

2008

OSAKA GAS GROUP

# CSR REPORT

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## ■ 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 the "efforts to address global warming" 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 edited this report in compliance with the "Environmental Reporting Guidelines FY2007" of the Ministry of the Environment and reference to the "Sustainability Reporting Guidelines 2006" of the Global Reporting Initiative.  
(Please refer to our website for reference tables with the 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 71 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 71 affiliated companies surveyed.)

### 2. Reporting period

While annual data covered in this report are those of FY2008 (from April 1, 2007 to March 31, 2008), some of the efforts in FY2009 are included in some sections.

### 3. Publication

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

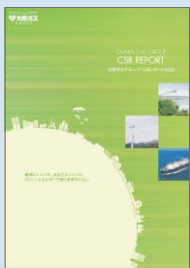
PDF version of this report is placed on our website.

<http://www.osakagas.co.jp/csr/>



For the articles with this mark, more detailed information is available on our website.

## ■ Main Corporate Reports



[CSR Report]

Report of CSR activities undertaken by the Osaka Gas Group



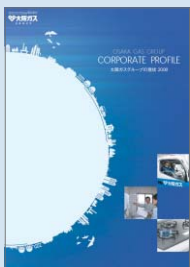
[CSR Report: digest version]

Simplified CSR Report (Japanese Version only)



[Website]

Comprehensive report on CSR efforts by the Osaka Gas Group



[Corporate Profile]



[Annual Report]

Report for shareholders and investors

## ■ Performance in CSR rankings in FY2008

Medium	Ranking of Osaka Gas
Nikkei Environmental Management Survey (December 2007)	3 <sup>rd</sup> (Electricity/Gas sector)
Nikkei Corporate Excellence Ranking (March 2008)	Flexibility and Social Responsibility: 5 <sup>th</sup> (among 1,033 companies)
Toyo Keizai Inc.'s CSR Ranking (May 2008)	13 <sup>th</sup> (among 1,061 companies)



Osaka Gas acquired ISO Certification for integrated management system in December 2007



Letter of appreciation from WWF Japan

## ■ Inclusion in SRI Indices

As of the end of March 2008, Osaka Gas is included in the following socially responsible investment (SRI) indices.

- FTSE4Good Index Series
- Ethical Index Global (E.capital Partners)
- Morningstar Socially Responsible Investment Index (MS-SRI)
- KLD Global Climate 100 Index (KLD Research & Analytics)
- Ethibel Sustainability Index

## ■ Our Response to Suggestions and Opinions received toward the 2007 edition

The report itself is easy to read as it is written in line with the "Osaka Gas Group CSR Charter", but the contents are too rich and should be narrowed down.

This year's "CSR Report 2008" is edited along the policy of carrying only the essences of our efforts, whereas detailed information are disclosed on our website.

I look forward to the measures Osaka Gas takes in confronting global warming.

Following the last edition, our challenges toward global warming are featured as a topic in the 2008 report. As a multi-energy service provider, our commitment for realizing sustainable future society is particularly highlighted in the topic.

It is advisable to add notes of self-evaluation concerning the targets and results of the measures taken for environment related issues and is preferable to do the same with other non-environmental-related issues as well.

We conducted self assessment on our performances and added the result to the table of Medium-term Targets and FY2008 Result (P.26). Also the PDCA cycles of our CSR efforts are indicated on chapter cover pages.

Too many writings, small letters, woody expressions and difficult words are making the report hard to read. It is preferable to make use of charts and graphs to make the report reader-friendly.

To improve legibility, we employed universal designs using two-column format to separate charts and writings. Also we kept in mind to use quantitative expressions and insert many pictures.

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Marginal factors 0.69  
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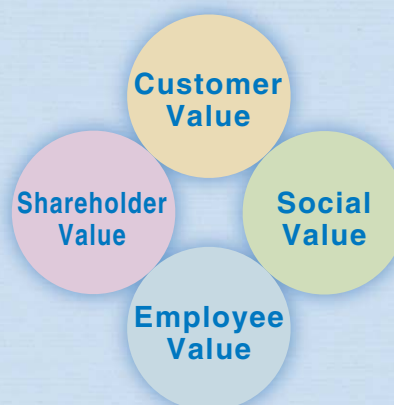
# Management and CSR of Osaka Gas Group

Osaka Gas Group commits to fulfill its responsibility with pursuing  
“Value Creation Management”

## Group Management Principles

“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 through fair and transparent business activities.



## Osaka Gas Group CSR Charter (Established April 2006)

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 P.16 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.

### II P.24 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.

### III P.40 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 healthy development of society.

### IV P.47 Complying with laws and regulations and respect for human rights

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 P.51 Management policy of human growth

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

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. In May 2008, we revised the criteria to reflect the misconduct and new measures of Osaka Gas Group, cases of other businesses and establishment/amendment of legislation.

### 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. Avoiding involvement with anti-social forces, prohibiting favors and benefits
15. Appropriate payment of taxes

## CSR Organization

### ■ CSR Organization



The CSR Promotion Council, under the supervision of President of Osaka Gas, deliberates CSR plans and reports its results of activities. From the viewpoint of promoting overall CSR activities in an integrated manner, we established the CSR Committee to coordinate and promote Group-wide CSR activities. The committee, led by CSR executive, is composed of the heads of business units, the top managements of the core companies, the representative of the labor union, and the independent layer as an external expert. Permeation of CSR Charter and Code of Conduct across the Group is strengthened aiming for promoting each employee's compliance and decent behavior as a member of society.

## Corporate Governance of the Osaka Gas Group

Osaka Gas Group pursues the management policy of maximizing its corporate value through fair and transparent business activities. 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.

### Business operation and auditing system

In decision-making, Osaka Gas follows a clearly defined set of company regulations. Important decisions are only made after being carefully scrutinized by the Executive Board, which is comprised of executive directors and executive officers with a wide range of expertise, and after full discussion by the Board of Directors. The Board of Directors comprises twelve directors, including one outside director. The Board of Directors makes accurate and speedy business decisions and works to improve oversight of the operations of the entire Group. Osaka Gas has also introduced an operating officer system by which each operating officer is engaged in business execution determined by the Board of Directors.

Osaka Gas uses a corporate auditor system. Four corporate auditors, of whom two are outside auditors, monitor the appropriateness of business execution related to the Osaka Gas Group. In addition, the Corporate Auditors' Office composed of three staff members not under the direct control of the directors has been established to support the auditors and thus to improve the audit system.

For independent auditing of accounts, Osaka Gas has retained KPMG Azsa & Co.

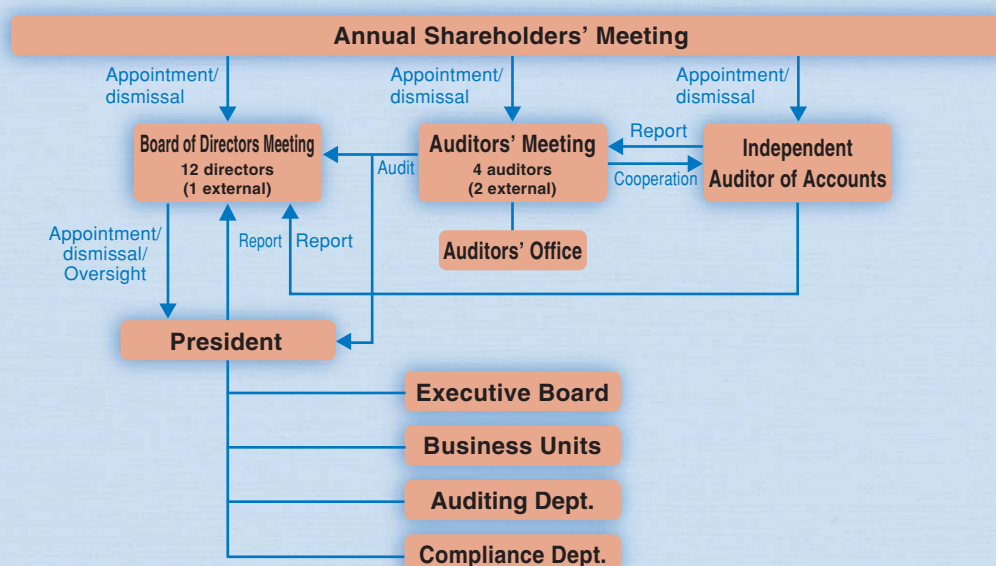
### Internal governance

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.

### Corporate Governance Organization





## Risk Management Principles of the Osaka Gas Group



The Osaka Gas Group 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.

### 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 base unit 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.

## Osaka Gas participates in the UN Global Compact

In June 2007, Osaka Gas announced its participation in the United Nations Global Compact as part of its commitment to furthering its corporate social responsibilities.

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 five thousands business participants in the initiative around the world including some 60 Japanese businesses. Osaka Gas has become the first participant from the Japanese utility industry.

In May 2008, Osaka Gas revised its Code of Conduct incorporating the rest of the principles, which made all of the ten principles are finally covered. 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 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.

## The President's Commitment

**As a corporate group that continues to be the choice of customers and society at large, we are making every effort to evolve by full implementation of CSR management**

### CSR Management of the Osaka Gas Group

We at the Osaka Gas Group believe that implementing our corporate philosophy of Value Creation Management and benefiting society by means of fair and transparent business practices constitute the basis of our CSR activities.

Based on this attitude, in April 2006 we formulated the Osaka Gas Group CSR Charter, and in May 2008 we revised the Osaka Gas Group Code of Conduct. We have also actively engaged in CSR activities such as declaring our participation in the United Nations Global Compact in 2007 and obtaining integrated ISO 14001 certification.

In addition to these existing initiatives, in FY2008 we are accelerating our efforts toward global environmental preservation, including working to develop an environmental management system for all affiliated companies within the Group. We are also putting even greater effort into strengthening compliance, in order to earn consumer trust and support.

### Working toward the High-level Use of the "Clean Energy," Natural Gas

We are conscious that contributing to the creation of a sustainable society through global environmental preservation initiatives lies at the heart of our CSR activities as an energy supplier. Natural gas is the "clean energy" that has the smallest environmental impact of all fossil fuels, and is the focus of attention as a key form of energy for the coming era. By limiting greenhouse gas emissions at the customer level to the greatest extent possible through the expansion of the use of natural gas, Osaka Gas Group has

been contributing to the prevention of global warming. We will continue not only to work for the further expansion of the use of natural gas, but also to accelerate an effort for the technological development with the aim of even higher-level use of natural gas, including the commercialization of fuel cells and the development of technology for the use of hydrogen. We are also working to promote the use of renewable energy in order to contribute to the realization of a sustainable society.

In addition, we are continuing to strive to reduce the environmental impact caused by our business practices, at every stage from procurement, production, and supply to sales and services.

### Working to Earn Consumer Trust and Support

In FY2008, Osaka Gas confirmed that misconduct took place in subsidy projects for natural gas-fired cogeneration systems that received government subsidies to support suppliers of new forms of energy, and the Ministry of Economy, Trade, and Industry took measures including the suspension of these subsidies.

The Osaka Gas Group regards this consequence as extremely regrettable, and we have pressed ahead with a review of our compliance system to ensure that this sort of problem can never happen again. As one aspect of this, we have established a Corporate Ethics Committee, aiming for the improvement in our corporate ethics, where we receive advice from experts from outside the company about our Group compliance practices and all our related business activities.

As well as legislative compliance, we are aiming to ensure that all employees possess high moral





values and act with sound judgment as members of society, and to create a corporate culture in which the relationships of trust we have built up with our connections can be maintained and continued. For this purpose, the entire executive team is setting an example through its leadership of our continuous efforts to strengthen compliance, and as such, I myself am visiting workplaces and talking with employees face to face.

In addition, we are assuring the safety of our gas production and supply by such means as preventive maintenance and earthquake-proofing measures, and are pursuing high levels of safety and reliability in all our products and services, such as the Si sensor equipped cooking stove that combines new features offering both safety and convenience, in a redoubled effort to earn consumer trust.

