You should do more PR for residents and the general public. I want to see more research into CO₂ reduction technologies. I was impressed by the eco-business. I'd like to see a greater effort made to protect ecosystems by planting. You should increase the greenery,

↓

The progress made with these opinions is reported herein and on our website. At Kansai Electric, we want to use opinions like these as reference for continuously improving our activities.

Promoting Proper Understanding about Nuclear Power

More than half the electricity provided by Kansai Electric is generated by nuclear power. Nuclear power is today an essential element of the modern lifestyle in Japan. At Kansai Electric, we believe it important to gain the public's trust of nuclear power and have a variety of activities aimed at deepening our customers understanding of it.

Activity development

Direct communication

The electric utility industry has put down roots in many local communities. That's why we believe it important to send staff to talk directly with residents in areas where we have operations and explain to them about nuclear power, and energy and environmental problems. In 2003, our employees made 920 visits to schools and 490 to neighborhood assemblies and businesses.

In the Wakasa area where Kansai Electric operates several nuclear power stations, staff goes door-to-door in the community to report the status of operations at the power stations so as to put a face of the reporting we do.

Furthermore, since seeing is believing, we give tours of our power stations to promote an understanding of electricity by letting customers actually see what we do. In 2003, 74,000 people visited us. If you, too, are interested in touring our facilities, contact our nearest Kansai Electric sales office.



Energy lesson taught by our "visiting classroom"



Explanatory meeting for local residents

Cooperating in exchanges between production and consumption areas

Employees from Kansai Electric participate in the exchange activities of the Fukui Women's Energy Club, a group of women opinion leaders who live in an electricity production area, and the Ere Club, a similar group from a consumption area. These particular activities address nuclear power and future energy problems. Also, as of 2003, Kansai Electric had sponsored the Kanden Children's Summit twelve times. At this summit, children from production and consumption areas interact and learn about electricity and each other's home through hands-on learning experiences and tours of power stations.



Exchange activity

Kansai Nuclear Power Information Net Surfing

To foment a correct understanding of nuclear power, businesses involved with nuclear power in the Kansai, such as ourselves, plus universities and organizations together created Kansai Nuclear Power Information Net Surfing in October 2000. The participating parties have pooled infrastructure and human resources into providing information on nuclear power in a way that leads to better understanding.

【Main activities】

Joint planning and publishing of nuclear power PR (Exhibits at Kinki University, etc.)

Providing information on nuclear power via websites and pamphlets

Awareness activities for members through lectures and seminars



Top page of Kansai Nuclear Power Information Net Surfing website
<http://www.kgj-net.com/>

Information release over the web

There are four distinct corners on the Kansai Electric Japanese website that explain nuclear power in an easy to understand manner, such as the "Kansai Nuclear Information Center". The company also releases information on power station trouble in a timely fashion. Kansai Electric is working constructively to provide the proper information in other ways, too, such as periodically reporting on the operating state of nuclear power stations through our "Maintenance and Quality Information" corner in addition to trouble reporting required by law.



Top page of the Kansai Nuclear Information Center website
<http://www.kepc.co.jp/bestmix/>

Establishing the system promoting compliance

Aiming at gaining further social trust, Kansai Electric Group is in a body exerting itself to promote compliance to mature the well-ventilated corporate culture not allowing anything against rules, regulations, and laws.

Forming a Committee and Creating the Manual

In order to plan and establish in-house compliance-promoting activities, Kansai Electric formed Kansai Electric Compliance Committee under the chairmanship of the President consisting of some members including two outside ones (lawyers) in November, 2002, and created the Compliance Manual to distribute to all the employees. The Manual provides for express behavioral principles, describing simply Compliance Guidelines representing what the employees need to recognize at the minimum in performing their duties.

Compliance guidelines

.Behavioral principles for corporate activities

1. Securing safety
2. Environment conservation
3. Observing the Antitrust Act
4. Secure management of personal and other companies information, and corporate secret
5. Management of the intellectual property rights and prevention against infringement of intellectual property rights of the others
6. Timely and appropriate disclosure of the corporate information
7. Proper accounting procedures and payment of taxes
8. Compliance with and management of agreements and contracts
9. Business relationship conforming to the rules with suppliers and business connection
10. Confrontation with antisocial groups or organizations
11. Compliance with relevant laws and ordinances in performing business operation

.Behavioral principles at workplace

12. Creating comfortable workplace
13. Securing safety and sanitation
14. Devotion to job
15. Appropriate use of the corporate assets
16. Proper use of the information system

.Behavioral principles as a member of society

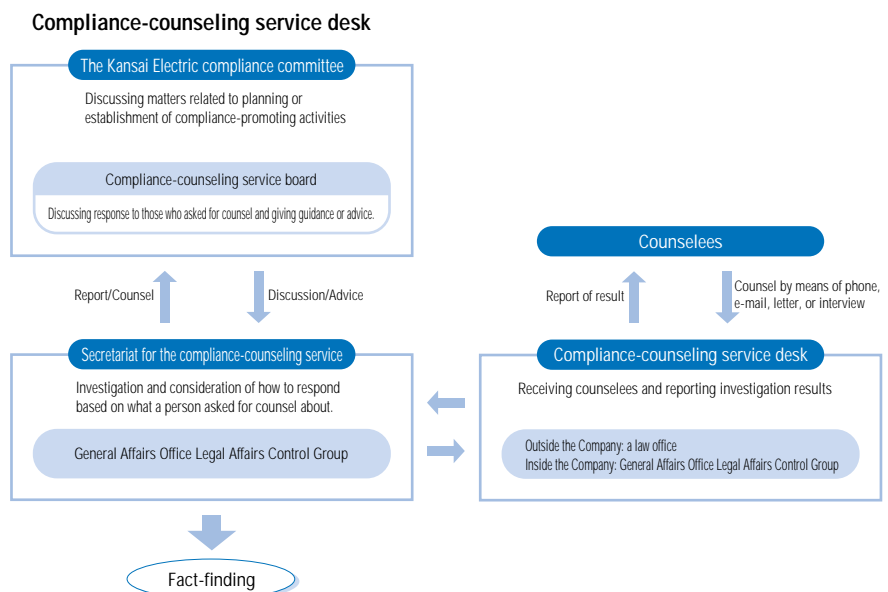
17. Prohibition against insider trading
18. Prudent behavior

Compliance-Counseling Service Desk Established

In February, 2003, in addition to the Compliance Manual, the Company established the Compliance-Counseling Service Desk both inside and outside the Company (at a law office) respectively, which employees who have questions about compliance can consult with. In order to avoid incompliance beforehand, the Compliance-Counseling

Service Desk gives counsel about extensive questions related to compliance, for example, whether what you are planning to do is regarded as incompliance.

The content of counsel shall be kept strict secret, creating no consequence against interests of counselees.



TOPICS Compliance-Promoting activities at KANSAI ENVIRONMENTAL ENGINEERING CENTER CO., LTD.

In November, 2003, we established regulations of the Compliance Committee and Compliance Manual that provides for behavioral principles in the business activities and at workplace. In January 2004, we held a study meeting on compliance for the Team Managers of the Divisions and Heads of the offices and sales offices. We will exert ourselves to establish the behavioral principles set forth in the Compliance Manual and incorporate additional points which should be noted in the Manual, aiming at customers

trustworthy and favored KANSO on the principle of customer service first.



Team Manager, General Affairs Team, Planning and General Affairs Division Masaki Shiotani

Appointment of Responsible Persons and Staff in Charge of Compliance-Promoting Activities

In April, 2003, in order to promote autonomous activities promoting compliance, the Heads of the Sales Offices and Divisions were appointed as responsible persons in charge of promoting compliance and the promoting staff was appointed at respective workplace.

Since May, 2003, training has been successively given to these responsible persons and promoting staff, who conveyed what they learned to the other employees at their workplace respectively. In consequence, until the end of 2003, almost all the officers and employees were given training for compliance.

Group-wide Compliance-promoting Activities

In 2003, training on compliance was given to those of the rank of the Manager of the General Affairs Division of 42 companies in the Group. In 2004, we will promote the following efforts:

- Offering support to the companies in establishing compliance-promoting systems, such as the Compliance-Counseling Service Desk;
- Holding training seminars for employees of the companies; and
- Offering guidance in the information security (making preparation for and improvement of promoting systems; establishing by-laws; holding educational or explanatory meetings, etc.)

Compliance with Laws and Regulations

The laws and regulations that Kansai Electric must comply with as a business entity span from the Commercial Code and labor laws that apply to all businesses to the Electricity Enterprises Law that lays out the foundation for the electric power business. We have prepared a list of procedures that must be followed by law in specific operations and we make every effort to prevent any incompleteness in this regard. Just the same, we will periodically review this list to enhance accuracy and manage our operations with even greater rigor than before.

