OSAKA GAS GROUP

2007
OSAKA GAS GROUP
CSR REPORT

Value Creation Management : Enhancing the four values

Giving top priority to maximizing customer value, the Osaka Gas Group, will pursue Value Creation Management to enhance value for all our stakeholders, including shareholders, society and employees through fair and transparent business activities.

We are committed to contributing to more comfortable lifestyles and the development of the business activities of our customers through the supply of multiple forms of energy, focusing on environment-friendly natural gas.

At the same time, we will pursue the creation of new values by offering products and services that help to enhance the convenience, safety and security of urban lifestyles, so that we will be able to evolve continuously along with our customers.

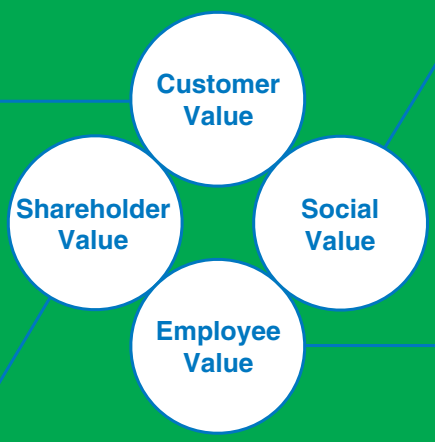
We will live up to the expectations of our customers by addressing their individual needs in a timely fashion and offering desirable solutions to them.

1. Provide customers with quality products and services enabling them to make optimum use of energy that is also environment-friendly, by supplying natural gas, electricity, LPG and other types of energy in a form that best meets their interest.
2. Enhance customer satisfaction by offering products and services that contribute to more comfortable, convenient and safe lifestyles and business prosperity.

We satisfy the expectations of our shareholders by striving to constantly improve our business performance and ensuring stable dividend payments.

Value Creation Management

Enhancing the four values



We endeavor to reduce environmental impact by promoting greater and more sophisticated use of environment-friendly natural gas and promote well-being of society by helping to revitalize local communities through our corporate activities. Along with these efforts, we enhance the transparency of our management by ensuring full compliance with laws and regulations and through information disclosure.

Our management provides employees with opportunities to grow through work in a manner that nurtures their individuality and self-initiative. Our employees are constantly studying for self-enhancement, seeking to meet the expectations of our customers, shareholders and society through the creation of values. Under a bond of mutual trust and enthusiasm, employees and management alike pursue the sound growth of the Osaka Gas Group.

1992	1998	1999	2000	2004	2005	2006
Osaka Gas Environmental Philosophy Environmental Action Guidelines	Osaka Gas Corporate Action Guidelines Osaka Gas Group Corporate Action Guidelines	Osaka Gas Basic Management Principle "Value Creation Management"	Osaka Gas Group Code of Conduct	Osaka Gas Group Environmental Activities Philosophy, Environmental Activities Policy	Osaka Gas Group Management Principle "Value Creation Management"	Osaka Gas Group CSR Charter (which includes Environmental Philosophy) CSR Organization

Editorial Policy

1. This report is structured around the "Osaka Gas Group CSR Charter" to present the Group's CSR activities.
2. This report features two special topics, the "efforts to address global warming" and the "safety and security measures," to emphasize the Group's efforts to contribute to a sustainable society.
3. This report incorporates a third party review focusing on evaluation and recommendation, including simplified examination of the environmental performance, as well as third party comments on our corporate activities in each category.
4. We have complied with the "Environmental Reporting Guidelines FY2007" of the Ministry of the Environment and referred to the "Sustainability Reporting Guidelines 2006" of the Global Reporting Initiative (GRI) in compiling this report. (Please refer to our website for a reference table with the Environmental Reporting Guidelines.)

Scope of This Report

1. Coverage

- This report covers the entire Osaka Gas Group including affiliated companies. Some information in this report is exclusive to Osaka Gas Co., Ltd., in which case a note to that effect is shown.
- Environmental performance data are those of Osaka Gas Co., Ltd. and 81 affiliated companies. Overseas and tenant locations where data is difficult to collect are not included. (Please refer to our website for the list of the 81 affiliated companies surveyed.)

2. Reporting period

While annual data covered in this report are those of FY2007 (from April 1, 2006 to March 31, 2007), data from FY2008 are included in some sections.

3. Publication

September 2007 (Next issue is scheduled for September 2008.)

Information Available on Our Website

This report can be read also on our website.
http://www.osakagas.co.jp/indexe.html

Corporate Information ⇒ CSR of Osaka Gas Group

(For more details, please visit our website.)

For the sections that include this note [For more details, please visit our website.], more detailed information about that section is available on our website.

Main Corporate Reports

● CSR Report

Report of CSR activities undertaken by the Osaka Gas Group

● CSR Report: digest version

Simplified CSR Report (Japanese only)

● Corporate Profile

Company profile for the general public

● Annual Report

Report for shareholders and investors

Index

CSR Management of Osaka Gas Group

**The Osaka Gas Group believes that the pursuit of 'value creation management' is essential for fulfilling corporate social responsibilities of the group.
To this end, we established Osaka Gas Group CSR Charter in April, 2006.**

Osaka Gas Group CSR Charter

**In order for the Osaka Gas Group to fulfill its full corporate social responsibilities and to achieve its sustainable development, we hereby set forth the Charter as the guiding principle for the management and the employees of the Group to observe in their conduct of business.
The management of the Osaka Gas Group, its subsidiaries and affiliates, and managers of respective divisions, are determined to implement the spirit of the charter in their business initiatives.
Should any infringement of the charter occur, the management acts immediately to identify and resolve problems, and to take strict corrective actions.**

Ⅰ. Creating value for customers →P.15

The Osaka Gas Group is committed to making its positive contribution to realizing higher level of comfort and development of business activities of its customers. The group intends to achieve this objective through its provision of reliable and safe supply of natural gas and other energy services with improved level of services for its customers. We also seek to grow together with customers and society at large by pursuing opportunities for further growth of our businesses and creating new products and services to enhance our value for customers.

Ⅱ. Contributing to harmonizing with environment and to realizing a sustainable society →P.25

Addressing the issues of the environment both at regional and global levels is of paramount importance for the Osaka Gas Group which is engaged in wide-ranging energy services. The Group, being seriously aware of the impacts of its business activities on the environment, seeks to harmonize its businesses with the environment and to realize efficient utilization of energy resources, thereby contributing to achieving a sustainable society.

Ⅲ. Being a good corporate citizen contributing to society →P.41

The Osaka Gas Group, as a good corporate citizen, strives to maintain communication with society and the communities it serves. Through proactive disclosure of information and improved managerial transparency, we intend to establish favorable relationship with citizens and to make our positive contribution to healthy development of society.

Ⅳ. Complying with laws and regulations and respect for human rights →P.49

The management's and the employees' compliance with laws and regulations forms a basis of gaining society's trust. Our perspectives on compliance go beyond legal and regulatory boundaries to include decent conduct expected of all citizens. Based on our respect for human rights, we intend to maintain equitable relationship with our customers, business partners, and other parties.

Ⅴ. Management policy of human growth →P.55

The Osaka Gas Group strives to become a group of enterprises to realize growth of its employees through work by ensuring employment opportunities and respecting employees' individuality and initiative. With discipline and self-motivation, we will charge ourselves with the task of creating new value for customers, shareholders and society. The group and its employees, through mutual trust and decency, strive to achieve sound growth of enterprises within the group.

Code of Conduct of the Osaka Gas Group (For more details, please visit our website.)

The Code of Conduct of the Osaka Gas Group was set forth in February 2002 as a set of criteria for actions of all executives and employees of the Osaka Gas Group.

Ⅰ. Code of Conduct as a good corporate citizen
1. Respect for human rights
2. Consideration to protecting the environment

Ⅱ. Code of Conduct in production and supply activities
3. Responsibilities as energy supplier and other business provider
4. Ensuring safety of products and services

Ⅲ. Code of conduct in business transactions
5. Compliance with anti-monopoly laws
6. Fair trade practice
7. Customer interaction
8. Associating with business partners

Ⅳ. Code of conduct in information management
9. Use of information and its disclosure
10. Management of information systems
11. Management of intellectual properties

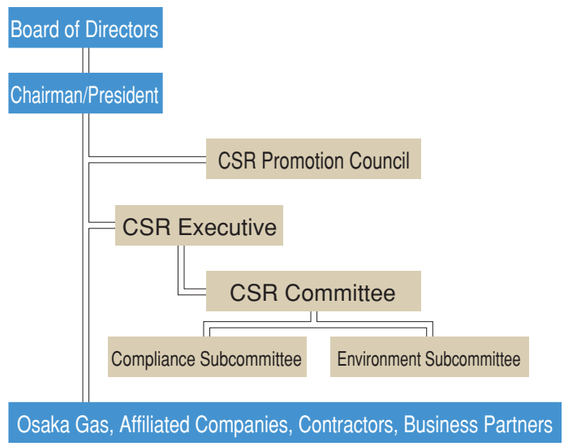
Ⅴ. Code of conduct in workplace
12. Creating comfortable work environment
13. Employment and compensation

Ⅵ. Code of conduct in working with society
14. Dealing with anti-social forces, prohibiting favors and benefits
15. Appropriate payment of taxes

CSR Organization

The Osaka Gas, upon establishing its CSR Charter, restructured its organization for CSR. The CSR Promotion Council, under the supervision of President of Osaka Gas, deliberates CSR plans and reports its results of activities. CSR plans include those items related to the environment, compliance, community contributions, human rights, and employment. From the viewpoint of promoting overall CSR activities in an integrated manner, we established the CSR Committee to coordinate and promote CSR activities across the entire Osaka Gas Group. The committee is composed of executives of Osaka Gas, the top management of the core companies, representatives of the labor union, and other external members.

■CSR Organization



Osaka Gas participates in the UN Global Compact

Osaka Gas announced its participation in the United Nations Global Compact as part of its commitment to furthering its corporate social responsibilities. Osaka Gas was officially registered as a participant on June 1, 2007.
The Global Compact advocated by United Nations sets forth the ten principles businesses should observe in the four areas; human rights, labor standards, environment, and anti-corruption. There are currently over four thousands business participants in the initiative around the world including some 50 Japanese businesses. Osaka Gas has become the first participant from the Japanese utility industry.
Osaka Gas's participation in the UN initiative gives momentum to its work to further its responsibilities as a good corporate citizen and to practice the ten principles in every facet of its business activities.

THE GLOBAL COMPACT

The ten principles of the Global Compact

Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2: make sure that they are not complicit in human rights abuses.

Labor Standards

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labor;

Principle 5: the effective abolition of child labor; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;

Principle 8: undertake initiatives to promote greater environmental responsibility; and

Principle 9: encourage the development and diffusion of environmentally friendly technologies.

Anti-Corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

Fulfilling our CSR to become a respectable enterprise open to society





Osaka Gas Group and CSR

Osaka Gas has pursued its management policy of creating value for all its stakeholders; customers, shareholders, society, and employees. We are committed to furthering the corporate social responsibility (CSR) of the group, and it constitutes the backbone of our management. Based on this principle, we established the Osaka Gas Group CSR Charter and revised the Osaka Gas Group Code of Conduct to translate the spirit of the charter into clear terms. The organization for CSR was likewise reorganized to bolster our CSR through establishment of the CSR Promotion Council and the CSR Committee in its core.

To earn customers' trust

It goes without saying that our full compliance to rules and regulations is a prerequisite for a business enterprise to gain customers' trust. The Osaka Gas Group, being aware of such a requirement, has implemented actions to enhance its compliance. It was revealed much to our regret, however, that there were violations of the anti-monopoly regulations by our group companies. It resulted in a punitive action by the Fair Trade Commission. Since the issue first came to light in June 2006, we have reinforced our actions to fully disseminate compliance across the entire group. We also experienced some problems associated with our products including a recall of bathroom heater/drier and carbon monoxide intoxication incidences caused by unvented space heaters in recent months. As a marketer of gas appliances, we recognize the severity of the problems and we are determined to strengthen our activities to ensure safety of gas appliances and their installations. We will maintain our renewed awareness to further our work to restore customers' confidence and to continue our efforts to achieve higher level of righteousness to improve transparency of our business practice.

Working to achieve advanced utilization of natural gas to contribute to a sustainable society

Addressing the global environmental problems is an issue of greater concern common to citizens and businesses alike. The Fourth Assessment Report by the IPCC has identified that the CO_2 emission by human activity is a cause of the global warming. As we are about to enter the first commitment period of the Kyoto Protocol in 2008, our role as an energy company has become even more highlighted. Osaka Gas, through supply of natural gas which is friendly to the environment and its advanced utilization, seeks to make its contribution to realizing a sustainable society. We are also committed to reduce our environmental impacts generated through our business processes, while at the same time, we want to help reduce customers' impact on the environment with the development and dissemination of efficient gas equipment. Our efforts on both our business front and on the market were recognized during the past year and we were ranked first in the electricity and gas sector in the Nikkei Environmental Management Survey.

Participating in the UN Global Compact

In June this year, we announced our participation in the United Nations' Global Compact. The Compact has demonstrated the 10 principles businesses should observe in the four key fields; human rights, labor, environment and corruption prevention. The Global Compact was initially advocated by then Secretary General Mr. Kofi Annan in January 1999 and officially launched in New York in July of the following year at the UN Headquarters. Through our support and practice of these 10 principles, we will voluntarily play our role in society. With our participation in this milestone initiative, we intend to further strengthen our CSR.

In closing

In order for our readers to understand about our broad CSR activities, we modified the conventional Environmental and Social Action Report into the CSR Report in 2006. This year's report has been structured to present our activities in accordance with the five items of the CSR Charter.

I hope you enjoy this year's report and look forward to receiving your feedback.

Hirofumi Shibano
President
Osaka Gas Co., Ltd.

芝野博文


LNG Dream Tanker ©2005 JIMMY ONISHI

[TOPIC 1] Actions against global warming

Natural gas - a solution to the global warming

Energy consumption has been on the rise as people seek greater comfort in their modern lifestyles. One of the greatest problems facing the world today is global warming, a challenge closely associated with energy consumption, which requires concerted efforts on the global level.
Natural gas has been attracting increasing attention as a fuel friendly to the environment with the lowest level of emission of CO_2 among all fossil fuels. Given its abundance and stability in supply, natural gas has become a principal energy source meeting the needs of the energy markets.
Osaka Gas, through the supply of natural gas and development and dissemination of gas equipment with higher efficiency, contributes to mitigating the global warming.

Clean energy - Natural gas

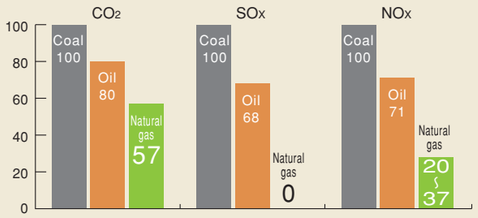
Natural gas is a clean energy friendly to the environment

Osaka Gas first introduced natural gas in 1972 with the start of importing LNG. LNG is now received at Senboku and Himeji Terminals. LNG is regasified by seawater, and after the calorific adjustment and odorization, it is distributed to customers through an extensive pipeline network.
Natural gas is a clean energy generating the least amount of CO_2 among fossil fuels when burnt. It emits absolutely no SOx which causes air pollution and acid rain.

Increasing role of natural gas having superior environmental characteristics

Comfortable modern lifestyles, made possible by massive consumption of energy resources, have resulted in rising global temperatures. Switching of fuels from coal and oil to natural gas is an effective action against global warming as environmentally benign natural gas has the highest potential for efficient utilization. According to the government's forecast on long-term energy supply and demand, natural gas is expected to increase its position in the primary energy supply of Japan, from 10% in 1990 to 18% in 2030. In the Basic Energy Plan of the government, natural gas is positioned as a principal energy source whose utilization should be enhanced from the perspectives of both stable supply and environmental protection. In the Kyoto Protocol Target Achievement Plan, natural gas is defined as a clean fuel with lower environmental impacts compared with other fossil fuels widely available in areas other than the Middle East, making it the energy source to which fuel shift should be accelerated. Through efforts to expand its utilization, Osaka Gas has reinforced its work on addressing the issues of the global warming.

■ **Comparison of emission levels of combustion products of fossil fuels** (Coal=100)



Sources:
・IEA (International Energy Agency): Natural Gas Prospects to 2010 (1986)
・The Institute of Applied Energy: Report on Thermal Power Plant Atmospheric Impact Assessment Technology Demonstration Surveys (March, 1990)

To sustain stable supply of natural gas

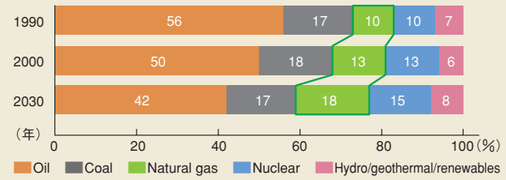
Being scarce of its indigenous energy sources, Japan relies on imports, and natural gas is not exception. Unlike oil which is geographically concentrated in the Middle East, natural gas reserves are abundantly available in dispersed locations in the world.
To ensure its stable supply, Osaka Gas procures natural gas through long-term contracts with 6 LNG producing countries. The diversified sources coupled with long-term contractual arrangements help maintain LNG prices stable. As part of its work for stable and economical procurement of LNG, Osaka Gas has strengthened its orientation to investments in gas fields and ownership of LNG carriers.

■ **LCA※1 comparison of GHG emissions among fossil fuels**
(g-CO_2/MF, HHV)

	Coal	Oil	LPG	LNG※2 (Natural gas)
Total	94.93	73.26	66.70	60.58
Ratio	157	121	110	100

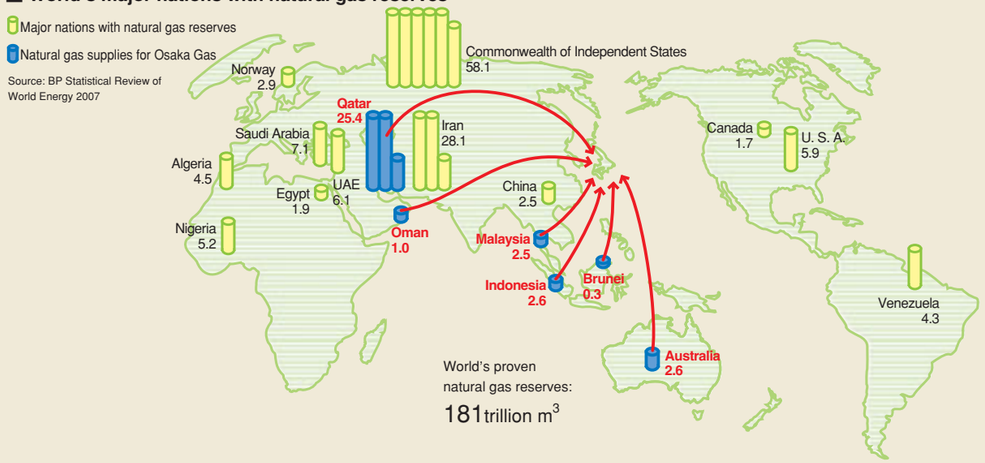
※1 LCA (Life Cycle Assessment): A comprehensive quantification method of survey, analysis, and evaluation of the amount of environmental impacts of products and services. The assessment covers all the related processes from resource extraction to waste disposal including transportation, consumption, and recycle, for the products and services.
※2 Actual measurement value in 2003
Source:
Future Forecast for Life Cycle Greenhouse Gas Emissions of LNG and City Gas 13A (natural gas-based reticulated gas)

■ **Long-Term Energy Demand Outlook**

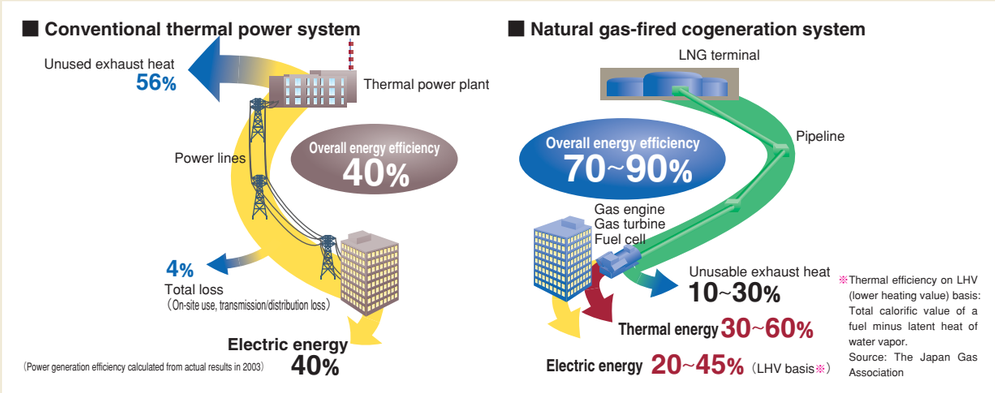


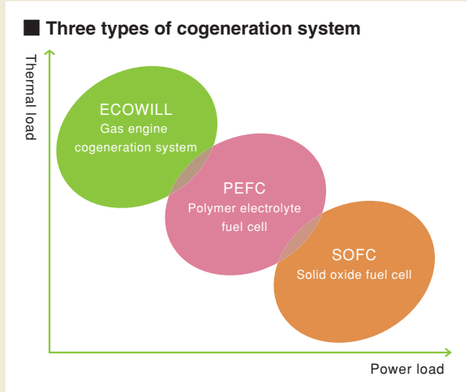
Source: Agency for Natural Resources and Energy (2005): Long-Term Energy Demand Outlook 2030
※2030 = projections on business-as-usual basis

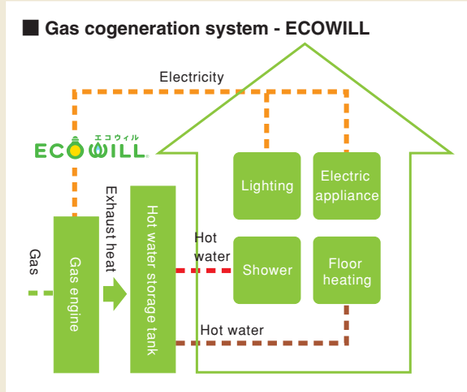
■ **World's major nations with natural gas reserves**



Development and dissemination of energy-efficient gas equipment and appliances







Cogeneration fueled by natural gas - best practical solution to global warming

In dealing with the global warming, it is essential to use energy efficiently.
Cogeneration is an effective means of efficient energy utilization, particularly when fueled by natural gas. Promoting dispersed energy systems such as cogeneration systems and fuel cells is a hallmark of the government's policy in achieving the targets of the Kyoto Protocol for Japan for reducing its greenhouse gas emissions by 6%. As a supplier of natural gas, Osaka Gas has been committed to promoting cogeneration system fueled by natural gas for power generation and thermal energy utilization through recovery of its waste heat. Thermal energy from the cogeneration system is utilized for air-conditioning, space heating, steam applications, and water heating.
The highly energy efficient gas-fired cogeneration system makes it an ideal decentralized energy supply system. Unlike the conventional centralized power generation system, the on-site cogeneration system eliminates power transmission loss, and it enables overall energy efficiency (power and thermal energy) of 70-90% as compared with a maximum efficiency of 40 of conventional centralized large-scale power plants. Recent technological advances in cogeneration systems have achieved an even higher level of energy conversion and reduction of CO_2 emissions compared with average thermal power plants.
In a broader scope of propagating cogeneration systems to homes, Osaka Gas has intensified its effort on disseminating a 1kW gas engine-driven cogeneration system 'Ecowill' since its market introduction in 2003. Technical improvements on the system, including the use of a higher efficiency exhaust heat exchanger, the system has now achieved the overall energy efficiency of 85.5%, the rate comparable to the large-scale cogeneration plants.

Continuous search for maximum utilization of natural gas

At Osaka Gas, work is continued tirelessly for developing power generation systems with higher efficiency such as engine-driven systems Ecowill. Fuel cell generates electricity through the opposite process of electrolysis by reacting hydrogen in natural gas and oxygen in the air. Thermal energy recovered in the process is used to heat water. Fuel cell is the power generation system based on a fossil fuel with the least environmental impacts and better energy conservation characteristics including lower CO_2 emission and noise/vibration levels.

Polymer electrolyte fuel cell (PEFC) and solid oxide fuel cell (SOFC)

Of the two types of fuel cells that are under development jointly with manufacturers, PEFC is in the stage of evaluation of durability and reliability prior to commercialization. For the development of PEFC using polymar membrane as electrolyte material, Osaka Gas plays its role of developing a fuel reformer with the world's highest performance and the heat recovery system equipped with a self-learning operation control functions. Towards achieving technological targets and cost reduction, the fuel cells (150 units) are being tested as part of the field test subsidized by the New Energy Foundation.
SOFC, being developed in parallel with PEFC, has a proven higher efficiency than PEFC. The system whose operational profile is shifted to meet electrical load, is fit for use in a household. It was proven during the field tests of the system at NEXT 21 (experimental residential complex of Osaka Gas) that the system had demonstrated the following operational performance; 49% in electrical efficiency, 34% in waste heat recovery ratio, 31% reduction in primary energy consumption, and 45% reduction in CO_2 emission. It was the first achievement among SOFC development projects in the world when the fuel cell was operated in a real-time condition in a household. In January 2007, we saw the development of a 700W SOFC, the smallest SOFC in the world.

Other equipment and systems contributing to reducing environmental impacts

In addition to cogeneration systems, Osaka Gas has been working on R&D on energy-efficient systems including gas air-conditioning systems, natural gas vehicles, and others that help reduce CO_2 emission.

- Gas air-conditioning systems(Gas absorption-type chiller/heaters)
- High performance industrial furnaces
- Tri-generation system for industrial and agricultural uses
- High-efficiency water heater
- High-efficiency gas cookers
- Natural gas vehicles

EXPERT OPINION

Natural gas holds great promise for the future

The rapid growth of energy demand worldwide has led to the rise of prices of fossil fuels including crude oil and coal as well as natural gas around the world. As a country with few domestic energy resources, Japan should explore ways to ensure the stable supply of natural gas, an important source of energy, from overseas at acceptable cost on a long-term basis.
The year 2008 marks the commencement of the initial commitment period of the Kyoto Protocol, during which Japan is committed to reducing greenhouse gas emissions by 6% from the 1990 level. The effect of greenhouse gas emissions on climate is said to become apparent in the mid to later 21st century. This means effort for reducing CO_2 emissions must be continued on a long-term basis beyond the initial commitment period. With lower emissions of CO_2 and air pollutants per energy consumption, Natural gas is likely to take on a critical role in mitigating climate change as an environment-friendly source of energy. Still, even natural gas emits some CO_2. Therefore, technologies that enable more effective use of natural gas should be developed for the dual purpose of preserving the global environment and energy resources. Osaka Gas is currently engaged in R&D on a wide array of technologies to ensure stable supply and effective use of natural gas, and the results of such R&D are eagerly awaited.

Mr. Atsushi Kurosawa
Vice Director and
Senior Researcher
Research & Development Division
The Institute of Applied Energy

[TOPIC 2] Gas safety

Reinforcing activities on safety

**As a gas utility, Osaka Gas places its highest priority on ensuring safety and improving service throughout its chain of gas business as well as on maintaining stable supply.
The goal of our strenuous efforts is to enhance our value for customers.
We believe our activities on enhancing safety result in gaining our customers' confidence in gas and bringing benefits of natural gas to be enjoyed by all.**

Achieving higher level of safety

Our greatest effort for gaining customers' confidence in gas

During the past year, there were a number of incidents related to safety in gas supply and utilization in different parts of Japan. For the former, there was a case of intoxication of carbon monoxide contained in the gas leaked from a gray cast iron pipe* due to its breakage. In the area of gas utilization, carbon monoxide intoxication accidents occurred during the same year caused by incomplete combustion of gas appliances.
Osaka Gas distributes carbon monoxide-free natural gas and it has actively implemented a program to replace gray cast iron pipes with polyethylene pipes that have higher durability. For ensuring safer gas utilization by customers, (1) we are developing in cooperation with manufacturers various gas appliances with safety features, (2) we conduct periodical inspection of housepipes and gas systems in compliance with gas safety regulations, and, (3) we have established an around-the-clock emergency response system.
In the aftermath of these unfortunate incidents, we have renewed our awareness on safety and implemented specific actions to improve the level of safety in both gas supply and utilization.