## Conclusion

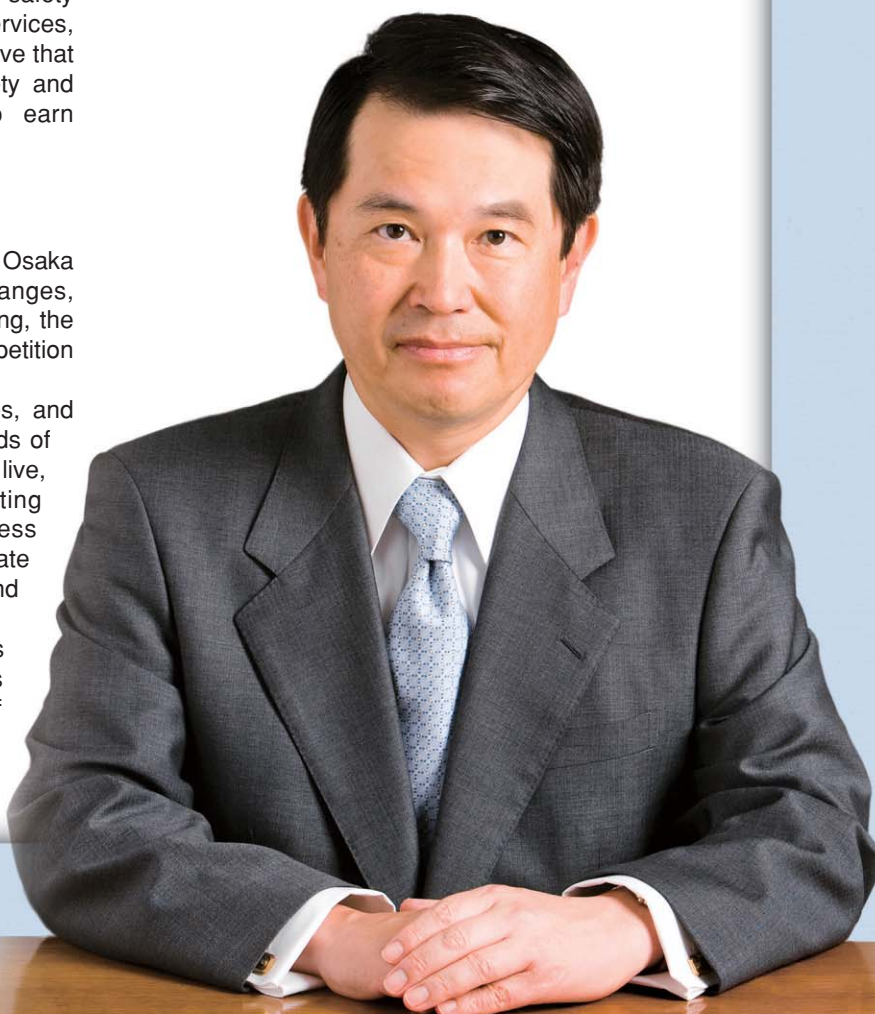
The business environment surrounding the Osaka Gas Group is undergoing major changes, including the need to prevent global warming, the diversifying lifestyles, and intensifying competition in the energy market.

We regard these changes as opportunities, and will respond in a timely manner to the needs of consumers and of the times in which we live, contributing to our customers creating comfortable lifestyles and to business development, in order to remain a corporate group that is the choice of customers and society at large.

We have put together this Osaka Gas Group CSR Report 2008 to enable readers to acquire a more in-depth understanding of

the Group's CSR activities. It includes information outlining CSR activities rooted in local communities, as well as our existing continuing volunteer and environmental preservation initiatives.

I hope you enjoy reading this report, and invite you to share with us your frank opinions.



Hiroshi Ozaki  
President, Osaka Gas Co., Ltd.

尾崎 博

# We are Striving to Prevent the Reoccurrence of Misconducts to Regain Public Trust

In FY2007, an Osaka Gas affiliate was discovered to have acted in violation of the Anti-Monopoly Law. Despite our implementation of efforts to prevent any reoccurrence, in July 2007 a further example of misconduct in a subsidized project was discovered. The Osaka Gas Group regards it as an extremely important issue that such a series of circumstances should never happen again, and the entire Group is engaged in measures to prevent such a situation from reoccurring. We will continue to work to strengthen our thorough implementation of compliance, and strive to regain public trust.

## Misconduct during Eco Station Construction Project

### Background and Penalties

Misconduct was discovered during the ordering process for the construction of a gas filling station ("Eco station") for use by natural gas vehicles, for which an Osaka Gas affiliate had previously submitted a bid. Osaka Gas voluntarily reported this to the Japan Fair Trade Commission in June 2006, and subsequently engaged in efforts to prevent any reoccurrence in addition to imposing internal penalties.

In May 2007, the affiliate concerned was excluded from participation in the project and ordered to pay a financial penalty by the Japan Fair Trade Commission, on the basis that this misconduct during the project had violated the Anti-Monopoly Law.

### Measures to Prevent Reoccurrence

#### 1 Being aware of legislation and regulations

- Enhancement of compliance training at all levels and its continuous implementation.
- Implementation of legislative education for all Group employees through e-learning and other means.

#### 2 Development of a culture of compliance and mechanisms to avoid violations

- Establishment of a Compliance Supervisor in each business unit and core company. Sharing of practical examples and detailed consideration of preventive measures in the Compliance Subcommittee composed of the CSR Executive and the Compliance Executives.
- Implementation of voluntary compliance promotion plans in individual companies and organizations, taking account of the features of each type of business.

#### 3 Auditing and monitoring throughout the Osaka Gas Group

- Improvement of voluntary inspections on the status of compliance with company regulations, business manuals, etc., and enhancement of follow-up of inspection status.

## Misconduct in a Subsidy Project for Natural Gas-fired Cogeneration Systems

### Background

In July 2007, the Osaka Gas Group confirmed through an internal investigation that misconduct had occurred in a subsidy project for the construction of natural gas-fired cogeneration systems, which had been selected for government support as a project to develop new forms of energy and had received subsidies. The Osaka Gas Group reported this fact to the Ministry of Economy, Trade, and Industry (METI).

Subsequently, the Special Committee for Investigating Subsidies, an independent in-house body, carried out an internal investigation of other similar subsidy projects. On September 12 it reported the result of its investigation and future measures with a view to preventing any reoccurrence to METI, and the content of this report and information on the internal penalties imposed were released to the press.

#### Investigation method

A Special Committee for Investigating Subsidies was formed, and conducted the investigations as shown below.

##### Period investigated :

Previous ten years (FY1998-FY2007)

##### Projects investigated :

Out of 151 subsidy projects that had applied for subsidy payments in the period, 124 were investigated. Twenty-seven projects were excluded from the investigation for reasons such as the subsidy being for a set amount or the fact that no contract had taken place between the company and a third party.

#### Investigation results

In September 2007, it was confirmed that in 16 cases the method of selection of the winning bid\* set out in the payment guidelines and other documentation had not been followed, and in six cases there were some inadequacies in the method of selection of the winning bid, all of which constitute misconduct.

\* The guidelines for subsidy payments require that before a contract or similar agreement is signed, competitive bidding must take place or multiple estimates be obtained. Temporary contracts are acceptable, however, in the case of unavoidable reasons given in the guidelines for subsidy payments.

## Penalties Imposed by METI

In January 2008, METI and related organizations\* demanded the repayment of part of the subsidy and issued a reprimand, as well as suspending both subsidy payments and nominations for the nominated competitive bidding system. METI also issued instructions on measures to prevent any reoccurrence.

\*METI together with the New Energy and Industrial Technology Development Organization (NEDO) and the Japan Gas Association (JGA), which are responsible for some subsidy payments.

## Measures to Prevent Reoccurrence

Osaka Gas has both imposed internal penalties and further strengthened measures to prevent the reoccurrence of any incidents of misconduct.

### 1.Improvement of mechanisms operating mutual checks

- Responsibility for the management of subsidy projects has been shifted from regional energy sales departments to the planning department of the commercial & industrial energy business unit, which is the body responsible for managing the business unit (September 2007).
- Purchasing functions for subsidy projects across the entire Group have been moved to the Purchasing Department (January 2008).

### 2.Strengthening internal auditing system

- The Auditing Department has been strengthened by increasing its staff (January 2008).

### 3.Tightening penalties for compliance violations and increased use of Compliance Desk

- All employees have been instructed again to be rigorous in compliance, and a compliance awareness level survey has been carried out (September 2007-January 2008).
- The Compliance Desk have issued further notifications to employees (September-November 2007).

### 4.Review of performance evaluation for organizations and individuals

- A work quality element that includes compliance will be incorporated into organizational performance evaluation indicators and the mechanisms for target management for individuals (from FY2009).

### 5.Establishment of Corporate Ethics Committee

- A Corporate Ethics Committee has been established as a consultative group to the Board of Directors, to offer advice from an external perspective on how to improve compliance practices and corporate ethics at the Osaka Gas Group.

## Corporate Ethics Committee Meeting Held

■ The first meeting of the Corporate Ethics Committee was held on February 5, 2008, when the following reports and discussions took place.

1. Report on penalties imposed by METI in connection with the subsidy project for natural gas-fired cogeneration systems, and efforts to prevent reoccurrence
2. Report on compliance enhancing activities from the first to the third quarter of FY2008
3. FY2009 compliance enhancing activities plan (draft)

■ The second meeting of the Corporate Ethics Committee was held on May 22, 2008, when the following reports and discussions took place.

1. Status of FY2008 compliance enhancing activities and FY2009 compliance activities plan
2. Measures to prevent reoccurrence
3. Revision of Osaka Gas Group Code of Conduct
4. Incorporating customers' opinion in management, as well as ensuring customers' safety

More detailed information (Japanese version only) is available on our website.



The second meeting of the Corporate Ethics Committee  
(From left: Hiroshi Ozaki, Katsumi Makino (then a committee member), Akira Negishi (chair), Kuniko Misawa, Katsuhiko Kokubu)

### ■ Members of the Corporate Ethics Committee (from June 27, 2008)

Chair: Akira Negishi  
Professor, Faculty of Law, Konan University

Members: Katsuhiko Kokubu  
Professor, Graduate School of Business Administration, Kobe University

Kuniko Misawa  
Executive Director, Nippon Association of Consumer Specialists

Hiroshi Ozaki  
President, Osaka Gas

Zenzo Ideta  
CSR Executive and Executive Vice President, Osaka Gas





NEXT21(experimental residential complex)

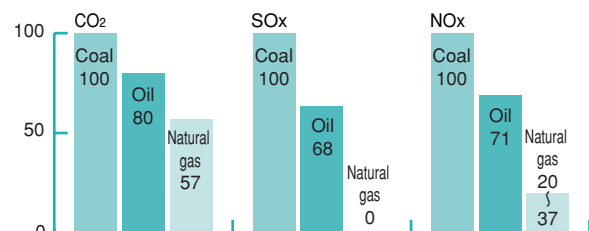
## Helping to prevent global warming through the supply and high-level use of natural gas

The Osaka Gas Group is further enhancing its efforts to prevent global warming through the supply of natural gas and its high-level use. To protect the global environment and assure a high standard of living for people, we are committed to developing and researching products and services that realize energy conservation and low CO<sub>2</sub> emissions. Through our energy business, we will continue not only to offer comfortable lifestyles to our customers, but also to strive to contribute to the prevention of global warming.

### Natural Gas, a Clean Form of Energy

At the Osaka Gas Group we supply customers with natural gas. In comparison with other fuels such as oil and coal, natural gas produces less amount of CO<sub>2</sub> during combustion, and does not produce any emissions of sulfur oxides (SO<sub>x</sub>), marking it out as having the lowest environmental impact of any fossil fuel. This makes it a form of “clean energy” that is attracting greater attention in light of increasing environmental awareness and rising oil prices. Unlike oil reserves, which are concentrated in the Middle East, it is found abundantly throughout the world, giving it the additional merit to Japan, which depends on imports for its resources, of having a low purchasing risk.