Additionally, we will increase our efforts to observe public laws and regulations as well as internal rules, in light of the series of problems that have affected the company to note the ruptured secondary pipe accident at the Mihama Power Station s Unit 3, improper handling of periodic inspections by the Kansai International Airport Energy Center and thermal power station, overbilling of customers because of our failure to discount power outages and incorrect billing of electricity rates because of the wrongly set mileage in some power meters.

Compliance with the Antitrust Act

In order to survive the electricity sales competition which is expected to be intensified increasingly, the Company is required to comply with the Antitrust Act in making fair competition.

We prepared the explanatory of the Guidelines for Proper Trade of Electricity published by the Fair Trade Commission and the Ministry of Economy, Trade and Industry under joint signature to distribute to Divisions of the Company including the Sales Division so that the employees can properly understand the purposes and the details of the Antitrust Act to make the best use of it in their daily services. In addition, we hold the study meeting on the Antitrust Act every year, making efforts to deepen employees understanding.

Strict and Secure Management of Customers Information

Despite the promotion of measures to prevent the disclosure of customer information across the group, there have been incidents of customer information leaking outside the company and group as happened with a sales office in Shiga Prefecture in May 2004. These events should never occur, therefore Kansai Electric will undertake measures to improve information management operations, which will include upgraded training for employees and stronger information security.

Workers opinions

We are taking greatest possible care of the management of information,



Namba Customer Center,
Namba Sales Office Takehiro Kondo

We have been reusing sheets of paper, of which one side is used, for reduction in cost, with the greatest possible care.

In the Section I belong to, to avoid reuse of the forms stating secret information such as customers information or sales activities, we discuss how to deal with such information with each other. What I always keep in mind is, I should remember leakage of information can

cause the customers trouble.

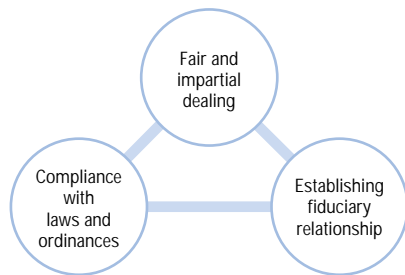
Acturizing Fair and Impartial Procurement of Materials in Compliance with Laws and Ordinances

For the purposes of procuring timely high quality goods and construction work at reasonable price, the Purchase Division procures materials more effectively in accordance with three behavioral bases, working on further reduction in procurement price and cost for procurement operation.

Three Behavioral Bases for the Procurement Activities

Purchase Division set the following three behavioral bases for procurement. Details are inserted in the Introduction to the Purchase Activities (PR brochure) and Web site of the Kansai Electric for publicity. To the suppliers, we explain our approach in the Guide to Contract Procedures.

Behavioral bases for procurement of materials



Behavioral basis 1: Fair and impartial dealing

In order to purchase timely safe and high quality equipment and materials, we set up the Materials Trade Desk to meet suppliers demand and respond to their inquiries related to materials trade at home and aboard.

In registration of new suppliers, we deal with them fairly and impartially based on the certain registration criteria. In case of separate order, we evaluate quality, price, technical strength, delivery, and operating conditions synthetically to provide opportunity for participation. Needless to say, we provide related information impartially to the suppliers, whom we ask

to make estimation, not treating them in the way, which is advantageous to only a certain supplier. Early in each business year, we show on our Web site the information regarding orders including major items and quantity, which are to be purchased in the relevant year, disclosing information extensively.

Behavioral basis 2: Compliance with laws and ordinances

In material procurement, we follow laws and ordinances not only related to commercial trade but also all the related laws and regulations. Furthermore, we have inserted Fundamentals for Trade in the Guide to Contract Procedures, asking the suppliers to comply with relevant laws and ordinances.

In case of any disgraceful affair such as breach of a law by a supplier, we take measures such as suspension of appointment for a certain period of time upon fact-finding.

Behavioral basis 3: Establishing fiduciary relationship

Material procurement of the Company is based on the fiduciary relationship with suppliers.

In order to provide high quality products and services, we are aiming at establishment of the fiduciary relationship with the suppliers by means of cooperative work and further development of both suppliers and the Company.

Specifically, we perform supply chain management activities, which allows us and suppliers to achieve reduction in cost and improve efficiency of business operation, and requests and demands received from suppliers are reflected in the daily material procurement.

We will never disclose to third parties information obtained and technologies acquired through transactions without consent of the suppliers who offered them.



Various brochures

Applying three behavioral bases to the Companies Included in the Kansai Electric Group

For other companies in the Group, Purchase Division of the Company takes the initiative in taking measures in accordance with three behavioral bases: fair and impartial dealing; compliance with laws and ordinances; and establishment of fiduciary relationship, so that the Kansai Electric Group as a whole can perform further fair and impartial procurement.



Behavioral bases for purchase
<http://www.kepco.co.jp/kepa/purchas/index1j.htm>

The electricity industry including the Kansai Electric has the unprecedented question confronting, that is, it is facing the question how to synthetically solve such problems as stable and safe supply, environment-friendly supply, and economical supply. This is the critical question not only to the electricity utilities but also to the energy industry and even to the nationals. In this respect, this is not a question only the electric utilities can solve. In other words, this is the question how to make the general public understand the problem, what the energy tomorrow should be, as a common question (two-way communication). Therefore, in penetrating the consciousness that it is a common question, transparency and disclosure (publication) of information are essential to sharing information on the present circumstances and problems (progress of effort).

In the light of these problems, in this Report, social and economic aspects are substantially dealt with based on the Kansai Electric Group's CSR Action Charter rather than conventional Environmental Report. In addition, from this Report, you can find that the Company is extending its principles to other companies in the Group, making effort to work in association with them. Considering the previous approach of Kansai Electric, it is natural for a report to develop in this manner. Explanations on six behavioral principles of the CSR Action Charter are easy to understand. Recent disgraceful affairs are disadvantageous to the Company, however, follow-up with explanations of the outline, cause, and preventive measures against recurrence make a favorable impression on us. However, in order to make it function, the system not allowing recurrence of such affair needs to be established in the Company as a whole. Considering that the disgraceful cases vary in wide range, I wonder the improvement is limited to the level of Division. This may be the trouble with being a big organization.



Professor Department of
Economics,
Doshisha University
Takashi Gunjima

What is important in working on environmental measures includes prevention, continued improvement, company's approach in a body (not only at the Environmental Division but also at all the Divisions and by all the employees through environmental education), support and establishment of responsibilities of the top management. As far as the environment is concerned, such mission is on its way to achievement. Then, what about safety? Safety is also based on prevention, continued improvement with inspection, and efforts made by the Company as a whole. Securing safety requires cost. However, when considering that it may imperil human lives; prevention is after all less expensive than dealing with what has happened, or it is important to gain social trust, you should give it the first priority. This has been demonstrated by the petrochemical industry in building up E (Environment) H (Health in the working environment) S (Safety in the working environment) System in the Responsive Care Program.

The reason why the electricity industry draws public attention is its public nature of the business and magnitude of contribution to the development of the society. All the employees' consciousness of such important mission is the basis of communication with the general public. The same is true with workers' relationship at workplace beyond scope of job. Such close communication can lead to trust and mutual understanding deepened. For such purpose, daily efforts are required.

Interview: On Gaining Back Public Trust

Toshihiko Goto, Steering Committee Member of the Global Reporting Initiative (GRI) and Representative Secretary of the Environmental Auditing Research Group (EARG), talked with President Yohsaku Fuji about Kansai Electric's CSR activities.

The interview was done before the accident at the Mihama Power Station's Unit 3, but because of Mr. Goto's NPO perspective, he provided Kansai Electric with some good advice on how to gain back the trust of the general public.

A second interview by Mr. Goto was staged after the accident as well, an excerpt of which has been included on the following page.

Kansai Electric takes this advice to heart and wants to do everything possible to regain the trust of the people.

Goto: Kansai Electric has adopted a Business Vision and CSR Activity Charter, but how do you as President view the recent series of company bloopers?

Fuji: The problems that caused us to lose the trust of consumers and local communities, such as the personal information that was leaked from a sales office and the failure to report periodic checks by the Kansai International Airport Energy Center, are absolutely deplorable. We are reflecting deeply over the fact that the importance of employees observing the rules has still yet to penetrate the workforce sufficiently.

Goto: People make mistakes, therefore the possibility of problems like these always exists. I think it is important to discover the problem at an early stage and, at the same time that the problem is reported outside the company, schemes should be built based on the lessons learned. This is a big point in CSR.

At present, CSR is not thought of as a philanthropic activity but as a way to enhance trust through daily business. Looking at the Kansai Electric Group CSR Action Charter, in which it

states you want to "solidify the trust of the general public by contributing to the sustainable development of society" and "base all business activity development on the CSR Action Principles", I get the impression that you have understood the true concepts of CSR. I myself do not spell out the CSR acronym as *corporate social responsibility* but as the degree of social trust.

Fuji: Since our founding more than half a century ago, the group has made it our prime duty to serve the customer in our business operations and development. We have always thought of the "trust" of people all across society, let alone our customers, as the foundation for all business activities of the group. In fact, with the expansion of business domains because of progressing liberalization in the power market, deregulation and technological innovation, we strongly believe that customer trust is growing in importance.