*Gray cast iron pipes are made of casting molten iron mixed with graphite. They were widely used for gas distribution until around 1965.

Furthering our work on safety after gas-related incidents

After experiencing these safety-related incidents in gas utilization, we conducted extensive campaigns, in addition to all our business opportunities, on TV, newspapers and other media, including notices on safety tips as well as special discounts and trade-in for old gas appliance that are not equipped with safety devices. Also in the area of periodical safety inspections, we have reinforced the organization for inspection and notification activities.
For improving safety of gas supply, we advanced our program of replacing aged gray cast iron pipes by 5 years. Accelerated replacement work will be implemented in the next few years while conducting leakage survey on these pipes at least once a year.
We also initiated in April this year, a company-wide initiative on gas safety in which employees are encouraged to use every opportunity to gain knowledge on safety and to enhance customers' awareness on safety.

All-employee Gas Safety Initiative

Through the initiative, we intend to encourage all our employees to increase their awareness on safety, to become able to respond to customers on their queries about safety, and to eliminate risks associated with gas-related incidents resulting from gas leaks and appliances without safety features through employees' positive transmission of information on safety to our customers.
As a basis of the initiative, we launched a portal on the company's intranet. The site covers various aspects of safety, including that of gas supply and appliances so that all employees have immediate access to the safety-related information. In June 2007, a handbook on safety was distributed to all employees of the Osaka Gas, pipeline contractors, and service contractors. Also, e-learning was made available for employees to learn about safety and test their knowledge.
Pursuing safety is a constant and continuous effort for a gas utility as ensuring safety is the very basis of gas business. The entire group companies will be committed to pursue this objective through renewed and concerted efforts of the entire group.

Objectives of the initiative

1. Employees having correct knowledge about safety and they are able to explain to customers

All employees of the Osaka Gas Group should have correct knowledge about gas safety and are able to explain to customers about proper use of gas with high level of safety. Through such means, customers will be convinced safety in their use of gas.

2. Eliminate risks associated with the use of old gas appliances

Upon identifying appliances without safety devices, employees notify risks involved with their use and they take necessary actions to ensure customer safety including recommendation for replacement.

3. Transmit information on safety to cultivate society's understanding about safety

Employees transmit information on safety to customers, government officials, opinion leaders, and other stakeholders to cultivate society's good understanding about safety.

Safety systems

Safety in every aspect of our gas operations—from LNG handling and distribution to utilization

Safety in LNG-related operations

Osaka Gas conducted conversion of gas from manufactured gas to natural gas (free of carbon monoxide) between 1975 and 1990. After conversion to natural gas based on liquefied natural gas (LNG imported from overseas sources) every care has been taken to ensure safety in handling of LNG, from receiving to storage, regasifacation, and gas send-out. Our concerns on safety are focused on prevention, early identification, and preventing propagation of problems.

■Round-the-clock monitoring and surveillance

The centralized control and monitoring system ensures safe and continuous operation of LNG terminal around the clock.

■Disaster prevention systems

Various systems are installed to prevent accidents and disasters related to LNG handling. Periodical drills are conducted to ensure preparedness against emergencies.

Dikes

Should any LNG leakage from tanks occur, dikes contain spilt LNG.

High-expansion foam discharge system, water curtain

To counter possible dangers of LNG leakage, high expansion foam contains leaked LNG, and water curtain helps LNG to disperse vertically.

■Disaster prevention drills

To improve preparedness and to maintain our awareness on safety, drills are conducted on a regular basis.

■Maintenance of facilities

In order to maintain the integrity of facilities reliability of operations, careful maintenance activities are essential. Patrols and inspections are repeated regularly.

Pipeline network and distribution facilities

The total extension of our pipeline network exceeds 56,000 kilometers. To prevent gas leakage, pipelines are carefully inspected and its integrity is constantly maintained through repair and replacement. To counter any leakage problems, we have a well-established response network through the centralized monitoring and emergency response and dispatching system. To be prepared against earthquakes, we have implemented a sophisticated anti-earthquake measures.

■Improving safety of gas network

Use of polyethylene (PE) pipes

For new installations of low pressure pipes, we have implemented a rule of using PE pipes throughout our service area. PE pipes have higher resistance against earthquakes and corrosions and their service life is almost permanent.

Repair of aged pipes

To ensure higher level of safety, we have decided to advance the replacement program of gray cast iron pipes by 5 years. The entire replacement work is scheduled for completion in 2015

Inspection and patrolling of pipelines and gas facilities

The entire medium and low pressure systems are inspected for any gas leaks once every 40 months. Against any possibilities of damage on pipelines from road excavation work by third parties, we have consultation/coordination, site inspection and other arrangements with other utility services. High-pressure pipelines are inspected by patrols for its entire routes twice daily.

■Round-the-clock emergency dispatching

The Central Distribution and Command Center is the focal point of gas distribution control and monitoring. The round-the-clock dispatching system is in place to respond to any gas-related emergencies including leaks. Upon receipt of notification, the center dispatches by radio emergency and service crew to the scene. Employees are trained to improve their preparedness against emergencies.

■Working against earthquakes

As part of the company's work to improve preparedness against earthquakes, Osaka Gas has implemented various activities including the following; development and introduction of gas pipes with higher resistance against major earthquakes, installation of seismographs, establishment of radio network for the company's internal communications, division of the service area into supply isolation blocks, and establishment of the Distribution and Command Control Back-up Center in Kyoto. In addition to the upgrading of hardware, we have conducted earthquake drills the details of which are not notified to the participants in advance. Through the drill, they are required to take actions on unknown status of earthquake damages. Problems identified through drills are reviewed in order to build new action programs.

Gas appliances and equipment

Osaka Gas has positively worked to improve the level of safety in gas utilization through the development of safety devices and their promotion, safety inspections, and public relations activities.

■Notification to customers at safety inspection and service connection

At the time of starting gas service, we notify our customers various safety tips, conduct inspection on gas leaks from housepipes, and inspect appliance compatibility with our services. Safety inspections are periodically conducted at least once every 40 months for general households, every 14 months for designated underground shopping areas and other facilities, for surveying of gas appliances and equipment, leakage, and notification on safety, etc.

Our safety inspection activities have been further reinforced to include survey and registration of gas appliances owned by customers and to add new items such as combustion test of certain gas appliances. For such activities, we have assigned additional personnel and strengthen the organization for safety inspection activities.

For commercial and industrial customers, we add to the mandatory inspection items our own survey items that are specific to customers' business segments.

■Development and dissemination of safety devices and gas appliances with safety features

We are actively developing various safety devices and gas appliances so that our customers can use gas with a complete peace of mind.

Examples of safety devices, appliances with safety features, fire alarms for household

●Intelligent meters
It shuts off gas upon detection of gas leaks and earthquakes

●Fuse on gas tap
It shuts off gas when gas hose is disconnected.

●Gas leak alarms
They give out visual and voice warnings on gas leaks and incomplete combustion. Those models with fire-alarm functions are also available.

●Gas cookers
They come with various sensors for automatic shut-off; flame failure and overheating detection.

●Fire alarms for households
Voice warning is given upon detecting smoke. It can be inter-linked with I-rusu Home Security Service.

●Fan heaters (forced air space heater)
They come with a gas shut-off device when overturned. They are also equipped with incomplete combustion prevention device and flame failure sensor.

Efforts of Osaka Gas for greater safety and security

1975～1990	1981～	1984～	1985～	1987～	1991～	1995	1996	2006～
Begins supplying CO-free natural gas	Launches "safety gas valve" that automatically shuts off the flow of gas when a gas rubber hose is disconnected (Penetration rate: 99.6%)	Equips compact instantaneous gas water heaters with a device to prevent incomplete combustion	Equips gas heaters with a device to prevent incomplete combustion	Launches "microcomputer meter" that automatically shuts off the flow of gas when there is a gas leak or earthquake (Penetration rate: 99.6%)	Measures the CO concentration of the compact instantaneous gas water heaters not equipped with a device to prevent incomplete combustion at the time of regular safety visit	The Great Hanshin-Awaji Earthquake occurs (Gas supply to about 860,000 households is suspended) Launches "Piko Piko," a gas leak alarm system equipped with a CO sensor (Penetration rate: 49.4%)	Adopts a five-year plan for earthquake mitigation (The plan was completed in March 2000)	Equips all models and burners of glass top built-in gas cookers with a safety sensor*

The penetration rates in ( ) are as of the end of March 2007. *A device to prevent overheating of cooking oil and a burner safety device.

EXPERT OPINION

Supplying gas is equivalent to supplying information

I have read the report of the Osaka Gas Group and am deeply impressed with their efforts for safety, which are much more extensive and diverse than I had ever imagined. On the other hand, the repeated occurrence of gas-related accidents in recent years has revealed the gap between the safety awareness of consumers and that of gas suppliers. Such a gap can be attributable, in part, to the performance of safety devices which varies depending on when they were manufactured.
It is not feasible for gas suppliers to completely eliminate misuse of gas appliances by consumers through implementation of some technical measures. For this reason, gas suppliers are required to persistently and patiently provide customers with safety information to increase their awareness. Gas-related accidents can be prevented only through cooperation among manufacturers, suppliers and consumers. In this sense, I think supplying gas is equivalent to supplying information since it is through this cooperation that people will come to regard gas as a valuable asset.

Mr. Norio Souri
Chairman
Kansai Consumers' Association

CSR Charter I



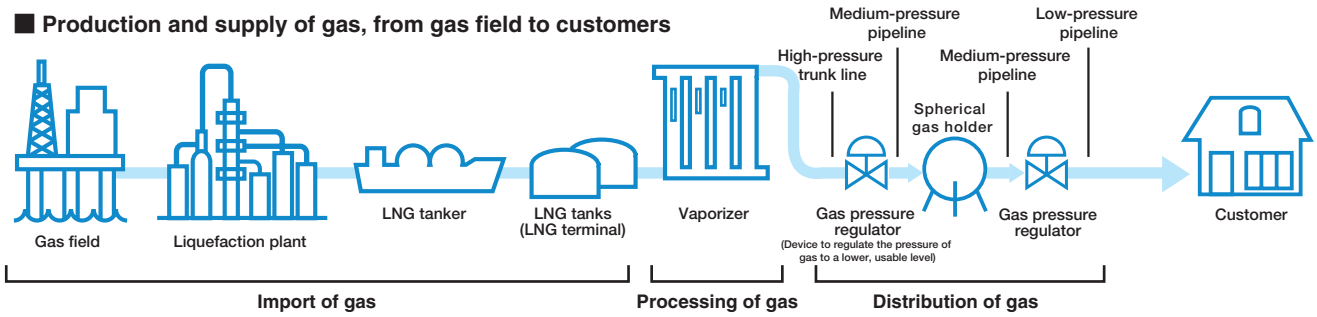
Creating value for customers

The Osaka Gas Group is committed to making its positive contribution to realizing higher level of comfort and development of business activities of its customers. The group intends to achieve this objective through its provision of reliable and safe supply of natural gas and other energy services with improved level of services for its customers. We also seek to grow together with customers and society at large by pursuing opportunities for further growth of our businesses and creating new products and services to enhance our value for customers.

Ensuring the Stable Supply of Gas

As a gas utility, our most important mission is to ensure a safe and reliable supply of gas to customers around the clock, 365 days a year. We, at Osaka Gas, are always doing our best to fulfill this responsibility at all levels of our operations from the upstream to downstream stages, from the import of liquefied natural gas (LNG), which is the raw material of the gas we supply to our customers, and LNG handling at the LNG terminals to the final stage of the distribution of gas to residential customers through gas pipes.

■ **Production and supply of gas, from gas field to customers**



Stable procurement of natural Gas

Unlike oil that is found only in the Middle East, natural gas is available all over the world. With the reserve-production ratio (obtained by dividing the proved reserves by production volume) estimated at more than 60 years*, natural gas is expected to remain procurable for a period longer than oil. Osaka Gas began importing liquefied natural gas (LNG) from Brunei in 1972, and now has deals with suppliers in six LNG producing countries—Indonesia, Australia, Brunei, Malaysia, Oman and Qatar—under long-term contracts to diversify the sources of LNG supply.
Osaka Gas has also been positive in expanding its operations into the upstream stage of raw material procurement, by acquiring interests in overseas gas fields and joint-ownership of LNG tankers to achieve an uninterrupted supply.

* Source: BP Statistics 2007

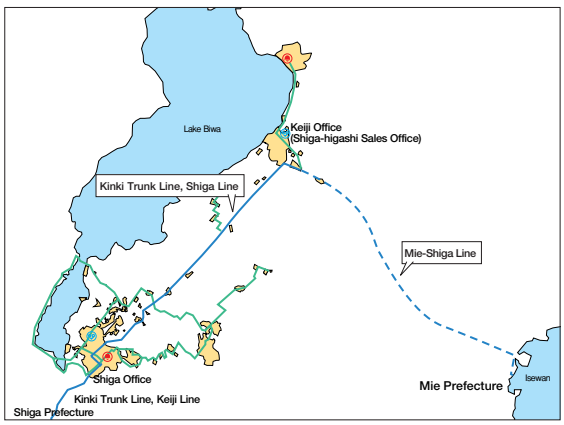
Stable production and supply of gas at the terminals

Osaka Gas's two terminals in Senboku and Himeji take deliveries from LNG tankers, vaporize LNG by use of the heat of sea water, adjust the heating value of the gas, odorize it, and distribute it to customers. These terminals are equipped with a total of 30 LNG tanks, including some of the largest aboveground tanks in the world, which allows Osaka Gas to ensure a stable supply of gas. At these terminals, the entire process from the receipt of LNG to the processing and distribution of gas is centrally computer-controlled, and all the facilities in the terminals are monitored and operated from the central control rooms.
These state-of-the-art systems enable Osaka Gas to ensure effective and stable production and supply of high-quality gas and thus meet the diverse needs of customers, from season to season and from hour to hour.

Stable supply of gas through pipelines

Osaka Gas distributes gas from its terminals to every corner of its service area by means of high-pressure pipelines. Going through gas pressure regulators, high-pressure gas is reduced to medium and low pressure, and arrives at private houses, office buildings and factories at the optimal pressure.
The pipelines are equipped with gas holders which temporary store gas to cope with the changes of customer demands.
Osaka Gas has pursued the construction and upgrading of the pipelines under a comprehensive long-term plan to address the increasing demand for gas, and now a network of pipelines covering six prefectures in the Kansai region is in service. In addition, Osaka Gas opened the "Shiga Line" last year to meet the increasing demand from customers in the Shiga area, and is constructing the Mie and Shiga Line to enhance the ability to supply gas in the Shiga area more reliably.

■ **Routes of the "Shiga Line" and the "Mie-Shiga Line"**



Ensuring the Safe Supply of Gas to Customers

Measures to ensure the safety of gas supply facilities

Appropriate maintenance of the existing gas pipes holds the key to safe, comfortable urban life, along with the construction of gas supply facilities. Preventing accidents is one of the most important responsibilities of gas utilities. We, at Osaka Gas, fulfill this responsibility by taking the following safety measures.
- Conducting regular inspection of gas pipes to detect any possible gas leakage.
- Conducting inspection and maintenance of gas pressure regulators, valves, gas pipes on bridges, and other facilities.
- Holding prior consultation with external entities who have undertaken works involving excavation of roads for laying of water and sewage pipes, electricity cables, telephone lines, or for other purposes, as well as visiting and inspecting the sites of works.
- Replacing aged gas pipes in a carefully-planned manner.

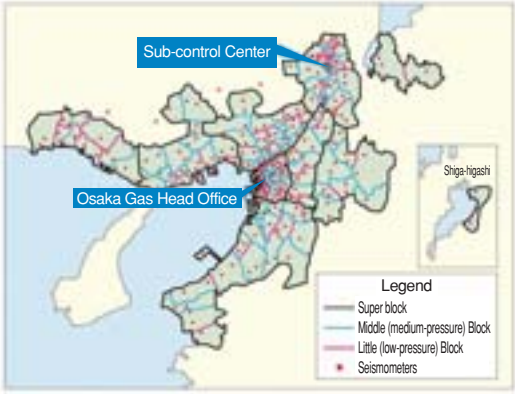
In particular, Osaka Gas has accelerated the replacement of all the gray cast iron pipes as part of its efforts to replace aged gas pipes, and expects to complete the work in FY 2016 instead of 2021 as originally planned.

Regular inspection of gas pipes on bridges

Preparedness for large earthquakes

Aware of the importance of earthquake preparedness, Osaka Gas introduced polyethylene (PE) pipes that are highly resistant to earthquake damage and computer-controlled meters that automatically shut off gas supplies when seismic tremors are detected, built an emergency communications network, and took various other disaster measures. These measures have been further strengthened since the Great Hanshin-Awaji Earthquake.
To be specific, we installed seismometers in 239 locations in the service area to collect seismic intensity and other critical information immediately after an earthquake takes place and expedite emergency decision making. Also, we divided the service area into several blocks and installed earthquake-activated automatic gas shutoff systems and remote gas shutoff systems in each of the blocks, to interrupt gas supply on a block-by-block basis and prevent secondary accidents when gas pipes are damaged. Furthermore, a sub-control center was opened in Kyoto to take over the role of the Central Control Room at the head office when it is hit by an earthquake and rendered unable to function. In addition to such infrastructure enhancements, we conduct earthquake drills from time to time without giving any prior information to employees, to improve our ability to better cope with emergencies.

Blocks and locations of seismometers

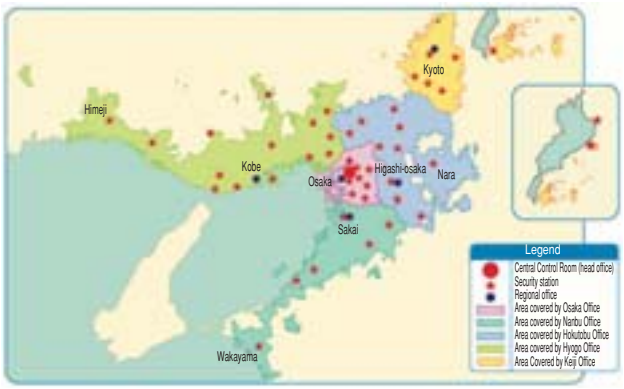


Emergency response service available 24-hours a day, 365 days a year

Starting from September 2006, Osaka Gas provides a wide-area one-stop security service, holding the Central Control Room of the Head Office responsible to receive information of gas leaks and request the nearest security station to dispatch emergency vehicles. With the introduction of this service, Osaka Gas is now able to take more effective measures from the initial stage of receiving information, under the leadership of the Central Control Room manager who has a wealth of expertise, skills and authority. This has led to the enhancement of the quality of the initial response to an emergency, which is said to have critical importance.
To offer prompt security service tailored precisely to each customer's needs, Osaka Gas offers the following three types of services in accordance with the seriousness of the reported incident.

General response	When the incident is not likely to lead to the occurrence of an accident, a service patrol car will be dispatched to the site.
Emergency response	When an accident has occurred or is likely to occur, in principle, two or more security staff members will rush to the site by emergency vehicle and take appropriate measures.
Special response	When a serious incident occurred that cannot be adequately handled by the emergency response, a special three-phase response program is launched.

Locations of security stations



Providing Energy-saving Information

To help customers use energy more efficiently

We, at Osaka Gas, provide customers with energy-saving information by various means to help them use energy more efficiently and wisely.
For example, the slip we issue to customers at the time of monthly gas meter reading indicates the monthly gas volume consumed during the month, the preceding month and the same month of the preceding year to allow customers to make a month-on-month comparison of their gas consumption. On our official website, customers can check their gas consumption during the past 13 months and also read "Energy-saving tips to become a wise energy consumer" on which examples of energy-saving measures consumers can take at home and the effects of such measures are shown. In addition, when making regular security visits, we provide customers with the "Guidebook for Safe Use of Gas (Gas Safety Manual)" and other safety booklets that show various energy-saving information including actions and ideas for saving energy and effective ways of maintaining of gas equipment.

■ "Energy saving tips to become a wise energy consumer" (Website of Osaka Gas)

For Commercial and Industrial Customers

Bringing greater benefit to customers

Natural gas is a clean energy that has less impact on the environment. To promote use of natural gas and expand its application, we, at Osaka Gas, are committed to developing new burners and high-efficiency air conditioners as well as developing and promoting use of natural gas vehicles with low Nox and CO_2 emissions. We also examine overall energy-saving performance of the business premises of our customers and offer advice on how they can improve efficiency in energy use. In doing so, we aim to add greater value to equipment installed at our customers' premises.
We launched the "Suzuchu" kitchen system for commercial use last year. Employing an advanced heat insulation technology that reduces radiated emissions, this system can dramatically improve the kitchen environment, and also contribute to energy conservation by getting rid of the need for air conditioners.

Kitchen ranges that remain at a safe-to-touch temperature even while in use

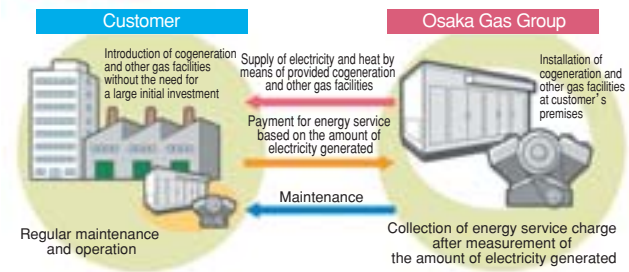
Solution-marketing for natural gas

The Osaka Gas Group offers a wide variety of innovative solutions to meet the diversifying needs of commercial and industrial customers. One such solution is the "EcoWave" energy service in which the Osaka Gas Group purchases cogeneration equipment, gas air-conditioning and other equipment, installs them in the customer's premises, and charges customers for energy service based on the amount of electricity generated by the customers. This service appeals to customers who want to avoid the initial investment and the addition of proprietary assets, and currently, about 650 customers take advantage of this service.
Also, IT systems such as "Sky Remote" (for GHP) and "Echo Line" (for cogeneration), which allow remote monitoring and operation of gas facilities installed in different locations, satisfactorily meet the needs of customers for the centralization of energy use monitoring and energy system operation.

"Security" is among the important solutions offered by the Osaka Gas Group. We provide customized inspection programs tailored to the need of each of our major customers, while catering to the need of customers for uninterrupted operation of gas facilities around the clock.

■ **EcoWave (energy service combined with power generation)**

The Osaka Gas Group installs cogeneration and other gas facilities in the premises of customers and charges customers for energy service based on the amount of electricity generated by the customers. In general, the service charge does not exceed the amount of the cost saved.



For Residential Gas Customers

Natural gas for comfortable lifestyles

We, at Osaka Gas, offer clean natural gas and a variety of gas appliances to residential customers under the motto, "Natural Gas for a Comfortable Lifestyle - Modern Lifestyles with Gas." We aim to introduce a new lifestyle possible only with gas by delivering the "three modern conveniences of gas (power generation, home esthetics, and cooking)" and the "four benefits of natural gas (environment friendliness, economy, comfort, and safety)."

ウィズガス

Three modern conveniences of gas

With the emergence of various social problems such as the falling birthrate and the aging population, greater importance is now placed on the home environment and family relations. By bringing the following three modern conveniences of gas, we help to create a more pleasant and comfortable living environment that satisfies all family members.

マイホーム3変化

Power generation

"ECOWILL," a residential gas engine cogeneration system, not only generates electricity but also uses exhaust heat for water and space heating. This efficient, environment-friendly system offers an ideal solution for environmental protection to residential customers, and helps to build a bright future for children and the earth.

Home esthetics

Mist Sauna "KAWACK" brings a greater comfort to life by meeting the needs of family members for beauty, health, and relaxation. It also provides an easier way of bathing and thus caters to the demand of the aging population.

Cooking

Gas is suitable for a variety of cooking purposes, including baking, roasting, and boiling. With greater safety and convenience, our gas cooking appliances comfortably cater to the needs for cooking of both elaborate cuisines and simple meals at home, thus offering a more enjoyable cooking and dining experience and helping create a happier home environment.

Four benefits of natural gas

Environment friendliness

By supplying environment-friendly natural gas and offering applications to use it in highly efficient manners, we contribute to the reduction of CO_2 emissions and environmental impact.

Economy

We provide customers with economical gas rates based on the combination of gas appliances in use.

Comfort

Our gas appliances and services bring higher levels of comfort to the kitchen, living room and bathroom at home.

Safety

By offering gas cookers and other gas appliances with greater safety, we ensure safety in gas use as well as home security.

Introducing gas appliances and their applications in showrooms

We have ten "DILIPA" residential showrooms in the Kansai Region, where a variety of our gas appliances are displayed, as well as information on how they can bring the "three modern conveniences of gas" to the home.

DILIPA residential showroom

Model bathroom equipped with the "KAWACK" Mist Sauna at DILIPA

Gas rates for households

In our efforts to reduce gas rates on a continuous basis, we provide a wider range of rate plans to our customers, while working for the reduction of general management costs and development of gas demands to achieve higher cost efficiency of gas appliances such as the ECOWILL, residential air-conditioning systems, and gas floor heating systems.

As part of our efforts, we implemented the reduction of gas rates to reflect the effects of the streamlining of our management in November 2006. To introduce easier to understand and more convenient rate plans, we also renamed our selective contracts for residential use "Gas-Toku plan," while in each of the selective contracts, the respective rate is affixed with the name of the appliance for which the rate is set, such as the "ECOWILL rate." In addition, a wider variety of special discount options are available for customers with combined use of bathroom heater/dryer, gas cooker and other gas appliances. So far, more than 460,000 customers have signed up for the Gas-Toku plan. We remain committed to offering gas appliances and gas rate plans that better satisfy customer needs.

Helping to create a comfortable living environment for the local community

As venues for direct communications with local residents, Osaka Gas Service Shops have undertaken procedures for commencement of gas supply and other tasks commissioned by Osaka Gas, and engaged in sales, repair, and renovation of gas appliances to help to create a more pleasant living environment. To better cater to the needs of an increasing number of customers, Osaka Gas Service Shops have been offering additional services since 2005, which include: repair of gas appliances made by other manufacturers; home improvement and maintenance; and sale of the "Kemupiko" home fire alarm system, the "Airusu" home security system and the home contents insurance policies "Kazaiantai." In February 2002, Osaka Gas Service Shops were renamed to "Osaka Gas Service Shops Kurashi (Living) Plus" to emphasize their ability to satisfy a variety of customer needs.

These Service Shops will continue their efforts to serve as a one-stop service center to precisely meet the diversifying customer needs and offer a wider range of services, thereby contributing to the enhancement of the living standards and the life value of customers.

Developing a more comfortable residential environment through the "NEXT 21" futuristic experimental residential complex

To offer innovative products and services in anticipation of future customer needs, Osaka Gas has continued determined efforts to develop attractive residential complexes and equipment to contribute to the enhancement of living standards, both physical and emotional. To this end, we constructed the experimental residential complexes, "Higashi-Toyonaka Experimental Residential Complex" (1968) and "Ideal Housing NEXT" (1985), which were followed by "NEXT 21."