#### ■ Comparison of Emission Levels of Combustion Products of Fossil Fuels (coal = 100)



Sources:

International Energy Agency (IEA): Natural Gas Prospects to 2010 (1986)

Institute of Applied Energy (IAE): Report on Thermal Power Plant Atmospheric Impact Assessment Technology Demonstration Surveys (March 1990)

▶ Please refer to P.27 for “LCA comparison of GHG emissions among fossil fuels”.

### Column ①

#### Natural Gas Vehicles (NGVs)

NGVs are clean vehicles that emit no graphite and only a tiny amount of NO<sub>x</sub>, as well as CO<sub>2</sub> emissions that are about 80% those of gasoline vehicles. They are increasingly being introduced for use as a wide range of commercial vehicles, including public service vehicles such as Osaka city buses. We are also engaged in promoting their general use within the Osaka Gas Group, including the phased replacement of company vehicles with NGVs.

#### ■ Natural Gas Vehicles



Osaka City Bus

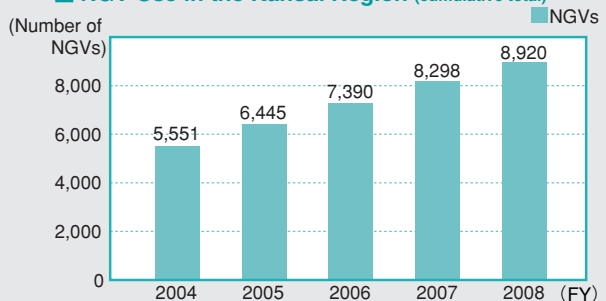


Bi-fuel Vehicle (an NGV that also runs on gasoline)



Two-ton Truck

#### ■ NGV Use in the Kansai Region (cumulative total)



## High-level Use of Natural Gas

### Development and dissemination of distributed energy systems

Efficient use of energy is essential for the prevention of global warming. Distributed energy systems\* in particular have no electrical transmission losses and are expected to have a major effect in energy conservation and restricting CO<sub>2</sub> emissions, and the government's Kyoto Protocol Target Achievement Plan sets out the development and introduction of cogeneration systems, fuel cells, and similar projects as examples to be actively promoted.

\*In contrast to conventional systems of centralized power generation, in which power is generated at large-scale nuclear, thermal, or other power plants and transmitted to homes and offices, distributed energy systems both produce and use energy locally.

### Development of cogeneration systems

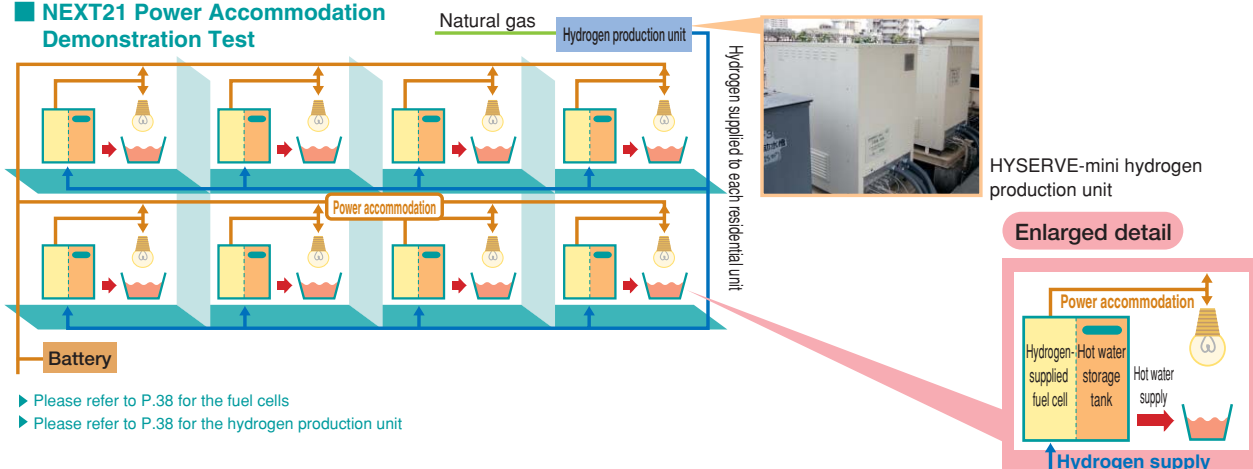
Among the different types of distributed energy systems, the Osaka Gas Group has emphasized the development and promotion of commercial and industrial cogeneration systems which generate electricity on-site fueled by natural gas, with the exhaust heat produced in the process being used for heating and cooling, hot water and steam supply. Since 2004, Osaka Gas has also been marketing the ECOWILL household gas engine cogeneration system, which is both compact and has a high primary energy use efficiency of 85.5%.

In addition, Osaka Gas is pressing ahead with the development of household fuel cells (polymer electrolyte type), which are currently in the spotlight as a next-generation energy system, and is aiming for its commercialization in FY2010 under the name ENEFARM, which has been standardized throughout the industry.

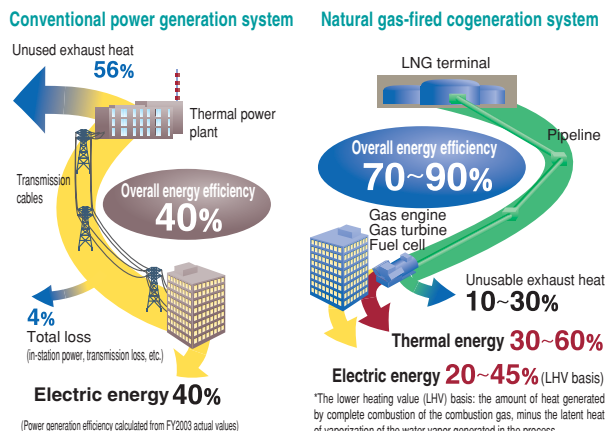
### Efforts for the sustainable future

To investigate the collective housing desired in the near future, two validation experiments are currently underway in the NEXT21 housing complex constructed in Osaka City (completed in 1994) as Phase 3 residential experiments, one of a hydrogen-supply polymer electrolyte fuel cell (PEFC) and the other of a solid oxide fuel cell (SOFC). In the former system, the energy-saving mechanism is employed, in which hydrogen is supplied from a small hydrogen production unit installed on the roof, with electricity being supplied flexibly between multiple residential units as required. The field tests are currently underway to prove the energy efficiency of the system.

### NEXT21 Power Accommodation Demonstration Test



### Comparison of overall energy efficiency



### Cogeneration System for Residential Use



### ENEFARM fuel cell for residential use



## Offering Multi-energy Solutions

In addition to offering commercial and industrial customers high-efficiency equipment and systems such as natural gas-fired cogeneration systems, Osaka Gas is also pressing ahead with the development of new services that enable further energy savings and CO<sub>2</sub> emission reductions, and with promoting their widespread use.

### Energy conservation at customer premises

As reducing CO<sub>2</sub> emissions is now becoming a top-priority issue for businesses, Osaka Gas is associating with customers to promote energy-saving practices. We carry out detailed surveys of customers' premises, such as factories or hospitals, and use temperature-measurement diagnosis by expert members to narrow down the options for energy-conservation measures. In FY2008, we achieved energy savings of 15 million m<sup>3</sup>/year of gas at 176 locations. These activities not only enable us to develop even deeper relationships of trust with our customers, but also to compile the data from these measurements in-house, and to join hands with customers in continuing our activities with the aim of further CO<sub>2</sub> reductions.

### Energy Bank

In addition to solutions such as products or technologies, Osaka Gas is supporting energy-conservation activities on the part of its customers from the financial aspect by operating a fund to promote investment in the installation of facilities that help reduce CO<sub>2</sub> emissions.

To assist businesses in making investments that help benefit the environment, the Development Bank of Japan and Japan Smart Energy, Co., Ltd., have jointly established the Energy Bank as Japan's first CO<sub>2</sub> reduction fund. Osaka Gas has been commissioned to offer energy services. The merit to customers lies not only in the fact that expensive investments in installation of energy-saving facilities will no longer be required, but also in reductions in both CO<sub>2</sub> emissions and energy costs, resulting in a three-fold benefit.

The three companies will use their combined know-how to the greatest possible extent in promoting investment in facilities that use natural gas to conserve energy and reduce CO<sub>2</sub> emissions. The aim is to install energy-saving facilities totaling 15 billion yen in the private and commercial sectors within three years. The service was launched in August 2007, and so far around 80 prospective agreements have been reached (totaling approximately 2.8 billion yen).

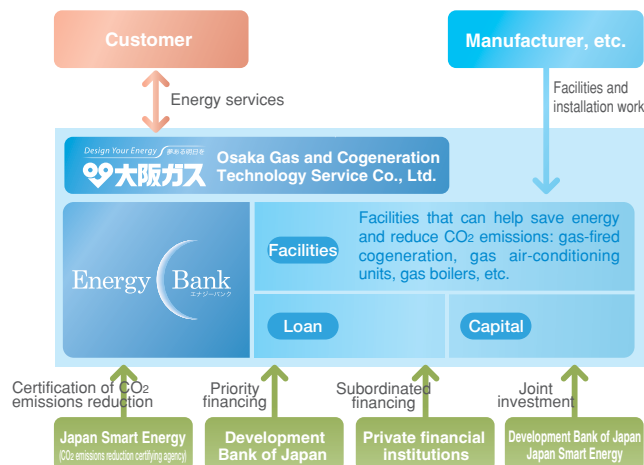
### Eneflex

Osaka Gas also offers additional follow-up services after energy-saving facilities have been installed. One of these is Eneflex. A remote monitoring system offered by Osaka Gas, it collects operating data from gas equipments and provides customers with information via the Internet on energy usage status. This has the feature of enabling the automatic, integrated management of energy usage status, in addition to remote operation. Usage status can be checked visually on a monitor screen and is also notified by email, leading to the customer comment that "This means we can carry out energy-saving practices continuously." By making energy usage status available in visible form, Osaka Gas is supporting customers' energy conservation activities.

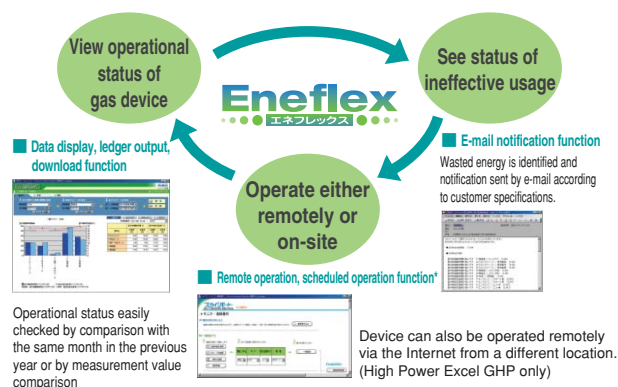
### Energy Conservation at Customer Premises: Thermal-measurement Diagnosis



### How the Energy Bank Works



### How Eneflex Works





## Column ②

### Eco Micelles Additive to Reduce Friction in Hot/Cold Water Stream

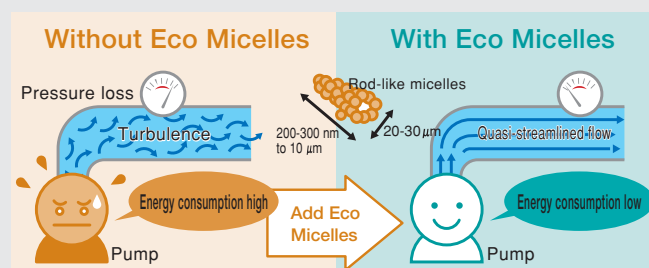
Eco Micelles is an additive developed to reduce the load of pumps in building air-conditioning units. It is well regarded as offering a means of saving energy that does not entail the construction work involved in upgrading equipment such as changing pumps, which imposes a large environmental burden, even in existing buildings. (It is used in 17 buildings as of May 2008).