Goto: Trust comes from the other person and is built by two-way relations with them. The Kansai Electric Group obviously knows this as can be seen by how you make it policy. I'd like to see this basic concept firmly rooted in all operations.

I also think your vision of the entire group is pointed in the right direction.

I'll give you the final word. Would you tell me what your thoughts and goals are?

Fuji: The problem of the Kansai International Airport Energy Center occurred just after we adopted the CSR Action Charter. It was totally embarrassing and we need to reflect deeply about what happened. In order to prevent this incident from reoccurring, we obviously need to observe laws and regulations and internal rules, but we must also make our business operations more transparent and constructively fulfill our responsibility to explain our actions to all of society. This is expected of the entire workforce and all directors of Kansai Electric Group.

For CSR to assuredly penetrate the workforce, we issued cards that summarize the essence of the CSR Action Charter to all group employees so that they can check the six CSR Action Principles and their own compliance, and we created a CSR Promotion Council which I head. The entire group will be making a concerted effort to promote and implement CSR so that we can gain back the trust we lost because of this series of incidents.

After the interview, a truly regrettable accident occurred at the Mihama Power Station's Unit 3. Usually, accidents have multiple causes, so this accident must be thoroughly investigated. To regain the lost trust of the public, the first step is to announce the results of investigations in a way that the general public can accept. This is more important than anything else.

(Talk, Toshihiko Goto)



Environmental Data

Global environmental protection

Fiscal Year		1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
CO ₂ emission		3,926	3,954	3,688	3,684	3,656	10,000 t-CO ₂
CO ₂ emission per unit of power consumed *1		0.280	0.277	0.264	0.260	0.261	
Nighttime (22:00 - 08:00) *2		0.220	0.245	0.227	0.244	0.253	kg-CO ₂ /kWh
Daytime (08:00 - 22:00) *3		0.309	0.292	0.282	0.268	0.265	
CO ₂ emission per unit of power generated *4		0.251	0.248	0.235	0.230	0.229	kg-CO ₂ /kWh
[Reference]	World CO ₂ emission *5	229	235	236	-	-	100 million t- CO ₂
	Japan CO ₂ emission *6	12.28	12.39	12.14	12.48	-	100 million t- CO ₂
	Electric power industry CO ₂ emission *7	3.07	3.17	3.12	3.42	-	100 million t- CO ₂
	Electric power industry CO ₂ emission per unit of power consumed *7	0.375	0.378	0.379	0.407	-	kg-CO ₂ /kWh
Nuclear power station capacity factor *8		82.0	81.8	84.5	90.5	89.1	%
Thermal efficiency of transmission end of the total thermal power generation *9		41.9	42.0	42.2	42.4	42.3	%
Fossil fuel consumption	Coal	-	-	-	-	123	1,000 t
	Heavy oil	656	515	202	224	98	1,000 kℓ
	Crude oil	2,053	1,370	767	715	215	1,000 kℓ
	LNG	5,485	5,463	5,286	3,799	3,366	1,000 t
Refurbished power at hydropower station (cumulative increment of output since 1989)		27,052	29,752	30,452	34,752	38,752	kW
Transmission and distribution loss rate *10		5.3	5.1	5.2	5.5	5.5	%
SF ₆ gas emission		10.9	6.1	0.9	0.7	0.7	t
SF ₆ gas recovery		83.0	92.1	96.4	97.1	97.2	%
Use of untapped energy sources (Heat supply locations)		10	10	11	11	11	Locations
Progress of new energy source development and use (Accumulative total at year end)		899	914	919	919	919	
Solar power generation		740	760	765	765	765	kW
Wind power generation		159	154	154	154	154	
Purchased power generated by new energy sources	Purchased amount	400,298	442,520	569,254	588,445	678,313	1,000kWh
	Number of purchases	4,659	8,058	11,823	17,926	26,550	Purchases
Solar power generation	Purchased amount	5,804	10,987	18,522	26,880	39,047	1,000kWh
	Number of purchases	4,636	8,031	11,793	17,888	26,511	Purchases
Wind power generation	Purchased amount	-	405	2,227	6,250	11,944	1,000kWh
	Number of purchases	-	1	3	7	8	Purchases
Waste-fired power generation	Purchased amount	394,485	431,123	548,505	555,315	627,322	1,000kWh
	Number of purchases	22	25	26	30	31	Purchases
Participants in Kansai Green Power Fund (At fiscal year end)		-	3,010	13,881	13,151	11,973	Participants
Subsidiary from Kansai Green Power Fund (in terms of equipment output)		-	-	4,600	70	2,241	
Solar power generation		-	-	100	70	241	kW
Wind power generation		-	-	4,500	-	2,000	
Energy and resource conservation (Offices)	Office electricity consumption	-	118.5	116.6	113.2	105.8	1 million kWh
	Domestic water consumption	-	1,045.6	978.4	900.7	803.6	1,000 m ³
	Vehicle fuel	-	9.14	9.16	9.41	9.29	km/ℓ
	Copy paper consumption	-	1,000.5	934.9	919.4	903.9	t
Designated CFC consumption		0.2	0.3	0.3	0.1	0.6	t

*1 CO₂ emission per unit of power consumed = CO₂ emission ÷ power consumed

*2 Nighttime (22:00 - 08:00) = nighttime CO₂ emission ÷ nighttime power consumption

*3 Daytime (08:00 - 22:00) = daytime CO₂ emission ÷ daytime power consumption

*4 CO₂ emission per unit of power generation = CO₂ emission ÷ power generated

*5 World CO₂ emission: Source: Energy and Economic Statistics, Institute of Energy Economics, Japan

*6 Japan CO₂ emission: Source: Greenhouse Gas Inventory Office (Center for Global Environmental Research, National Institute for Environmental Studies)

*7 Electric power industry CO₂ emission and Electric power industry CO₂ emission per unit of power consumed: Environmental Plan of Action for the Electric Power Industry, Federation of Electric Power Companies of Japan

*8 Nuclear power station capacity factor = Power generated ÷ (Permitted output x Running hours) x 100

*9 Thermal efficiency of transmission end of the total thermal power generation = (Transmitted and distributed power x Heat load per kWh) ÷ Total heat load input

*10 Transmission and distribution loss rate = 1 - (Power consumed ÷ Substation power) (Total power - Kansai Electric power station power)

Local environmental protection

Fiscal Year		1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
SOx emission	(Kansai Electric power station)	3,807	2,833	1,438	1,332	415	t
SOx emission per unit of power generated	Per Kansai Electric unit power generated *1	0.029	0.023	0.012	0.011	0.004	g/kWh
	Per Kansai Electric unit thermal power generated *2	0.084	0.069	0.040	0.049	0.019	
NOx emission	(Kansai Electric power station)	6,626	6,123	4,801	3,740	2,731	t
NOx emission per unit of power generated	Per Kansai Electric unit of power generated *3	0.051	0.049	0.039	0.031	0.023	g/kWh
	Per Kansai Electric unit of thermal power generated *4	0.146	0.149	0.133	0.138	0.124	
Greenery rate *5 (at fiscal year end)	Thermal power station	34	34	34	34	34	%
	Nuclear power station	77	79	79	78	78	
	Electric power office (substation)	33	33	32	28	28	
Buried rate of transmission cable *6 (at fiscal year end)		13.5	13.8	13.9	14.1	14.2	%
Buried rate of distribution cable *7 (at fiscal year end)		9.1	9.3	9.3	9.4	9.4	%

*1 SOx emission per Kansai Electric unit power generated = SOx emission / Power generated

*2 SOx emission per Kansai Electric unit thermal power generation = SOx emission / Thermal power generated

*3 NOx emission per Kansai Electric unit power generated = NOx emission / Power generated

*4 NOx emission per Kansai Electric unit of thermal power generated = NOx emission / Thermal power generated

*5 Greenery rate = Business site greenery area / business site total area x 100

*6 Buried rate of transmission cable = Extended length of buried cable / (Extended length of overhead cable + Extended length of buried cable) x 100

*7 Buried rate of distribution cable = Extended length of buried cable / (Total length of overhead cable + Extended length of buried cable) x 100

Waste and resource recycling

Fiscal Year		1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
Industrial waste discharge		101.0	70.7	63.7	49.7	56.8	1,000 t
Desulfurizing gypsum		44.3	20.2	15.7	5.5	5.9	
Scrap metal		17.8	17.0	16.5	15.9	17.1	
Waste concrete poles		16.0	14.5	15.3	16.1	15.0	
Heavy/clued oil ashes		6.5	3.9	2.3	1.7	0.9	
Coal ash		0.0	0.0	0.0	0.0	6.6	
Spent oil		4.8	3.9	4.5	2.1	3.0	
Scrap glass		1.6	1.5	1.7	1.2	1.3	
Wastewater treatment sludge		1.5	1.5	1.2	0.7	1.1	
Others		8.5	8.2	6.5	6.5	5.9	
Landfill of industrial waste		10.1	9.4	6.7	6.8	6.5	1,000 t
Scrap metal		1.1	0.7	0.5	0.7	0.9	
Spent oil		0.0	0.0	0.0	0.0	0.1	
Scrap glass		1.1	1.0	0.8	0.7	0.5	
Wastewater treatment sludge		0.2	0.4	0.3	0.2	0.6	
Others		7.7	7.3	5.1	5.2	4.4	
Industrial waste recycle rate *1		88	84	87	85	86	%
Volume of low-level PCB waste treated (pole transformer)*2	Insulating oil	-	-	-	-	0.2(2.0%)	10,000 kℓ
	Transformer case*3	-	-	-	-	0.3(1.3%)	10,000 units

*1 Industrial waste recycle rate = (Reused amount + Amount sold) / (Industrial waste discharge + Amount sold) x 100

*2 The amount represents the cumulative value of the previous years. Value indicated in the brackets represents the ratio to the total amount to be treated.