The newest experimental residential complex "NEXT 21" was constructed in October 1993 in Osaka City to explore ideal neo-futuristic urban living environment with the ultimate goal of "achieving both comfort/convenience of life and energy saving/environmental preservation." So far, two 5-year residential experiments have been conducted, one from April 1994 and the other from April 2000, which resulted in substantial achievements including the reduction of energy consumption of the entire building by some 30% (primary energy equivalent), the enhancement of environment-friendliness, and the development of new housing environments and equipment. The "NEXT 21" project was highly regarded, and was given the "Energy-saving Architecture Award" by the Ministry of Land, Infrastructure and Transport.

In April 2007, a new 5-year residential experiment (the third phase of the residential experiment) started with a view to exploring new housing environments and energy systems that contribute to sustainable urban living. In this phase, demonstrations of future energy systems are conducted, including: further energy conservation to reduce environmental impact; development of futuristic living environments for urban residential complexes to better address the social changes resulting from the falling birthrate and the aging population; power generation by use of hydrogen fuel cells; exchange of electricity and heat among residential units; and power generation and heat utilization by means of solid oxide fuel cells.

NEXT 21 experimental residential complex

Recall policy

If any death, physical injury, or property damage was caused by an accident arising out of the gas appliances we sold, installed or repaired, we will immediately disclose relevant information to the public by submitting notification to the competent authority, issuing press release, making corporate announcements, and/or posting information on our website. At the same time, we will inspect the appliance that caused the accident, repair it, and/or exchange components as appropriate.

During FY2007, we recalled the following products and completed the necessary procedures for all the customers excluding those who have not been contacted. Specifically, following the occurrence of a fire accident due to the failure of our bathroom heater/dryer, we made corporate announcements and issued press releases in June, August, and October, while testing the product and replacing the defective parts. There were some cases where repeated repairs were required, and we apologize for the trouble and inconvenience this caused our customers. We will remain committed to preventing a similar incident from recurring and restoring customer confidence in us.

■ Recalls made during FY2007

Month/year	Appliance recalled	Models recalled	No. of units recalled	Corrective measures taken
June 2006	Water/space heater	44-480, 481, 482, 483	31,904	Replacement of electric components
June 2006	Bathroom heater/dryer	161-5501, 5510, 5511	82,345	Replacement of junction lines, checking of wiring routes, replacement of electric components
Sep. 2006	Built-in dish washer/dryer	38-402, 405, 406, 760, 07-041	129	Replacement of electric wiring
Oct. 2006	Table-top dish washer/dryer	115-1076	300	Replacement of fan motors and other components
Dec. 2006	Balanced flue boiler with shower	32-876, 877, 878, 879	912	Replacement of electromagnetic valves

Incorporating Customers' Opinions in Management

For Osaka Gas, comments and requests from customers are an essential element in deciding our business and managerial focus. We use various opportunities to listen to customers' opinions and incorporate them in our services and management to better satisfy customer needs.

Using IT for improving services—Customer Center and Hello Service

The company's slogan of 'Service First' has long been a prevailing work principle for the entire group not only limited to those divisions related to customer service. Since 1990 under the leadership of the chief service officer, we have implemented a number of new initiatives to improve the level of customer service across the company. The 'service first' tradition has taken root deeply in our utility operations and now it comprises a part of our corporate culture.

Statistically, we have about 20 million contacts with customers in a given year. Of this enormous number of contacts, customers' calls and Internet access to our Customer Centers account for over 3.7 million. The Customer Center, a focal point of customers' enquiries, was established in 1985 as a one-stop contact point for customers for their queries. In 1987, we upgraded the system using group-wide communication networks for speedy and reliable services. This service, named 'Hello Service', has been implemented across the entire service area. Between 1999 and 2001, the Customer Center network underwent a major improvement for integration into two locations (Osaka and Kyoto) together with upgrading of information and communication systems. Under the new system, more speedy reactions, reduction of human error, and smaller time allotments for visiting service became possible.

In response to the recent increase in the availability of the Internet and broadband services, we have upgraded the functions of our "Call Center" so that it can serve as a more comprehensive "Contact Center" to address inquiries sent via new channels such as e-mail and the website and better satisfy our customer needs.

Addressing an inquiry at a Customer Center

Improving operational efficiency by use of the C-VOICE system

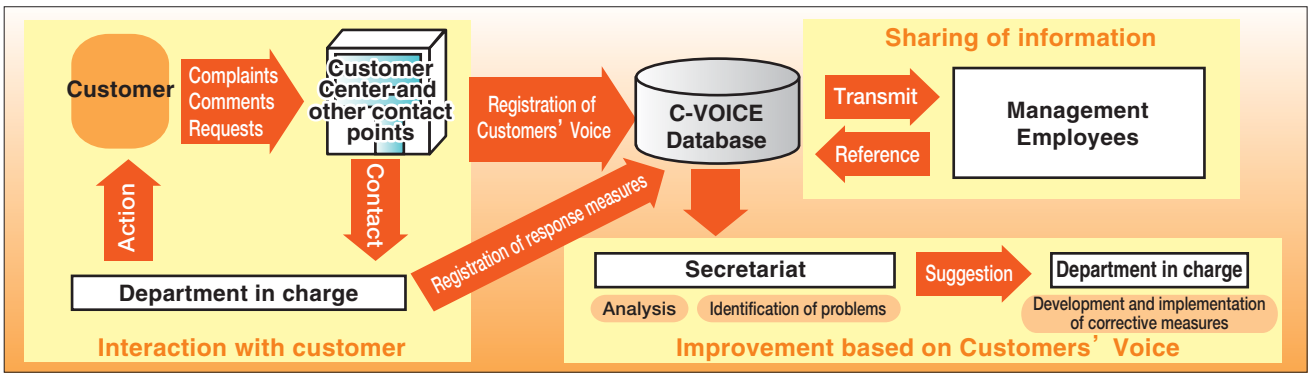
C-VOICE is a system for collecting customers' comments received on various occasions into a database and sharing them internally. We have about 20 million contacts with customers a year. By introducing the C-VOICE system, we aim to analyze customers' complaints, problems, comments, requests and praise we received through this vast number of contacts from various different angles and use them to improve our operational efficiency and quality of service.

As a collection of registered customers' comments and reactions, C-VOICE allows easier search of customer information and enables us to discern the trends in customers' opinions of Osaka Gas. Customers' comments received on a day-to-day basis are shared among the relevant departments, employees, and management the same day. When complaints are received, we not only collect the factual information and report corrective measures to be taken but also consider how we can prevent the same problem from recurring and implement and share the preventive measures.

In this way, each department within Osaka Gas effectively uses Customers' Voice to improve its day-to-day business activities.

Since the introduction of the C-VOICE system, there has been an increase in the number of messages of appreciation and a decrease in the number of complaints and comments received. To be specific, the number of messages of appreciation increased from 1,623 in FY2005 to 2,234 in FY2006 and further to 2,640 in FY2007, while that of complaints decreased from 3,171 in FY2005 to 2,158 in FY2006 and then to 1,813 in FY2007.

■ **Flow Chart for C-VOICE**



Maintaining and improving the quality of service by conducting a Customer Satisfaction Survey

Osaka Gas has conducted a Customer Satisfaction Survey since 1988 to measure customer satisfaction at our major contact points with customers. The results of the survey are used to identify problems, develop and implement responses and corrective measures and enhance the quality of our services.

Currently, five services that involve direct interaction between our employees and customers are subject to the Customer Satisfaction Survey. These services are "opening of gas lines," "repair of gas appliances," "regular security inspections (gas appliance inspections)," "response to telephone inquiries at Customer Center" and "replacement of gas meters upon expiration of the validity period." The survey is conducted in writing one or two weeks after the completion of the service, in which customers are asked to rate their overall satisfaction with the service provided, the response to their telephone inquiry, and the quality of the service on a 6-point scale from "very satisfactory" to "very bad." During FY2007, about 32,000 surveys were returned to us, and we summarized the results in numerical terms and use them for the evaluation of our services.

So far, we have continued to achieve higher values than the original target values in both overall satisfaction (80%) and the quality of service (87 points).

■ **Results of the four most recent Customer Satisfaction Surveys**

FY	Target	2004	2005	2006	2007
Overall satisfaction	80.0%	80.2%	83.5%	85.1%	86.3%
Quality of service	87.0	89.7	92.8	93.5	92.8

Improvements based on customers' opinions

The "Corporate information" on our website includes a section called "Pursuit of greater customer satisfaction" in which we show information about the C-VOICE system and Customer Satisfaction Survey, and the cases of successfully incorporating customers' comments and reactions in our operations to better meet customer needs. For example, in response to the request of a customer to repair a gas appliance by the end of the day, our Service Shops have introduced a system to send repair personnel to a customer's site immediately upon request. Also, for customers who have signed up our Gas-Toku plan, we have launched a new service to inform them of the amount they have saved under the plan by showing the difference between the regular amount normally claimed for their gas consumption and the actual amount they have paid on the "Notice of this month's gas consumption volume and receipt of the monthly payment," a slip dropped into the mailbox of each customer at the time of the monthly gas meter reading. We will continue our efforts to improve our service based on customers' voice and report those cases of service improvement on our website.

■ **"Pursuit of greater customer satisfaction" on our website**

Some of the cases of service improvement are shown.

Developing into a Multi-Energy Services Company

Taking advantage of the business opportunities created by the ongoing liberalization of the energy market, we are expanding the scope of our business activities as a multi-energy service provider to deliver greater value to our customers by supplying the optimal combination of three types of energy, namely, "gas," "electricity generated by a gas cogeneration system" and "electricity." We are poised to develop the electricity business as our "second core business" at home, while pursuing geographic expansion of the natural gas business, the LPG business and the Independent Power Producer (IPP) business both in Japan and abroad.

Electricity business

To take advantage of the deregulated energy market and meet the diversifying customer needs that have resulted, the Osaka Gas Group, as a multi-energy service provider, has been working strenuously to provide customers with greater value by supplying natural gas, electricity, LPG and thermal energy in a way to achieve an appropriate balance of supplies. We are concentrating on the electricity business as the focal point in our business because of the availability of the upstream infrastructure, the ability to offer the best mix of energies, and customer networking. Currently we are developing our capabilities to fully pursue development of the electricity business, which we have positioned as our "second core business" next to the gas business.

Making an effective use of the existing infrastructure, we installed an 18,000 kW power station in the Senboku LNG Terminal and a 50,000 kW power station at the Himeji LNG Terminal, where we generate electricity for retail customers. In October 2006, we began construction of the Senboku Natural Gas Power Plant (1,109,000 kW) at our Senboku LNG Terminal, which will start operation in phases from April 2009.

The Senboku Natural Gas Power Plant employs the latest gas-turbine combined cycle technology and serves as the core power plant of Osaka Gas. Using environment-friendly natural gas as fuel and adopting the systems with high power generation efficiency, our new plant will contribute considerably to reducing environmental impact.

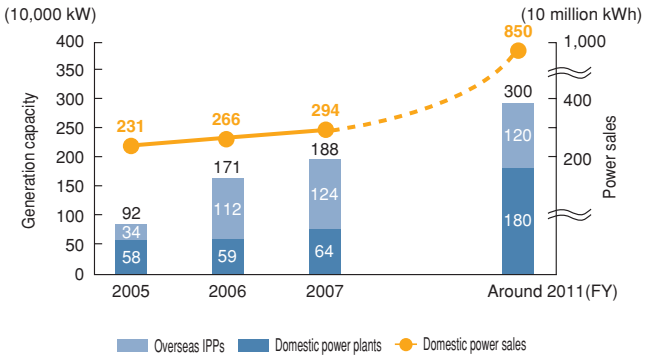
To further promote energy saving and achieve greater economic advantages, we are also engaged in retailing the excess power generated by large cogeneration systems installed at our customers.

For IPP business in the domestic market, our affiliated company, Gas & Power Investment (GPI) owns three plants with a total capacity of 450,000 kW, all of which are sold wholesale to the local electric power companies to help them ensure a stable power supply.

In March 2006, Hayama Wind Farm with a capacity of 20,000kW (51% owned by Sojitz and 49% by GPI) started its wind power generation, while in December 2006, construction of the Hirogawa Myojinyama Wind Farm with a capacity of 16,000 kW (51% owned by GPI and 49% by Sojitz) began. With these wind power plants, we aim to further reduce environmental impact.

In the overseas IPP business, we have a total ownership of about 1,240,000 kW (total of our interests in each power plant) of power plants in the U.S. and Spain, most of which are natural-gas combined thermal power plants. By entering the electricity business, we are striving to accumulate know-how and expertise as a multi-energy service provider.

■ **Growth in generation capacity and power sales**



* Domestic power plants include domestic IPPs.

Rendering of the Senboku Natural Gas Power Plant (red-lined)

Hayama Wind Farm

Geographical expansion of the natural gas business

Taking advantage of the accumulation of state-of-the-art natural gas technologies, we are promoting the energy solution business through our affiliated company, Cogeneration Technology Service (CTS). Our aim is to achieve a nationwide shift to natural gas in energy use and encourage wider introduction of the natural gas utilization technologies in cooperation with local energy suppliers.
In our efforts to promote the use of natural gas, we also offer various combinations of our accumulated expertise and assets, including our knowledge of how to stimulate demand for natural gas, technical services relating to LNG stations and satellite terminals, gas pipelines, and transportation services by truck, railway, and LNG tanker, to cater to the needs of local energy suppliers.

The 2007 8th Logistics Environmental Award given to Osaka Gas for its LNG railway transportation service

Following the shift to natural gas by Nihonkai Gas in Toyama City, Osaka Gas started LNG railway transportation in November 2004 in cooperation with Japan Freight Railway Company and container manufacturers. Rail is a much more environment-friendly mode of transportation than the conventional truck transportation, and for this reason, we were given the 8th Logistics Environmental Award* for developing an outstanding technology to reduce the environmental impact of logistics.

* The award is sponsored by the Japan Federation of Freight Industries

LNG railway transportation

Award ceremony

Osaka Gas, Japan Petroleum Exploration and Japan Oil Transportation jointly received the award.

Activities of Affiliated Companies

Transportation of LNG by truck and supply of LNG from satellite terminal

Today, an increasing number of companies have introduced natural gas as industrial fuel instead of heavy oil because of its cleanliness and lower CO_2 emissions. To serve customers located in areas where gas pipelines are not available, Liquid Gas, an affiliated company of Osaka Gas, delivers LNG imported by Osaka Gas to customers by truck safely and securely, and stores and vaporizes LNG in a satellite terminal installed in the premises of customers.
Minabe Chemical Industries, another affiliated company of Osaka Gas and Japan's second largest activated carbon manufacturer holding about 10% of the domestic market, shifted almost entirely to LNG for its fuel use (mostly from heavy oil) in August 2006 by means of the satellite supply. With this shift, Minabe Chemical Industries achieved a reduction of CO_2 emissions by 3,700 tons annually.

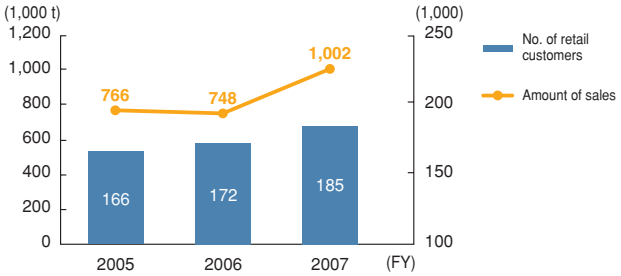
LNG trucks possessed by Liquid Gas

LNG satellite terminal on the premises of Minabe Chemical Industries

LPG business

In the Kansai area, the Liquid Gas Group was reorganized in April 2007, during which the domestic LPG business units were integrated into Osaka Gas LPG Co., Ltd. Following this reorganization, closer ties will be fostered between the LPG business and the gas business, and the ability to offer optimal energy solutions will be enhanced for the benefit of customers. Through these measures, we aim to increase the sales of LPG.
At the national level, we will enhance profitability by deepening ties with Nissho Petroleum Gas Corporation and the Itochu Group, which are both involved in our core business. Specifically, we will raise efficiency in logistics by integrating import and primary sales functions and fostering business ties at both wholesale and retail levels, while improving sales through our ability to propose attractive solutions, a skill we have developed through our gas business. Moreover, we will pursue even higher efficiency and business development by expanding the scope of tie-ups with other LPG suppliers.

■ Expansion of the LPG business



CSR Charter Ⅱ




Contributing to harmonizing with environment and to realizing a sustainable society

Addressing the issues of the environment both at regional and global levels is of paramount importance for the Osaka Gas Group which is engaged in wide-ranging energy services. The Group, being seriously aware of the impacts of its business activities on the environment, seeks to harmonize its businesses with the environment and to realize efficient utilization of energy resources, thereby contributing to achieving a sustainable society.

Environmental Management

The "Environmental Philosophy" the Osaka Gas Group established in 1992 enshrines the idea that environmental preservation is of paramount importance for energy utility companies, and that the Osaka Gas Group, being acutely aware of the impact of its business activities on the environment, seeks to harmonize its businesses with the environment. The Group also adopted the Environmental Activities Policy consisting of three parts to put the philosophy into practice, and has continued to promote environment-friendly activities in compliance with the policy. The "Environmental Philosophy" was integrated into the Osaka Gas Group CSR Charter in April 2006.

Osaka Gas Group Environmental Activities Policy

I. Reducing Environmental Impacts of Our Business	We aim to reduce the environmental impacts of our business activities. To this end, Osaka Gas Group will strengthen its environmental management system and promote internal activities aimed at saving energy and natural resources.
II. Reducing Environmental Impacts of Our Products and Services	By offering environmentally-friendly natural gas, and our products and services which contribute to reduce environmental impact, we are making our efforts in partnership with our customers to achieve environmental impact reduction. To this end, we will strive to develop energy-saving systems which contribute to environmental conservation.
III. Contributing to Environmental Conservation Locally, Nationally and Internationally	Osaka Gas Group aims to take an active part in environmental conservation activities in areas wherever we conduct business, both in and outside Japan.

Introduction of Environmental Management Systems (EMSs)

Osaka Gas's ISO Certification acquisition status

At Osaka Gas, efforts to acquire the ISO14001 Certification were launched involving all the business units in 1997. As a result, the entire company was covered by seven EMSs by FY2006. From FY2007, we started integration of all the EMSs across the company to promote CSR and enhance management efficiency, and commenced integrated EMS operation in June 2007.

Department	Date
LNG Terminal & Power Generation Business Unit	Oct. 1997
Engineering Department (Construction sector)	Mar. 2001
Head Office Building	Sep. 2001
Energy Technology Laboratories	Jul. 2002
Pipeline Business Unit	May. 2005
Commercial & Industrial Energy Business Unit	Feb. 2006
Residential Energy Business Unit	Mar. 2006

Status of EMSs implementation in affiliated companies

Externally certified EMSs such as ISO14001, Eco-Action 21 and KES, or the Osaka Gas EMS independently accredited by Osaka Gas will be introduced by FY2009 in our affiliated companies* in order to vigorously expand effective and integrated environmental activities across the Osaka Gas group.

* Domestic affiliated companies with 11 or more employees

	Already introduced	To be introduced	
	BY FY2007	FY2008	FY2009
ISO14001	21	—	1
Eco-Action 21	1	3	1
KES	2	—	—
Osaka Gas EMS	6	19	22

Activities of Affiliated Companies

Environmental activities to acquire the ISO14001 Certification

In October 2004, the Kinpai Group's intention to acquire the ISO14001 Certification was officially announced. Since then, Kinpai Corporation, as a leader of the seven affiliated companies (15 business locations), has made dedicated efforts to overcome various difficulties based on the motto, "step-by-step actions lead to steady progress." As a result, the Kinpai Group was granted the ISO 14001 Certification in August 2006.

Our basic policy is "to contribute to the creation of a pleasant living environment and environment-friendly community by offering environment-conscious services and the highest quality products satisfactory to customers." Under this policy, we will continue environmental activities steadily and diligently.

Masateru Mizugami
ISO Promotion Department
Kinpai Corporation

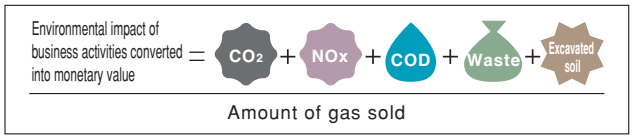
Environmental Management Indicators

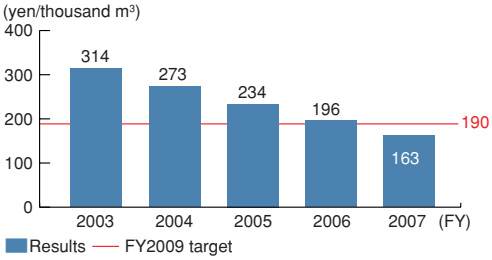
Developing indicators with major environmental impacts converted into monetary values

(For more details, please visit our **website**.)

Osaka Gas introduced our Environmental Management Indicators in FY2004 and has since used them to measure the environmental impacts of our gas business and evaluate the development of our environmental management in a continuous and integrated manner. For our Environmental Management Indicators, we calculate the monetary value of the important environmental impacts of our business activities and the reductions in these impacts from the FY1999 base year to display the results in quantitative terms*1.
One of the main criteria for our Environmental Management Indicators is Environmental Management Efficiency, which indicates environmental impacts of business activities per amount of gas sold, and is obtained by converting each environmental impact (CO_2, NOx, COD*2, and final disposal of industrial waste, general waste, and excavated soil) into a monetary value, adding all these monetary values and dividing them by the amount of gas sold. The smaller the resulting number is, the greater the reduction of environmental impacts per amount of gas sold is. We have set medium-term targets and continue efforts to achieve them.

■ Environmental management efficiency (yen/thousand m³)





*1 In our Environmental Management Indicators, we have three criteria to measure the reduction of environmental impacts in our business activities (Environmental Management Efficiency, Monetary Value of Environmental Impact Reductions, and Environmental Impact Reduction Efficiency) and two criteria to measure our contribution to our customers reducing their environmental impacts (Monetary Value of Environmental Impact Reductions and Environmental Impact Reduction Efficiency).
*2 COD stands for Chemical Oxygen Demand. Increase in the COD value indicates an increase of pollutants in water.

Environmental Accounting

Result for FY2007 (Gas business of Osaka Gas)

The environmental accounting in FY2007 showed investments of ¥180 million, expenses including depreciation cost of ¥2.86 billion (1), and internal economic benefits of ¥5.14 billion (2). With the social benefits of environmental conservation at ¥2.22 billion (3), the total benefits were ¥4.50 billion ((2)+(3)-(1)). (Total benefits were ¥3.55 billion last fiscal year)

Investments decreased with the completion of the renovation of facilities. Total expenses decreased by ¥980 million from the previous year due to a revision of greening maintenance plan at our LNG terminals, reduction of works of soil modification, and completion of some research activities.

1. Environmental Conservation Cost

Items			Investment (million yen)		Expense (million yen)	
		Contents	2006	2007	2006	2007
In-company activities	Global environment	Energy saving equipment	157	60	607	498
	Pollution prevention	Air and water pollution preventing equipment	11	2	131	87
	Resources recycling	Excavated soil recycling, waste management	15	43	239	131
	Environmental management	Green purchasing, environmental education, EMS development, environmental organizations	1	2	373	323
	Others	Greening at plants, compensation for environmental preservation	0	1	484	294
Environmental impact reduction at customers	R&D	Environmental impact reduction technologies, R&D of environment-conscious products	151	73	1,601	1,188
	Recycling of used gas appliances	Collection and recycling of gas appliances	0	0	140	127
	Philanthropic activities	Voluntary greening, environmental advertising, environmental information disclosure	6	2	265	215
Total			341	183	3,840	2,862

2. Internal Economic Benefits

Economic benefits (million yen)		2006	2007
Cost reduction effect	Saving through reduction and recycling of excavated soil	4,946	4,864
	Sales of valuable resource (LNG cryogenic energy)	244	240
	Cost reduction through energy / resources saving	42	36
	Total	5,232	5,140

3. Environmental Conservation Results

	Per output*2			Total amount			Reduction*3		
	Unit	2006	2007	Unit	2006	2007	Unit	2006	2007
NOx (LNG Terminals)	mg/m³	0.81	0.75	t	6.83	6.53	t	29.58	27.35
COD (LNG Terminals)	mg/m³	0.23	0.23	t	1.91	2.00	t	9.74	9.28
CO_2 (LNG Terminals)*1	g-CO_2/m³	12.12	11.00	1,000 t-CO_2	102	96	1,000 t-CO_2	27	37
CO_2 (Other sites)*1	g-CO_2/m³	5.09	5.18	1,000 t-CO_2	43	45	1,000 t-CO_2	34	35
Final disposal of excavated soil	t/km	52	43	1,000 t	50	40	1,000 t	80	81
Final disposal of general waste	g/m³	0.02	0.02	t	177	215	t	1,090	1,095
Final disposal of industrial waste	g/m³	0.14	0.12	t	1,151	1,018	t	4,594	4,924
Total									

(Social Benefits of Environmental Conservation in Monetary Value)

Social benefits (million yen)	
2006	2007
11	10
15	14
94	131
121	122
1,770	1,792
3	3
141	151
2,154	2,224

We converted the social benefits of environmental conservation accruing from the reductions in total environmental impacts into monetary value. We calculated the monetary value of the reduction in final disposal of excavated soil using a factor determined by the Contingent Valuation Method (CVM). (In the CVM, we calculate the value of environmental conservation activities by surveying residents about how much they would be willing to pay for certain environmental conservation benefits). We define the monetary benefit of environmental conservation as this factor multiplied by the amount of reductions. For other environmental impacts, we have suitable factors for the monetary value of environmental values on the basis of some research into the costs of environmental damage etc. We have calculated monetary values for the environmental conservation benefits by multiplying these factors by the reductions in the individual environmental loads of Osaka Gas.

(Note) FY2007: The amount of gas sales was 8,738 million m³ and the total length of newly installed gas pipelines was 902 km.
*1 CO_2 emissions associated with purchased electricity are calculated using the average factor of thermal power plants (0.69 kg-CO_2/kWh).
*2 NOx, COD, CO_2, industrial waste, and general waste per 1 m³ gas sold was calculated. Final disposal of excavated soil per 1km of new gas pipeline was calculated.
*3 For NOx and COD, the difference from the regulated value was calculated for each appliance. For CO_2, industrial waste and general waste, the difference in the factor (amount per 1 m³ gas sold) from the FY1999 level was multiplied by the amount of gas sold during the year under review. For final disposal of excavated soil, the reduction in offshore landfill disposal was calculated based on the amount of reduction in excavated soil and the amount of soil recycled.

Medium-term Targets and FY2007 Results

We follow up how the set environmental targets have been achieved under the "Design 2008," a medium-term management plan from FY2007 to FY2009 adopted in FY2006. We have set 16 medium-term targets for FY2009, which are applicable not only to Osaka Gas, but also to the entire Osaka Gas Group, and are striving to achieve these targets.