The introduction of Eco Micelles enables a reduction of approximately 3% in the CO<sub>2</sub> emissions generated through the operation of pumps for building air-conditioning units.



The award ceremony for the Minister of the Environment's FY2008 Commendation for Global Warming Prevention Activity. Then-the Minister of the Environment Ichiro Kameshita is in the center.

### How Eco Micelles Work to Reduce the Load of Pumps



## Interaction with Local Communities and Contribution to International Society

The Osaka Gas Group is not only focusing on technology and products, but is also putting its energies into environment-related educational and awareness-raising activities. In addition to school visit programs in elementary and junior high schools, it also participates actively in environmental events, mainly in the Kansai area, and holds an environmental symposium open to public. The Group is also concerned with matters overseas, particularly in the countries from which it purchases natural gas. Osaka Gas is involved in the international contribution, such as an afforestation project in Australia, and series of educational projects in Indonesia, Malaysia, and elsewhere as the effort of the Osaka Gas Foundation of International Cultural Exchange. The Osaka Gas Group will continue to promote measures to counter global warming from a range of perspectives.



Environmental Symposium (see P.37)



Environment Fair in Kobe (see P.37)



Australian Afforestation Project

## Column ③

### Making Effective Use of LNG Cryogenic Energy and Mitigating CO<sub>2</sub> Emissions

Natural gas has more uses than just combustion. We are making effective use of the -160°C cryogenic energy of liquefied natural gas (LNG) during its vaporization in the manufacturing process. At Osaka Gas, we use cryogenic power generation to cover part of the demand for electricity at our plants.

At the Liquid Gas Group, affiliated companies, cryogenic energy is supplied from the Osaka Gas Senboku LNG Terminal and used in the manufacture of liquefied oxygen, nitrogen, argon, and liquefied carbon dioxide. This means that the power used is only about half that of an electrically powered plant, reducing CO<sub>2</sub> emissions. This method thus enables efficient product manufacture as well as being environmentally friendly.

#### VOICE

[Stakeholder Comment]

#### Toward Even Greater Savings in Energy

We are able to manufacture products while restricting CO<sub>2</sub> emissions by around 70,000 t a year in comparison with electrically powered plants. We are engaged in improving our production processes and working methods in order to reduce our electricity use still further.

**Hiroshi Terai**

President, Cryo Air Co., Ltd.

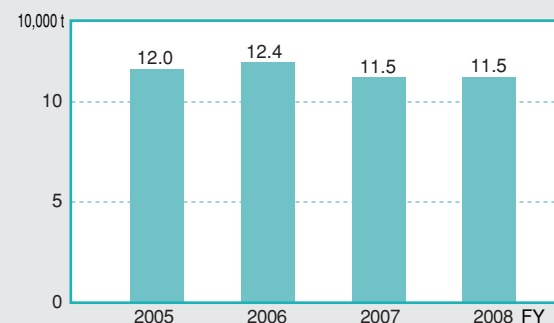


Point of dispatch for tankers containing products



Liquefied Gas Production Plant

### CO<sub>2</sub> Emissions reduction at Plants Using LNG Cryogenic Energy



Note: Values are totals for Cold Air Products Co., Ltd., Cryo-Air Co., Ltd., and Kinki Liquefied carbon dioxide Co., Ltd.

## Stakeholder Dialog

## Expectations of Osaka Gas in the effort to prevent global warming

On March 17, 2008, Osaka Gas held a Stakeholder Dialog on the theme of “Expectations of Osaka Gas in the effort to prevent global warming,” with the objective of hearing the opinions of key figures from outside the company. Four people were invited, comprising experts on consumer issues, the electricity and gas businesses, and the environmental issues, as well as the general manager of a corporate environment office. They provided us with valuable comments and advice.

**Norio Souri**, Chairman, Kansai Consumers' Association

What I feel when dealing with consumer issues is that what is common sense for corporations is senseless to consumers, and that what is common sense for consumers is senseless when viewed from the corporate perspective. These days the gaps in what constitutes basic common sense seem to be increasing; for example, a corporation may assume that everyone knows you should ventilate a room when you operate a water heater, but consumers may say “I couldn't find such instructions.” Shouldn't consumers study more, and companies offer more advice on things consumers may not know about? I believe that companies should proactively engage in activities that benefit local communities from an environmental perspective. In particular, the gas sector relies on area-based sales, and so should be rated more highly by local people. Putting forward such differences in regional character should also enable the creation of individuality in CSR. Removing the “C” from “CSR” transforms it into SR (social responsibility), and I think that it is social responsibility with individuality that will ultimately make an impact on a company brand.

**Kazuko Nakano**, Professor, Kobe Yamate University (facilitator)

For all energy businesses, sales of their products are accompanied by CO<sub>2</sub> emissions. As such businesses also have a high public interest factor, they must work to ensure stability of supply while meeting customer expectations and in addition must contribute to educating customers on environmental issues. In other words, every aspect of an energy business is related either directly or indirectly to environmental issues. Precisely for this reason, isn't it necessary for such a business to set out clearly the priority it gives to environmental initiatives? As to CSR report, for example, the company needs to clarify its intended readership, and to consider ways of making it easy to understand. I also hope that Osaka Gas will work on its contribution to forging the identity of Osaka. I would like the company to be actively involved in practical efforts in areas such as the revitalization of the water environment, which will reaffirm Osaka's unique features and improve its image. I believe the keywords for the future will be “understandable, visible contributions”.

**Junichi Ogasawara**, Group Leader, The Institute of Energy Economics, Japan

I was already aware that activities such as the introduction of clean energy would help protect the global environment, but recently I have the strong sense that a “CO<sub>2</sub>-free” perspective is emerging which goes beyond CO<sub>2</sub> emissions reductions or energy conservation, as can be seen from the fact that some people refer to electricity from the grid as “brown energy.” The energy supply industry has been placed in a difficult situation, and how it responds to such demand is becoming increasingly important. In the case of Japan, there are few inefficient areas in which energy or water is wasted, and little will change unless the situation is improved overall by such means as cogeneration systems. For this reason, I believe it is important to engage as a corporation in activities that benefit the environment, both domestically and internationally, while giving these as much visibility as possible. In addition, the company should publicize these initiatives by such means as the CSR Report.

**Takashi Mimura**, then-Executive Manager, Environment Protection Office, Nippon Telegraph and Telephone West Corporation

I was extremely impressed to hear about the various initiatives in which Osaka Gas is involved, such as cogeneration systems and fuel cells. Energy usage is directly related to CO<sub>2</sub> emissions, so I anticipate future efforts toward the development of the technology for even more highly efficient systems to help prevent global warming. It's said that all-electric housing is environmentally friendly, but from the perspective of Life Cycle Assessment (LCA), which evaluates products and services over their entire lifespan, I think gas is an energy source of genuinely high efficiency. Electric power has energy loss problems in areas that go unseen, such as CO<sub>2</sub> emissions from power stations and distribution losses. The question may be raised of the LCA of gas followed from the transportation stage, but at least absolute efficiency will rise in future if distributed energy devices, such as cogeneration systems, are introduced and dispersed. Why doesn't Osaka Gas make this more widely known?



## ■ Response to Stakeholder Dialog

Osaka Gas hold a first stakeholder dialog, with its theme limited to measures to prevent global warming. A lively discussion took place during the three hours, with the focus on the keywords “visibility” and “rooted in local communities.” These two points are issues for the company's entire CSR activities, not just those concerning the environment, and are also a warm expression of support. We will accept them with sincerity, and bear them in mind in our future activities as we press ahead with our business.

Environment Department, Osaka Gas Co., Ltd.

The Osaka Gas Group plans to continue to hold face-to-face conversations with stakeholders in future, on important CSR themes that are not limited to environmental issues.

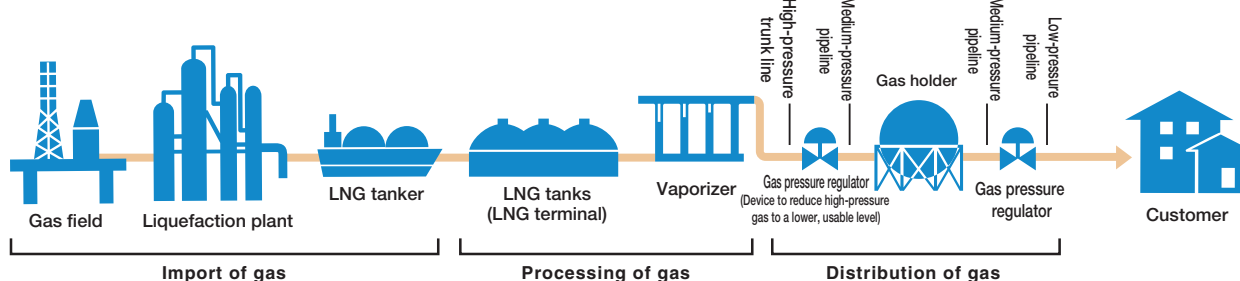
# CSR Charter I

Creating value for customers



## Safety and Security

Osaka Gas strives for safe and secure supply of gas in the course of procurement to distribution.



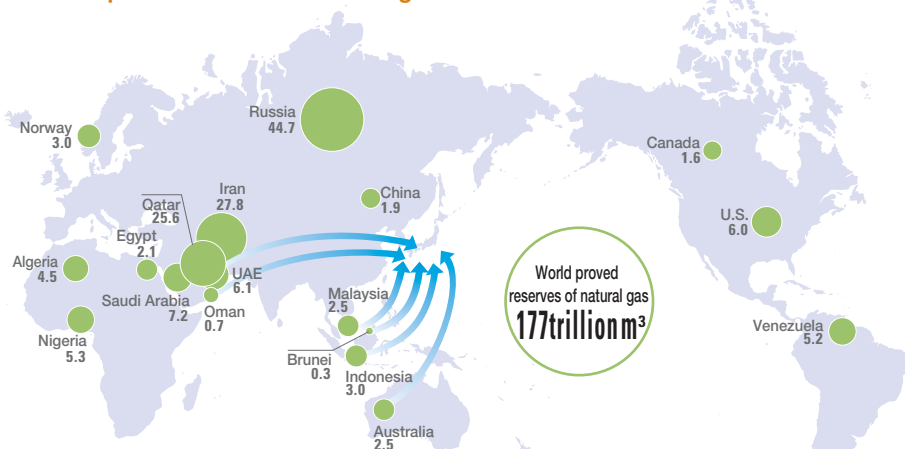
## Stable Procurement of Natural Gas

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) and LNG handling at the LNG terminals to the final stage of the distribution of gas to residential customers through gas pipes.

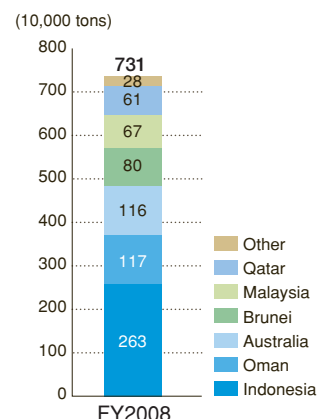
## Stable Resource Procurement

Natural gas is available at reserves distributed worldwide. Osaka Gas has deals with suppliers in six LNG producing countries under long-term contracts to diversify the sources of LNG supply. In order to ensure stable and economical procurement of resource, we have also actively expanded upstream stage of resource procurement through the acquiring of interests in overseas gas fields and joint ownership of LNG tankers to maintain an uninterrupted supply.