*3 Member inside the pole transformer is restored.

Radioactive material and waste

Fiscal Year		1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
Evaluated dosage in public area around power station	Mihama Power Station	>0.001	>0.001	>0.001	>0.001	>0.001	Millisievert/year *2
	Takahama Power Station	>0.001	>0.001	>0.001	>0.001	>0.001	
	Ohi Power Station	>0.001	>0.001	>0.001	>0.001	>0.001	
Radioactive gas waste release (Noble gas)	Mihama Power Station	2.3E+11	1.6E+10	1.4E+10	1.1E+10	6.1E+09	Becquerel *3
	Takahama Power Station	4.0E+11	1.6E+10	1.8E+10	1.2E+10	1.1E+10	
	Ohi Power Station	1.2E+11	5.7E+10	1.5E+10	2.8E+10	1.8E+10	
Radioactive gas waste release (Iodine)	Mihama Power Station	3.2E+05	N.D.	9.9E+04	3.8E+05	2.3E+08	*1 Becquerel *3
	Takahama Power Station	2.7E+05	N.D.	1.8E+05	3.4E+05	N.D.	
	Ohi Power Station	1.6E+05	1.1E+06	2.7E+05	N.D.	N.D.	
Radioactive gas waste release (excluding tritium)	Mihama Power Station	N.D.	N.D.	N.D.	N.D.	N.D.	Becquerel *3
	Takahama Power Station	N.D.	N.D.	N.D.	N.D.	N.D.	
	Ohi Power Station	N.D.	N.D.	N.D.	N.D.	N.D.	
Solid radioactive waste generation (200 l drum can)		5,831	7,045	9,112	7,301	9,438	Drum cans
Mihama Power Station		1,843	1,651	3,504	3,135	4,337	
Takahama Power Station		1,315	1,593	1,375	1,440	1,724	
Ohi Power Station		2,673	3,801	4,233	2,726	3,377	
Solid radioactive waste reduction (200 l drum can)		2,559	4,741	7,423	8,439	10,067	Drum cans
Mihama Power Station		689	526	2,540	3,423	5,527	
Takahama Power Station		1,102	1,160	797	743	606	
Ohi Power Station		768	3,055	4,086	4,273	3,934	
Solid radioactive waste accumulative storage (200 l drum can)		82,404	84,709	86,398	85,260	84,631	Drum cans
Mihama Power Station Drum cans		26,646	27,772	28,736	28,448	27,258	
Takahama Power Station		30,290	30,723	31,301	31,998	33,116	
Ohi Power Station		25,468	26,214	26,361	24,814	24,257	

*1 N.D. (Not Detectable): less than critical detectable concentration/OE + : 0 x 10

*2 Millisievert/year (Effective dose equivalent): Unit for expressing effect of radiation on human body

*3 Becquerel: Unit for expressing radioactive substance destroyed by 1 atomic nucleus per sec

Environmental management

Fiscal Year		1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
ISO14001 certified locations (At fiscal year end)		18	19	20	19	17	Locations
Relisted for external certification acquisition		2	5	11	12	10	
Thermal power works		18	17	14	13	12	
Relisted for external certification acquisition		2	4	7	7	6	
Nuclear power works		0	1	2	2	2	
Relisted for external certification acquisition		0	0	0	1	1	
Engineering works		0	1	4	4	2	
Relisted for external certification acquisition		0	1	4	4	2	
Distribution works		0	0	0	0	1	
Relisted for external certification acquisition		0	0	0	0	1	
Participants in environmental education program	ISO14001 Staff Training	-	-	30	26	26	Persons
	Internal Environmental Auditor Training	23	23	21	21	22	
	Environmental Staff Training	39	47	41	37	38	
Environmental accounting *1	Environmental protection cost (investment)	498	324	380	354	313	100 million yen
	Environmental protection expenditure	905	444	428	401 ²	354	
	Economic effect of environmental protection measures	37	167	159	130	97	

*1 The method for computing environmental accounting was slightly changed after 2000.

*2 The value was revised in accordance with guidelines for calculation created.

Others

Fiscal Year		1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
Planting activities (At public facilities)		3.3	3.0	2.9	2.4	2.0	10,000 trees
Beautification activities (Area cleanups, etc.)		801	1,521	1,027	841	308	Instances

Reference Data

Equipment and power supply-demand

	Fiscal Year	1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
Power generation equipment output (Kansai Electric at fiscal year end)		3,780	3,746	3,559	3,543	3,482	
Hydropower		811	813	813	813	815	
Thermal		1,992	1,956	1,769	1,753	1,691	
Coal		-	-	-	-	-	10,000 kW
Oil, etc.		1,152	1,152	970	954	908	
LNG and other gas		840	804	799	799	783	
Nuclear		977	977	977	977	977	
Total power		1,537	1,558	1,525	1,549	1,531	
Self-generated		1,296	1,256	1,222	1,199	1,170	
Hydropower		139	144	137	154	185	
Thermal		453	411	362	271	220	100 million kWh
Nuclear		704	700	723	774	765	
Received from other company		113	172	203	243	274	
Circulating		153	159	134	155	144	
Power for pumping		25	29	34	48	57	
Power consumption		1,404	1,429	1,398	1,418	1,402	
Lighting		436	444	443	456	447	100 million kWh
Electricity		968	984	954	962	956	

Finances

	Fiscal Year	1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
Non-consolidated base	Operating revenue	25,172	25,814	25,178	24,827	23,752	
	Lighting rate	9,880	10,109	9,937	9,954	9,442	
	Electricity rate	14,775	15,152	14,778	14,263	13,564	
	Others	515	552	462	609	745	
	Operating expenses	22,019	22,453	22,061	21,671	20,457	
	Operating profit	3,152	3,360	3,117	3,155	3,294	-100 million
	Recurring profit	1,694	1,807	1,635	1,865	1,888	
	Net profit for current term	436	954	1,370	972	1,184	
	Plant & equipment investment	6,122	4,790	4,105	3,265	2,551	
	Total assets	71,668	72,125	70,434	67,723	65,408	
Outstanding interest-bearing debts	46,752	45,653	43,271	40,754	35,892		
Shareholders' equity ratio	16.67	18.62	18.99	19.56	21.92	%	
Consolidated base	Operating revenue	25,883	26,479	26,515	26,151	25,401	
	Operating expenses	22,778	23,072	23,322	22,895	21,906	
	Operating profit	3,105	3,406	3,193	3,255	3,494	-100 million
	Recurring profit	1,673	1,693	1,595	1,747	1,873	
	Net profit for current term	523	1,227	1,284	804	901	
	Plant & equipment investment	6,289	4,895	4,678	3,868	3,215	
	Total assets	75,009	75,508	75,075	74,023	71,508	
	Outstanding interest-bearing debts	47,536	46,165	44,483	43,541	38,836	
Shareholder s equity ratio	18.66	20.79	21.06	20.91	22.90	%	

Employees and safety

	Fiscal Year	1999(H11)	2000(H12)	2001(H13)	2002(H14)	2003(H15)	Unit
Number of employees	Kansai Electric	24,903	24,539	23,971	21,920	21,031	Persons
	Kansai Electric Group	33,018	32,589	37,911	35,554	33,935	
Accident rate *1		0.19	0.09	0.22	0.16	0.37	%

*1 Accident rate: Number of accidents per 1 million hours of operation

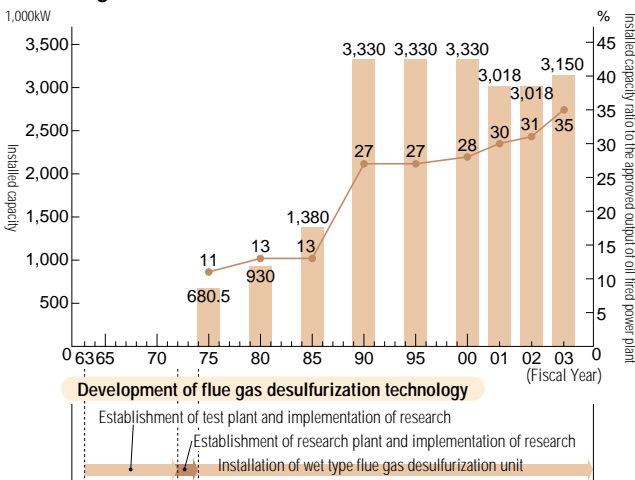
Data by Thermal Power Station

Thermal Power Station Environmental Protection Performance (Fiscal 2003)