		Objectives	Measures/Metrics	FY2007 Results	FY2009 Medium-term Target	Remarks (FY2011 numerical target)	Reference
Osaka Gas	I. Reducing Environmental Impacts of Our Business	Improvement of Environmental Management Efficiency*1	Environmental management efficiency (Monetary value of environmental impact per gas sales) (¥/1.000 m³)*2	¥163/1,000 m³ (68% reduction from the FY2001 level)	¥190/1,000m³ (62% reduction from the FY2001 level)	¥185/1,000 m³	P.27
		Reduction in CO_2 emissions from our gas business*1	Amount of CO_2 emission per cubic meter of gas sales (g-CO_2/m³)	16.2g-CO_2/m³ (25% reduction from the FY2001 level)	15.4g-CO_2/m³ (28% reduction from the FY2001 level)	15.1g-CO_2/m³	P.31
		Recycling of excavated soil	Recycling rate of excavated soil*3	82%	75% or more	75% or more	P.36
		Reducing & recycling of general/industrial wastes generated from gas business	Zero emission in LNG terminals*4	Final disposal amount reduced to 4.9 t (2.6% of total waste generated) (General waste: 1.3 t, Industrial waste: 3.6 t)	Maintain the final disposal amount to nearly zero	Maintain the final disposal amount to nearly zero	P.36
			Amount of general wastes and recycling rate at offices and laboratories	Recycling rate increased to 81%, final disposal amount reduced to 214 t (79% reduction from the FY2001 level)	Recycling rate: 90% or more, amount of final disposal: 100 tons or less (90% reduction from the level in FY2001)	Recycling rate: 90% or more, amount of final disposal: 100 tons or less	P.36
			Amount of industrial wastes and recycling rate at offices and laboratories*5	Recycling rate increased to 95%, final disposal amount reduced to 128 t (89% reduction from the FY2001 level)	Recycling rate: 95% or more, amount of final disposal: 180 tons or less (85% reduction from the level in FY2001)	Recycling rate: 95% or more, amount of final disposal: 170 tons or less	P.36
	II. Reducing Environmental Impacts of Our Products and Services	Dissemination of natural gas and energy-saving systems	Reducing CO_2 emission at customers*6	CO_2 emissions reduced by 2,070,000 t-CO_2 (from the FY1999 level)	CO_2 emissions reduced by 2,150,000 t-CO_2 (from the FY1999 level)	2.5 million t-CO_2 (compared with FY1999 level)	P.33
		Promotion of technology development	Efficiency of household and other cogeneration systems	Power generation efficiency of ECOWILL improved from 20% to 22.5% General energy efficiency improved from 85% to 85.5%	Further improvement		P.35
		Recycling of used gas appliances	Improvement of recycling rate	90%	90% or more	90% or more	P.37
	III. Contributing to environmental Conservation Locally, Nationally and Internationally	Promoting environmental communications	Ecological actions of employees	Continuous environmental activities implemented	Community-wide environmental activities to be implemented at each business location		P.44
			Environmental education activities	275 visiting lessons given for the purpose of energy environmental education	Hold environmental seminars and events using company facilities, and support the environmental education in schools (dispatching employees as speakers, etc)		P.46
		Developing and spreading new environmental technologies (apart from gas appliances and systems)	Disseminating environmental technologies nationally and internationally	●Hydrogen manufacturing equipment introduced for industrial use ●Equipment to remove NOx from flue gas introduced ●Biogas adsorption vehicle introduced	●Dissemination of compact hydrogen production equipment, new catalyst technology for flue gas treatment and adsorptive storage of digester gas		P.39 P.40
			Promoting the introduction of renewable energy	●Development of the technology for methane fermentation from biogas underway	●Develop techniques for generating methane from biomass and wastes		P.39
				●Construction of Hirogawa Myojinyama Wind Farm (Wakayama Prefecture) began	●Develop involvement in the wind power generation business		P.23
Affiliated Companies		Reducing CO_2 emission from business activities*7	Reducing CO_2 emissions per sales	40% reduction from the FY2005 level achieved	3.5% reduction from the FY2005 level achieved	4.5% reduction from the FY2005 level	P.31
		Introduction of Environmental Management Systems (EMSs)	Acquiring ISO14001 and Eco-Action 21 certification etc, or introducing Osaka Gas's own version of EMS	ISO 14001 Certification granted to 21 companies ECO-Action 21 Certification granted to one company KES Certification granted to 2 companies Osaka Gas EMS introduced to 6 companies*8	Acquire/introduce at all affiliated companies*9		P.26

*1 CO_2 emissions associated with purchased electricity are calculated using the average factor of thermal power plants (0.69 kg-CO_2/kWh) so that the benefits of reducing the purchased electricity is properly indicated.
*2 Environmental impacts of CO_2, NOx, COD (Chemical Oxygen Demand), waste, and excavated soil were converted into monetary values, which were added up and then divided by the amount of gas sold.
*3 Recycling rate of excavated soil was calculated by dividing the amount of recycled soil used for gas pipeline construction by the amount of excavated soil generating from gas pipeline construction.
*4 To reduce the final disposal amount to less than 3% of the amount generated.
*5 Used gas appliances and housing equipment are not included.
*6 Reduction in CO_2 emissions from the FY1999 level, resulting from the increased introduction of high efficiency equipment and systems, such as cogeneration systems, gas air-conditioning systems, and high performance industrial furnaces, was calculated.
*7 Thermal energy supply and power generation businesses are not included. The FY2011 target for reduction in CO_2 emissions per power generated is now being revised.
*8 Environmental Management System developed originally by Osaka Gas.
*9 Domestic affiliated companies with 11 or more employees.

Environmental Impacts of Our Gas Business in FY2007

Overseas (LNG imported by Osaka Gas)

Osaka Gas supplies natural gas that emits less CO_2 than any other fossil fuels to customers. Osaka Gas also takes the following measures to reduce environmental impact.

At the extraction sites of natural gas fields and liquefaction facilities

○ Natural gas, which is of minor environmental impact, is used as fuel for electric power at the extraction sites.

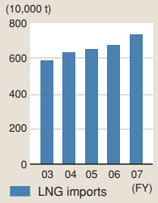
○Reducing environmental impact by improving generating efficiency through implementing waste heat recovery.

In the shipping

○Natural gas is used as the fuel for shipping.

LNG Imports

7.34 million t

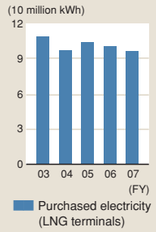


Calorific value of LNG: 54.5 GJ/t
(Value specified by ministerial ordinance under the Law concerning the Promotion of the Measures to Cope with Global Warming)

Japan (Osaka Gas)

Energy consumption — Energy consumption at LNG terminals

Purchased electricity: ·····95,800,000 kWh
Gas: ·····13,100,000 m³
General and industrial water: ····· ···1,070,000 m³



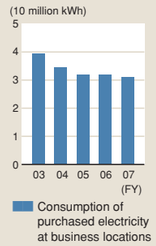
In-house cryogenic power generation: 62,530,000 kWh

In-house power generation utilizing gas pressure: 24,200,000 kWh

INPUT

Energy consumption — Energy consumption at business locations

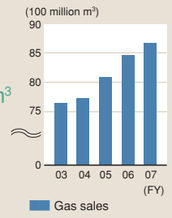
Purchased electricity ··31,660,000 kWh
Gas ·····8,770,000 m³
Vehicle fuel
Gasoline···· 1,057kl
Natural gas ····370,000 m³
Diesel·····10kl
General water ·····370,000 m³



INPUT

Energy consumption — Gas sales

Gas sales **8,738** million m³



Quality of the gas supplied by Osaka Gas

Heat value (HHV): 45.0MJ/m³N (約10,750kcal/m³N)

CO_2 emission factor in combustion: 50.9g-CO_2/MJ (2.29kg-CO_2/m³N)

Note: Figures applied since March 2003

INPUT

LNG

LCA comparison of GHG emissions among fossil fuels

The table below compares total greenhouse gas emissions (specifically CO_2 and methane, expressed in CO_2 equivalent), from drilling to combustion, for various fossil fuels according to the LCA method*1. LNG is clean energy that emits less GHG than any other fossil fuels.

Comparison of greenhouse gas emissions (g-CO_2//MJ, HHV)

	Coal	Oil	LPG	LNG
Production	4.58	4.06	4.94	9.17
Transportation	1.71	0.79	1.80	1.97
Infrastructure	0.11	0.08	0.11	0.04
Combustion	88.53	68.33	59.85	49.40
Total	94.93	73.26	66.70	60.58
Ratio	157	121	110	100

*1 LCA (Life Cycle Assessment): A comprehensive quantification method of survey, analysis and evaluation of the amount of environmental impacts of products and services. The assessment covers all the related process from resource extraction to waste disposal including production, transportation, consumption and recycle for the products and services.

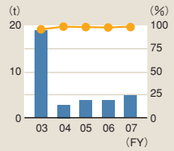
Sources:
Future Forecast for Life Cycle Greenhouse Gas Emissions of LNG and City Gas 13A
(Energy and Resources, Vol. 28, No. 2, March, 2007)

Gas

OUTPUT

Waste — Waste

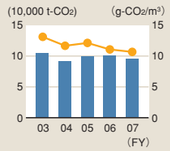
General waste
Generated ····· 27t
Final disposal ····· 1.3t
Recycling rate ····· 95%
Industrial waste
Generated ·····175t
Final disposal ····· 3.6t
Recycling rate ····· 98%



OUTPUT

Energy consumption — Emissions

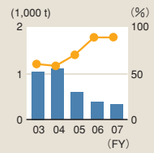
CO_2 emissions*
····· 96,000 t-CO_2
(64,000 t-CO_2)
CO_2 emissions per unit of gas sales*
·····11.0g-CO_2/m³
(7.4g-CO_2/m³)
NOx····· 7t



OUTPUT

Waste — Waste

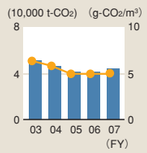
General waste
Generated·····1,151t
Final disposal····· 214t
Recycling rate····· 81%
Industrial waste
Generated·····2,738t
Final disposal·····128t
Recycling rate····· 95%



OUTPUT

Energy consumption — CO_2 Emissions

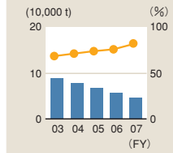
CO_2 emissions*
····· 45,000 t-CO_2
(35,000 t-CO_2)
CO_2 emissions per unit of gas sales*
····· 5.2g-CO_2/m³
(4.0g-CO_2/m³)



OUTPUT

Waste — Excavated Soil

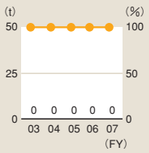
Generated··1,010,000 t
Final disposal··40,000 t
Recycling rate····· 82%



OUTPUT

Waste — Polyethylene pipes

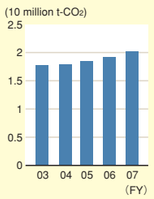
Generated·····155t
Recycled·····155t
Final disposal····· 0t
Recycling rate·· 100%



OUTPUT

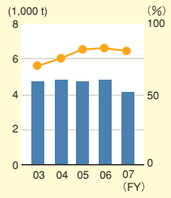
Energy consumption — CO_2 emissions at customers' sites

CO_2 emissions
····· 20,010,000 t-CO_2



Waste — Used gas appliances and residential equipment*

Recovered····· 4,786t
(Out of this amount, used gas appliances account for 4,060 t.)
Recycling rate·····81%
Final disposal····· 887t
* Those recovered by service chain shops, etc.



(Note) At Osaka Gas, CO_2 emission subject to control is calculated using the average factor of thermal power plants (0.69 kg-CO_2/kWh) so that we can precisely assess how reduction of purchased electricity has contributed to a reduction in CO_2 emission. The figures in ( ) show CO_2 emission calculated using the emission factor of Kansai Electric Power in FY2006 (0.358 kg-CO_2/kWh) for the purpose of comparison.

Major Environmental Impact

		Osaka Gas*1			Affiliates*2			Total		
	(FY)	2005	2006	2007	2005	2006	2007	2005	2006	2007
Emissions	CO_2 (1,000 t)*3	252	260	258	1,757	1,966	2,140	2,010	2,226	2,398
	CH_4 (t)	93	127	115	—	—	—	93	127	115
	NOx (t)	29	17	24	153	452	497	182	469	521
Industrial waste*4	Generated (t)	3,836	3,358	2,913	67,328	75,447	78,286	71,164	78,805	81,198
	Final disposal (t)	405	198	131	7,716	7,869	9,087	8,121	8,067	9,218
General waste	Generated (t)	973	1,120	1,177	1,039	1,086	1,062	2,012	2,207	2,240
	Final disposal (t)	185	177	215	678	850	773	863	1,027	988
Excavated soil final disposal (10,000 t)		6	5	4	—	—	—	6	5	4
Water consumption (10,000 m^3)*5		153	151	145	582	525	698	735	675	842

*1 The data of Osaka Gas includes the gas business, thermal energy business and electricty business figures. Please see the data list at the end of this brochure (page 61) for more detail.
*2 Affiliates' data shows the total of the last three years' results of 81 companies, not including overseas and tenant locations where data is difficult to collect. The number of the companies surveyed differs by year and by item.
*3 CO_2 emission of purchased electricity subject to control is calculated using the average factor of thermal power plants (0.69 kg-CO_2/kWh) so that we can precisely assess how reduction of purchased electricity has contributed to a reduction in CO_2 emission.
*4 Osaka Gas's share of industrial waste does not include used gas appliances and residential equipment.
*5 Water consumption is the total of general and industrial water supplies.

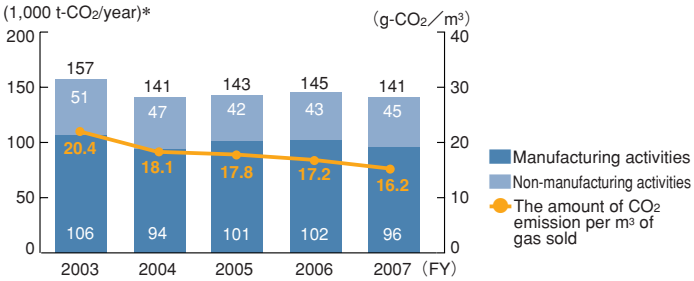
Committed to Reducing Greenhouse Gas Emissions from its Business Activities

The Osaka Gas Group is committed to reducing environmental impacts stemming from its business activities. Especially, greater importance is placed on reducing emissions of greenhouse gases and preventing global warming by implementing comprehensive energy management more efficiently into its business activities.

CO_2 emissions

Change in CO_2 emissions in Osaka Gas's gas business

Environmental impact subject to control



* CO_2 emission factor for electricity: 0.69 kg-CO_2/kWh for thermal power generation (Please refer to July 2001 Targets Achieved Scenario Subcommittee Interim Summary, Global Environmental Committee, Central Environmental Council.)

CO_2 emission in Osaka Gas's gas business during FY2007 decreased by 4,000 t (3%) to 141,000 t from the previous year, while the amount of gas sold increased by 3%. Consequently, CO_2 emission per gas sale was 16.2 g-CO_2/m^3, marking an improvement of 6%. We will continue our energy-saving efforts to achieve the FY2009 Medium Term Target of 15.4 g-CO_2/m^3.

Environmental impact subject to control

At Osaka Gas, we place great importance on correctly assessing the benefits of reducing electricity, and use the average factor of thermal power plants (0.69 kg-CO_2/kWh) for calculation of CO_2 emission that is subject to control.

Methane emission at Osaka Gas

Besides CO_2, Osaka Gas emits methane (CH_4), another greenhouse gas, in the production and supply of gas, measurement of gas quality and undertaking of gas fitting work. During FY2007, CH_4 emission totaled 115 t. We are striving to reduce the emission by changing over to measurement instruments that emit less CH_4, increasing CH_4 recovery rate, and performing gas fitting work in a more environment-friendly manner.

(Reference) Change in CO_2 emissions for comparison

FY	2003	2004	2005	2006	2007
Amount of CO_2 emissions (1,000 t-CO_2)	93	84	84	100	99
CO_2 emission per m^3 of gas sold (g-CO_2/m^3)	12.2	10.8	10.4	11.8	11.3
Amount of gas sold (million m^3)	7,687	7,766	8,053	8,448	8,738
CO_2 emission factor for electricity (kg-CO_2/kWh)	0.264	0.260	0.261	0.356	0.358

Note: For calculation of the yearly CO_2 emission of purchased electricity, the most recent emission factor of Kansai Electric Power (per electricity sold) is used. (Ex. The CO_2 emissions during FY2007 are calculated using the emission factor for FY2006.)

Note: The yearly CO_2 emission of purchased electricity is calculated by multiplying the year's electricity consumption by the year's emission factor. It should be noted that the year-to-year difference in CO_2 emission does not reflect the effect of emission control measures.

CO_2 emissions from affiliated companies

CO_2 emissions from affiliated companies during FY2007 increased by 174,000 t (9%) to 2,140,000 t from the previous year, which is attributable to the growth in energy consumption at customer sites, including the opening of a new energy center of a thermal energy supplier and increase in power generation by electric power companies.
The Osaka Gas Group plans to expand the ISO14001 coverage or introduce Osaka Gas's EMS to all affiliated companies by FY2009 as appropriate for their respective size and business category, and thus promote control of energy consumption and reduction of CO_2 emissions at offices on a group-wide basis.

(Reference)
The specified CO_2 emitting business locations within the Osaka Gas Group are held responsible to report the amount of their CO_2 emissions under the Law Concerning the Promotion of the Measures to Cope with Global Warming. The amount of CO_2 emitted at 28 business locations of 13 companies during FY2007 totaled 244,000 t-CO_2. (This does not include CO_2 emissions resulting from in-house energy consumption, and generation of electricity and thermal energy sold to customers.

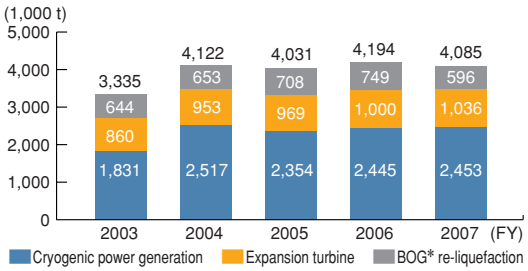
Efforts to reduce CO_2 emission

Reducing CO_2 emission in the gas business

Measures at LNG terminals

Osaka Gas generates electricity by effective use of energies that were conventionally wasted, such as LNG cryogenic energy generated in the production of gas, and the gas pressure energy in the gasification process. We have also introduced high-efficiency gas turbine combined cycle generators fueled by clean natural gas, while enhancing efficiency of the production process. Through these measures, we aim to reduce our purchase of electricity and control CO_2 emission.

■ **Use of LNG cryogenics**



* BOG: Boil-off gas; generated when LNG vaporizes in a tank

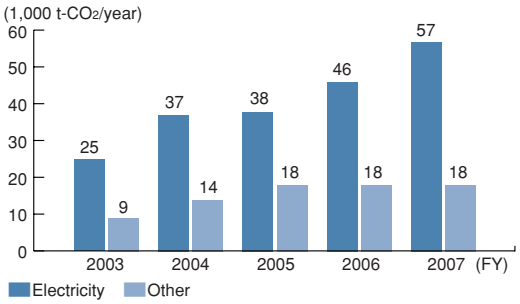
Measures at offices

We built our own Environmental Management System (EMS) based on ISO14001 to ensure energy management and CO_2 emission controls are properly conducted at offices of each business unit and organization. Under the EMS, we strive to reduce CO_2 emission by promoting energy-saving activities down to the individual employee level and replacing equipment with more energy-efficient appliances. We also provide employees with environmental education through the intranet, develop tools for such employee education, and encourage all employees to join the national campaign, "Team Minus 6%," to make employees of the Osaka Gas Group more aware of the importance of energy conservation and environmental protection.

CO_2 emission control

As a result of the efforts to reduce CO_2 emission through power generation at our LNG terminals and energy-saving initiatives at offices, the CO_2 emission during FY2007 was reduced by around 57,000 t through the reduction in purchased electricity and by around 18,000 t through the reduction in fuel consumption.

■ **Reductions in CO_2 emissions due to reduced energy consumption**



Note 1: The graph shows the estimated reduction in CO_2 emissions calculated as the difference between actual emission data and virtual ones where no measures had been taken since the base year, FY1999. The emission factor of thermal power generation is used for the purchased electricity in order to accurately evaluate its reduction.

Note 2: CO_2 emissions factor for purchased electricity (thermal power average): 0.69 kg CO_2/kWh (Please refer to July 2001 Targets Achieved Scenario Subcommittee Interim Summary, Global Environmental Committee, Central Environmental Council.)

Calculating the reduction in CO_2 emissions related to electricity use

1. Two approaches to the CO_2 emission factor

(1) The emission factor of thermal power generation: Amount of CO_2 emitted when 1 kWh of electricity is generated in a thermal power station

$$\text{The emission factor of thermal power generation} = \frac{CO_2 \text{ emissions of thermal power generation}}{\text{Electricity generation by thermal power generation}}$$

(2) Average emission factor for all types of power source: Uses the average value for all forms of power generation, such as thermal, nuclear and hydro

$$\text{Average emission factor for all types of power source} = \frac{CO_2 \text{ emissions by all power generation: nuclear, hydro and thermal (= } CO_2 \text{ emissions by thermal power generation)}}{\text{Electricity generation by nuclear, hydro and thermal power generation*}}$$

*Nuclear and hydro power generations do not emit CO_2

2. Reduction in CO_2 emissions due to decrease in electricity use

(1) Thermal power generation will be reduced when electricity usage declines

Most electricity in Japan is supplied by nuclear, hydro and thermal power stations. Nuclear power stations operate virtually continuously, except when shut down for regular inspections. The hydro power generation in a year is determined by the rainfall. Consequently, thermal power can be regarded as the source of power that varies in total from year to year according to fluctuations in demand for electricity. So, the power generation varies during a year due to reduced electricity consumption is referred to as "marginal power source."

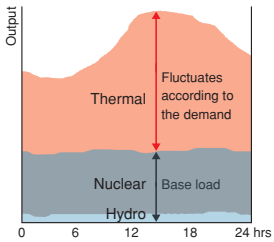
(2) Using factor of thermal power generation is the right way to calculate reductions in CO_2 emissions.

When calculating the reduction in CO_2 emissions due to decreased electricity consumption, it is appropriate to use the emission factor of thermal power generation which fluctuates according to the demand.

Reduction in CO_2 emissions (kg-CO_2)= Reduction in use of electricity (kWh) x Emission factor of thermal power generation (kg-CO_2/kWh)

For reference purposes, CO_2 emissions resulting from businesses other than the gas supply business and from business locations of affiliated companies are shown on our official website. In calculating these emissions, the average emission factor for all types of power sources was used.

■Electricity generation curve



Factors used in this report

The emission factor of thermal power generation	0.69kg-CO_2/kWh *1
Average emission factor for all types of power source	0.358kg-CO_2/kWh *2

*1 Please refer to July 2001 Targets Achieved Scenario Subcommittee Interim Summary, Global Environmental Committee, Central Environmental Council.
*2 Emission factor of Kansai Electric Power for FY2006

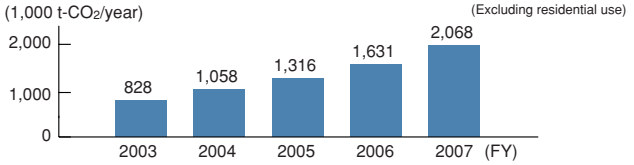
Reduction of CO_2 Emission at Customer Sites

The Osaka Gas Group, with its focus on the energy business, strives to reduce CO_2 emission not only from our business locations, but also from our customer sites and society at large, for prevention of global warming. To achieve this goal, we are making committed efforts to offer high-efficiency energy equipment and systems and energy-saving services. By providing environment-friendly natural gas as well as products and services with less environmental impact such as cogeneration systems and gas air conditioners, we will continue to work for environmental preservation in cooperation with our customers.

CO_2 emission control

By the use of high-efficiency equipment and systems, such as cogeneration systems, gas air conditioners and high-performance industrial furnaces, the CO_2 emission at customer sites was reduced by around 2,070,000 t in FY2007 from the FY1999 level.

■ CO_2 emission reduction (compared with business-as-usual emission based on FY1999)

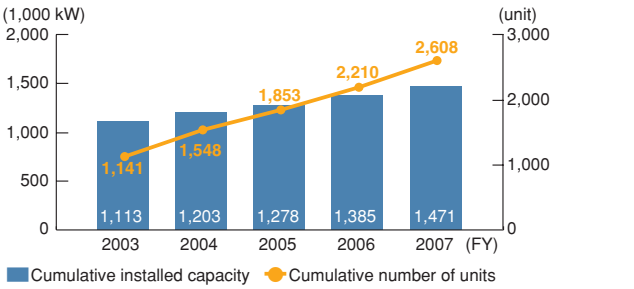


Development of energy-saving equipment and systems for commercial and industrial use

High-efficiency cogeneration system for commercial and industrial use

The Osaka Gas Group puts great effort into promoting natural gas cogeneration, which requires much less energy consumption and thus can contribute to the reduction of CO_2 emissions. A gas cogeneration system is designed to use natural gas to generate electricity and simultaneously recover waste heat for thermal applications such as water heating, and due to its economic efficiency and environment-friendliness, the demand for the gas cogeneration system continues growing. In response to the growing demand, dedicated R&D efforts are underway at the Osaka Gas Group to achieve greater efficiency in power generation and general energy utilization, increase power generation capacity, and reduce cost. Specifically, the power generation efficiency of our advanced mirror cycle gas engine exceeds the 40% mark to reach 41.5%, which is the world's highest level in the category of 1,000 kW or less power generation systems, and comparable to the efficiency of a large power plant. Also, Osaka Gas's smaller cogeneration system, "Gene-Light," boasts total energy efficiency of 85% and has been introduced by an increasing number of customers.

■ Cumulative capacity and number of gas cogeneration systems installed



Method of assessment of the effectiveness of gas cogeneration system in reduction of CO_2 emission

Promotion of gas cogeneration systems is one of the important objectives of the Japanese energy policy. To encourage wider use of gas cogeneration, its effectiveness in reducing CO_2 emission should be properly assessed and understood. As well, it is important for business entities to disclose and report the measures they have taken to reduce greenhouse gas emission, such as introduction of cogeneration, and to assess the effects of such measures in an appropriate manner and make public the results of the assessment. Doing so will facilitate greater industrial efforts to reduce CO_2 emission, and eventually lead to nationwide commitment to control of CO_2 emission.

1. Proper assessment method of the effectiveness of gas cogeneration in reducing CO_2 emission

To properly assess how the introduction of gas cogeneration systems has contributed to the reduction of CO_2 emissions, we should calculate the amount of CO_2 emission using the CO_2 emission factor of the electricity from the source that is affected by the introduction of gas cogeneration. Under the current circumstances, the affected source of electricity is considered to be thermal power plants. For this reason, the average factor of thermal power plants (0.69 kg-CO_2/kWh) is used by the government in assessing the effectiveness of emission reduction measures.

The amount of CO_2 emission reduced due to the introduction of gas cogeneration and the consequent reduction of purchased electricity = (The amount of purchased electricity reduced (kWh) × CO_2 emission factor of the electricity from the source affected by the introduction of gas cogeneration (0.69kg-CO_2/kWh))

2. Information disclosure by "CSR Report" and the "Scheme for Calculation, Reporting and Publication of Greenhouse Gas Emission"

(1) Information disclosure by issuance of "CSR Report"

The "Environmental Report Guidelines 2007" issued by the Ministry of the Environment in June 2007 specifies the method to assess the effectiveness of individual greenhouse gas emission reduction measures to be disclosed in CSR reports, as follows.

OP-6: Amount of greenhouse gas emission and emission reduction measures [Matters to be noted when calculating relevant indicators] (p.78)
(iii) If you can specify the source of electricity that is affected by the implementation of individual greenhouse gas emission reduction measures, you can calculate the effectiveness of the measures by multiplying the emission factor of the electricity from the affected source by the amount of electricity reduced.

Example of the calculation of the effectiveness of emission reduction measures using the emission factor (factor of thermal power plants) is shown on p.127. (Please visit the website of the Ministry of the Environment for more information.)