### World proved reserves of natural gas



### The amount imported by Osaka Gas



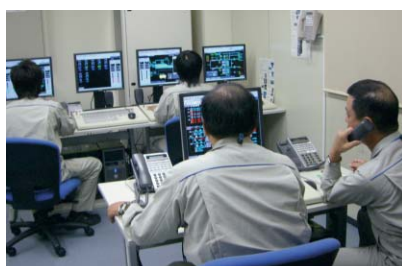
Figures indicate trillion m³ of proved reserves.  
 ▶ Osaka Gas's sources of natural gas  
 ● Main countries with natural gas reserves  
 Source: BP, BP Statistical Review of World Energy June 2008.



## Safety and Security at LNG Terminals



Central Control Room at an LNG terminal



Employees undergoing training on the operational control simulator



High-expansion foam discharge and water curtain facilities along the dike around an LNG tank



Firefighting drill using fire extinguishers



Fire drill with fire engine

### Stable Processing and Supply of Gas at 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 round the clock, 365 days a year, from the Central Control Rooms. Each terminal has an operational control simulator, and operation training and emergency drills are held regularly in order to maintain and further raise safety management skills.

Through these and other activities, Osaka Gas is able to ensure that high-quality gas can be efficiently and uninterruptedly processed and distributed to meet varying demand according to season and time of day.

### Disaster Preparedness at LNG Terminals

The central control rooms at terminals are fully equipped with 24/365 surveillance systems. Surveillance of all incident detectors at terminals, camera surveillance, and operation of firefighting equipment at each plant are operated centrally from the central control rooms, enabling rigorous disaster prevention, early detection, and prevention of accidents from developing into more serious incidents.

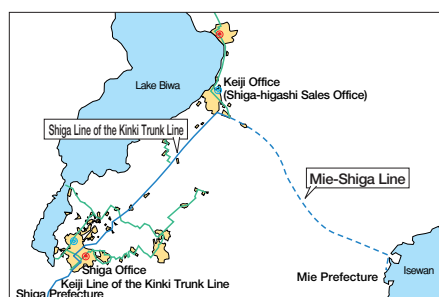
LNG terminals are equipped with extensive and varied disaster prevention equipment, including Incident detectors which quickly detect any abnormalities, dikes which contain spillages in the event of leaks, as well as high-expansion foam discharge systems and water curtain facilities which impound the spilt LNG.

Regular disaster prevention drills are conducted to improve preparedness and maintain safety awareness. Around 150 drills of various kinds were held in FY2008 to raise disaster preparedness, including fire drills involving terminals' own fire engine, company-wide drills for earthquake scenarios, and drills held without informing participants beforehand of the details or timing of drills.

## Safety and Security of Supply



### Routes of the Shiga Line of the Kinki Trunk Line and the Mie-Shiga Line



### Stable Supply of Gas through Pipelines

Osaka Gas distributes natural gas from its terminals to every corner of its service area by means of pipelines. 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 of the Kinki Trunk Line in 2006 to meet the increasing demand from customers in the Shiga area, and is constructing the Mie-Shiga Line to enhance reliable supply of gas in the Shiga area.



Super tolerant polyethylene gas pipe



Regular inspection of gas pipes on bridges



Emergency vehicle



Central Control Room



Earthquake drill



Indication of location of underground gas pipe



Worker checking that work has been properly performed by "pointing and naming"

## Super tolerant polyethylene gas pipe

The Osaka Gas Group's gas pipe network consists of around 58,500 kilometers of high-pressure trunk lines and medium/low-pressure pipelines, of which Osaka Gas by itself accounted for some 57,900 kilometers as of the end of March 2008. To prevent gas leaks, active steps are being taken to improve the safety of the gas pipe network by installing more tolerant pipes, checking and repairing aging pipes. In addition, terminals and the gas pipe network are centrally monitored and controlled to ensure the safety and stability of gas supply, as well as a 24/365 emergency response system is in place for dealing with reported leakages and so on.

## Preparedness for Large Earthquakes

Osaka Gas has long pursued improvements in earthquake preparedness, such as by deploying polyethylene (PE) pipes that are highly resistant to earthquake damage, installation of number of seismometers in the service area, developing an emergency communications network, dividing the service area into several blocks where automatic/remote gas shutoff systems interrupt gas supply on a block-by-block, opening of a sub-control center in Kyoto to take over the role of the Central Control Room if head office is knocked out of action. In addition to such enhancements to the physical infrastructure, earthquake drills are conducted from time to time without giving any prior information to participants in order to improve emergency preparedness.

## Activities to Improve the Safety of Gas Installation Work on Customer Property

Osaka Gas strives to ensure work is performed safely and properly at all times, and actively work to raise awareness of safety in order to eliminate accidents during installation of gas pipes on customer property and damage to Osaka Gas pipes caused by other companies.

In order to prevent accidents from arising during installation of house pipes, the causes of past accidents are analyzed in detail, and appropriate responses are adopted throughout the company, such as the use of "self-check" sheets, which users go through after checking that work has been properly performed by "pointing and naming" at each stage. In order to prevent damage to gas pipes by other companies, locations of gas pipes are clearly marked to draw attention to them. Osaka Gas also engages in safety awareness raising activities, including requesting that building contractors and equipment installers inform Osaka Gas in advance whenever they carry out work near gas pipes.

## Safety and Security at the Customer's End



### Development of Voluntary Product Safety Plan

Following the amendment of the Consumer Product Safety Law in May 2007, Osaka Gas, as a repairer, installer, and distributor of residential gas appliances, established its own voluntary product safety plan for residential gas appliances in November of the same year to ensure product safety and nurture a culture of product safety.

Under the Consumer Product Safety Law, repairers, installers and distributors must endeavor to inform the manufacturer or importer of such a product in the event of a serious accident involving it. They are also required to collaborate on any action, such as product recalls, taken in response by the manufacturer or importer.

Following its voluntary product safety plan, Osaka Gas is working to ensure the safety of residential gas appliances and nurture a culture of product safety.

#### Regular safety inspection



#### Joint safety training with customer ("tailored safety inspections")



#### All-Employee Gas Safety Initiative to Ensure Customer Safety



Handbook explaining keys on safety of gas use and appliances

### Safety and Security at the Customer's End

Regular safety inspections required by law to ensure the safety of gas equipment are conducted at least once every 40 months for ordinary buildings, and every 14 months in the case of designated underground shopping areas and other facilities. These inspections are used as opportunities to investigate gas-using appliances, check for leaks, and encourage users to use appliances safely. We have also expanded regular safety inspections to include surveying and registration of gas appliances owned by customers and to add new items to checks such as combustion testing of certain gas appliances. The infrastructure for properly carrying out these tasks is being suitably strengthened.

For commercial/industrial customers, various voluntary checks are made by Osaka Gas in addition to those required by law, and customized safety inspections tailored to meet customers' individual needs are being actively expanded. These tailored safety inspections include services such as the preparation of facility drawings, execution of anti-corrosion work, and organization of joint safety training based on special surveys in response to the customer's request.

Also, Osaka Gas developed the All Employee Gas Safety Initiative that all employees equip knowledge of safety to handle customers' queries about gas, and in the end, eliminating the risk of accidents involving gas due to leaks and use of appliances without safety features through the active communication of information on safety by employees to customers.

Details of action on safety and basic information about gas and gas appliances are therefore provided via the company intranet in order to help all employees to correctly explain safe use to customers and so raise awareness.

Regarding the aged appliances unequipped the incomplete combustion prevent devices, such as small tankless gas water heaters and wire-mesh gas stoves, every opportunity is taken to visit customers' to recommend their upgrade to safer appliances.

Customers are encouraged to be careful when using other gas appliances as well through television commercials and other media, distribution of leaflets at the time of meter reading, and various other opportunities that arise in the course of our business activities.







Leaflet Explaining about Gas Appliance Safety

## Activities to Raise Awareness of Gas Appliance Safety

Making use of routine opportunities in business, such as when conducting regular safety inspections, commencing gas service, and repairing appliances, we also engage in activities to explain about safety in respect of gas appliances owned by customers, such as by introducing gas stoves equipped with devices to prevent cooking oil from overheating and gas fan heaters fitted with incomplete combustion prevention devices in order that customers may use gas appliances with peace of mind.

In addition, residential customers are swiftly provided with accurate information on the correct use of gas appliances and information on product modifications or defects, and a section of the Osaka Gas website is now devoted to important announcements about gas appliances.

## Enhancement of Safety and Security Services

Osaka Gas delivers a variety of services to further raise customer safety and peace of mind.

We are working to disseminate the “Piko Piko” gas alarm system, which provides vocal alerts if it detects gas leak or carbon monoxide as a result of incomplete combustion. (Some “Piko Piko” systems also have a fire alarm function.) In line with installation of home fire alarms being made compulsory under the revised Fire Defense Law, Osaka Gas is also promoting wider use of its “Kemu Piko” home fire alarm system, and in October 2007 we launched the industry’s first 10-year lease scheme incorporating “zero fire bonuses” and “fire consolation payments.”

Other services introduced include “Rururu Call,” which allows customers’ gas usage to be monitored, notices to be sent, and gas to be shut off remotely via phone lines, and the “Airusu” Internet-based home security system.

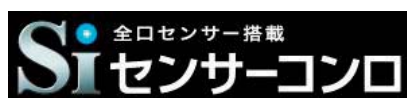
## Promotion of Si Sensor Equipped Cooking Stove

Members of the gas industry have been working together to raise safety and eliminate fires caused by gas stoves. As a part of such action, Osaka Gas has since March 2008 fitted all new home gas stove models (except for stationary single-hob stoves) with a sensor for each burner.

The gas industry is adopting standardized use of the name “Si sensor equipped cooking stoves” to designate such appliances, and action is being taken to promote their use.

This stove has three safety functions: to prevent cooking oil from overheating, to ensure burner safety, and to automatically turn off the flame when the user forgets to do so. Also standard is to automatically adjust the temperature of the flame for use when cooking over a strong flame.

Si sensor equipped cooking stoves that makes cooking fun, safe, and convenient.



Si sensor equipped cooking stove

## Actions for Safety of Appliances in FY2008

Date	Appliance affected	Models affected	Number of units	Action
April 2007	Built-in dishwasher and dryer	115-5058	257	Replacement of electronic components
June 2007	Outside gas bath heater	31-027, 086, 116	4,230	Replacement of diaphragm
July 2007	Water/space heater	44-880—889, 804	22,069	Attachment of heat shield plate (with temperature fuse)
December 2007	Bathroom heater/dryer	161-5501	974	Replacement of electronic components
January 2008	ECOWILL waste heat-powered water/space heater unit	136-0002	6,737	Attachment of part to prevent leakage of water
February 2008	Tabletop dishwasher and dryer	115-1056	999	Replacement of electronic components

## Swift Action for Safety of Appliances

In the event of a serious incident caused by a gas appliance sold, installed, or repaired by Osaka Gas, or a product defect or similar problem, Osaka Gas immediately informs the public through such means as announcements in the press, company announcements, and publication on its website, and takes appropriate action, such as inspection and repair of the products concerned and replacement of defected parts. In FY2008, action was taken in respect of the following products on the market. We will continue to take such swift action in the future too, and also to pursue firm quality control to prevent product defects and other problems from arising and enable customers to use gas appliances safely.

# Incorporation of Customer Opinion in Management

## Measures for Improving Customer Satisfaction



Addressing an inquiry at a Customer Center

### Using IT to Improve Service: Customer Center and Hello Service

Customer inquiries and applications for gas service are handled by the Customer Center, and we have also introduced a new “Hello Service” integrated with Osaka Gas Group operations via communications network to deliver service quickly and appropriately to customers.

### Improving the Quality of Service through Surveys of Customer Satisfaction

#### Results of the four most recent customer satisfaction surveys

FY	Target	2005	2006	2007	2008
Overall satisfaction	80.0%	83.5%	85.1%	86.3%	87.1%
Quality of service	87.0	92.8	93.5	92.8	93.1

#### Overall satisfaction

Proportion of customers who answered “very good” or “good” on a six-point scale of customer satisfaction

#### Quality of service

Customers’ assessment of the main elements of service and their contribution to customer satisfaction converted to a score out of 100

Osaka Gas has been conducting customer satisfaction surveys since 1988 in order to monitor customer satisfaction at our main points of contact with customers.