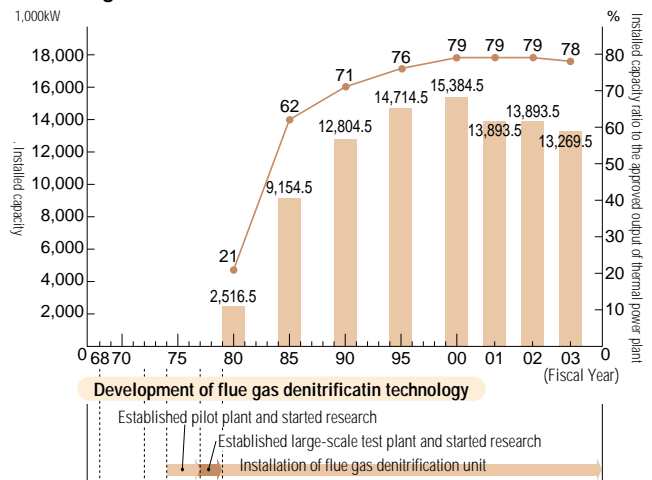
Item		Sakaikio	Osaka Power Station	Tamagawa No. 2	Nanko	Miyazu Energy Research Center					
Main fuel		L/H/C	L/H/B	H/C	L	H/C					
Air related	Sox	A. P. P. Law (Regulation on overall emission)	390	77	587	98	306 ⁵				
		Agreed	-	-	-	-	112				
		Result	19	0	148	0	30				
		Emission per day (t/day)	10.1	3.8	9.3	-	-				
		Agreed	0.5	0.004	5.2	-	-				
		Result	0.5	0.004	5.2	-	-				
	NOx	A. P. P. Law (Regulation on overall emission)	613	115	398 ²	255	Areas other than those designated				
		Agreed	-	-	-	-	58				
		Result	112	0.005	153	30	18				
		Emission per day (t/day)	7.7	2.2	7.2	1.8	-				
		Agreed	3.2	0.2	4.4	1.0	-				
		Result	3.2	0.2	4.4	1.0	-				
Dust	A. P. P. Law and Ordinances (Regulation on overall emission)	0.050 ⁴	0.050 ⁴	0.070	0.030	0.050					
	Agreed	0.020	0.020	0.020	0	0.014					
	Result	0.004	0	0.006	0	0.002					
	W.P.P. Law and ordinances	Outlet	C oil content treatment	D oil content treatment	E oil content treatment	Sewer discharge	NO _x oil content treatment	5.8 ~ 8.6	5.0 ~ 9.0 ³	5.0 ~ 9.0	
	Agreed	5.8 ~ 8.6				5.0 ~ 9.0 ³	5.8 ~ 8.6 ⁴	5.8 ~ 8.6	-	5.8 ~ 8.6	
	Result	7.6 ~ 8.1	6.8 ~ 7.6	6.5 ~ 8.1	6.5 ~ 7.7	6.5 ~ 8.2	7.3 ~ 7.7	6.5 ~ 8.1	6.4 ~ 8.4	6.2 ~ 8.0	
Water related	COD	W.P.P. Law and ordinances	12	30			200 ³	14 ⁴	50	200 ³	160
		Agreed	-				-	-	15	200	15
		Result	6	2	2	1	4	1	7	63	3
		W.P.P. Law and ordinances	388.4				-	-	55	-	-
		Agreed	-				-	-	14	-	20.8
		Result	17.1				-	-	7.8	-	1.1
	SS	W.P.P. Law and ordinances	50				200 ³	90 ⁴	100	200 ³	200
		Agreed	-				-	-	20	200	20
		Result	9	8	6	12	9	<1	5	43	1.6
	n-hexane extracts	W.P.P. Law and ordinances	2				4 ³	3 ⁴	4	4 ³	5
		Agreed	-				-	-	1	4	1
		Result	<1	<1	<1	<1	1	1	<1	<1	<0.5

A.P.P. Law: Air Pollution Prevention Law/W.P.P. Law: Water Pollution Prevention Law/L: LNG/H: Heavy oil/B: Bituminous mix/C: Crude oil
¹ Regulatory values given k ² Value reported under NOx Reduction Guidelines for Fixed Sources, Osaka Prefecture ³ Regulations of Osaka City Ordinance on Sewerage
⁴ Osaka Prefecture Ordinance on Living environment Protection ⁵ Kyoto Prefecture Ordinance on Environmental Protection

Flue gas desulfurization



Flue gas denitrification unit



		Item	Kainan			Gobo	Himeji No. 1	Himeji No. 2	Takasago	相生 Power Station	Ako Power Station	
		Main fuel	H/C			H/C	L	L/H/C	H/C	H/C	H/C	
Air related	Sox	Emission per hour (m ³ N/hr)	A. P. P. Law (Regulation on overall emission)	646			7,800 ^{*1}	112	780	344	3,054 ^{*1}	2,146 ^{*1}
			Agreed	310			184	-	58	155	165	180
			Result	135			120	0	1	No past record of operation	80	67
		Emission per day (t/day)	Agreed	-			-	-	-	-	-	-
			Result	-			-	-	-	-	-	-
			Emission per year (t/year)	Agreed	1,760 × 10 ³ m ³ N			970 × 10 ³ m ³ N	-	400 × 10 ³ m ³ N	2,492	885 × 10 ³ m ³ N
	Result	48 × 10 ³ m ³ N			12 × 10 ³ m ³ N	-	0.4 × 10 ³ m ³ N	No past record of operation	3 × 10 ³ m ³ N	3 × 10 ³ m ³ N		
	NOx	Emission per hour (m ³ N/hr)	Areas other than those designated			Areas other than those designated	Areas other than those designated	Areas other than those designated	Areas other than those designated	Areas other than those designated	Areas other than those designated	Areas other than those designated
			Agreed	450			110	104	463	320	85	94
			Result	168			48	55	369	No past record of operation	46	79
		Emission per day (t/day)	Agreed	-			-	-	-	-	-	-
			Result	-			-	-	-	-	-	-
Emission per year (t/year)			Agreed	2,400 × 10 ³ m ³ N			560 × 10 ³ m ³ N	590 × 10 ³ m ³ N	2,263 × 10 ³ m ³ N	1,620 × 10 ³ m ³ N	390 × 10 ³ m ³ N	340 × 10 ³ m ³ N
Result	21 × 10 ³ m ³ N			10 × 10 ³ m ³ N	180 × 10 ³ m ³ N	757 × 10 ³ m ³ N	No past record of operation	3 × 10 ³ m ³ N	4 × 10 ³ m ³ N			
Dust	Discharged concentration (g/m ³ N)	A.P.P. Law and Ordinances (Regulation on overall emission)	0.070			0.070	0.050	0.070	0.070	0.070	0.050	
		Agreed	0.050			0.010	-	-	0.050	0.015	0.015	
		Result	0.004			0.003	0	0.004	No past record of operation	0.006	0.004	
Water related	Hydrogen ion concentration index	W.P.P. Law and ordinances	Waste water treatment in the premises	Oil content treatment in the main building	Oil content treatment in the tank yard	5.0 ~ 9.0	5.0 ~ 9.0	5.0 ~ 9.0	5.0 ~ 9.0	5.0 ~ 9.0	5.0 ~ 9.0	
		Agreed	5.8 ~ 8.6			5.8 ~ 8.6	5.8 ~ 8.6	5.8 ~ 8.6	5.8 ~ 8.6	5.8 ~ 8.6	5.8 ~ 8.6	
		Result	6.9 ~ 7.6	7.1 ~ 7.7	6.0 ~ 7.0	6.2 ~ 8.2	6.8 ~ 7.6	6.8 ~ 8.2	No past record of operation	6.7 ~ 7.6	6.3 ~ 7.7	
	COD	Max. concentration (mg/ℓ)	W.P.P. Law and ordinances	10			160	70	70	130	70	70
			Agreed	10			10	15	15	20	15	15
			Result	6.6	4.2	2.0	3.2	2.6	5	No past record of operation	2	2
		Pollutant load (kg/day)	W.P.P. Law and ordinances	187.7			-	40	105	102	66	84
			Agreed	50			34.4	15.2	35	34	18	22.4
			Result	5.1			3.3	2.28	11.7	No past record of operation	0.98	2.2
	SS	Max. concentration (mg/ℓ)	W.P.P. Law and ordinances	40			200	90	90	150	90	90
			Agreed	20			20	20	20	20	20	
			Result	5.4	1.8	2.4	1.8	2	8	No past record of operation	1	3
n-hexane extracts	Max. concentration (mg/ℓ)	W.P.P. Law and ordinances	1			5	5	5	5	5	5	
		Agreed	2			1	1	1	1.5	1	1	
		Result	0.1	0.1	0.1	0.2	0.2	0.2	No past record of operation	0.1	0.1	