(2) Information disclosure under the "Scheme for Calculation, Reporting and Publication of Greenhouse Gas Emission"

With the enforcement of the amended Law Concerning the Promotion of the Measures to Cope with Global Warming in April 2006, the Scheme for Calculation, Reporting and Publication of Greenhouse Gas Emission was launched. However, the Form 1 issued under this scheme only requires the amount of greenhouse gas emission, and has no space for the reason for increase/decrease in emission, greenhouse gas emission per sale, and the effectiveness of individual emission reduction measures. To cover such information, Form 2 was introduced, which can be effectively used for reporting the effectiveness of cogeneration in reducing CO_2 emission.

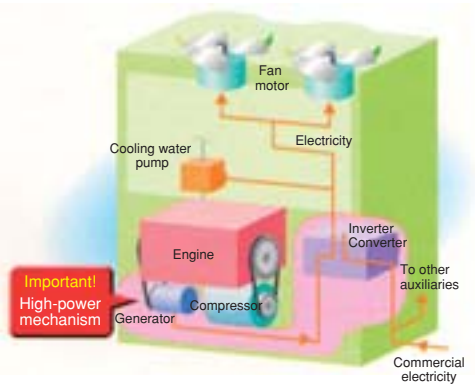
Gas air-conditioning systems

There are two types of gas air-conditioning systems—gas engine heat pump (GHP) and gas absorption-type chiller/heater. For both types, development of models with enhanced efficiency and less CO_2 emission is underway.

Gas engine heat pumps (GHP)

At Osaka Gas, we are working to enhance the efficiency of gas engine heat pump (GHP) in which a compressor is driven by a gas engine. In April 2006, we launched the High Power Excel GHP unit, which consumes no electricity itself but has a generator function that supplies power to the building in which it is installed. Electricity generated by the air conditioning meets all the power required by the outdoor unit and also supplies power required in the building. Due to this feature, the High Power Excel GHP is even more energy-saving, emits less CO_2 and requires lower running cost than older models of GHP, and brings benefits to office buildings and commercial facilities that have been hesitant to introduce cogeneration because of little demand for water heating.

■ **High Power Excel Components**



Gas absorption-type chiller/heater

Gas absorption-type chiller/heaters are air conditioners that do not use CFCs or CFC substitutes. To achieve further energy conservation and cost reductions and encourage introduction of environment-friendly systems, Osaka Gas selects "Green Model" systems that meet the criteria for the "Green Model Designation System for Absorption-type Chiller/Heaters" established jointly by Osaka Gas, Tokyo Gas and Toho Gas.

Gas absorption-type chiller/heater

"Green Model" mark of the Green Model Designation System for Absorption-type Chiller/Heaters

High-performance industrial furnaces and burners

To enhance energy saving efficiency of burners, Osaka Gas has developed high-performance control systems including 180 models of industrial burners, while offering comprehensive technical solutions to meet the needs of companies of various business types and categories. Especially, we place great importance on development and installation of Regenerative Burner that can achieve considerable energy saving of furnaces in use in plants. Regenerative Burner effectively utilizes exhaust heat recovered and contained in the heat storage material within the burner to preheat the combustion air, and provides a maximum of 50% energy saving.

Regenerative Burner

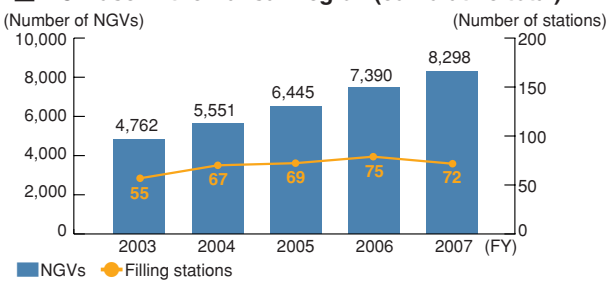
Energy-saving diagnostics

Osaka Gas provides energy-saving diagnostics consulting services to reduce the energy consumption in offices, plants and elsewhere. These services include a suggestion of energy saving systems and an installation of those systems. We also provide new services for owners of cogeneration systems and air conditioners such as remote diagnostics which is additional remote monitoring systems using wireless data transmission networks and the Internet.

Natural gas vehicles

Natural Gas Vehicles (NGVs) are clean vehicles that run on natural gas, and Osaka Gas has been promoting the spread of their use. At the end of March 2007, the number of NGVs in the Kansai Region had reached a cumulative total of 8,298 (31,462 nationwide), with 72 natural gas filling stations (324 nationwide).
Osaka Gas has assisted with the "Urban Eco-Car Movement Top Runner Declaration by Kyoto City," and has declared that all its commercial vehicles (excluding emergency vehicles) in the Kyoto area are being switched to run on natural gas. Within the Osaka Gas group, we have gradually been switching over to NGVs for our company vehicles.

■ **NGV use in the Kansai Region (cumulative total)**



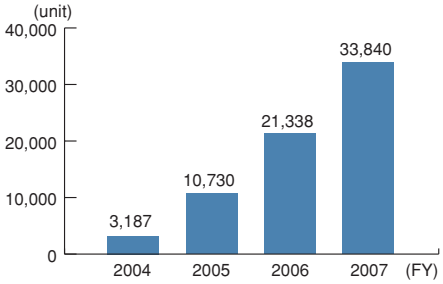
Residential equipment and systems

As an energy utility that serves the local community, we are socially responsible to cooperate with local initiatives for energy conservation and CO_2 emission reduction, thereby contributing to environmental conservation on a society-wide basis, as well as providing greater comfort to households. Osaka Gas is working for energy-saving and CO_2 emission reduction in everyday situations, hand-in-hand with customers, through the development and installation of environment-friendly residential equipment, such as the "ECOWILL" residential gas cogeneration system, and the "Eco-Jozu" high-efficiency water heater.

ECOWILL residential cogeneration system

ECOWILL is a residential gas engine cogeneration system capable of generating power by use of clean natural gas and utilizing exhaust heat for water and space heating purposes. ECOWILL is designed to automatically achieve the most energy-saving mode of operation in a manner to meet the daily needs of individual households for power and hot water, and can reduce primary energy consumption by around 22% and CO_2 emission by around 32%, thereby contributing to global environmental preservation.
To enhance the power generation efficiency of ECOWILL and expand the lineup of residential gas cogeneration systems, development of polymer electrolyte fuel cell (PEFC) and solid oxide fuel cell (SOFC) is now underway at Osaka Gas.

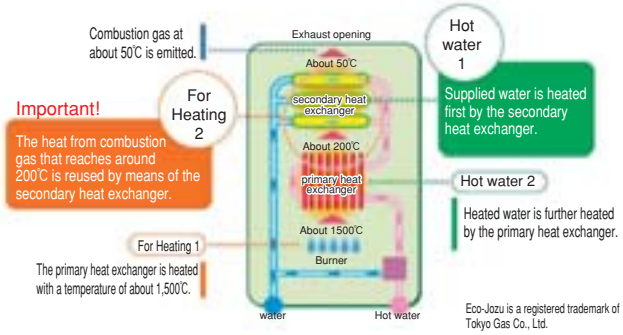
■ **ECOWILL use in Osaka Gas area (cumulative total)**



Eco-Jozu high-efficiency water heater

Eco-Jozu is a high-efficiency water heater that effectively uses exhaust heat, which is both friendly to the environment and economical. It boasts an outstanding energy-saving effect, with thermal efficiency of 95% for water heating (compared to 80% with a conventional model) and 89% for space heating (compared to 80% with a conventional model). It is estimated that the amount of CO_2 emission reduced by the introduction of one Eco-Jozu unit is equal to the amount of CO_2 absorbed by 24 eucalyptus trees annually, assuming that one eucalyptus tree absorbs 9.25 kg-CO_2 a year. Buyers of Eco-Jozu systems receive the government subsidies as part of the activities to encourage the installation of high efficiency energy systems in homes and other buildings.

■ **Eco-Jozu Mechanism**



High-efficiency gas cookers

At Osaka Gas, technical development of gas cookers is pursued for the optimization of the burner shape, the height of the pan supporters and the grill room design. Out of the gas cookers sold during FY2007, all the tabletop and built-in cookers met the FY2007 Energy Conservation Law standards for burners, and 74% tabletop cookers and 90% built-in cookers met the FY2009 Energy Conservation Law standards for grills.

Blue & Green Project

The Blue & Green Project is implemented by the Center for Better Living, cosponsored by the Japan Gas Energy Promotion Council, and joined by 23 gas companies and gas equipment manufacturers including Osaka Gas. This project makes donations to the afforestation program of the Tropical Forest Fund of the Japan International Forestry Promotion & Cooperation Center, in proportion to the number of energy-saving gas products shipped that are recognized as playing a leading role in environmental preservation. The fund is used for afforestation in Vietnam. Among Osaka Gas's products, ECOWILL and Eco-Jozu are given this recognition. By the end of December 2006, a total of about 200,000 trees were planted, which absorb about 3,500 t-CO_2 a year. (One tree is planted per unit shipped.)

BLUE & GREEN PROJECT

Reducing Resource Consumption and Promoting Recycled Materials Use

Curbing the generation of excavated soil from gas pipe works and promoting reuse

Curbing the generation of excavated soil

To reduce excavated soil from gas pipe installation work, Osaka Gas adopted the bore more method and shallow pipe installation method and successfully curbed the generation of soil by 830,000 t in FY2007.

Reuse of excavated soil

The Osaka Gas Group established the Comprehensive Soil and Asphalt Recycling System in FY1984 and has since been promoting the recycling of soil and asphalt materials from gas pipe installation work. As a result of our efforts to increase the use of the simplified sieving method (FK method) and evacuated soil processing (SR plant), the recycling rate reached 82% in FY2007, and the final disposal amount was reduced to 40,000 t.

■ Recycling rate and final disposal of excavated soil

FY	2003	2004	2005	2006	2007
Reduced amount (10,000 t)	72	80	82	85	83
Recycling rate (%)	70	71	74	78	82
Final disposal amount (10,000 t)	8	7	6	5	4

Recycling of used gas pipes

We are also promoting recycling of used polyethylene pipes (PE pipes) generated in work sites, which are mainly reused as covers to protect gas pipes and post markers to indicate the positions of supply pipes. Metal pipes, such as steel pipes and cast-iron pipes, are recycled by electric furnace manufacturers and recycling companies.

■ PE Pipe Recycling Rate

FY	2003	2004	2005	2006	2007
Amount recovered (t)	133	153	157	152	155
Amount recycled (t)	133	153	157	152	155
Recycling rate (%)	100	100	100	100	100

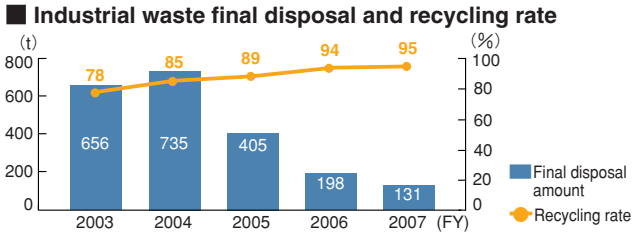
Waste reduction and recycling

Industrial waste

The recycling rate of industrial waste* in FY2007 increased 1% to 95% from the previous year. The final disposal amount remained almost unchanged from the previous year at the LNG terminals, but decreased by 67 t from the previous year to 128 t at other business locations. As a result, FY2007 saw a 131 t reduction of final disposal amount. The decrease is mainly attributable to the introduction of the biological treatment method for kitchen drainage of Dome City Gas Building in place of the conventional treatment by use of pressure flotation equipment in March 2006, which led to the reduction of sludge that would have otherwise been put into final disposal by around 50 t.
Out of 25 business locations of the Osaka Gas Group, 12 business locations achieved zero emission (final disposal amount being less than 3% of the whole waste generated) in FY2007, compared to four locations in the previous year.

* Used gas appliances and residential equipment are not included. For information about recycling of used gas appliances, please refer to p.37

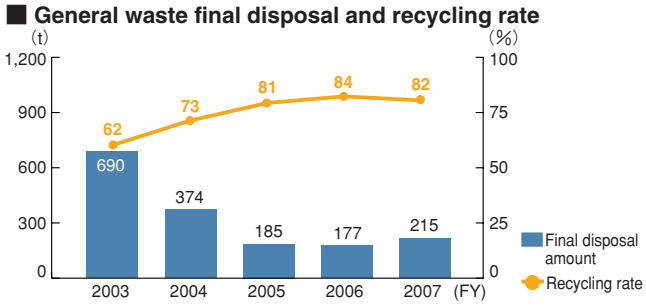
■ Industrial waste final disposal and recycling rate



General waste

The amount of general waste generated during FY2007 remained almost unchanged from FY2006, but the final disposal amount increased 20%, which resulted in the decline of the recycling rate from 84% to 82%. On the other hand, out of the 31 business locations of the Osaka Gas Group, seven business locations achieved zero emission (final disposal amount being less than 3% of the whole waste generated) in FY2007, compared to four locations in the previous year. The main reason for the decline of the recycling rate is that starting from FY2007, we include the data of the business locations where kitchen facilities are not available in the calculation of our environmental indicators and this resulted in the increase of leftover meals and other wet waste that were not properly recycled. We will address this problem by ensuring fuller separation of leftover meals and disposal lunch boxes and strive to achieve the FY2009 target.

■ General waste final disposal and recycling rate



Using less water

As a result of our water-saving efforts, which include the adoption of smaller faucets and single-lever mixer faucets, and the introduction of a device producing the sound of flushing water for use in women's restrooms, consumption of general water reduced by around 8% from the previous year at the business locations other than LNG terminals.

■ Water consumption

FY		2005	2006	2007
LNG terminals	General water (10,000 m³)	7	8	9
	Industrial water (10,000 m³)	103	102	99
	Sea water (10,000 m³)	42,257	41,782	38,208
Other sites	General water (10,000 m³)	42	41	37

Addressing Environmental Risks

Soil and groundwater conservation

Between 2001 and 2004, Osaka Gas conducted a series of voluntary investigations of 21 former plant sites for coal gas production in order to determine the environmental risks to soil and groundwater. Whenever contamination exceeding the standards of the Soil Contamination Countermeasures Law was detected, we made sure that such contamination had not affected the living environment in the vicinity and published the results of the investigations. We also held meetings from time to time to explain the results of our investigations to the residents' associations in local communities to broaden their understanding of our commitment to safety and ease their anxiety, while taking proper risk control measures under the guidance of the competent governmental agencies for environmental improvement.
When implementing work involving soil excavation in former plant sites, we make it a rule to conduct investigations as necessary and properly treat excavated soil.

■ Soil treatment work (FY2007-FY2008)

Former plant site	Work period	Description
Former Sakai Plant site	January-December 2007 (scheduled)	Heat treatment, biological treatment, insolubilization*1 and on-site encapsulation*2 of highly contaminated soil (the portion of the soil that is contaminated in excess of the second elution standard)

*1 A method for preventing elution of contaminants physically and chemically by mixing solidification agents and other chemicals with contaminated soil.
*2 A method for encapsulating soil that does not meet the environmental criteria on-site by means of water cut-off wall or other devices.

Asbestos management

We are dealing with asbestos in our major equipment, gas appliances and buildings as shown in the following table.

Gas manufacturing and supply facilities	No asbestos is used in new facilities. Asbestos materials used in existing facilities are properly molded and there is no possibility of them being dispersed under normal conditions. These facilities are replaced with non-asbestos facilities on a phased basis when they are upgraded.
Gas appliances and incineration facilities	No asbestos is used in new gas appliances and incineration facilities. While asbestos was used in the packing of some gas appliances sold in the past, it will not be dispersed under normal use.
Buildings of Osaka Gas	Sprayed asbestos in the building is being removed in a planned manner. No sprayed asbestos is used in open areas in our showrooms and other buildings where we receive customers.

Chemical substance management

Osaka Gas vaporizes imported LNG, adjusts the calorific value, and supplies it to customers. Few chemical substances are used in this gas processing and supply process. The Osaka Gas Group has the following guidelines for managing chemical substances.

1. To comply with laws and regulations concerning the use of chemical substances.
2. To conduct risk assessment of chemical substances and reduce releases of such substances in the course of ISO14001 and other environmental management activities.
3. To disclose information on chemical substance management in the CSR Report and on our website.

■ Amount of substances subject to reporting under the PRTR system handled, released, and transferred

Item	Handled (t)	Released (t)	Transferred (t)
Xylene	4.50	4.50	0
Toluene	2.58	2.58	0
Asbestos	0.83	0	0.83

Note: Above figures are aggregated values reported based on the PRTR Law (FY2007).
*The PRTR (Pollutant Release and Transfer Register) Law requires businesses handling harmful chemicals to assess, calculate and make public the quantities of such chemicals released and transferred.

PCB management

We are treating PCB waste in strict compliance with relevant laws and regulations. During FY2007, we completed disposal of 11 capacitors, which had been kept in storage in Osaka City, at the PCB disposal site of Japan Environmental Safety Corporation. As a next step, we will start disposal of PCB waste in storage outside Osaka City.

*PCB stands for polychlorinated biphenyl. Since 1974 a ban has been placed on manufacturing and import of PCB due to its harmful effects on health.

Promotion of Resource Recycling

Recycling of used gas appliances

At Osaka Gas, following a review on the conventional system of recovery and recycling of used gas appliances, a new "e-cycle" system was developed, which has been in use since February 2004. In February 2007, we connected with JWNET*1 (Japan Waste Network) by EDI*2 (electronic data interchange) in line with the policy of the Ministry of the Environment to encourage the introduction of an electronic manifest system. In FY2007, we recycled 90% of the recovered gas appliances (on a weight basis).

*1 JWNET is a network for the electronic manifest system, run by the Japan Industrial Waste Technology Center.
*2 EDI allows electronic exchange of business information among companies in standardized formats.

Compliance with the Home Appliance Recycling Law

Under the Home Appliance Recycling Law (Law for Recycling of Specified Kinds of Home Appliance) that came into force in April 2001, we also make efforts to dispose of residential gas air conditioners properly as well. In FY2007, we recycled 83% of the gross weight of recoveries (while the Law requires only 60%).

Number of unit recycled	Weight disposed of through recycling (gross weight recovered)	Weight recycled	Recycling rate
5,973	263t	219t	83%

Towards the Eco-design of Gas Appliances

Treatment of chemical substances used in gas appliances

In Europe (EU), the Restriction of Hazardous Substances directive (RoHS) that restricts the use of specified chemical substances such as lead and cadmium in electrical and electronic products has been in force since June 2006. At the same time, the J-Moss regulations on the labeling for contained chemicals (six substances) were launched in Japan for seven types of household appliances including TV sets and refrigerators. Osaka Gas is working through the Japan Gas Association to encourage gas appliance manufacturers to reduce their use of harmful substances, use of which is restricted for electrical and electronic products.

Promoting Green Purchasing and Green Distribution

Green purchasing

Osaka Gas issued its "Green Purchasing Guidelines" in FY2001, and revised them in FY2006. The Guidelines encourage staff, in cooperation with our business partners, to become involved in purchasing products and installation contracts with less environmental impact while optimizing quality, price and delivery time. We aim to raise the green purchasing rate to 100% on a value basis in items such as stationery and office automation equipment by the end of FY2011.
While we continued encouraging our affiliated companies to purchase green products and enhancing their environmental awareness, the effort has been strengthened since the introduction of the Osaka Gas EMS system that requires the entire Osaka Gas Group to promote green purchasing.
In FY2006, we launched our "Green Partner Initiative" to evaluate the environmental efforts by the business partners from whom we purchase pipe materials. We examine how our business partners are coping with environmental issues, and register those who have met certain standards including EMS acquisition as "Green Partners." We also provide the "Osaka Gas Eco-Action 21 School" for unregistered partners so that all of our business partners will eventually become "Green Partners."

Presentation on Osaka Gas's environmental efforts at the International Conference on Green Purchasing in Barcelona, Spain

Logo of Osaka Gas's Green Partner Initiative

Green distribution

Osaka Gas adopted the "Green Distribution Policy" in 2001 and has since been promoting the environment-friendly mode of physical distribution. To be specific, we are working for the reduction of atmospheric pollutant emissions by introducing low-pollution vehicles, such as natural gas vehicles and hybrid vehicles in our business activities. We are also seeking cooperation from our affiliates and business partners to use low-pollution vehicles in distribution to Osaka Gas's business locations and in their business activities.

Environmental Education for Employees and Participation in Various Environmental Groups

Environmental education for employees

In order to raise environmental awareness among employees, we provide employee environmental education through e-learning and group training in a manner tailored to the need of each job class and business unit. Our environmental awareness activities include the holding of an "Environmental Symposium" and the awarding of annual prizes by the President for employees who have contributed to environmental preservation.

CSR Report reading sessions

During FY2007, we distributed the CSR Report 2006 to all employees to garner greater understanding of our environmental activities. We also held 14 "CSR Report reading sessions" between September and November (in six districts, two terminals, the head office, affiliated companies and Tokyo office) for the exchange of opinions. The opinions collected during the sessions have been incorporated in the CSR Report 2007.

Participation in various environmental groups and initiatives

The Osaka Gas Group is also promoting environmental preservation activities through its participation in various environmental groups and initiatives.

* WBCSD was established in 1991 by business organizations from 33 countries around the world in connection with the Rio Earth Summit of 1992. It is now comprised of about 190 international companies from over 35 countries, encompassing 20 industrial fields. Its activities are focused on uniting the efforts of the business community to contribute to sustainable development, offering policy recommendations, and extending development assistance to developing countries.

Major organizations of which Osaka Gas is a member

- Team Minus 6% (national project aiming for achieving Kyoto Protocol target)
- World Business Council for Sustainable Development (WBCSD*)
- Nippon Keidanden Committee on Nature Conservation
- United Nations Global Compact
- WWF Japan

Activities of Affiliated Companies

Afforestation project in Australia

Eco Tree Farm Pty. Ltd. has been promoting an afforestation project in Australia since 2001. Under this project, a total area of 100 ha. is planted annually and by 2006 the area planted reached about 600 ha. By planting trees in grazing land, this project contributes to CO_2 fixing. The project was also given the certification for sustainable forest management by a regulating authority.

Development of Environmental Technologies

The Osaka Gas Group is committed to the development of future-oriented environmental technologies, including hydrogen energy technologies and biomass utilization technologies, while promoting R&D on gas appliances and systems such as natural gas cogeneration systems with higher efficiency and fuel cells.

Anticipating a society where hydrogen fuel plays an important role

One of the hallmarks of hydrogen, which is garnering a lot of attention as the next generation clean energy source, is that it can be manufactured from a variety of raw materials. Of these, natural gas is being highly acknowledged as clean, highly efficient, and low-cost source of hydrogen.

Development of hydrogen filling stations

Osaka Gas is currently engaged in technical development of hydrogen filling stations that supply hydrogen fuel to the Fuel Cell Vehicles (FCVs), an extremely clean automobile we are hoping to make a reality. In FY2007, we participated in the Japan Hydrogen & Fuel Cell (JHFC) Demonstration Project subsidized by the Ministry of Economy, Trade and Industry, and constructed a natural gas-reformed hydrogen filling station in front of the Osaka Prefectural Government building, which is the first hydrogen filling station ever built at the center of a commercial area.

Rendering of the JHFC Osaka Hydrogen Filling Station

Commercialization of compact hydrogen production equipment

Osaka Gas together with Liquid Gas Co., Ltd. and Osaka Gas Engineering Co., Ltd. has produced the HYSERVE commercial hydrogen generator, 50% cheaper and 50% smaller than our previous model. In FY2007, HYSERVE 100*, a product that was launched in the market following HYSERVE 30, was installed at a customer's site for the first time, where Liquid Gas supplies hydrogen on-site. *The figure indicates the hydrogen production capacity (m^3/h)

HYSERVE 100 for industrial use

Development of technologies for effective use of biomass

The government's energy policy emphasizes the importance of effective use of biomass, a promising renewable energy. We, the Osaka Gas Group, are developing technologies for facilitating effective use of biomass at sewage treatment plants and food factories.

Development of a system to effectively use biogas based on the gas adsorption technology (Reduction of CO_2 emission)

Grand Prix of the Osaka Environmental Award for business activities

Osaka Gas has been engaged in the development of a system to effectively use biogas based on the technology of gas adsorption by activated carbon. The systems that have been developed include: adsorption-type biogas tank that is 1/25 the size of the conventional low pressure tank, but can store the same amounts of biogas as the conventional tank; biogas refining system that is highly effective in eliminating siloxanes, impure substances in biogas; and separation system that concentrates methane in biogas to the level usable as fuel for vehicles (concentration of over 98%). These systems have been introduced to the Biomass Town in Katori City, Chiba Prefecture, and other locations. We are also in the process of developing an adsorption-type biogas tank for vehicles. In recognition of these efforts, we received the Grand Prix of the Osaka Environmental Award in the business category, issued in the name of the President of Osaka Prefectural Conference (Governor of Osaka), in June 2007.

Osaka Environmental Award given to Osaka Gas

Development of high-performance vacuum drying equipment to treat raw garbage by making effective use of gas engine exhaust heat (Reduction of CO_2 emission)

With the increase of the awareness of environmental issues among businesses, coupled with the enactment of the Food Recycling Law, greater focus is now given to the reduction of food waste. To meet the rising demand, Osaka Gas has developed drying equipment that effectively utilizes gas engine exhaust heat (hot water and steam) for stable treatment (reduction and recycling) of leftover cooked rice which has been difficult to subject to drying treatment in the conventional manner. Capable of treating 750 kg of rice per day, this equipment can promote food recycling, bring great economic advantages, and facilitate food recycling when installed in food factories. The equipment was launched in the market in 2007 and already three units have been installed in two food factories in February 2007.

High-performance vacuum drying equipment to treat raw garbage

Development of a high-efficiency system to produce biogas from raw garbage by making effective use of gas engine exhaust heat (Reduction of CO_2 emission)

Osaka Gas has developed a technology to use gas engine exhaust heat as heat source to generate an increased amount of biogas from a biogas system, and eventually reduce final disposal of waste. This system, when introduced in waste treatment plants, can enhance economic efficiency and contribute to global environmental preservation at the same time. Starting from FY2008, a pilot scheme is underway using a sample model of one tenth the size of the actual model, in cooperation with the Kyoto Municipal Government and Kyoto University.

High-efficiency biogas plant

Comments from the developer

Environmental technologies for prevention of global warming should be, of course, friendly to the environment, but equally importantly, they should be feasible both in social and economical terms. We are currently engaged in the development of a technology to recover as much biogas from waste at as low a cost as possible in cooperation with environment-conscious customers. Our task involves treatment of raw garbage and sludge, which is often unpleasant, but we devote all of our energy to our undertaking, aware that our effort will lead to the preservation of the beautiful environment of the earth.

Jun Tsubota
Environment/combustion R&D Team
Commercial and Industrial Market Development Dept.

Other environmental technologies

Development of the Eco Micelles pipe drag reducing additive (Reduction of CO_2 emission)

In a gas absorption-type air-conditioning system, cold/hot water generated in the chiller/heater is pumped into an indoor unit through pipes, where heat exchange between cold water/hot water and air takes place for cooling/heating of the room. In a gas cogeneration system, exhaust heat is pumped into a heat utilization system through hot water pipes. In both case, the operation requires much energy to drive pumps, and considerable efforts have been made in order to reduce this amount of energy for many years.
Osaka Gas took notice of the fact that the addition of certain surfactant to water could drastically reduce the friction drag of the water flowing in the pipes, and developed Eco Micelles, an additive to reduce friction of cold and hot water, incorporating a practical technology to reduce the energy required to drive pumps.
Eco Micelles has already been introduced to 13 buildings and achieved a reduction of the energy to drive pumps by around 30%. The adoption of Eco Micelles also has resulted in the reduction of about 3% of all CO_2 emitted from the operation of the building air-conditioning system, proving its ability to control global warming.