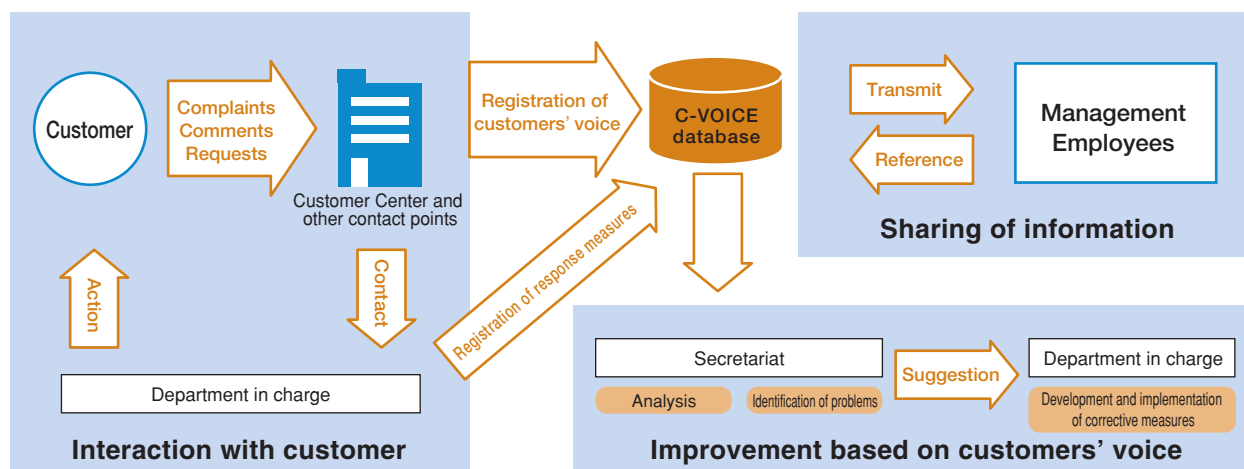
Presently, customer satisfaction is surveyed in the following areas of direct interaction with the customer: “opening of gas lines,” “repair of gas appliances,” “regular security inspections (gas facilities inspections),” “response to telephone inquiries (Customer Center),” “replacement of gas meters upon expiration of validity period,” “sale of appliances,” “sale of gas alarms,” and “sale of ST24\*.” The results of these surveys are used to identify problems, and develop and implement responses and corrective measures in order to further enhance the quality of our services.

\*Station 24 business: A 24-hour IT-based monitoring system to ensure customer safety and peace of mind.

### Improving Operational Efficiency by Incorporating Customers' Opinions

“C-VOICE” is a system for collecting customers’ comments obtained on a variety of occasions and compiling them into a database for sharing them internally. Customer complaints, comments, requests, and praise for individual personnel are analyzed and used to generate improvements in our operations.

#### Overview of C-VOICE



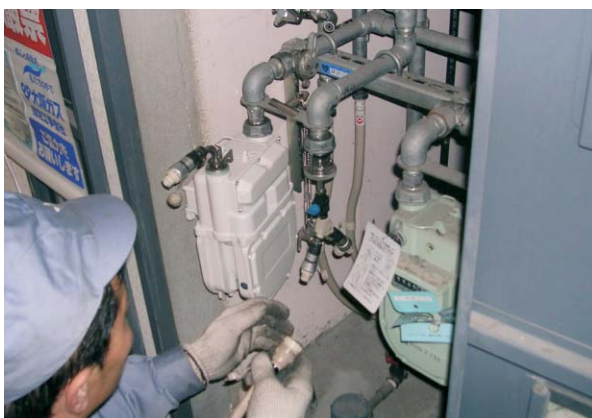
## Cases Incorporated Customers' Opinion



Replacement of alarm

### One-stop Service for Replacement of Alarms

In the event of an emergency response to customer notification of a gas leak, the location and cause of the leak in the customer's home are thoroughly investigated. If there is found to have been no leak and the incident was a false alarm or caused by a malfunctioning gas alarm, the conventional response in the past was to remove the alarm and have a representative from the service shop visit the customer at a later date to reinstall it. Responding to customer concerns about the possible safety risk due to not having an alarm installed in the intervening period and the inconvenience of having to be at home for personnel to come back and reinstall the device, we changed the rule for performance of work in June 2006 to introduce a one-stop solution for investigating gas leaks and replacing gas alarms all in one go in the event of emergency response.



Replacement of meter without having to enter residence

### Meter Replacement Method that Does not Require Entry to Residence

Gas meters are required by law to be periodically replaced. Previously when a replacement meter was fitted, it had to be then checked by, for example, conducting an ignition test in the occupant's kitchen to ensure that it was functioning normally. However, customers often told us that they did not want engineers entering their homes and complained about the inconvenience of having to be at home for such checks. In response, therefore, we developed and introduced as standard practice throughout the company a method of installation that enables performance to be checked without entering the customer's home. As a result, we are now able to replace meters without entering customers' homes provided that they live in residences that face onto a road or in an apartment building with shared corridor space.

Introduction of this method has in addition rendered it unnecessary to repeatedly visit customers who are not at home, thus improving the efficiency of operations.

## Proposing New Value

### Smart Living with Gas



Taking as our watchword "smart living with gas," we strive to enable residential customers to live more environmentally friendly, economical, comfortable, and safe lifestyles through gas usage.

2008年 3月	前月比	ガス料金等口座振替済額収証
ご利用量	161 ㎥	期間 2月26日 ~ 3月25日
振替日	4月 3日	料金表 日
振替金額	16,475 円	
① 基本料金	16,475 円 (基本料金 3,370 円/月)	
② 従量料金	784 円	
③ 消費税		
④ 手数料		
⑤ 振替手数料		
⑥ 振替手数料		
⑦ 振替手数料		
⑧ 振替手数料		
⑨ 振替手数料		
⑩ 振替手数料		
⑪ 振替手数料		
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Gas bill statement with Gas-Toku plan

Gas bill statements received by Gas-Toku plan users show how much they have saved compared with their bill without the application of the plan.

### Diverse Gas Rate Plans: Gas-Toku plan

Gas rates vary according to the gas appliances used, and further optional discounts may be applicable, depending on the appliance, if the user has additional appliances. More than 540,000 households have signed up to the Gas-Toku plan as of the end of March 2008, and we intend to continue to provide the best gas appliances and rates plans suited to customer needs.





Universal design stove

## Launch of “Universal Design” Stove

Responding to the growing need for products designed in accordance with universal design principles, we are working to improve evaluation of accessibility as well as simply performance and quality when developing products.

It was as a result of this approach that the “U-dea” built-in stove, developed based on full-fledged universal design evaluation and verification, was launched in October 2007, and we will continue to pursue development of gas appliances that are easier to use for everyone and to expand our product lineup.

## Variety of Services Provided by Osaka Gas Service Shops Kurashi (Living) Plus



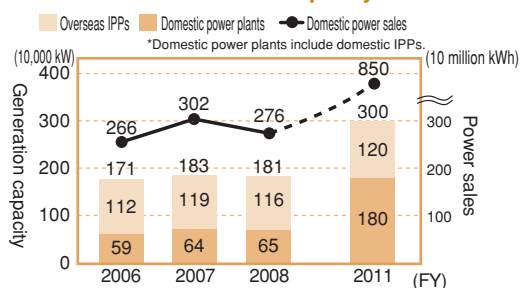
As venues for direct communication with local residents, Osaka Gas Service Shops Kurashi (Living) Plus perform gas service commencement procedures and other tasks commissioned by Osaka Gas, and other services including sales, repair, and renovation of gas appliances, home improvement and maintenance services, and sale of the “Kemu Piko” home fire alarm system and “Airusu” home security system, in order to be able to contribute to the lives of more customers. Our service shops will continue their efforts to serve as one-stop service centers to precisely meet diversifying customer needs and offer a wider range of services, thus helping to enhance customers’ quality of life.

## Evolving into a Multi-energy Supplier



Senboku Natural Gas Power Plant (under construction)

### Growth in Generation Capacity and Power Sales



### Expansion of the LPG Business

	2006	2007	2008
Amount of sales(1,000 t)	748	1,002	975
No. of retail customers (1,000)	172	185	205

To take advantage of the liberalized energy market and meet the resulting diversification of customer needs, the Osaka Gas Group, as a multi-energy service provider, has been working strenuously to provide customers with greater value by supplying natural gas, electric power, LPG, thermal energy, and so on in order to achieve the best mix of energy sources.

Among these businesses, we are concentrating on the electric power business as our “second core business” after the gas business, and are fully developing our capabilities in areas including domestic power generation and distribution and the overseas Independent Power Producer (IPP) business.

Regarding the domestic power generation business in particular, the 1,109,000 kW Senboku Natural Gas Power Plant is presently under construction at the Osaka Gas Senboku LNG Terminal, and this will be phased into operation from April 2009. In addition to being powered by natural gas, which has less of an impact on the environment than other fuels, the adoption of a high generating efficiency gas turbine combined cycle technology promises to make the plant a highly environmentally friendly contributor to ensuring stable electricity supplies.

In addition to full-scale development of the electric power business, we will be developing our presence, both at home and abroad, in the natural gas and LPG businesses and a range of other markets.



CSR Charter I For further information on following topics, please visit our website.

● Outline of Planned Senboku Natural Gas Power Plant

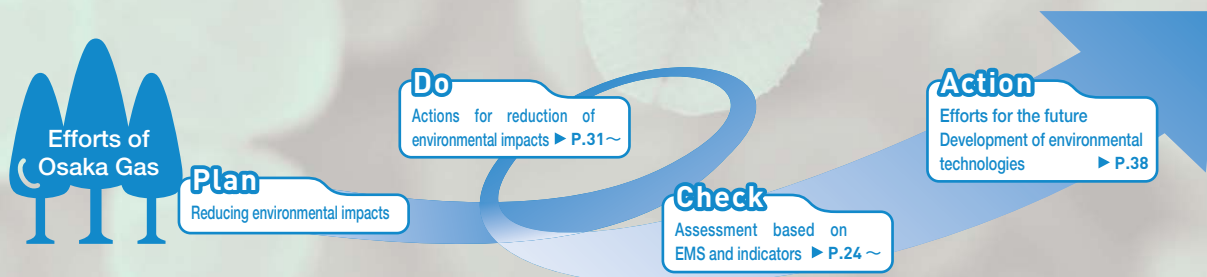


● Dialogue with Consumer Groups



# CSR Charter II

Contributing to harmonizing with environment and to realizing a sustainable society



## Osaka Gas Group Environmental Activities Policy



- I Reducing Environmental Impacts of Our Business
- II Reducing Environmental Impacts of Our Products and Services
- III Contributing to Environmental Conservation Locally, Nationally and Internationally

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.



## Environmental Management Systems (EMS)

### ■ Status of EMSs implementation in affiliated companies

(Number of company)

	Already introduced		To be introduced (FY2009)
	FY2008	Cumulative total	
ISO14001	1	20	1
Externally certified EMSs	4	8	—
Osaka Gas EMS*	17	26	49

\* EMS uniquely established by Osaka Gas

### 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. Osaka Gas was finally accredited integrated certification in December 2007.

### Status of EMSs implementation in affiliated companies

All affiliated companies are planned to implement EMSs by March 2009 in order to vigorously expand effective and integrated environmental activities across the Osaka Gas group.