Discharge and transfer of substances subject to PRTR Law (Fiscal 2003)

Substance	Use	Handled quantity (t/year)	Discharge (t/year)			Transfer (t/year)	
			Air	Public water area	Soil	Sewerage	Waste
2-amino ethanol	Water supply treatment agent	100	<0.1	0	0	0	3.5
Asbestos	Piping insulation, etc.	7.4	0	0	0	0	7.4
Bisphenol A epoxy resin	Paint	1.1	<0.1	0	0	0	0
Ethylbenzene	Paint	1.6	1.6	0	0	0	0
Xylene	Paint, power generation fuel and equipment cleaning	66	30	0	0	0	0.2
Dichloropentafluoropropane (HCFC-225)	Cleaning	3.7	3.7	0	0	0	0
Styrene	Paint	3.3	3.3	0	0	0	0
Thiourea	Chemical cleaning agent for boiler	7.0	0	0	0	0	0
Toluene	Paint, power generation fuel	38	6.9	0	0	0	0
Hydrazine	Water supply treatment agent	79	<0.1	0	0	<0.1	<0.1
Benzene	Power generation fuel	1.6	<0.1	0	0	0	0
Trisdimethylphenol phosphate	Power generation turbine control oil	8.9	0	0	0	0	8.9
Dioxin	Waste incinerator	-	82 (mg-TEQ/year)	0.0081 (mg-TEQ/year)	0	0	3.5 (mg-TEQ/year)

* This table rounds off handled quantity to t/year for Type 1 Specified Chemical Substances and to 0.5 t/year for Special Specified Chemical Substances (excluding dioxins). * 「0」 represents nothing was discharged.
 * 「<0.1」 represents discharge was less than 0.1 t/year. * Dioxins are given only for discharge and transfer from Special Facilities (waste incinerators, etc.). Handled quantity, is therefore, not given

Chronology of Energy and Environmental Highlights

Chronology of Energy and Environmental Highlights

	Kansai Electric's Action	Japan's Action	World Action
1950s	1951 Kansai Electric Power co., Inc. established.		
1960s	1962 Direct burning of crude oil begun. 1963 R&D on flue gas desulfurization begun.	1962 Law Concerning Flue Gas Control enacted. 1967 Anti-Pollution Basic Measures Law enacted. 1968 Air Pollution Control Law enacted.	
1970s	1971 Public Pollution Investigation Department established. 1972 Exhaust gas recirculation and two-stage combustion methods introduced. Use of naphtha begun. 1973 Public Pollution Investigation Department reorganized as Environmental Affairs Department. Use of NGL and LNG begun. 1974 Practical use of flue gas desulfurization facility begun. R&D on flue gas denitrification facility begun. 1975 Environmental Month introduced as an annual event. 1977 Environmental Affairs Department reorganized as Site Environment HQ.	1970 Water Pollution Control Law enacted. Law Concerning Waste Treatment and Cleanup enacted. 1971 Environment Agency established. 1974 Total pollutant load control for SOx introduced. 1977 Strengthening of Environmental Impact Reviews in Power Plant Siting determined by MITI's Ministerial Council. 1979 Law Concerning Efficient Use of Energy (Energy Conservation Law) enacted.	1972 Limitation of Growth Report presented by the Club of Rome. United Nations Conference on the Human Environment held in Stockholm. 1973 First oil crisis. 1979 Second oil crisis. Accident at Three Mile Island Nuclear Power Plant in USA.
1980s	1979 Low-NOx burners introduced. 1980 Flue gas denitrification facility installed. 1984 Deming Award for TQC activities received.	1981 Total pollutant load control for NOx introduced. 1984 Details on environmental impact assessment determined by the Cabinet.	1985 Vienna Convention for Protection of the Ozone Layer adopted. 1986 Accident at Chernobyl Nuclear Power Plant in former USSR. 1987 Montreal Protocol adopted. 1988 Intergovernmental Panel on Climate Change (IPCC) established.
1990s	1988 New corporate management plan Vision for the Year 2030 released. 1989 Management for the 21st Century adopted. 1990 Global Environmental Project Promotion Conference established. Five Basic Principles of Action Plan for Global Environmental Consideration adopted. Environmental Technology Research Center opened. Research and development of flue gas decarbonating technology begun. 1991 Kansai Electric Power co., Inc. Action Plan for Global Environmental Considerations adopted. 1992 Started joint research into rain forest recycling technology with Gadjah Mada University (Indonesia). 1993 Adopted Business Innovation Action Plan. Adopted Kansai Electric's Mid-Term Action Plan for Global Environmental Considerations. Published Global Environment Action Report.	1989 Ministerial Committee on Global Environmental Protection established. 1990 Action Program to Arrest Global Warming adopted. Global Environmental Forum Kansai established. 1991 Global Environment Charter adopted by Keidanren (the Federation of Economic Organizations). Law Concerning Promotion of Reprocessed Resource Use enacted. Law Concerning Waste Treatment and Cleanup revised. Act Charter adopted by Global Environment Forum Kansai. 1992 Law on Protection of Endangered Flora and Fauna enacted. 1993 Temporary Law Concerning the Promotion of Business Activities in Regard to Economizing the Use of Energy and the Utilization of Recycled Resources adopted. Basic Environmental Law adopted. 1994 Action plans for each country presented, based on Framework Convention on Climate Change. Basic Environment Plan formulated. 1995 Law on the Classified Collection of Container and Packaging Waste, and the Promotion of Recycling adopted.	1990 IPCC 1st Assessment Report presented. 1991 Intergovernmental negotiation on the Framework Convention on Climate Change begun. 1992 United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro. 1994 Framework Convention on Climate Change (FCCC) effected. 1995 The 1st Conference of Parties (COP1) to the FCCC. IPCC Second Assessment Report presented. 1996 The 2nd Conference of Parties (COP2) to the FCCC. ISO Environment Management System and Environment Auditing established.

	Kansai Electric's Action	Japan's Action	World Action
1990s	<p>1998 Adopted Environmental Management Notice.</p> <p>1999 Introduced environmental accounting. Adopted Green Purchase Promotional Policy.</p>	<p>1997 Environmental Impact Assessment Law enacted. (Amended Electric Utilities Industry Law.) Federation of Economic Organization's Environmental Autonomy Action Plan formulated.</p> <p>1998 Amended Law on Energy Rationalization (Energy Conservation). Adopted Prospectus on the Promotion of Countermeasures to Global Warming. Enforced Law Concerning Measures to Cope with Global Warming.</p> <p>1999 Basic Policies Relating to Global Warming determined by Cabinet. Law Concerning Special Measures Against Dioxins enacted. Japan's PRTR Law enacted. Accident at JCO uranium processing plant.</p>	<p>1997 UN General Assembly Special Session on Environment. The 3rd Conference of the Parties for Framework Convention on Climate Change (Global Warming Prevention Conference in Kyoto: COP3).</p> <p>1998 The 4th Conference of the Parties for Framework Convention on Climate Change in Benos Aires (COP4).</p> <p>1999 The 5th Conference of the Parties for Framework Convention on Climate Change in Bonn (COP5).</p>
2000s	<p>2000 Adopted Mid-term Business Policy. Kansai Electric's Action Plan for Global Environmental Considerations revised. Eco Action 2000 adopted. Nuclear Power and Environmental Committee established. (Power Plant Sites/Global Environmental Promotion Conference abolished.) Restructured as Environment Considerations Department. Started Kansai Green Power Fund. Acquired ISO14001 certification at Miyazu Energy Research Center and 2 other sites. Started technical development project for mangrove restoration in Thailand.</p> <p>2001 Acquired ISO14001 Certification at Himeji No. 2 Power Station and Kishiwada Substation Formed Committee for Recycle Activities Promotion. Adopted Green Purchasing Guidelines for office supplies.</p> <p>2002 Acquired ISO14001 certification at Sakaiko Power Station and 6 other sites. Started CFC project in Indonesia. Started forestation project in Australia. Adopted Green Purchasing Guidelines for power facilities' equipment.</p> <p>2003 Acquired certification for Eco-leaf Environmental Label. Started the CDM Project for the Small-scale Hydroelectric Power Generation in the Kingdom of Bhutan.</p> <p>2004 Acquired ISO14001 Certification at the Technical Test Center, Customers HQ. Adopted Management Vision of the Kansai Electric Group and CSR Action Charter of the Kansai Electric Group. Adopted Kansai Electric Recycle Activities Promotion Plan.</p>	<p>2000 Metabolic Society Creation Promotion Law enacted. Cabinet decision on Basic Environment Plan Long-term plan regarding research into nuclear power and development and its use (New Long-Term Plan) enacted.</p> <p>2001 Ministry of Environment launched. Special Measures Law on the Promotion of Proper Treatment of PCB enacted.</p> <p>2002 Prospectus on the Promotion of efforts to prevent Global Warming revised. Soil Contamination Law enacted. Law Concerning Promotion of Measures to Cope with Global Warming (Global Warming Action Law) enacted. Kyoto Protocol signed. Special Measures for Use of New Energy Sources in the Electric Power Industry (RPS Law) enacted. Law Concerning the Rational Use of Energy (Energy Conservation Law) revised. Law for the Recovery and Destruction of CFC from Special Products (CFC Recovery Law) enacted. Formed Kyoto Mechanism Use Federation. Started accepting JI/CDM applications.</p> <p>2003 Cabinet determined Basic Plan for the Establishment of a Recycle-based Society. Law concerning Promotion of Drive for Environmental Conservation and Environmental Education enacted.</p> <p>2004 Law concerning Promotion of Environment-friendly Business Activities by Specified Utilities by means of Promoting Provision of Environmental Information enacted.</p>	<p>2000 The 6th Conference of the Parties for Framework Convention on Climate Change in Hague (COP6).</p> <p>2001 IPCC 3rd assessment report presented. The 6th Conference of the Parties for FCCC in Bonn (COP6 continued). The 7th Conference of the Parties for FCCC in Marrakech (COP7).</p> <p>2002 World Summit on Sustainable Development in Johannesburg. The 8th Convention on Climate Change in New Delhi, India.</p> <p>2003 The 9th Conference of the Parties for Framework Convention on Climate Change in Milan.</p>