Eco Micelles

Development of denitrification catalysts using activated carbon fibers (Air pollution control)

The catalysts used to reduce NOx (nitrogen oxides) require high temperatures for the reactions and could not eliminate NOx in the air and low temperature emissions. Osaka Gas has developed catalysts that remove NOx using activated carbon fibers (ACFs) at ambient temperatures (around 0˚C-40 ˚C) and the exhaust emission temperatures (around 100˚C-150˚C) after the waste heat is recovered. In FY2007, these catalysts were adopted by the Ministry of Land, Infrastructure and Transport, and a test unit using these catalysts is now in place along the National Route 43 in Osaka City for measurement of their ability to control air pollution along a main road.

Test unit utilizing ACFs for denitrification installed along National Route 43 in Osaka City

Activities of Affiliated Companies

Development of a new resin recycling technology

Osaka Gas Chemical Co., Ltd. is engaged in manufacturing and sale of MARICOM, a high value-added composite recycled resin made by mixing polyethylene (PE) gas pipe and PET bottle wastes. By using a technology that renders PE and PET wastes compatible, we can produce high-performance recycled resins that have both the flexibility of PE and the strength of PET.
By making use of this compatibilization technology, we are working to increase the strength of polylactic acid (PLA), a plant-based resin for which rapidly growing demand is anticipated due to its ability to conserve oil resources and reduce CO_2 emissions, by mixing PLA with other resins. The compatibilization technology allows us to add strengths to PLA by mixing it with various other resins, thereby overcoming its vulnerability to heat and shocks and making it applicable for a wider range of purposes. We will continue our efforts to develop technologies to enhance the strength of PLA to increase the range of applications of PLA and eventually contribute to the improvement of the global environment

Eco-bag made of MARICOM

CSR Charter Ⅲ




Being a good corporate citizen contributing to society

The Osaka Gas Group, as a good corporate citizen, strives to maintain communication with society and the communities it serves. Through proactive disclosure of information and improved managerial transparency, we intend to establish favorable relationship with citizens and to make our positive contribution to health development of society.

Contributions to Local Communities

The Osaka Gas Group offers services that are closely associated with the lives of local residents. For this reason, we think it very important to increase our awareness of being a member of the local community, or a responsible corporate citizen, and act as such. We have been pursing various social activities for the wellbeing of local residents and contributing to philanthropic activities sponsored by Osaka Gas's Foundation for many years since we have affection for local communities and wish to work for mutual prosperity together with them. By fostering closer relationships with local people and contributing to their happiness, we aim to become a "corporate group accepted and supported by stakeholders."

The Small Light Campaign

The Osaka Gas Group's volunteer program, the Small Light Campaign was inaugurated in 1981 (International Year of Disabled Persons). With the awareness of the importance of "each of us taking greater interest in the society around us and playing a leading role in addressing various local problems of our own volition," we have made small but steady efforts since then. As part of this campaign, we have conducted various unique activities, including: cleaning up of local neighborhoods; organizing charity concerts; inviting volunteers to make cakes and delivering them to child welfare facilities; extending support to the elderly and disabled persons; cooperating in the sale of hand-made items from cooperative facilities for disabled persons; sending in-house culture clubs and volunteer theater companies to welfare facilities to give performance; and inviting children of child welfare facilities to musicals.

●Symbol of the Small Light Campaign: Lily of the Valley

The lily of the valley was adopted as the symbol of the campaign because its shape resembles a circular glass cover of a gas lamp, and also because one of its floral languages is "plenty of goodwill and love."

"Subsidy Program for Citizen Activities for the Wellbeing of Children" launched in commemoration of the 25th anniversary of the Small Light Campaign

The year 2006 marked the 25th anniversary of the Small Light Campaign. In this commemoration, we invited applications for subsidies from among NPOs and citizen groups involved in projects to contribute to the wellbeing of children between October and November 2005 and selected 21 projects, to which we provided subsidies in a total amount of about 10 million yen for one year starting from April 2006. The source of the subsidies is the Small Light Fund including the charity calendar fund, made up of voluntary contributions that our employees donated on various occasions.

Report on the Subsidy Program for Citizen Activities for the Wellbeing of Children

EXPERT OPINION

Ms. Aya Mizutani
Director
Center for Corporate Citizenship
Osaka Voluntary Action Center

It was in the summer of 2004 that I was asked my opinion on how the Small Light Fund made up of the donations of Osaka Gas employees could be best utilized to extend support to the groups involved in activities for the wellbeing of children, who are leaders of tomorrow. Since then, I have worked with Osaka Gas in promoting the "Subsidy Program for Citizen Activities for the Wellbeing of Children" as a member of the cooperative secretariat. In reality, many of the citizen groups engaged in activities to help children with problems, whether physical or emotional, have financial difficulties. The Subsidy Program provided just the desired support to these groups, and enabled the successful implementation of as many as 21 projects.
These achievements made me sure that we have taken a step toward the goal of the Small Light Campaign to take greater interest in the society around us. The Subsidy Program provided the citizen groups with not only financial assistance but also the opportunities to get to know the attitude of Osaka Gas and its employees toward the well-being of the local communities. In turn, I think the Program gave the employees of Osaka Gas the opportunities to look more closely at children's and the local communities' issues. It is my belief that by learning what is happening in our society through face-to-face dialogs and communications, rather than from the reports of the mass media and other indirect source of information, businesses can implement CSR activities in a way to better suit the reality.
I very much hope that the "Small Light" of Osaka Gas will continue to be lit in various parts of the community.

Acting as a responsible corporate citizen

Working for the wellbeing of children

Society-wide efforts should be directed to the critical task of ensuring sound growth of children who will play a leading role in the future. The Osaka Gas Group cooperates with NPOs and volunteer groups to undertake various activities to contribute to the healthy upbringing of as many children as possible.

■ Children's Theater

Since 1987, we have invited children from child welfare facilities to musicals with the theme, "Love, Dreams, and Courage."

■ Nature watching session

Starting from 2004, we, in cooperation with NPOs, organize nature watching and craft making sessions to provide children with opportunities to learn and think about the nature and the environment around them.

Working for the wellbeing of persons with disabilities

We organize various events that help persons with disabilities live a dignified and independent life, and provide them with opportunities to participate in social activities, while increasing public understanding of disabilities.

■ Midosuji charity bazaar

Since 1986, we have held a charity bazaar in which hand-made items from cooperative facilities for persons with disabilities are available for sale in front of our Osaka Gas Building. While the bazaar was held twice a year, in spring and autumn, conventionally, the bazaar period was extended to 24 days in FY2007 with the cooperation of an increasing number of cooperative facilities. In addition to hand-made cookies and wood crafts from the cooperative facilities, the bazaar sold old books donated by employees of the Osaka Gas Group, vegetables direct from farms, and books on activities of the cooperative facilities, thus serving also as a venue for communications.

■ Hearing Ear Dog Seminar

In 2004, we co-organized a Hearing Ear Dog Seminar together with the in-house sign-language club to deepen public understanding of the role of hearing ear dogs and persons with hearing impairment.

Activities of Affiliated Companies

KRI Exploratory Research Program commenced

KRI Inc. launched the first KRI Exploratory Research Program, which invites open applications from researchers and provide subsidies to basic research, which is based on original and innovative ideas and expected to be developed into distinguished applied researches with industrial importance. Through this program, KRI hopes to contribute to the progress of science and technology in Japan. In the first program, open invitation to apply for the subsidies was extended to young, motivated researchers of universities and research institutions in the fields of energy technology, material technology and analytical evaluation and measurement technology, and five research themes of four universities were adopted by the in-house screening committee. The research projects that started in July 2006 were completed in March 2007, achieving substantial results that are expected to contribute significantly to the development of science and technology and open up new industrial applications. KRI will continue to explore ways to use the research results for further prosperity of the society and social wellbeing.

Working for the wellbeing of the elderly

Due to a drastic increase of the life expectancy and the falling birthrate, the Japanese society is now rapidly aging. We are promoting various initiatives to ensure the elderly persons who have long worked for social development will continue to live a happy and pleasant life as a member of the society.

■ Excursion trips for the elderly

Since 1996, we have joined in the program of an NPO that organizes excursion trips for elderly people, who have difficulties in going out by themselves, to places known for their seasonal beauty and other places of interest.

■ Musical event to sing children's songs

Since 2002, we have co-organized a musical event for the elderly in the hall of Osaka Gas Building, together with an NPO that implements various programs for the elderly and an affiliated organization of a newspaper publisher. The event is for singing children's songs with which elderly persons have been familiar since their childhood.

Enhancing public environmental awareness

It is an important mission for all of us who live in today's world to preserve the precious global environment for future generations. We, at the Osaka Gas Group, place emphasis on increasing public environmental awareness, offering opportunities to interact with nature and promoting local cleanup activities. We hope through these activities, people will renew their awareness of the importance of the environment and the splendor of nature.

■ Cleanup activity

We have been implementing cleanup activities annually since 1985 with an aim to help keep our local community clean.

■ Forest conservation activities: "Osaka Gas Forest"

Osaka Gas has teamed up with the Osaka Gas labor union for forest conservation through the "Company Forest/Union Forest" program promoted by Wakayama Prefectural Government. In March 2005, we planted 2,600 broadleaf seedlings in the forests (1 ha.) in the Kii Mountain area near the Kumano ancient road that was designated as a World Heritage Site. Every summer, Osaka Gas's employees and their family members join in clearing undergrowth in this area. We will work to get the cooperation of the Nakahechicho Forest Association and local people for efforts toward nurturing the trees.

Activities of Affiliated Companies

Contributing to the preservation of the global environment by planting native seedlings and creating biotopes

Techno Green Co., Ltd. has extended cooperation in planting and growing native seedlings, transplanting native rare species, and creating biotopes in the green areas in the premises of Osaka Gas's Senboku LNG Terminal and Himeji LNG Terminal. At the Senboku LNG Terminal, Techno Green works with local elementary school children to plant native seedlings.
Since FY2007, Techno Green has been growing native seedlings such as blue Japanese oak and ubame oak for the "Greening by Planting Native Seedlings," a program resulting from the environmental assessment conducted for the construction of the Senboku Power Plant. Planting of these seedlings is scheduled to coincide with the start of operations at the plant in FY2010.
The Osaka Gas Group will remain committed to environmental preservation, especially biodiversity protection.

Planting of native seedlings by children from an elementary school in Sakai City at the Senboku LNG Terminal

Enhancing the cultural excellence of the Kansai Region

The Japanese Agency for Cultural Affairs has launched the "Kansai Energetic Cultural Area" project that aims to revitalize the Kansai Region by encouraging cultural activities. Through this project, it is expected that Kansai will take on an important role in widely communicating the splendor of the Japanese culture to the world. The Osaka Gas Group has put much effort in various cultural activities to contribute to enhancing the cultural excellence of the Kansai Region.

■ Music that heals

Since 1997, Osaka Gas has organized a musical concert in the hall of Osaka Gas Building to offer local residents a time to relax. In the hall, a donation box is placed, and all the funds collected on the day of the concert are donated to NPOs and volunteer groups.

■ Charity concert by in-house musical clubs

Starting from 1988, Osaka Gas's mandolin, chorus, brass band, and light music clubs give charity concerts at external concert halls and other locations, which enjoy popularity among visitors. The revenues from the concerts are donated to volunteer groups.

■ "Story teller of Naniwa" project to communicate the findings of cultural study

Osaka Gas is engaged in the "Story teller of Naniwa" project to investigate into local history and culture as a means of tourist promotion to revitalize Osaka. The findings of the investigations are edited and used for the creation of stories under different themes, in consideration of the purposes of community and public space development underway and of future possibilities. The resulting stories are presented in lectures, symposiums and other events, which sometimes accompany piano, violin and wind instrument performance as well as image projections, and are received very favorably.

■ OMS Drama Award

Osaka Gas launched the OMS Drama Award in 1994 to discover new talent and stimulate those in the middle of their playwright careers. As a gateway to success for playwrights, this Kansai-based award is drawing nationwide attention.

Events to celebrate our 100th anniversary

On October 19, 2005, Osaka Gas celebrated its centenary. In commemoration of this occasion, we held special events to show our appreciation to the local communities during FY2006, and continued some events into FY2007.

■LNG Dream Tanker launched

In the Natural Gas Dream Tanker Project, the artist Jimmy Onishi and 40 children worked together to create giant artworks depicting their dreams, which were applied on the four tanks on a natural gas tanker. The new tanker was named LNG Dream, and in September 2006, a launching ceremony was held in the Osaka Bay area. LNG Dream was given the Screening Committee Special Prize of the "Ship of the Year 2006" award by the Japan Society of Naval Architects and Ocean Engineers, and the Outstanding Award for the "2006 PR Award Grand Prix."

■Donation of gas lamps to the Sankyubashisuji Street

In 2007, 13 gas lamps were installed along the Sankyubashisuji Street in the Semba district in Osaka City, and a lighting ceremony was held in June. This followed the two gas lamps donated to the Nagahama Railway Square in Nagahama City, three to the Yonbancho Square in Hikone City, and eight to the Himeji City Museum of Art. A total of 50 gas lamps will be eventually placed along the Sankyubashisuji Street by 2010, of which Osaka Gas will donate 30.

Launching ceremony ©2005 JIMMY ONISHI

Lighting ceremony

Communication Activities

The Osaka Gas Group is working to explore opportunities for interactions with local communities and dialogs with local customers by launching a wide array of communication activities, which include: participating in local events; offering its facilities to the public; cleaning the area around its business locations and local roads; raising funds for charity purposes; and sending its employees to study sessions and lectures.
We also run facilities open to the public, such as the Gas Science Museum, Himeji Gas Energy Hall, and DILIPA showrooms and organize tours to these facilities for local children and customers to provide them with opportunities to learn about energy and environmental issues.

Promoting dialog with local communities and organizations, fostering cooperative ties with them, and participating in local activities

During FY2007, accidents arose from gas appliances and this caused inconvenience and trouble to our customers. We publicized the procedures to replace defective components and instructions for safe use of gas appliances to customers through corporate announcements and our website. Such information was provided not only to users of gas appliances, but also to consumer centers and consumer groups that offer consultancy service to local consumers.
To ensure information on safe use of gas appliances is widely available to customers, we asked about 40 consumer centers to provide a link to our website, and they agreed to do so.
We also participate in and display our products at local fairs and events associated with "environment," "safety and disaster preparedness," and "consumer education" to interact with local customers. During FY2007, we were involved in a total of 86 such events and met about 1.6 million customers.


Osaka Gas at the Higashi-Osaka Citizens Festival

Environmental communication activities

Aware of the importance of energy and environmental education, we invite school children, mainly higher-grade elementary school children, to visit our Gas Science Museum (in the premises of Senboku LNG Terminal) and the Himeji Gas Energy Hall (in the premises of Himeji LNG Terminal) in school excursions. These facilities were visited by a total of 66,031 people in FY2007.
In recent years, greater importance has been placed on the energy and global environmental issues as the subject to be taught in classes for the "integrated study" for elementary and junior high schools, and energy companies are increasingly being asked to visit schools and teach children specialist classes on these subjects. In FY2007, we launched a school visit program to send our employees and retired employees to schools as lecturers, who provided a total of 275 classes and shared a pleasant time with about 10,000 children in the study of energy and global environmental issues during the year.

Comments from an employee

Yoshiko Inoue
Community Relations Office
Keiji Residential Energy Sales Dept.

I teach children, who will play a leading role in the future, about energy and environmental issues. They take great interest in the class, and enjoy answering quiz questions, playing games, and cooking noodles.
I try to explain to them how energy consumption influences the global environment and how it affects our living in an easy-to-understand manner. I feel most rewarded when children say "Thank you" to me.

<School visit program>

Eco Angel Seminar (for elementary and junior high school children)
This is a participatory program, in which children enjoy answering quiz questions about global warming.

Global Environmental Issue and Energy Seminar (for junior and senior high school students)
In this program, a lecture is given on the outline of the global environmental issues, influence of energy consumption on the environment, and what we can do for energy conservation in everyday life.

Environment-friendly Noodle Cooking Seminar (for elementary school children)
This is a hands-on participatory program to consider how "cooking and eating noodles" can influence the global environment.

●Textbook used in the school visit program

●Teaching materials for the Eco Angel Seminar

Community activities on food and cooking

We are also promoting communication activities focusing on food and cooking and send employees to local lectures and study sessions as speakers, while extending cooperation with local community centers to provide cooking classes. Upon request from local residents, we also organize lectures (or send lecturers) on "the effect of cooking on brain activities," which is a theme of the joint research we have conducted with Professor Ryuta Kawashima of Tohoku University.

Comments from an employee

Makiko Nakamura
Community Relations Office
Hokutobu Residential Energy Sales Dept.

The "habit of cooking daily meals" stimulates brain activities. I tell local residents that we can enhance the activities of our brain by enjoying cooking at home in understandable terms. I will continue to communicate this fact to the public in lectures and on other occasions.

A study on influence of cooking on human brains

As part of our research on the importance of cooking at home, we conducted a demonstration experiment to prove the effect of cooking on brain activities in cooperation with Professor Ryuta Kawashima of Tohoku University, and verified, for the first time in the world, that the process of cooking, starting from "thinking what to cook," "cutting ingredients," and "cooking ingredients using a gas cooker," to "arranging the food on a plate," stimulates the prefrontal area of our brain that assumes a role of critical importance for humans. The finding that the "habit of cooking daily meals can enhance our brain power" is communicated widely to the public on our website, as this information is very useful for the aging society and dietary education.

Measurement of brain activities
(Brain activities of a child is measured while cooking meals with her mother)

Demonstration experiment to prove the effect of cooking on brain activities
(Retired Osaka Gas employees participated in the experiment as subjects)

Stakeholder dialog

Promoting dialog with consumer groups

We have maintained an in-house customer communication channel to hear comments and address requests from customers. To maximize the opportunity to listen to customers' voice, the management of Osaka Gas meets representatives of the Kansai Consumers' Association once a year for the exchange of opinions. In addition, managers of the service districts and staff of the Community Relations Office in our business offices play a central role in communicating with local consumer groups and NPOs in each community. In this way, we offer information useful for daily living to customers, active in local communities, and in turn, collect customers' comments which give us invaluable insights into their needs. Customers' comments are shared with the departments in charge through the C-VOICE system and other channels.

Comments from an employee

Junichi Kuwano
Network Department
Hyogo Residential Energy Sales Dept.

We arranged a meeting to exchange opinions with the representatives of the consumer centers, consumer groups and local groups in Hyogo Prefecture.
At the meeting, we provided information on the "safety and reliability of gas service and gas appliances" and "Osaka Gas's general business activities," while the participants, as government officials and consumers, offered frank opinions. We intend to provide even more opportunities to listen to the voice of our customers directly in the future.

Activities at Osaka Gas's Foundations

Osaka Gas Group Welfare Foundation

The Osaka Gas Group Welfare Foundation was established in October 1985, our 80th anniversary year, jointly by Osaka Gas and its affiliates, to show gratitude to users of our gas service in the six prefectures in the Kansai Area whose support helped us continue growing. The Foundation is involved in a financial support program and health promotion program for the wellbeing of the elderly. Since its establishment, the Foundation has offered 770 million yen under the program and its events have been attended by a total of 248,000 people.
Through the financial support program, the Foundation extends assistance in implementing local welfare activities for the elderly and conducts related surveys and research, to realize a society where senior citizens can enjoy a healthy and happy life. In the health promotion program, on the other hand, the Foundation organizes various health events, including Health Meetings, Gas Health Classes, Healthy Cooking Classes, and Walking Events, which are attended by over 10,000 elderly people annually. Especially, the newly introduced events such as Laughter and Health Exercise that features performance of rakugo comic story tellers and Heart-to-Heart Cooking Class in which instructors visit local communities are received very favorably.

"Let's sing together" event

Laughter and Health Exercise

Osaka Gas Foundation of International Cultural Exchange

Osaka Gas Foundation of International Cultural Exchange was established in 1992 to strengthen the friendly relationships with natural gas producing countries and deepen mutual understanding. The Foundation has been extending financial support for elementary schools, junior and senior high schools, and colleges and universities of Indonesia and Malaysia to purchase educational equipment, conduct experiments and research activities, and offer scholarships and training. Over the 15 years since its establishment, the Foundation has offered financial support to the sum of 252 million yen, and provided scholarships to 4,142 students.

Traveling library visits elementary schools in turn in the tsunami-stricken area in Aceh Province (Indonesia)

Scholarship awarding ceremony for high school students in Bontang Area, East Kalimantan Province (Indonesia)

Corporate Information Disclosure

Our information disclosure policy and publication materials

We are always exploring opportunities to release information to the press and increase media coverage to ensure that our customers, shareholders and all other stakeholders understand the Osaka Gas Group. We are also working to disclose information in a timely and proper manner by issuing various PR brochures and organizing meetings to communicate the business activities of the Osaka Gas Group to the public, and by sending messages and providing information through our website.
By increasing the transparency of our business activities in this way, we will be recognized and valued as a corporate group open to society. In line with this basic policy, we will continue to disclose information about the Osaka Gas Group as necessary.

<Main corporate reports>

- **CSR Report**
  Report of CSR activities undertaken by the Osaka Gas Group
- **Corporate Profile**
  Company profile for the general public
- **Annual Report**
  Report for shareholders and investors
- **Business Report**
  Collection of data for shareholders and investors
- **Quarterly magazine "CEL"**
  Information magazine issued by the Research Institute for Culture, Energy and Life

Website of Osaka Gas

http://www.osakagas.co.jp/
(For English version, please visit http://www.osakagas.co.jp/indexe.html)

CSR Charter Ⅳ

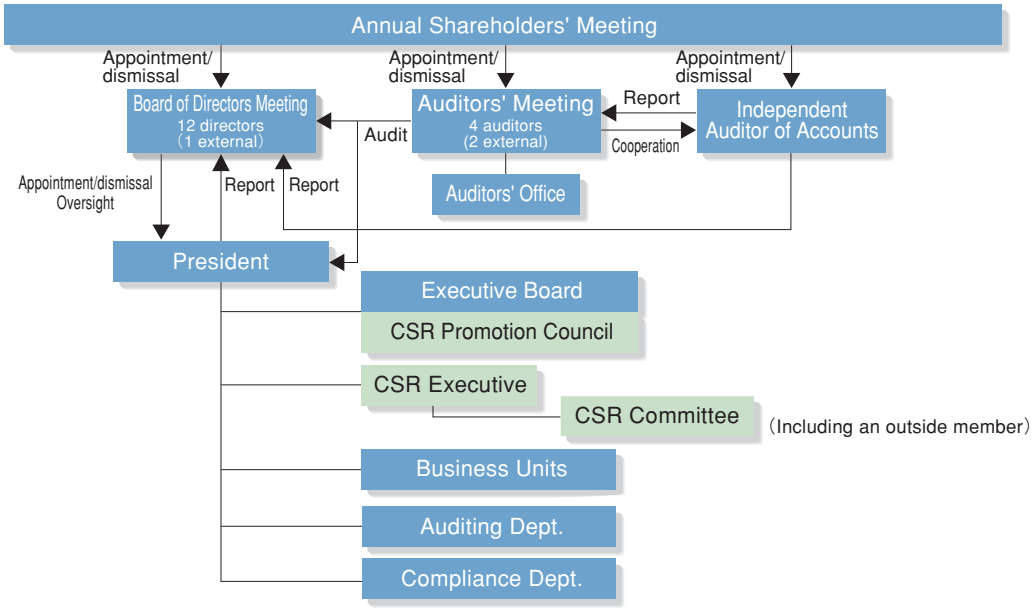
Strengthening compliance and respecting human rights

Osaka Gas Group strives to become a group of companies with high integrity capable of gaining trust from society. This could only be achieved through full compliance practiced by the management and employees. We regard that compliance not only refers to observing laws and regulations but also taking responsible actions as members of the society. For this purpose, we will maintain fair relationships with customers, business partners and other stakeholders respecting their human rights.

Corporate Governance

Osaka Gas Group pursues the management policy of maximizing its corporate value through fair and transparent business activities. The policy of creating value targets to enhance the group's value for all its stakeholders, namely customers, shareholders, employees, and others. At the same time, for the purpose of responding positively and precisely to changes in the business environment, we are actively working to fortify the corporate governance of the group to attain higher level of management integrity.

Corporate Governance Organization



Business execution

At Osaka Gas, based on our clearly defined set of rules and regulations, important managerial decisions are made only after being carefully scrutinized by the Executive Board comprised of executive directors with a wide range of expertise and full discussion by the Board of Directors. Handling matters important to the whole Group, the Board of Directors makes accurate and speedy business decisions and works to improve oversight of the operations of the entire Group. On June 29, 2006, we reduced substantially the number of directors to enhance communication among the directors, and at the same time, we introduced an executive director system. These actions have been taken in order for the Board to focus on decision-making and overseeing functions over the management. This has resulted in revitalizing the board and to strengthen its management control.

On June 28, 2006, we newly elected one external member of the board, and the person, having no personal, business, or financial relationship with the company, is expected to demonstrate his impartiality within the board.

Auditing organization

Osaka Gas has a corporate auditor system which oversees legality of business execution by the management. Of the four auditors, two of them are outside auditors and two are internal. The two outside auditors do not have any special personal, capital, or business relationship with Osaka Gas, thus we preserve their high impartiality. For these external auditors, we provide them with opportunity to gain understanding about the status of the company and its operations. Additionally, to further the auditing functions, the Auditors' Office, having its exclusive staff separately from that of the Board, supports the auditors in their work. For independent auditing of accounts, Osaka Gas has retained KPMG Azsa & Co.

Internal governance

As an internal auditing body, we have the Auditing Department which oversees fairness and efficiency of business activities of the company. It advises and makes recommendations to respective divisions within the company as necessary. Additionally, each Business unit within the company has its own auditor whose authorities are entrusted from the management. Each auditor's role and responsibilities are clearly defined in the internal regulations, thus strengthening the internal controlling functions on the operational level.
The auditors, independent auditors, and the Auditing Dept. meet on a regular basis to discuss annual audit plans and other reports, and they meet for information exchange as necessary, thereby working in cooperation for effective auditing work.
In terms of strengthening compliance, the company has the Compliance Department as a focal point of various activities related to furthering legal compliance of business activities.
Since June 29, 2006, the Auditing and Compliance Departments have worked as separate entities within the company to maintain their impartiality.
To promote overall corporate social responsibilities (CSR) of the Osaka Gas Group, we have structured the internal organizations to achieve maximum results;
- CSR Promotion Council, under the supervision of President, deliberates and reports plans and activities,
- CSR Committee, also joined by an outside member, under CSR Executive who control the entire CSR activities of the Osaka Gas Group, coordinates the group-wide activities.
The Osaka Gas Group CSR Charter and the Osaka Gas Group Code of Conduct have been stipulated and shared across the group as principles of CSR activities.

Risk management Principles

The Osaka Gas Group, in order to achieve its managerial goal of 'Creating Value,' has taken positive steps to strengthen its internal control on business execution following the enforcement of Corporate Law and Financial Products Transaction Law.
In its internal rules, Osaka Gas has clarified its organization for risk management and verifying its effectiveness. For risk management items common to divisions and business units, the group headquarters gives support in their implementation.

Promoting risk management

Organization for risk management

A base unit for risk management in the Osaka Gas Group is each business division and a subsidiary/affiliate. Head of each division is responsible for managing risks and losses and carries out relevant checks on a regular basis.

Regular checks and monitoring

Risks first need to be properly recognized. After assessment of the status and remaining risks, actions need to be planned.
G-RIMS (Gas Group Risk Management System) was established in 2006 as a common platform for identifying and managing risks. After self-assessment by each division, the secretariat discusses with each division to monitor implementation. In this process, the results of checks are integrated into issue items common to the group. Through these activities, we are working to establish PDCA cycle (plan, do, check, action) for identification, addressing, and monitoring of risks.