## Major Environmental Impact

FY		Osaka Gas*1			Affiliates*2			Total		
		2006	2007	2008	2006	2007	2008	2006	2007	2008
Emissions	CO <sub>2</sub> (1,000t)*3	260	258	267	1,966	2,140	2,089	2,226	2,398	2,356
	CH <sub>4</sub> (t)	127	115	105	-	-	-	127	115	105
	NO <sub>x</sub> (t)	17	24	24	452	497	319	469	521	343
Industrial waste*4	Generated (t)	3,358	2,913	2,938	75,447	78,286	92,679	78,805	81,198	95,616
	Final disposal (t)	198	131	157	7,869	9,086	10,047	8,067	9,218	10,204
General waste	Generated (t)	1,120	1,177	1,126	1,086	1,062	831	2,207	2,240	1,957
	Final disposal (t)	177	215	122	850	773	540	1,027	988	662
Excavated soil final disposal (10,000 t)		5	4	3.5	-	-	-	5	4	3.5
Water consumption (10,000 m <sup>3</sup> )*5		151	145	150	525	698	621	675	842	771

\*1 The data of Osaka Gas includes the gas business, thermal energy business and electricity 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, 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<sub>2</sub> emission of purchased electricity subject to control is calculated using the average factor of thermal power plants (0.69 kg-CO<sub>2</sub>/kWh) so that we can precisely assess how reduction of purchased electricity has contributed to a reduction in CO<sub>2</sub> emission.

\*4 Osaka Gas's share of industrial waste does not include used gas appliances and residential equipment.

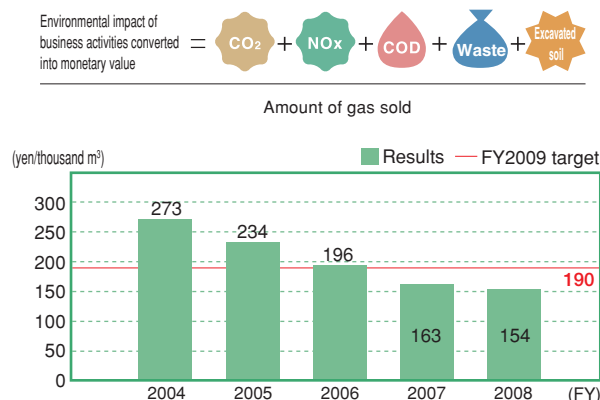
\*5 Water consumption is the total of general and industrial water supplies.

# Environmental Management Indicators

## Monetary equivalent of major environmental impacts



### ■ Environmental management efficiency (yen/thousand m<sup>3</sup>)



\*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' reduction of 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.

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<sub>2</sub>, NO<sub>x</sub>, 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 Accounting

### Result for FY2008 (Gas business of Osaka Gas)



Total investment increased by 200 million yen as a result of energy-saving retrofit completion and investment in reduction of excavated soil by replacing pipes without excavation. Total expenses increased as a result of revising the scope of green purchase items.

#### ① Environmental Conservation Cost

Items			Investment (million yen)		Expense (million yen)	
			FY2007	FY2008	FY2007	FY2008
In-company activities	Global environment	Energy saving equipment	60	31	498	325
	Pollution prevention	Air and water pollution preventing equipment	2	17	87	175
	Resources recycling	Excavated soil recycling, waste management	43	118	131	160
	Environment management	Green purchasing*, environmental education, EMS development, environmental organizations	2	0	323	2,305
	Others	Greening at plants, compensation for environmental preservation	1	0	294	422
Environmental impact reduction at customers	R&D	R&D of environmental impact reduction technologies, environment-conscious products	73	161	1,188	1,172
	Recycling of used gas appliances	Collection and recycling of gas appliances	0	0	127	102
Philanthropic activities		Voluntary greening, environmental advertising, environmental information disclosure	2	69	215	200
Total			183	396	2,862	4,861

\*The expense for revised green purchasing accounts for 2,000 million yen, increased from 166 million yen summed by former definition.

#### ② Internal Economic Benefits

Economic benefits (million yen)		FY2007	FY2008
Cost reduction	Saving through reduction and recycling of excavated soil	4,864	4,799
	Sales of valuable resource (LNG cryogenic energy)	240	246
	Cost reduction through energy / resources saving	36	-308*
	Total	5,140	4,737

\*Including the increased cost for purchasing electricity due to operation lowering of the cryogenic power generation

#### ③ Environmental Conservation Results

	Per output*2			Total amount			Reduction*3		
	Unit	FY2007	FY2008	Unit	FY2007	FY2008	Unit	FY2007	FY2008
NO <sub>x</sub> (LNG Terminals)	mg/m <sup>3</sup>	0.75	0.68	t	6.53	6.07	t	27.35	24.04
COD (LNG Terminals)	mg/m <sup>3</sup>	0.23	0.31	t	2.00	2.76	t	9.28	9.63
CO <sub>2</sub> (LNG Terminals)*1	g-CO <sub>2</sub> /m <sup>3</sup>	11.00	12.95	1,000 t-CO <sub>2</sub>	96	115	1,000 t-CO <sub>2</sub>	37	21
CO <sub>2</sub> (Other sites)*1	g-CO <sub>2</sub> /m <sup>3</sup>	5.18	5.02	1,000 t-CO <sub>2</sub>	45	45	1,000 t-CO <sub>2</sub>	35	37
Final disposal of excavated soil	t/km	43	38	1,000 t	40	35	1,000 t	81	83
Final disposal of general waste	g/m <sup>3</sup>	0.02	0.01	t	215	122	t	1,095	1,211
Final disposal of industrial waste	g/m <sup>3</sup>	0.12	0.11	t	1,018	943	t	4,924	5,100
Total									

(Note) FY2008: The amount of gas sales was 8,887 million m<sup>3</sup> and the total length of newly installed gas pipelines was 909 km.

\*1 CO<sub>2</sub> emissions associated with purchased electricity are calculated using the average factor of thermal power plants (0.69 kg-CO<sub>2</sub>/kWh).

\*2 NO<sub>x</sub>, COD, CO<sub>2</sub>, industrial waste, and general waste per 1 m<sup>3</sup> gas sold was calculated. Final disposal of excavated soil per 1 km of new gas pipeline was calculated.

\*3 For NO<sub>x</sub> and COD, the difference from the regulated value was calculated for each appliance. For CO<sub>2</sub>, industrial waste and general waste, the difference in the factor (amount per 1 m<sup>3</sup> 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.

#### (Social Benefits of Environmental Conservation in Monetary Value)

Social benefits (million yen)	
FY2007	FY2008
10	9
14	14
131	73
122	130
1,792	1,830
3	4
151	156
2,224	2,215

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.



# Medium-term Targets and FY2008 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 (including 10 quantitative targets) for FY2009 and FY2011, 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	FY2008 Results	FY2009 Medium-term Target	Remarks (FY2011 quantitative targets)	Evaluation	Reference
Osaka Gas	I. Introducing Environmental Impacts of Our Business	Improvement of Environmental Management Efficiency* <sup>1</sup>	Environmental management efficiency (Monetary value of environmental impact per gas sales) (¥/1,000 m <sup>3</sup> )* <sup>2</sup>	¥154/1,000 m <sup>3</sup> (70% reduction from the FY2001 level)	¥190/1,000 m <sup>3</sup> (62% reduction from the FY2001 level)	¥185/1,000 m <sup>3</sup>	○ P.25
		Reduction in CO <sub>2</sub> emissions from our gas business* <sup>1</sup>	Amount of CO <sub>2</sub> emission per cubic meter of gas sales (g-CO <sub>2</sub> /m <sup>3</sup> )	18.9g-CO <sub>2</sub> /m <sup>3</sup> (16% reduction from the FY2001 level)	15.4g-CO <sub>2</sub> /m <sup>3</sup> (28% reduction from the FY2001 level)	15.1g-CO <sub>2</sub> /m <sup>3</sup>	△ P.31
		Recycling of excavated soil	Recycling rate of excavated soil* <sup>3</sup>	84%	75% or more	75% or more	○ P.35
		Zero emission in LNG terminals* <sup>4</sup>	Final disposal amount reduced to 2.9 t (1.6% of total waste generated) (General waste: 0.6 t, Industrial waste: 2.3 t)	Maintain the final disposal amount to nearly zero	Maintain the final disposal amount to nearly zero		○ P.35
		Reducing & recycling of general/industrial wastes generated from gas business	Amount of general wastes and recycling rate at offices and laboratories	Recycling rate increased to 89%, final disposal amount reduced to 122 t (88% 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.35
			Amount of industrial wastes and recycling rate at offices and laboratories* <sup>5</sup>	Recycling rate increased to 95%, final disposal amount reduced to 155 t (82% 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.35
	II. Reducing Environmental Impacts of Our Products and Services	Dissemination of natural gas and energy-saving systems	Reducing CO <sub>2</sub> emission at customers* <sup>6</sup>	CO <sub>2</sub> emissions reduced by 2,170,000 t-CO <sub>2</sub> (from the FY1999 level)	CO <sub>2</sub> emissions reduced by 2,150,000 t-CO <sub>2</sub> (from the FY1999 level)	2.5 million t-CO <sub>2</sub> (compared with FY1999 level)	○ P.33
		Promotion of technology development	Efficiency of household and other cogeneration systems	Development and introduction to the market of 1,000kw high-efficiency gas engine	Further improvement		○ P.33
		Recycling of used gas appliances	Improvement of recycling rate	90%	90% or more	90% or more	○ P.35
	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	410 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.45
		Developing and spreading new environmental technologies (apart from gas appliances and systems)	Disseminating environmental technologies nationally and internationally	•Hydrogen filling station opened in front of the Osaka Prefectural Government building •Equipment to remove NOx from flue gas introduced •Biogas adsorption vehicle and storages introduced	•Dissemination of compact hydrogen production equipment, new catalyst technology for flue gas treatment and adsorptive storage of digester gas		○ P.38
			Promoting the introduction of renewable energy	•Demonstration experiment of the technology for methane fermentation started	•Develop techniques for generating methane from biomass and wastes		○ P.39
				•Construction of Hirogawa Myojinyama Wind Farm (Wakayama Prefecture) began (starts its operation in FY2009)	•Develop involvement in the wind power generation business		○ P.39
Affiliated companies	Reducing CO <sub>2</sub> emission from business activities	Reducing CO <sub>2</sub> emissions per sales* <sup>7</sup>	12.3% 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 external certifications etc, or introducing Osaka Gas's own version of EMS* <sup>8</sup>	ISO 14001 Certification: 1 company (cumulative total: 20 companies) External certification: 4 (8) Osaka Gas EMS: 17 (26)	Acquire/introduce at all affiliated companies* <sup>9</sup>			○ P.24

\*1 CO<sub>2</sub> emissions associated with purchased electricity are calculated using the average factor of thermal power plants (0.69 kg-CO<sub>2</sub>/kWh) so that the benefits of reducing the purchased electricity is properly indicated.  
\*2 Environmental impacts of CO<sub>2</sub>, 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<sub>2</sub> 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.  
\*8 Environmental management system developed originally by Osaka Gas.  
\*9 Domestic affiliated companies with 11 or more employees.

○ : likely to be achieved  
△ : efforts continued

# Environmental Impacts of Our Value Chain

## Overseas (LNG imported by Osaka Gas)

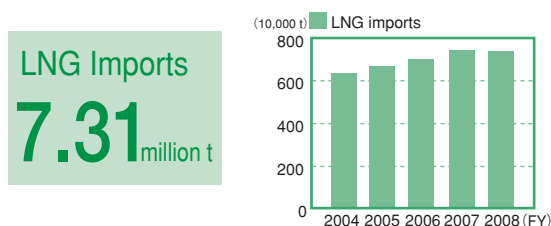
Osaka Gas supplies natural gas that emits less CO<sub>2</sub> than any other fossil fuels to customers. Osaka Gas also takes the following measures to reduce environmental impact.