Comparison between Guidelines

Comparison with GRI Sustainability Reporting Guidelines 2002

Item	Page	Item	Page	Item	Page	Item	Page
1.Vision and strategies		3.Governance structure and management system		5.Performance index		5.Performance index	
1.1	11,12	Structure and governance		Economic performance		Social performance	
1.2	3,4	3.1	61	EC1	1,74	LA1	1,59,74
2.Outline of organization for reporting		3.2	61	EC2	*85	LA2	-
Outline of organization		3.3	-	EC3	*98,99,100	LA3	60
2.1	1	3.4	21,61	EC4	-	LA4	60
2.2	1	3.5	-	EC5	*98	LA5	58
2.3	61	3.6	21,61	EC6	*94,101	LA6	58
2.4	53,54,81	3.7	11,12,17	EC7	*94,101	LA7	58,74
2.5	1	3.8	63	EC8	*94,99,100	LA8	57
2.6	1	Participation of stake holders		EC9	*105	LA9	-
2.7	1	3.9	2,51,52	EC10	30,56	LA10	59
2.8	1	3.10	15,51,52,62 ~ 64	EC13	37	LA11	-
2.9	2	3.11	15,51,52,63	Environmental performance		LA12	60
Scope of report		3.12	15,51,52,63	EN1	18,71	LA13	60
2.10	Back cover	Controlling policy and management system		EN2	43,44,46,53	LA15	58
2.11	2	3.13	12,17,39,40,58	EN3	18	LA16	59
2.12	2	3.14	-	EN4	18,32	LA17	59,60
2.13	2	3.15	38,50	EN5	18	HR1	57
2.14	81	3.16	14,43,44,47,67	EN6	-	HR2	67
2.15	Not applicable	3.17	21,45	EN7	-	HR3	-
2.16	Not applicable	3.18	Not applicable	EN8	18,26,32	HR4	57
Outline of report		3.19	19,20,57 ~ 61	EN9	71	HR5	60
2.17	79	3.20	21,22,73	EN10	18,39,40,72	HR6	57
2.18	23	4.Comparison Table for GRI Guidelines		EN11	18,43,45,72,73	HR7	57
2.19	22,24	4.1	79	EN12	40	HR8	57
2.20	2,51,52	5.Performance index		EN13	Not applicable	HR9	57,59,65
2.21	2	Whole system	26	EN14	26	HR10	57,59,65
2.22	2,63,64	Cross sectional	24	EN15	Not applicable	SO1	12
				EN16	21,66	SO2	65
				EN17	26 ~ 32	SO3	65
				EN19	28	SO4	22,25,44,47,48,55,56
				EN22	41	SO7	65,66
				EN30	32	PR1	12 ~ 16
				EN33	43,44,47	PR2	12 ~ 16,28
				EN34	18,47	PR3	66
				EN35	23,24	PR6	28
						PR8	15,16

* Page containing Statements of Negotiable Securities for Kansai Electric (<http://www.kepcoco.jp/ir/securities/80>).

Comparison with Guidelines for Environmental Report 2003

Item	Page	Item	Page
1.Basic items		4.Environmental load caused by business activities and circumstances of the efforts to reduce such load.	
1)	3,4	14)	13,18 ~ 20,29,31,32,46,47,71
2)	2,63,81,Back cover	15)	13,18 ~ 20,29 ~ 32,43,44,46
3)	1,11,12,74,77,78,81,84	16)	18 ~ 20,32
2.Summary of environment-friendly policy, targets, and results in business activities		17)	18 ~ 20,31 ~ 39,71,72,75,76
4)	12,17	18)	39,40,75,76
5)	2,19,20,24,71 ~ 73,75,76	19)	1,18,28,74
6)	18	20)	18 ~ 20,31,43,44,72
7)	23,24	21)	18,40,41,75,76
3.Circumstances regarding environmental management		22)	18 ~ 20,32,47,74
8)	21,22,39,40,45,73	23)	19,20,47
9)	67	24)	18 ~ 20,23,24,26,28,31
10)	27,28,33,34	5.Circumstances of the social efforts	
11)	28,49 ~ 52,56,63	25)	12 ~ 16,49,50,55 ~ 60,62 ~ 67,74
12)	21,39,40		
13)	35 ~ 38,49,50,56		

Group Companies

Details of the companies (Consolidated subsidiaries and companies to which the equity method is applied)

As of March 31, 2004

Energy-related

SAKAI LNG Corp.
Kanden Gas And Cogeneration Co., Inc.
Kanden Energy Development Co., Inc.
and two additions
5 companies in total

Information technology

K-Opticom Corp.
K Cable Television Corp., Inc.
KANSAI MULTIMEDIA SERVICE Co.
Kansai. com, Inc.
Akinai Biz Square Corp.
K-SQUARE, Inc.
Kansai Telecommunication Technology
Kanden Information System Co., Inc.
LINECOM Co., Inc.
and five additions 14 companies in total

Lifecycle-related

The Kanden Industries, Inc.
Clearpass Co., Ltd.
KANDEN Security of Society, Inc.
KANDEN E HOUSE CORP.
KANSAI Medical Net Co., Inc.
KANDEN REAL ESTATE CO., LTD.
UJIDEN BUILDING CO., LTD.
Kansai Jyutaku Hinshitsu Hoshu Co., Ltd.
Kanden Joy Life Co., Ltd.
Kanden Facility Management Corp.
URBAN SERVICE Co., Ltd.
Kanden CS Forum, Inc.
EL SUEHIRO FOOD SERVICE Co.
and three additions 16 companies in total

Electricity

TOKO SEIKI CO., LTD.	Nuclear Engineering, Ltd.
DAITO CO., LTD.	KANDEN WELBE Co., Inc.
NIHON ARM CO., LTD.	TOKAI DENGYO Co., Inc.
KINKI CONCRETE INDUSTRIES CO., LTD.	The Kanden Services Co., Inc.
Kansai Instrument Transformer Co., Ltd.	The Kanden Seisakusho Co., Ltd.
KINDEN CORP.	KANDEN KAKOH Co., Inc.
Kansai Tech Corp.	KANDEN AMENIX CO., LTD.
The Kanden Kogyo, Inc.	Kurobe Gorge Railway Co., Ltd.
NEWJEC INC.	Institute of Nuclear Safety System, Inc.
KANSAI ENVIRONMENTAL ENGINEERING CENTER CO., LTD.	Kanden L-Heart Co., Inc.
Kansai Electrical Instruments Co., Ltd.	Kansai Power Business Support Corp.
SONODA INSTRUMENTS INC.	EL-Quest Co.

and eight additions 32 companies in total

Others

Kansai Power International Corp.
Kansai Power Venture Management Corp.
KANDEN GEO-RE Co., Ltd.
Kanden-Ecomelts Co., Ltd.
Kanden-el-farm, Inc.
CCL Co., Ltd.
MOSS WORKS KANDEN CO., LTD.,
and 12 additions 19 companies in total

Restructure of the Group Companies

29 companies at present	
Electricity	The Kanden Kogyo, Inc. KANDEN KAKOH Co., Inc. Nuclear Engineering, Ltd. Kansai Tech Corp. KANSAI ENVIRONMENTAL ENGINEERING CENTER CO., LTD. NIHON ARM CO., LTD. KINKI CONCRETE INDUSTRIES CO., LTD. DAITO CO., LTD. TOKO SEIKI CO., LTD. Kansai Instrument Transformer Co., Ltd.
Lifecycle-related	The Kanden Industries, Inc. Mukonodai development Co., Ltd. KANDEN REAL ESTATE CO., LTD. THE AMAGASAKI TECHNOLAND CO., INC.
Information technology	Kanden Information System Co., Inc. Kansai Telecommunication Technology