Supervising and check functions

For the problems identified through G-RIMS, each division head and manager is responsible for taking actions and its process for improvement is followed-up periodically. Also, the auditor in each business unit and a core company acts as a focal point for coming up with issues for internal auditing. Managers are also responsible for their self-assessment for reinforcing the internal self-initiated actions for risk management.

Compliance

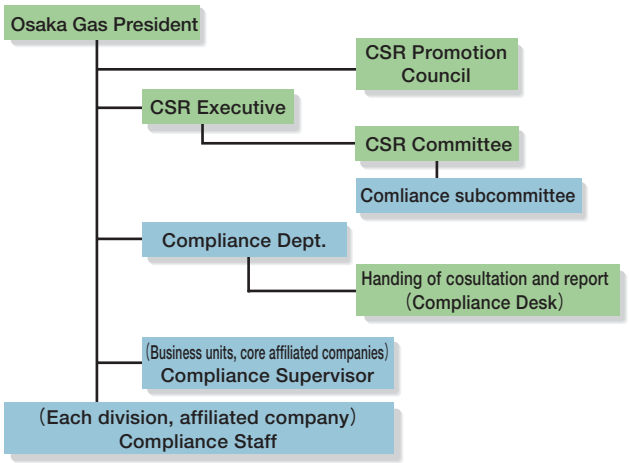
Osaka Gas Group Code of Conduct

On the basis of the Osaka Gas Group CSR Charter, the Code of Conduct has been set forth as a set of criteria for conduct of all executives and employees of the Osaka Gas Group.
The Code, applicable to Osaka Gas and all its affiliated companies, consists of 15 items including the respect for human rights, environmental protection, ensuring safety of products, and fair business practices. The Code has undergone revisions four times (most recent in February 2007) for updating and enrichment of its contents.

To facilitate penetration of the charter and the code among all the employees, the charter and the code has been distributed both in prints and through the intranet. To cultivate better understanding about the code, we distributed compliance case studies in prints to all the employees.

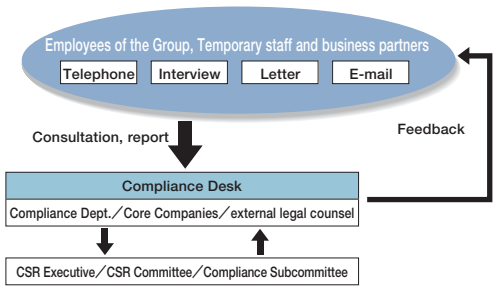
Organization for strengthening compliance

The CSR Promotion Council, CSR Executive, and the CSR Committee, under the supervision of the president of Osaka Gas, analyze the status and deliberate CSR plans. At each business unit and core affiliated companies, Compliance Supervisor is elected and he is responsible for monitoring, promotion, advice, and recommending on compliance-related activities. At each division and affiliated company, compliance staff takes care of compliance activities on a daily basis.
The Compliance Department functions as secretariat for the CSR Committee and Subcommittee and a responsible party for implementation of compliance activities.



Compliance Desk (internal notification system)

The Compliance Desk was established in 2003 as a window for internal notification on compliance on laws and internal rules. About 30 to 40 referrals are made to the desk by employees and workers in a given year. Upon receipt of a notification, initial examination is made and necessary actions are taken for further investigations and corrective actions.
Upon enforcement of Informant Protection Law, scope of application of the system has been expanded to include employees and workers of our business partners. Additional referral desks have been established at core affiliated companies.



Education and training

Compliance training/education is implemented at each level of the workforce from the management to new recruits every year. Specific case studies are used for employees to learn about compliance.
Until 2006, the program covered all employees of the Osaka Gas Group, for the cumulative total of over 30,000 employees, each attended a class twice. Similar educational programs will be continued to further enhance employee awareness on compliance.
Other materials used for enhancing compliance include posters, newsletter, and information posting on the intranet.

Summary of compliance-related programs during the past three years

(Number of partciparnts)

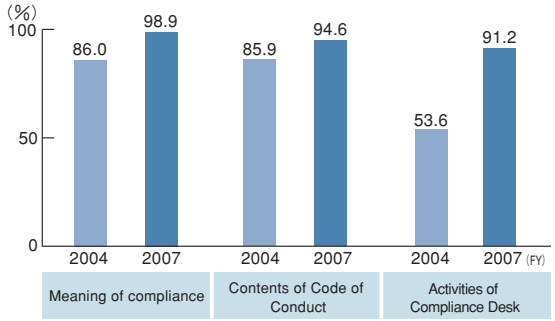
FY	2005	2006	2007
Lecture meetings for the management	150	170	180
Group training for supervisors/managers, e-learning programs, etc.	224	811	1,906 (All of subjected)
Group training for compliance secretariat	—	110	98
Group training for general employees, case studies, etc.	6,389	8,084	16,514

Note: Compliance education implemented by each division is excluded.

Employee awareness survey

Each year, a survey is conducted to measure employees' awareness on compliance in which 4,000 randomly selected employees are subjected to survey on the web.
The fourth survey conducted in 2006 was responded by 83% of the employees subjected. It was revealed that employee awareness has increased in their daily business execution and observing privacy policy. There was, however, a room for improvement in the penetration of some rules including internal regulations and work manuals. Actions were taken to improve the education and training programs for full penetration of these rules.
The survey will be continued on a regular basis as an instrument for judgment of employees' awareness on compliance.

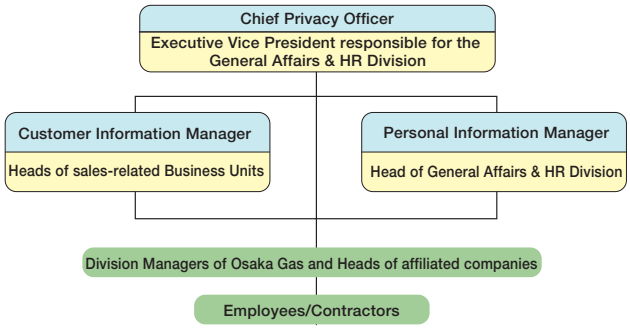
■ Rate of affirmative responses (excerpt)



Protection of personal information (privacy policy)

As a public utility, Osaka Gas handles enormous amount of personal information in its day-to-day business operation. We are keenly aware of the protection of personal information and are implementing action to safeguard privacy.
During the year under review, there were some incidences of leaks and loss of personal information by Osaka Gas and affiliated companies. To prevent recurrence of such incidences, the issue was taken up as a subject for compliance at trainings and seminars. On the same subject, e-learning program was implemented for Osaka Gas employees. For affiliated companies in the group, we provided intranet and other tools for education and training. We have requested that their status of implementation of education and training programs to be reported to Osaka Gas. Work will be continued to further our activities on safeguarding personal information.

<Organization for protecting personal information>



■ Press releases on loss/leakage of personal information

Time	Case	What happened
July 2006	Mishandling of e-mail addresses	Mishandling of e-mail addresses of 115 recipients (leakage of addresses)
August 2006	Loss of customer information	Information on customers (20) having gas leak alarms lost at a contractor and recovered two days later.
January 2007	Loss of customer information	Loss of documents containing LPG customer information (346) at a meter-reading subsidiary
February 2007	Loss of customer information	A mobile terminal containing customer information (239) lost by an employee on a motor bike of a affiliated company to whom gas facility survey work is subcontracted.

EXPERT OPINION

Osaka Gas should remain proactive on compliance

Mr. Koichi Ikeda
Professor
Graduate School of Business Administration
Rikkyo University

Compliance does not only refer to observing rules and regulations. Rather, businesses are expected to be more proactive in their activities for furthering compliance by understanding changes in people's values and by defining their actions at the time of major changes in laws and regulations. Times require that these changes in values need to be assessed to define their actions, and if necessary, to reform their work processes and management policies. This approach is particularly important when globalization is progressing at such a dramatic pace and the society is changing very fast.
Osaka Gas has taken positive steps in furthering its commitment to compliance the result of which has been fully disclosed. As a company having a high regard for compliance, Osaka Gas should demonstrate its commitment in order to restore people's confidence by preventing unfavorable incidences and to be more proactive in its business management and reforms.

Violation of anti-monopoly regulations by a subsidiary

In May 2007, it was officially recognized by the Fair Trade Commission that an affiliated company of Osaka Gas had been involved in a violation of anti-monopoly regulation associated with the Eco-station construction project and that the commission ordered the affiliated for the removal of such activities and the payment of penal charges. Against Osaka Gas, we were asked to take necessary actions to prevent such illegal activities.

We deeply regret such outcome of the incident and that we want to express our deepest apologies to all the parties concerned.

Since July 2006, Osaka Gas has implemented various actions to prevent recurrence of the similar incidents. Bearing our renewed awareness on the issue, we would prevent recurrence of the similar incidents. We intend to practice not only full compliance with laws and regulations but also fair and transparent business practices so that society's trust towards us is restored.

Actions implemented by the Osaka Gas Group for preventing recurrence of problems

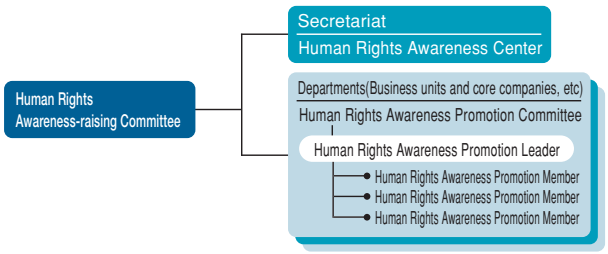
1. Familiarization of laws and regulations	・Education/training for the entire workforce of the group (including e-learning) ・Reinforcement and continuation of education/training on compliance for each employee segment
2. Nurturing a corporate culture and a system for strict compliance and prevention of problems	・Sharing of problem cases and actions taken at Compliance Sub-committee ・Planning and implementation of voluntary compliance actions specific to work groups and business divisions
3. Supervising and monitoring by the entire group	・Voluntary checks and follow-up on internal rules and regulations by means of an established risk management system

Respect for human rights

With heightened social awareness on human rights, businesses are required to practice actions in various facets of their business activities.
The Osaka Gas Group is engaged in activities to deepen understanding about human rights and to realize a work environment that respects human rights.

Organization for respecting human rights

The Corporate Human Rights Committee organized within the Personnel Department functions as the secretariat for company-wide activities on human rights. Each business unit of Osaka Gas and core affiliated company has the Human Rights Committee.



Human Rights Promotion Plans

During the past year, we implemented our activities as shown below with the slogan 'Realizing a corporate culture to respect employees.'

1. Building organization for furthering human rights-related activities
2. Enriching education on human rights
3. Training leaders within each division for human rights
4. Information gathering and internal transmission
5. Participation in human rights associations for businesses

Human rights training/education

Various programs have been implemented for all levels of employees and to train human rights leaders. Material and courses designed outside have been used.

For those newly appointed in the middle management, classes were given on basics and case studies on human rights. Video and discussions sessions were conducted on various issues including sexual and power harassments.

Education on Human Rights

Managers	May, July, August, October, November, December	210
Employees	February	457
New employees	April	123

Participation in external programs

Those on human rights and anti-discrimination, etc.	40

(Cumulative total)

CSR Charter V

Management policy for achieving growth of employees

While ensuring employment opportunities, the Osaka Gas Group, respecting employees' initiatives and personalities, strives to provide its employees with opportunities to grow through their work. Employees, in turn, seek to create new value to meet the expectations of customers, shareholders, and society, through self-discipline and dedication to work. Employees and management based on their relationship of trust and reason work together for sound growth of companies within the Osaka Gas Group.

Employment and compensation

While ensuring employment opportunities, the Osaka Gas Group, respecting employees' initiatives and personalities, strives to provide its employees with opportunities to grow through their work.
Employees' sense of achievement and fulfillment through work is an important element of the management principle of achieving growth of employees and subsequently, ensuring growth of a business enterprise.

Efforts for employment

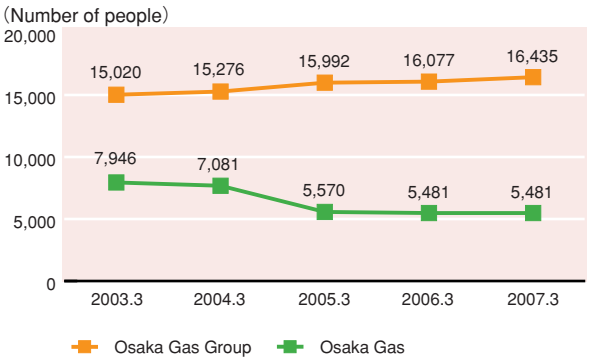
Employment policy

We practice fair and equal employment throughout the Osaka Gas Group, respecting employees' capabilities and matching their abilities with company's needs.
Employment and compensation systems are so designed to meet versatile values of employees and their lifestyles in order to realize a workplace friendly to employees.

Personnel management policies

1. Performance
2. Choices
3. Transparency
4. Flexibility

■ Number of employees



Support to employees pre and post retirement

Career Development Center in our Human Resources Department supports employees in planning their career and lifestyles before and after retirement. Consultation meetings/seminars are given to employees at ages 43 and 53. Counselor's advice is given at the interview on the basis of employee's responses to questionnaire. At 53, a seminar is held for employees to plan their life after retirement.

Consultation seminar

■ Employment status of Osaka Gas

<As of March 31, 2007 (excluding those loaned to subsidiaries/affiliates and other organizations)>

- Number of employees: 5,481 (Male: 4,736, Female: 745)
- Average age: 42.0 (Male: 42.3, Female: 39.2)
- Average years of service: 20.6 (Male: 20.9, Female: 18.9)

<As of April 1, 2007>

- Number of newly employed: 92 (Male: 83, Female: 9)

<FY2007>

- Turn-over rate of employees below age 50: 0.65%/year

Employment of the disabled

Employment opportunities are open to the disabled throughout the year. Osaka Gas is working to develop a work environment friendly to the disabled.

■ Rate of the disabled employed

	03.4	04.4	05.4	06.4	07.4
%	1.96	2.04	2.18	2.37	2.43

Mandatory employment rate of the disabled 1.8%

Post-retirement employment

The Osaka Gas Group has adopted a policy of employment for those over 60 years old on the basis of government regulations on employment of workers of higher ages.
Osaka Gas practices re-employment of its retired employees by matching of workers with jobs on an open posting system. All those seeking continued career after retirement have realized their job placements.

■ Status of re-employment of retired employees

Time of retirement	2005.3	2005.9	2006.3	2006.9	2007.3
No of employees at retirement	40	46	24	28	46
Those seeking re-employment	20	25	11	17	22
No of those placements	20	25	11	17	22
Rate of re-employment	100%	100%	100%	100%	100%

Supporting employees make most of their lives

Supporting employees make most of their lives

Osaka Gas seeks to build a work environment for employees to maximize their individual potentials both at work and in their everyday lives.

Support employees' family care

In line with the government's guidance on corporate assistance to future generations, Osaka Gas provides its employees with various supports before and after taking leaves including a PC rental which enables an employee to use intranet and company's e-mail system and a program to coordinate with managers for returning to their jobs.
Maternal leave program enables employees take off from work up to three years after childbirth. Shorter work program allows them to work shorter working hours up to the time when a child finishes his/her third year in elementary school. Family care system lets an employee suspend their work up to 366 days.
Recognizing these support programs by the company, the Minister of Welfare and Labor commended Osaka Gas with a recognition as the first company in the gas and electricity sector in Japan for the business positively supporting childcare under the ministry's promotional actions on supporting future generations.

Support employees in their social work and public duties

Osaka Gas has various programs to support employees' playing their more positive roles in society including public duties such as Saiban-in system (citizen judge system), and community/volunteer activities.

A Guidebook for Work and Childcare

A badge of recognition
A business enterprise recognized by the government for its childcare assistance is given this mark of recognition. A business is certified for its action plans and achievement of targets.

Comments from an employee

I took advantage of the company's support program for well over three years as I became pregnant while on a maternal leave after having the first child. I am truly grateful to my colleagues at work who acknowledged my absence and return to the work place. While I was away, I had an access to the company's intranet thanks to the rent of a computer from the company which made my return to the work place easier. I now work shorter hours so that I can enjoy both work and childcare.

Midori Kamo
Corporate Sales Dept.
Residential Energy Business Unit

EXPERT OPINION

Achieving balance between work and family

Ms. Miyuki Shimizu
President
Management & Career Consultants Co., Ltd.

I had had an image towards Osaka Gas as an enterprise that provides women with good workplace for pursuing their career. When the Equal Employment Opportunity Law was enforced in the late 1980s, there were some women in the middle management of the company.

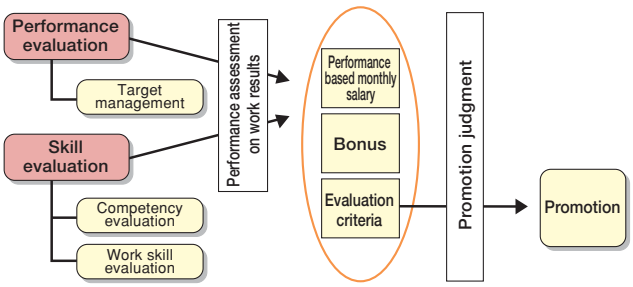
When I organized a seminar for women in the sales force around 1990, those participants from Osaka Gas in the late 20s had their families and enjoyed fulfilling working lives. I remember well because in those days there weren't many companies in Japan where women played managerial roles. Now that the society is looking more closely at the businesses' commitment to CSR, the value they provide their stakeholders, such as customers, employees, shareholder, is an important criteria for judgment.

In this respect, I hope Osaka Gas will continue to provide its employees with programs that could enrich their versatile lifestyles of enjoying both work and family life.

Employee performance evaluation and interview

Policy on performance evaluation

To encourage employee's self-initiative and growth, there needs to be a favorable cycle of performance expectations, performance evaluation, result feedback, and remuneration. Interview between manager and employee is a particularly focused activity in building this cycle.
In addition to performance results on the basis of employee's work targets, we have competency and work skills evaluation systems to appraise work process, and his/her positive attitude in work.



Work target management system

In this system, a review is made on how an employee's targets are dealt with and to what extent they have been achieved on the basis of employee's own initiative. Employee's results other than his/her targets are also taken into account. The system was jointly developed by the management and union and implemented in 2007.

Encouragement of employees' own initiatives in career development

In order for employees to review his/her career and to envision future career objectives, interviews are conducted between manager and employee on the basis of employee's self assessment and judgment. The results are integrated into database for job assignment and rotation.
A posting system is available for employees to take advantage of publicly posted job assignments within the group. Over 200 employees used these opportunities to develop their own career within the group.

Nurturing employees with 'high value'

To ensure competitive advantage of the Osaka Gas Group, a priority is given to nurture employees that have special value to maximize group performance both on offensive and defensive fronts.

Training system

We have developed various staff training programs under our training system, with "Stage by Stage Training" based on duties and qualifications, "Management Training" for supervisors, "Leader Training" and etc.

Training for career development

In all stages of the early career of employees, training programs are so designed to motivate and to develop a person's career within the company. Follow-up training sessions are given in the initial three years of the career to sustain their motivation and to build up basic business skills.

Management training

To reinforce management skills, we implemented in 2005 a three-year management skill reinforcement trainings. In the initial year, both e-learning and group sessions were given them to acquire basic skills and basic awareness on management behavior. The program covered in the second year an all-round self-assessment on the person's management strengths and weaknesses. The third year program includes a program to identify points for growth through individual training and interviews with managers for the purpose of improving their weaknesses.

Leadership training

A number of programs are available to train leaders of tomorrow to lead business innovations. Business Leader Program teaches participants the general aspects of management and trains their skills through interaction with people from other industry sectors. There are internal schools available for selected management candidates to develop their management skills.

Support for self-initiatives

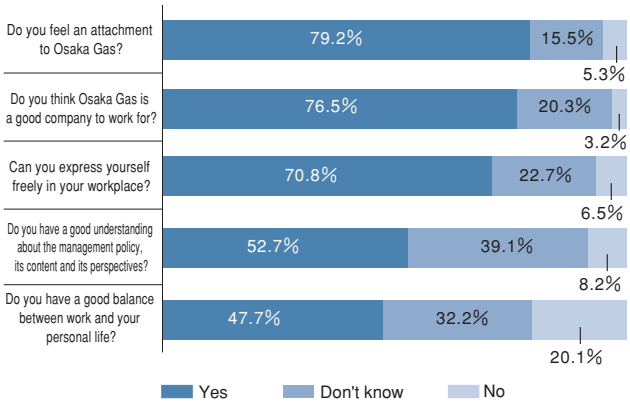
All employees are encouraged to use their self-initiative to participate in seminars totaling 30 during the year. Also, they have twice a year opportunities to sign up for education by correspondence. Financial support by the company is given to employee to encourage their own initiatives.

Communication between management and employees

Employee Awareness Survey

Surveys are conducted periodically to measure employees' awareness on their work, work environment, managers, and general aspects of the company.
The survey, previously conducted once every five years, now verifies twice yearly their work motivation and listens to their voices in a timely manner. During the last year, there were about 2,000 employees who were subjected to each survey, in summer and the other in winter.
The survey revealed that employees showed positive views on their attachment to the company, and relationships with managers and colleagues、but less so in their understanding about management policies. This year's action therefore was focused on conveying the management's message to employees on penetration of the management plan. We will continue an effective use of the survey to motivate employees.

Responses to survey



Building healthy and favorable management/employee relationship

The management of Osaka Gas implements its business activities with good understanding and cooperation of the labor union on all facets of management through continuous discussions and consultations. The top management and the union meet on a regular basis for open exchange of views on issues of business management. The ties based on mutual understanding and trust are a basis of the favorable industrial relations of Osaka Gas and this tradition would be sustained.

Activities of the labor union

The union comprises the membership of 6,100 employees of Osaka Gas. The union implements various activities to improve the workplace and to assist employees achieve their fulfilling career. One of the activities is focused on monitoring and partnership functions for the management. Through meetings with the top management and the management of business units, we ensure flow of views between them on management issues. In terms of monitoring functions, the union gives its opinions from the viewpoints of compliance and CSR.

Toshikazu Honda
Chairman
Osaka Gas Workers Union

Dialog between the top management and employees

Since 2004, the president directly meets with employees in their workplace for direct dialog. The president wants to use the opportunity to directly convey to the employees the management issues and visions and to share common awareness between the management and employees.
Last year, 11 meetings were held at different locations (marketing headquarters, LNG terminals, laboratories, and head office) and they were participated by the total of 420 employees bringing the total since the initial year to 1,324.
Employees appreciated these meetings to develop understanding about market situation and to feel directly the leadership of the president and his expectations towards the employees.

Health and safety

The Osaka Gas Group has a long tradition of its dedication to enhance employee health and workplace safety throughout the entire group. Not to mention compliance with safety and heath rules and regulations, the group has its own internal rules and manuals on health and safety and safe driving. Their implementation is the responsibility of health and safety divisions within the group. The PDCA cycle is embedded in their work cycle to enhance safety.

Safety activities

Enhancing the tradition of safety

We have the group-wide labor safety management system. Each unit and division is responsible for establishing a cycle of planning, implementation, evaluation, and improvement.

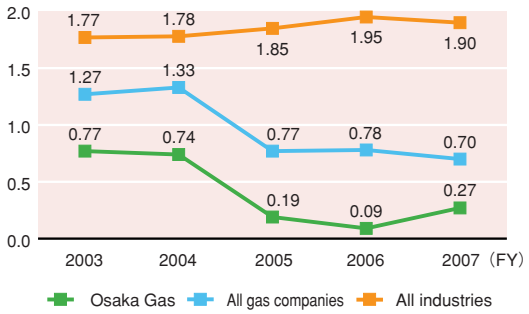
Evaluation and follow-up of safety

In case of labor hazard and incidences, each division is required to present a full report to the management, which is later followed up by review on actions for prevention of recurrence. These reports are shared across the company. We have our proprietary system of quantifying labor incidences in the form of 'incidence index' which is used as a basis of evaluation of safety levels for each unit/division.

Safe driving for the sake of the community

The Osaka Gas Group uses a large fleet of vehicles. Because of this, we have internal licensing program to qualify employees to drive company vehicles for their business activities. For acquisition and renewal of these licenses, employees are required to participate in the safe driving courses at the Safe Driving Training Center. For vehicles used by our contractors with the same corporate logo of Osaka Gas, we have safety driving campaign for the employees of these companies in order for the community to understand our commitment to safe driving.

■ Ratio of labor accidents (Lost-time Injury Frequency Rate)



Health and fitness of employees

Health Services Center

As a focal point for promoting employees' health and fitness, we have the Health Services Center within the Human Resources Department. The center is responsible for health examination and consultation and other activities as propagated by the Ministry of Welfare and Labor. Employees of some affiliates of the group also have access to the center.

Early identification and prevention of diseases

Employees are required by law to go through annual medical examinations. Personalized consultations are given to employees on the basis of examinations for promoting their health. To address problems associated with overwork, we require those employees with over 80 hours of overwork per month to consult with medical doctors.*

* Regulations require businesses to provide medical consultations only when they are requested by employees.

Mental healthcare

Mental health is a field of increasing importance in employee health. Starting in 2007, annual health examinees take stress checks. In the training courses for new manager, one of the key issue fields in the program is mental health of staff members in a work group.

Environmental Performance Data

(FY)	2003	2004	2005	2006	2007	Reference
Affiliated companies: No. of consolidated companies*1	53	76	81	81	81	
■Energy consumption*2						P29 P30 P31
(1) Total energy consumption (crude oil equivalent: kl)	294,321	619,718	750,497	873,798	955,975	
Osaka Gas	72,615	65,771	114,360	118,562	118,357	
Gas business	65,366	58,631	59,561	60,741	59,577	
LNG terminals	43,538	38,350	41,445	42,230	39,875	
Business locations, etc.	21,828	20,281	18,116	18,511	19,702	
Thermal energy supply business	7,249	7,141	6,768	6,444	6,557	
Power generation business	—	—	48,031	51,376	52,223	
Affiliated companies	221,707	553,946	636,137	755,236	837,618	
(2) Electricity (1,000 kWh)	447,559	450,025	476,588	466,523	450,874	
Osaka Gas	153,540	137,004	144,247	141,673	132,596	
Gas business	148,805	132,552	138,717	136,542	127,466	
LNG terminals	109,397	98,064	106,426	104,441	95,801	
Business locations, etc.	39,408	34,488	32,291	32,101	31,665	
Thermal energy supply business	4,735	4,452	4,536	4,301	4,343	
Power generation business	—	—	994	830	787	
Affiliated companies	294,019	313,021	332,341	324,851	318,278	
(3) Gas (1,000)	150,403	213,848	288,207	409,644	474,545	
Osaka Gas	27,099	24,999	65,394	69,548	71,362	
Gas business	21,904	19,835	19,419	20,882	21,870	
LNG terminals	13,239	11,286	12,101	13,219	13,104	
Business locations, etc.	8,665	8,549	7,318	7,663	8,766	
Thermal energy supply business	5,195	5,164	4,825	4,598	4,686	
Power generation business	—	—	41,150	44,068	44,807	
Affiliated companies	123,304	188,849	222,813	340,096	403,184	
(4) Vehicle fuel (gasoline: kl)	2,557	3,121	3,445	3,809	3,663	
Osaka Gas: Gas business	1,366	1,186	998	1,046	1,058	
LNG terminals	2	2	1	1	1	
Business locations, etc.	1,363	1,184	997	1,044	1,057	
Affiliated companies	1,191	1,935	2,447	2,764	2,605	
(5) Vehicle fuel (diesel oil: kl)	653	444	355	369	664	
Osaka Gas: Gas business	24	16	13	15	14	
LNG terminals	13	7	5	4	4	
Business locations, etc.	12	9	8	11	10	
Affiliated companies	629	428	342	354	651	
(6) Vehicle fuel (gas for natural gas vehicles: 1,000)	358	407	458	474	424	
Osaka Gas: Gas business	358	372	370	367	380	
LNG terminals	11	12	12	11	12	
Business locations, etc.	347	360	358	356	368	
Affiliated companies	—	36	87	107	44	
(7) Other fuels (coal, heavy oil, etc.) (crude oil equivalent: kl)	1,238	251,985	289,340	273,884	284,634	
Affiliated companies	1,238	251,985	289,340	273,884	284,634	

■Atmospheric emissions						P29 P30 P31
(1) CO_2(1,000 t-CO_2)*2	665	1,689	2,010	2,226	2,398	
Osaka Gas	172	155	252	260	258	
Gas business	157	141	143	145	141	
LNG terminals	106	94	101	102	96	
Business locations, etc.	51	47	42	43	45	
Thermal energy supply business	15	15	14	13	14	
Power generation business	—	—	95	101	103	
Affiliated companies	493	1,534	1,757	1,966	2,140	
Reference: Data of CO_2 emission for comparison (1,000 t-CO_2)*3	474	1,495	1,805	2,070	2,248	
Osaka Gas	107	97	191	213	214	
Gas business	93	84	84	100	99	
LNG terminals	59	51	56	67	64	
Business locations, etc.	34	32	28	32	35	
Thermal energy supply business	13	13	12	12	12	
Power generation business	—	—	94	101	103	
Affiliated companies	368	1,399	1,615	1,857	2,034	
(2) Methane (t-CH4)	89	141	93	127	115	
Osaka Gas: Gas business (production and supply)	89	141	93	127	115	
(3) NOx (t)	15	16	29	17	24	
Osaka Gas	15	16	29	17	24	
Share of gas business	11	9	16	9	7	

*1 Affiliates' data indicates the total for the companies, excluding overseas and tenant locations where data is difficult to collect. The number of the companies surveyed differs by year and by item. The names of the 81 companies surveyed during FY2007 are shown on our website.

*2 The following per-unit calorific values and emission factors are used for the calculation of energy consumption and CO_2 emissions.

	Purchased electricity	Gas	Gasoline	Diesel oil	LPG	LNG	Heavy fuel oil A	Kerosene	Coal
Per-unit calorific value	9.97 GJ/1,000 kWh	45.0 GJ/1,000 m^3N	34.6 GJ/kl	38.2 GJ/kl	100 GJ/1,000 m^3	45.0 GJ/kl	39.1 GJ/kl	36.7 GJ/kl	26.6 GJ/t
Emission factor	* 0.69 t-CO_2/1,000 kWh	2.29 t-CO_2/1,000 m^3N	2.32 t-CO_2/kl	2.62 t-CO_2/kl	5.98 t-CO_2/1,000 m^3	2.23 t-CO_2/kl	2.71 t-CO_2/kl	2.49 t-CO_2/kl	2.41 t-CO_2/t

*CO_2 emission of purchased electricity subject to control is calculated using the average factor of thermal power plants so that we can precisely assess how the reduction of purchased electricity has contributed to a reduction in CO_2 emission.

Sources:
Emission factor of purchased electricity (factor of thermal power plants*)
: Please refer to July 2001 Target Achieved Scenario Subcommittee Interim Summary, Global Environmental Committee, Central Environmental Council.
Per-unit calorific value and emission factor of gas are as per the announcement of Osaka Gas.
Other values are as per the ministerial ordinance under the Law concerning the Promotion of Measures to Cope with Global Warming.

(FY)	2003	2004	2005	2006	2007	Reference
■Water consumption						P29 P30 P36
General and industrial water (10,000)	362	718	735	675	842	
Osaka Gas (excluding its thermal energy supply business)	156	158	153	151	145	
LNG terminals	111	119	110	110	107	
Business locations, etc.	46	39	42	41	37	
Affiliated companies	205	560	582	525	698	
Sea water (10,000)						
Osaka Gas: Gas business	41,747	41,358	42,257	41,782	38,208	

■Waste						P29 P30 P36
General waste (t)						
Osaka Gas						
Generated	1,809	1,392	973	1,120	1,177	
Recycling rate	62%	73%	81%	84%	82%	
Affiliated companies						
Generated	—	1,369	1,039	1,086	1,062	
Recycling rate	—	21%	35%	22%	27%	
Total						
Generated	1,809	2,761	2,012	2,207	2,240	
Recycling rate	62%	47%	57%	53%	56%	
Industrial waste (t)						
Osaka Gas (excluding used gas appliances, etc.)						
Generated	3,041	4,965	3,836	3,358	2,913	
Recycling rate	78%	85%	89%	94%	95%	
Affiliated companies						
Generated	—	57,727	67,328	75,447	78,286	
Recycling rate	—	84%	89%	90%	88%	
Total						
Generated	3,041	62,692	71,164	78,805	81,198	
Recycling rate	78%	84%	89%	90%	89%	
Used gas appliances, etc. (t)						P30 P37
Generated	6,710	6,089	5,491	5,523	4,786	
Recovered	4,728	4,784	4,715	4,811	4,060	
Recycled	4,679	4,578	4,482	4,570	3,900	
Final disposal	2,031	1,511	1,009	953	887	
Recycling rate	70%	75%	82%	83%	81%	
Recycling of polyethylene pipes (t)						P30 P36
Recovered	133	153	157	152	155	
Recycled	133	153	157	152	155	
Recycling rate	100%	100%	100%	100%	100%	

■Excavated soil (10,000 t)*4						P30 P36
1. Estimated amount of soil generated in case of use of a conventional method	184	193	189	183	184	
2. Reduced	72	80	82	85	83	
3. Generated ((1)−(2))	112	113	107	98	101	
4. Recycled	78	80	79	76	83	
5. Recycling rate ((4)÷(3))	70%	71%	74%	78%	82%	
6. Utilized	26	26	21	18	14	
7. Final disposal ((火)−(水)−(金))	8	7	6	5	4	

■Environmental impact reduction at customer sites*5						P33
CO_2 emission reduction (1,000 t- CO_2)	828	1,058	1,316	1,631	2,068	

■Environmental management indicators*6						P27
Environmental management efficiency (yen/1,000)	314	273	234	196	163	
Monetary value of environmental impact reduction (100 million yen)	2.1	2.9	3.5	3.8	4.3	
Environmental impact reduction efficiency (yen/1,000)	27	38	43	46	49	
Monetary value of environmental impact reduction at customer sites (100 million yen)	29	37	46	57	73	
Environmental impact reduction efficiency at customer sites (yen/1,000)	380	480	575	680	833	

Reference: Amount of gas sold by Osaka Gas (million)	7,687	7,766	8,053	8,448	8,738	P30

* The figures in the table may not add up to the totals due to rounding of fractions.

*3 Following factors are used for calculation of the CO2 emission of purchased electricity.

Fiscal year		2003	2004	2005	2006	2007
Emission factor	kg-CO_2/kWh	0.264	0.260	0.261	0.356	0.358

The most recent emission factor of Kansai Electric Power is used to calculate the yearly CO_2 emission of purchased electricity. (Ex. The CO_2 emission during FY2007 is calculated using the emission factor for FY2006.) The yearly CO_2 emission of purchased electricity is calculated by multiplying the year's electricity consumption by the year's emission factor, which means the emission factor used for the calculation varies from year to year. Therefore, the year-to-year difference in CO_2 emission does not necessarily reflect the effect of emission control measures.

*4 "Estimated amount of soil generated in case of use of a conventional method" means the amount of soil that would be generated if any of the technologies for curbing generation of excavated soil, such as the bore more method and the shallow pipe installation method, were not used. The difference between this estimated amount and the generated amount is the amount of reduction. "Recycled" is the amount of soil recycled as roadbed materials and modified soil by the Osaka Gas Group. The recycling rate refers to the rate of the recycled amount to the generated amount. "Utilized" is the amount of soil that was put to effective use such as reclamation of farmland. The final disposal amount is obtained by subtracting the recycled amount and utilized amount from the generated amount.

*5 This refers to the amount of CO_2 reduced at the sites of commercial and industrial customers as a result of the introduction of high-efficiency appliances and systems including cogeneration systems, gas air-conditioning systems, and high-performance industrial furnaces, taking FY1999 as the base year.

*6 We have set a total of five environmental management indicators, out of which three−"environmental management efficiency," "monetary value of environmental impact reduction," and "environmental impact reduction efficiency"−are for facilitating environmental impact reduction in our business activities, and two−"monetary value of environmental impact reduction at customer sites" and "environmental impact reduction efficiency at customer sites"−are for measuring our contribution to environmental impact reduction at customer sites. Monetary value indicators are obtained by converting the environmental impact, both generated and reduced, into monetary value and the efficiency indicators are calculated by dividing the monetary value by gas sales volume (monetary value per sales volume).

Third Party Review

Osaka Gas asked the Institute for Environmental Management Accounting to conduct a third party review focusing on evaluation and recommendations, including a simplified examination of environmental performance.

IEMA

Evaluation and Comments on Environmental Management and Activities

To: Osaka Gas Co., Ltd.

July 13, 2007

From: Institute for Environmental Management Accounting

國部克彦 Katsuhiko Kokubu
(Professor at Kobe University/Director of IEMA)

梨岡英理子 Eriko Nashioka
(Director of IEMA/Certified Public Accountant)

1. Purpose of the Review

As a third party not involved with the business of Osaka Gas Co., Ltd., we evaluated the social and environmental performance described in the "CSR Report 2007," which Osaka Gas Co., Ltd. prepared, and hereby express our opinions, for the purpose of ensuring its credibility.

2. Procedures

In order to develop our understanding on the planning and implementation process of the social and environmental activities of the company, as well as the evaluation of its performance and utilization of its data, we interviewed Mr. Katsumi Makino, Managing Director and CSR Executive, and put questions to persons in charge at the headquarter office. We conducted sampling checks using procedures partly based on those in financial auditing where necessary to determine whether work is being performed accordingly to compile data for disclosure at Kinpai.

3. Conclusions

FY2007 is the initial year of the new Medium-Term Plan for which new targets to be achieved by FY2009 have been set. Some of the initial targets set for five areas have already been achieved, and other targets are also likely to be met by FY2009 judging from the good performance shown so far. In FY2008, it will be necessary to review the level of performance and reexamine the appropriateness of the initially set targets in greater depth to ensure that all the targets will be achieved in the last year of the Medium-Term Plan. The group-wide efforts for environmental preservation have achieved steady progress, and we expect more numerical environmental targets will be set and applied to all the affiliated companies. Information on social activities is disclosed in sufficient detail. Especially, the information on employment and work conditions is fully provided, reflecting the characteristics of the basic management philosophy of "fostering personal growth through work." We suggest that like environmental performance, some targets be set for social performance as well: if numerical targets are difficult to set, then qualitative targets will do. The process of setting targets by collecting the opinions of as many stakeholders as possible is very helpful in strengthening the basis of CSR management. In addition, no significant errors were found in the calculation of the environmental performance data over the range that we examined by the procedures described.

Significant Performance Matters

1. Environmental Management System (EMS)

Comprehensive EMS has already been in place at Osaka Gas, and now efforts are underway to expand its coverage to the entire group. Some form of management standards, including Osaka Gas EMS (OGEMS), will be introduced to all the affiliated companies by the end of FY2009, and accordingly the importance of setting environmental targets is being applied to group-wide performance. At the same time, uniform formats should be applied to all the business locations and affiliated companies for collection of environmental data, to ensure necessary data will be collected more promptly and easily. Considering that evaluation of environmental performance is determined by the data collected for this purpose, it is important to design a far-sighted data collection system in anticipation of future developments.

We found that at Kinpai, an effective management system is in place and properly operated, and environmental management is pursued in a manner required of members of the Osaka Gas Group. On the other hand, its information collection system, though operated meticulously, is still dependent on manual work compared with the system in place at Osaka Gas. We recommend that Kinpai produce an operation manual to ensure more systematic operation.

2. Environmental accounting and management indicators

At Osaka Gas, sophisticated environmental management indicators applicable to both the environmental accounting system and the performance evaluation system have been used and contributed to effective environmental preservation activities. However, years have passed since these indicators were set and a review of the indicators is now required to address the drastic changes in circumstances that have taken place over these years. Therefore, we suggest that the environmental management system and environmental information collection system be revised and at the same time, the environmental management indicators be redesigned to better reflect reality. The environmental information in possession of Osaka Gas is very reliable and useful. We believe more versatile indicators will be needed if Osaka Gas is to pursue management focusing on not only environment but also CSR.

Efforts to address global warming (NEXT 21)

We inspected the NEXT 21 experimental residential complex of Osaka Gas, where various innovative experiments are conducted to envisage future lifestyles through the actual living experience of the occupants. These experiments will contribute to the enhancement of energy efficiency, waste reduction, increase of housing durability, preservation of biodiversity, and promotion of neighborhood communications, and should be highly evaluated. We believe that by conducting the NEXT 21 project to explore both social and environmental sustainability, Osaka Gas will not only open up possibilities for its future development but also contribute to the well-being of the society at large. We hope that the achievements of this project will be effectively used for the purpose of realizing a sustainable society.

CSR Report

The contents of this year's CSR Report are arranged in line with the CSR Charter, allowing the activities of Osaka Gas in each category to be presented clearly. The Report begins with special topics, which highlights the priority issues that Osaka Gas wants to communicate to the readers. Throughout the Report, we can see the sincere attitude of Osaka Gas to provide reliable information in a straightforward way, and such an attitude deserves to be commended.

Interview between Professor Kokubu and Mr. Makino, CSR Executive of Osaka Gas

Professor Katsuhiko Kokubu, Graduate School of Business Administration, Kobe University (right)
Katsumi Makino, Managing Director and CSR Executive, Osaka Gas Co., Ltd. (left)

In the third party review, some key aspects of the CSR activities of the Osaka Gas Group, including the process of planning and implementing our social and environmental management activities and the efficiency of our systems for collection of environmental performance data, were examined and opinions were offered. This time, the review was extended to include Kinpai, a member of the Osaka Gas Group that was granted ISO14001 certification in FY2007, in addition to the head office, and also involved an inspection of our experimental residential complex, "NEXT 21."
Following the inspection, Professor Kokubu had an interview with Mr. Makino, our CSR Executive, in which he acknowledged the CSR efforts of the Osaka Gas Group and offered advice that is highly helpful in further promoting CSR activities within the group.

Inspection at Kinpai

Inspection at the NEXT 21 experimental residential complex

Message from Katsumi Makino, Managing Director and CSR Executive, Osaka Gas Co., Ltd.

During FY2007, we integrated the separate corporate activities policies set by Osaka Gas and its affiliated companies into the "Osaka Gas Group CSR Charter" applicable to all the affiliated companies, and revised the "Code of Conduct of the Osaka Gas Group" which provided specific guidelines for implementation of the Charter. In this sense, FY2007 was the year of strengthening the basis of our CSR promotion system.
Needless to say, one of the most important factors of CSR activities is "compliance." Regrettably, the Osaka Gas Group had a serious compliance problem of violation of the antitrust law. Determined never to allow such a problem to recur, we reinforced our compliance education system and applied the system to all employees of the Osaka Gas Group. In doing so, we hope to incorporate the focus on compliance into the corporate culture of all the affiliated companies.
In FY2008, we will work to ensure that the entire Osaka Gas Group will be fully aware of the compliance issue, and encourage them to pursue CSR activities on a companywide basis. We will also make committed efforts to set targets not only for environmental activities but also for social activities to enhance our CSR management to a higher level.

Our Response to Suggestions and Opinions

comment

In the 2006 edition of this report, information was provided uniquely in line with the four values of the "Value Creation Management." However, the link between these values and the CSR efforts was not clearly visible.

action

The 2007 edition is structured around the "Osaka Gas Group CSR Charter" to present our CSR efforts more clearly.

comment

I want to know how Osaka Gas, as an energy company, is striving to contribute to development of sustainable society.

action

The 2007 edition features two special topics, the "efforts to address global warming" and the "safety and security measures," which are both important issues to be addressed by energy companies.

comment

The 2006 edition is exemplary in that it places special emphasis on environmental issues, which are major concerns of energy companies, and includes detailed analysis and evaluation of the group's environmental performance.

action

The 2007 edition also includes detailed descriptions of our environmental efforts. It also shows the year-to-year environmental performance data collectively at the end of the report for easier comparison.

comment

Issues other than environment are not covered as fully as we would like. (In particular, information on issues concerning "employee value" is insufficient.)

action

The 2007 edition adds more pages to provide information about our social involvement, and compliance and employee issues in greater detail.

comment

Environmental targets are well managed, but how about other CSR targets? Are there any numerical targets?

action

We have an internal system to manage some of the CSR targets, other than environmental targets. We will continue to work to set CSR targets, both numerical and qualitative.

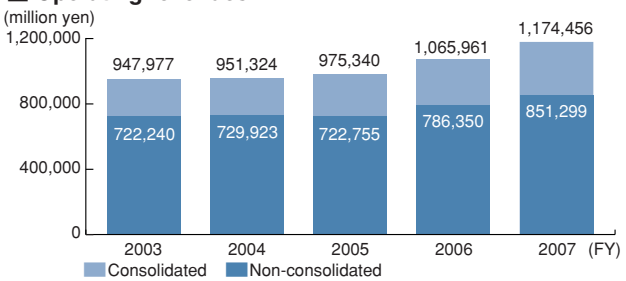
Profile of Osaka Gas Group

Corporate Profile (as of March 31, 2007)

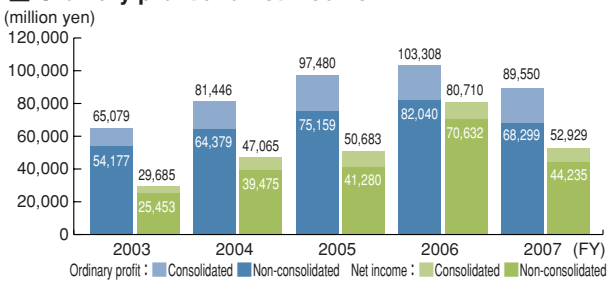
Head office 4-1-2, Hiranomachi, Chuo-ku, Osaka 541-0046, Japan
Establishment April 10, 1897
Commencement of service October 19, 1905
Number of employees (Non-consolidated) 5,481 (including operating officers, directors and temporary employees, and excluding employees temporarily transferred to affiliated companies)
(Consolidated) 16,435

Capital 132,166 million yen
Major business fields (1) Manufacture, delivery and sale of gas
(2) Delivery and sale of LPG
(3) Generation, delivery and sale of electrical power
(4) Sale of gas appliances
(5) Installation of housepipes

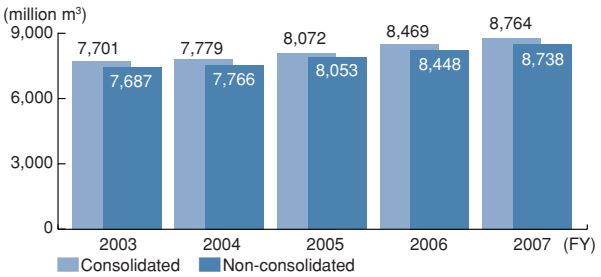
Operating revenues



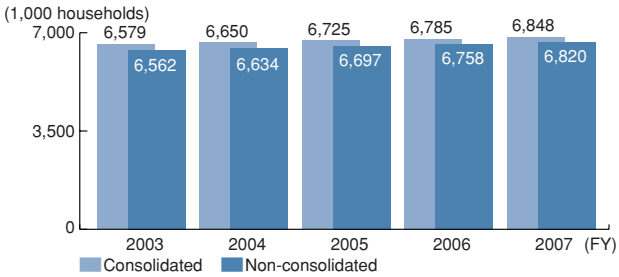
Ordinary profit and net income



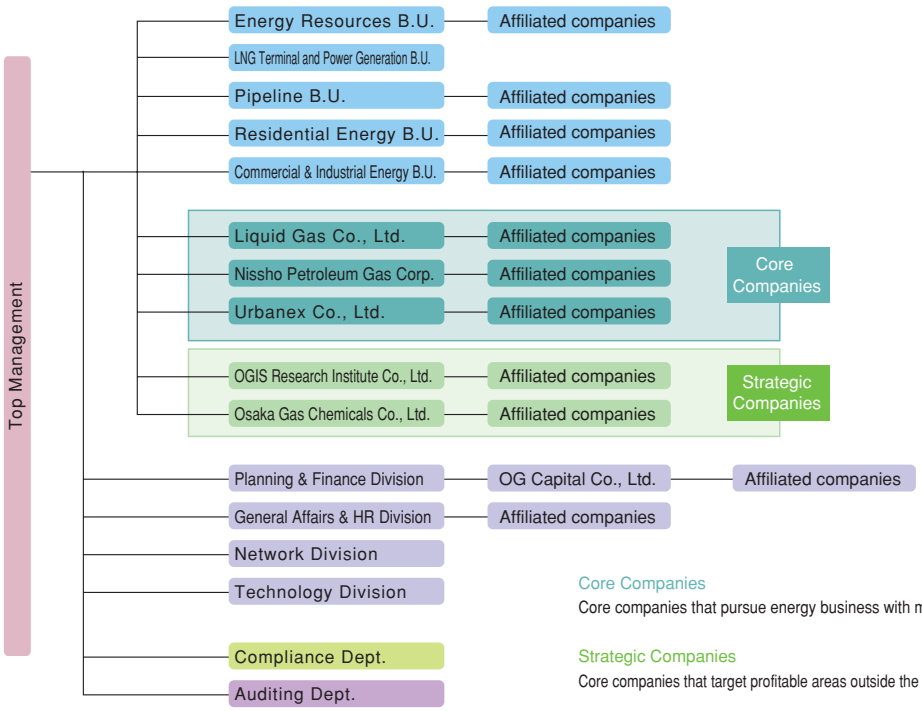
Gas sales by volume



No. of customers (No. of gas meters installed)



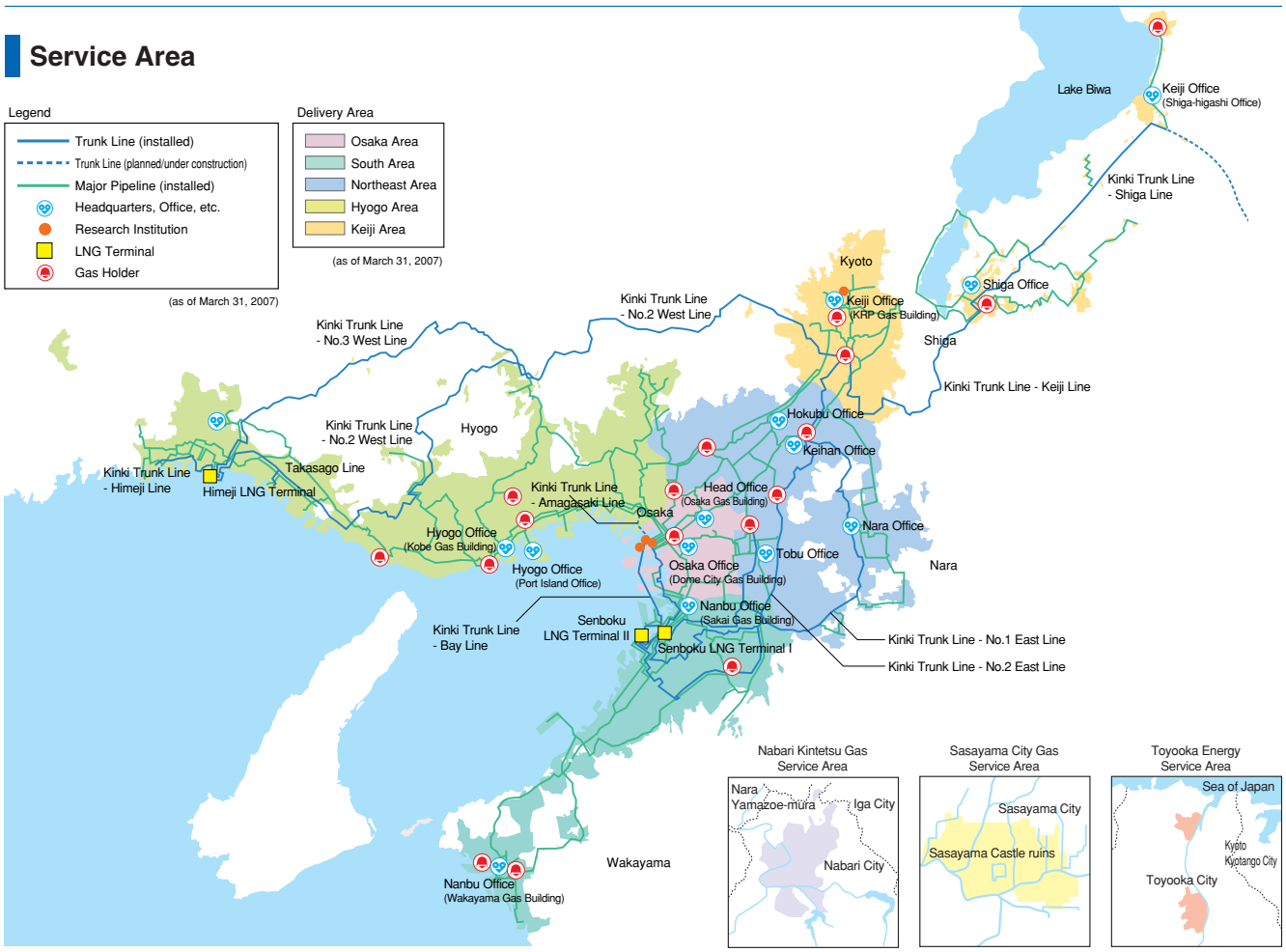
Osaka Gas Group Management Structure



Core Companies
Core companies that pursue energy business with maximum synergies and aim for growth

Strategic Companies
Core companies that target profitable areas outside the group, and aim to contribute to the group

Service Area



Osaka Gas tops the electricity and gas categories in the Environmental Management Survey

In December 2006, the Nikkei announced that Osaka Gas topped the electricity and gas categories in its Environmental Management Survey. Toyo Keizai Inc. also puts Osaka Gas in 16th position among 865 companies in its general CSR ranking, published in May 2007. We will keep our performance at high levels by maintaining the virtuous cycle of disclosing corporate data of the Osaka Gas Group, setting higher targets and working to achieve them.

Inclusion in various SRI indexes

As of the end of March 2007, Osaka Gas is included in the following socially responsible investment (SRI) indexes.

- FTSE4 Good Index Series
- Ethical Index Global (E. Capital Partners)
- Morningstar Socially Responsible Investment Index
- KLD Global Climate 100 Index (KLD Research & Analytics)
- Ethibel Sustainability Index

Editor's Postscript

In this second issue of our "CSR Report" which replaced the annual "Environmental and Social Action Report" last year, we have introduced our CSR efforts in five categories in line with the Osaka Gas Group CSR Charter adopted in April 2006, while giving greater focus on our social contributions and activities of employees. This Report also features two special topics, the "efforts to address global warming" and the "safety and security measures," to show how we are working to realize a sustainable society.
This Report was produced in cooperation with the "CSR Report Preparation Working Group" comprised of staff members of relevant organizations, which was established specially for this purpose.

Taking the production of this CSR Report as a step forward, we will continue our efforts to enhance CSR awareness across the entire Osaka Gas Group. Your honest and frank opinions and feedback will be very much appreciated and will help us continue to improve these reports.

September 2007
Environment Department, Osaka Gas Co., Ltd.

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