12 new companies (final composition)	
Kanden Plant Corp.	(conservation of power generation)
KANDEN POWER-TECH CORP.	(operation of power generation)
Nuclear Engineering, Ltd.	(power generation engineering)
Kanden Engineering Corp.	(electric power transportation)
THE GENERAL ENVIRONMENT TECHNOS CO., LTD.	(environmental engineering)
NIHON NETWORK SUPPORT CO., LTD.	(distribution material and equipment)
ENEGATE Co., Ltd.	(Instruments)
The Kanden Services Co., Inc.	(outsourcing of services)
The Kanden L & A Co., Ltd.	(lease and insurance)
KANDEN REAL ESTATE CO., LTD.	(Real estate development)
KANDEN AMENIX CO., LTD.	(amenity)
Kanden System Solutions Co., Inc.	(information system)

*Restructuring of the Group companies was implemented on October 1, 2004, except nuclear equipment test and inspection services of NIHON ARM CO., LTD. and so on.
*NIHON NETWORK SUPPORT CO., LTD. has not yet been incorporated as of October 1, 2004 and its name is provisional.

Let us know your thoughts and impressions.

This report contains some specifics of environmental activities at Kansai Electric and intended to again an understanding of these efforts from us many people as possible. Nevertheless, we image some of readers will find certain points hard to understand, information to be insufficient and other disappointments. Therefore we would like to use your frank thought and impressions as reference for future activities. To do this, we ask that you respond to the questionnaire on the back cover. Thank you in advance .

**Environmental Planning Group,
Environmental Considerations Department
The Kansai Electric Power Co., Inc.
Tel 81-6-6441-8821**

Please check the items most closely match your opinions or impressions

1 I think this report is:

Easy to understand Average Difficult to understand

Reason: []

2 How would you rate Kansai Electric's environmental activities? (Check all applicable boxes)

I. Providing Safe and Reliable Products and Services

very highly good not very good not good

Reason: []

II. Addressing Global Environmental Problems

very highly good not very good not good

Reason: []

III. Positive Contributions to Development of Local Communities

very highly good not very good not good

Reason: []

IV. Respect for Human Rights and Building a Pleasant Working Environment

very highly good not very good not good

Reason: []

V. Transparent, Open Business Activities

very highly good not very good not good

Reason: []

VI. Thorough Compliance

very highly good not very good not good

Reason: []

3 Was there anything in this report that you want to know more about or are interested in? Comment on anything that impressed you in particular or anything that seemed to be lacking in information. (Circle the number box that all applies)

- Message Features Managerial Vision Mission of and responsibility for the secure supply
- Safe and secure operation of the nuclear power plants Conceptual View of Our Environmental Load Environmental Management
- Efforts to improve customer service Environmental policy, Outlook of environmental load, Targets, and Result
- Environmental Management Efforts to cope with global environmental problems (New Era Strategy)
- Efforts to cope with global environmental problems (Efficiency)
- Efforts to cope with global environmental problems (Reduction)
- Efforts to cope with global environmental problems (Activities Abroad)
- Efforts to cope with global environmental problems
- Promotion of business activities suiting to the recycle-based society
- Environmental Communication Eco-business Contribution to the society as an enterprise
- Respecting human rights Measures for safety and sanitation
- Equal opportunity for employment and employee-friendly workplace Corporate governance
- Communication with customers on various occasions Establishment of compliance-promoting system
- Third party's comment Face-to-face talk Data Comparison between guidelines

4 Please give us your thoughts and impressions in this report

[]

5 From what perspective did you read this report? (Circle the number box that best applies)

- As a customer of the company As an investor As a party who does business with the company
- As a government employee As someone affiliated with an environment-related NPO
- As someone in the mass media As someone involved in corporate environment activities As a student
- Other [Explain:]

6 How did you learn about this report?

- Newspaper/magazine The company's website From a company employee From a friend
- Other [Explain:]

Thanks you very much your cooperation. If your do not mind, please also fill in the following information.

Name Gender Male Female Age

Address

Occupation (company name or organization)

Main Places of Business

Head Quarters & Branch Office

Head Quarters	3-3-22Nakanoshima, Kita-ku, Osaka 530-8270 (until Dec., 2004) 3-6-16Nakanoshima, Kita-ku, Osaka 530-8270 (as of Jan., 2005)	TEL: 06-6441-8821
Osaka Kita Branch	3-9-3 Honjohigashi, Kita-ku, Osaka 531-8588	TEL: 06-6373-1541
Osaka Minami Branch	3-9-5 Hamaguchinishi, Suminoe-ku, Osaka 559-0006	TEL: 06-6672-1301
Kyoto Branch	579 Higashi-shiokojicho, Karasuma Nishi-iru, Shionokoji-dori, Shimogyo-ku, Kyoto 600-8216	TEL: 075-361-7171
Kobe Branch	6-2-1 Kanou-cho Chuo-ku, Kobe 650-0001	TEL: 078-391-7211
Himeji Branch	117 Junishomae-cho, Himeji, 670-8577	TEL: 0792-25-3221
Nara Branch	48 Omoricho, Nara 630-8548	TEL: 0742-27-1237
Shiga Branch	4-1-51 Nionohama, Otsu, 520-8570	TEL: 077-522-2626
Wakayama Branch	40 Okayama-cho, Wakayama 640-8145	TEL: 073-422-4150
Wakasa Affiliated Branch	8 Yokota, 13 Goichi, Mihama-cho, Mikata-gun Fukui 919-1141	TEL: 0770-32-3500
Tokai Affiliated Branch	2-27-14 Izumi, Higashi-ku, Nagoya 461-8540	TEL: 052-931-1521
Hokuriku Affiliated Branch	1-2-13 Higashi-denjigatamachi, Toyama 930-8513	TEL: 076-432-6111
Tokyo Affiliated Branch	c/o Fukoku Seimei Building 2-2-2 Uchisaiwai-cho, Chioda-ku, Tokyo 100-0011	TEL: 03-3591-9261
Thermal Power Center	c/o Dai Building 3-6-32 Nakanoshima, Kita-ku, Osaka 530-6591	TEL: 06-6459-0433
Kansai Electric Hospital	2-1-7 Fukushima, Fukushima-ku, Osaka 553-0003	TEL: 06-6458-5821

Main Offices

Kujo Office	TEL: 06-6582-2881	Fukuchiyama Office	TEL: 0773-22-3101	Nara Office	TEL: 0742-36-1201
Ogimachi Office	TEL: 06-6373-3131	Maizuru Office	TEL: 0773-62-2540	Takada Office	TEL: 0745-53-1131
Ikeda Office	TEL: 072-752-5070	Miyazu Office	TEL: 0772-22-2112	Shiga Office	TEL: 077-522-2611
Mikuni Office	TEL: 06-6391-1061	Mineyama Office	TEL: 0772-62-0051	Hikone Office	TEL: 0749-22-0080
Hokusetsu Office	TEL: 06-6384-1131	Obama Office	TEL: 0770-52-0890	Yokaichi Office	TEL: 0748-22-2111
Moriguchi Office	TEL: 06-6908-4731	Takahama Office	TEL: 0770-72-1212	Wakayama Office	TEL: 073-422-8111
Takatsuki Office	TEL: 0726-76-3131	Mihama Office	TEL: 0770-32-0025	Shingu Office	TEL: 0735-22-5211
Moriguchi Office	TEL: 06-6908-4731	Kobe Office	TEL: 078-392-6200	Tanabe Office	TEL: 0739-22-1212
Hirakata Office	TEL: 072-841-1131	Akashi Office	TEL: 078-912-2651	Gobo Office	
Nanba Office	TEL: 06-6631-4101	Awaji Office	TEL: 0799-22-0605	Hashimoto Office	TEL: 0736-32-1245
Higashi Sumiyoshi Office	TEL: 06-6700-3131	Hanshin Office	TEL: 06-6481-3961		
Higashi Osaka Office	TEL: 06-6787-5011		TEL: 0798-67-3131		
Habikino Office	TEL: 0729-56-3381		TEL: 0797-85-0201		
Minami Osaka Office	TEL: 072-238-8681	Sanda Office	TEL: 0795-63-2484		
Kishiwada Office	TEL: 0724-22-4701	Himeji Office	TEL: 0792-92-3131		
Kyoto Office	TEL: 075-491-1141	Kakogawa Office	TEL: 0794-21-3201		
	TEL: 075-611-2131	Aioi Office	TEL: 0791-22-0730		
Sonobe Office	TEL: 0771-22-0149	Toyooka Office	TEL: 0796-22-3131		
Fushimi Office	TEL: 0774-72-0029	Yashiro Office	TEL: 0795-42-0260		