### 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.

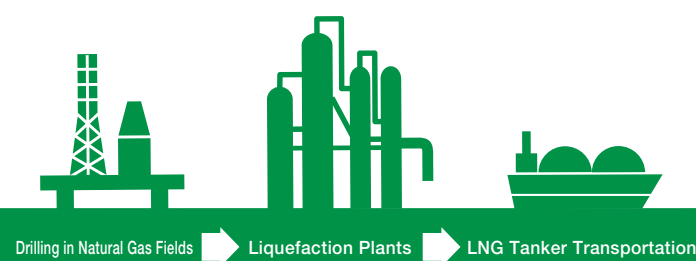
### In the shipping

- Natural gas is used as the fuel for shipping.



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)



L N G

## LCA comparison of GHG emissions among fossil fuels

The table below compares total greenhouse gas emissions (specifically CO<sub>2</sub> and methane, expressed in CO<sub>2</sub> equivalent), from drilling to combustion, for various fossil fuels according to the LCA method\*. LNG is clean energy that emits less GHG than any other fossil fuels.

### Comparison of greenhouse gas emissions

(g-CO<sub>2</sub>/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

\* 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)

## Japan (Osaka Gas)

### Energy consumption at LNG terminals

Purchased electricity: ..... 124,970,000 kWh  
Gas: ..... 12,790,000 m<sup>3</sup>  
General and industrial water: ..... 1,170,000 m<sup>3</sup>

In-house cryogenic power generation: 34,560,000kWh

In-house power generation utilizing gas pressure: 28,040,000kWh

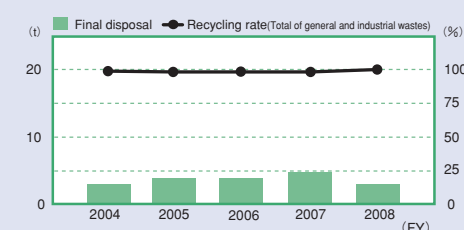
INPUT

LNG Terminals (Production)

OUTPUT

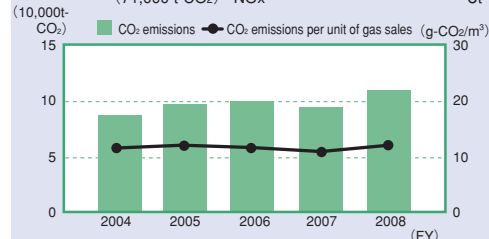
## Waste

General waste Generated: ..... 63t Industrial waste Generated: ..... 124t  
Final disposal: ..... 0.6t Final disposal: ..... 2.3t  
Recycling rate: ..... 99% Recycling rate: ..... 98%



## Emissions

CO<sub>2</sub> emissions\* ..... 115,000t-CO<sub>2</sub> (71,000 t-CO<sub>2</sub>)  
CO<sub>2</sub> emissions per unit of gas sales\* ..... 12.9g-CO<sub>2</sub>/m<sup>3</sup> (8.0g-CO<sub>2</sub>/m<sup>3</sup>)  
NOx ..... 6t



## Energy consumption at business locations

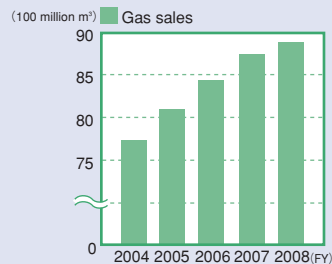
Purchased electricity	37,670,000 kWh
Natural Gas	6,660,000 m <sup>3</sup>
Vehicle fuel	
Gasoline	1,015 kl
Natural gas	420,000 m <sup>3</sup>
Diesel	8 kl
General water	340,000 m <sup>3</sup>

INPUT

Business Offices

## Gas sales

Gas sales **8,887** million m<sup>3</sup>



INPUT

Gas Pipelines

### Quality of the gas supplied by Osaka Gas

Heat value (HHV)	<b>45.0</b> MJ/m <sup>3</sup> N (Approximately 10,750 kcal/m <sup>3</sup> N)
CO <sub>2</sub> emission factor in combustion	<b>50.9</b> g-CO <sub>2</sub> /MJ (2.29 kg-CO <sub>2</sub> /m <sup>3</sup> N)

Note: Figures applied since March 2003

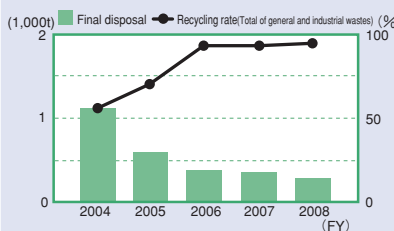
Customers (Gas consumers)

Gas

OUTPUT

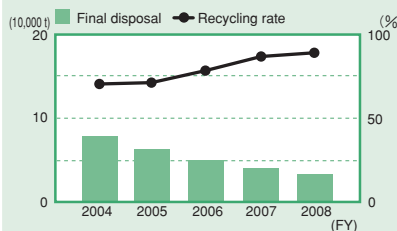
## Waste

General waste Generated	1,063t	Industrial waste Generated	2,814t
Final disposal	122t	Final disposal	155t
Recycling rate	89%	Recycling rate	94%



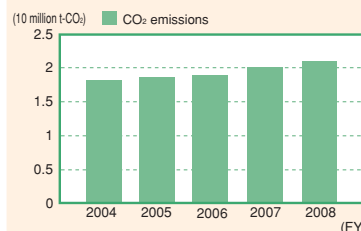
## Excavated Soil

Generated	1,000,000t
Final disposal	35,000t
Recycling rate	84%



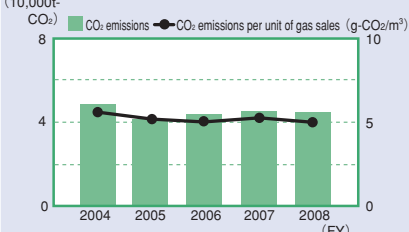
## CO<sub>2</sub> emissions at customers' sites

CO <sub>2</sub> emissions	20,350,000t-CO <sub>2</sub>
---------------------------	-----------------------------



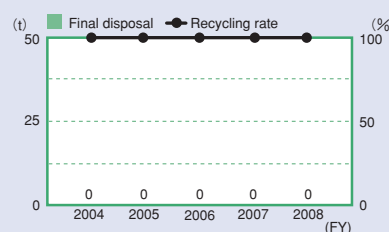
## CO<sub>2</sub> Emissions

CO <sub>2</sub> emissions*	CO <sub>2</sub> emissions per unit of gas sales*
45,000 t-CO <sub>2</sub>	5.0g-CO <sub>2</sub> /m <sup>3</sup>
(31,000t-CO <sub>2</sub> )	(3.5g-CO <sub>2</sub> /m <sup>3</sup> )



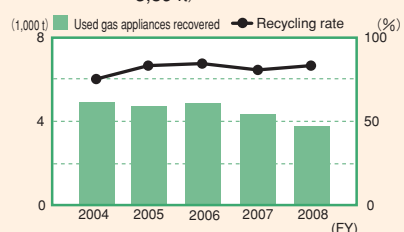
## Polyethylene pipes

Generated	152t	Final disposal	0t
Recycled	152t	Recycling rate	100%



## Used gas appliances and residential equipment\*

Recovered	4,327t	Recycling rate	82%
(Out of this amount, used gas appliances account for		Final disposal	786t
3,894t)			



(Note) At Osaka Gas, CO<sub>2</sub> emission subject to control is calculated using the average factor of thermal power plants (0.69 kg-CO<sub>2</sub>/kWh) so that we can precisely assess how reduction of purchased electricity has contributed to a reduction in CO<sub>2</sub> emission. The figures in ( ) show CO<sub>2</sub> emission calculated using the emission factor of Kansai Electric Power in FY2007 (0.338 kg-CO<sub>2</sub>/kWh) for the purpose of comparison.



# Evaluation of CO<sub>2</sub> emission reduction by reducing electricity use

## —Proper evaluation by using Marginal Factor

CO<sub>2</sub> emission of power generation sector amounts to approximately 30% of total emission of Japan. In order to accelerate the efforts for energy saving, the key factor is to properly evaluate CO<sub>2</sub> reduction by power saving.

### Proper evaluation for CO<sub>2</sub> reduction

The fluctuation of electricity demand by energy-saving efforts influences the operation of specific power source (**marginal power source**.)

For proper estimation of reduced emission, the Marginal power source should be identified and taken into account. In Japan, the thermal generation is considered as the current marginal source. Since the generation amount of the thermal power plants decreases by power-saving efforts, CO<sub>2</sub> reduction should be estimated/evaluated by using the **“the emission factor of thermal power generation.”** This approach is consistent with the international standards and employed in the Japanese government’s documents.

#### References Estimation of CO<sub>2</sub> emission and CO<sub>2</sub> emission reduction

Generally, CO<sub>2</sub> emission is estimated by using the Average Emission Factor (AEF) for all types of power source including nuclear and hydro generation. The ministerial ordinance under the Law concerning the Promotion of the Measures to Cope with Global Warming employs the AEF for estimating and reporting of CO<sub>2</sub> emission by electricity use.

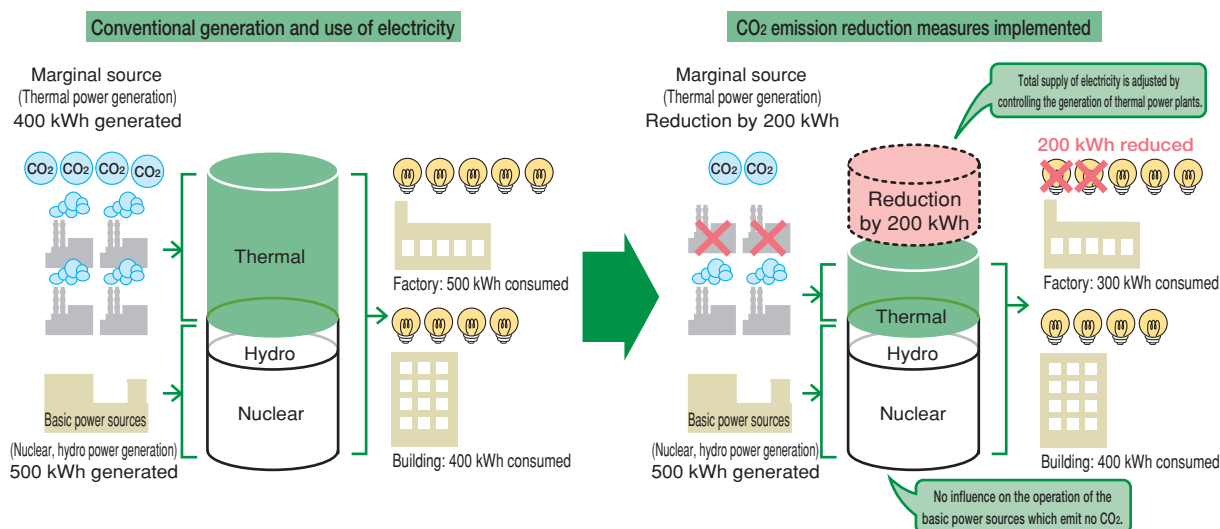
However, estimation using AEF also considers the nuclear and hydro generation as the reduced sources, even though they have no impact of power-saving. As a result, CO<sub>2</sub> emission reduction is underestimated. Appropriate factors should be used for estimation of emission and emission reduction.

### ■ Calculation of CO<sub>2</sub> emission reduction

CO<sub>2</sub> emission reduction is estimated by using the marginal emission factor, which is the emission factor of the thermal power generation (0.69 kg-CO<sub>2</sub>/kWh), as follows.

$$\begin{array}{c} \text{Reduced electricity use} \\ (\text{kWh}) \end{array} \times \begin{array}{c} \text{Marginal factor } 0.69 \\ (\text{kg-CO}_2/\text{kWh}) \\ \text{(Amount of CO}_2\text{ emission associated with power} \\ \text{generation of 1 kWh at thermal power plant)} \end{array} = \begin{array}{c} \text{Reduced CO}_2\text{ emission} \\ (\text{kg-CO}_2) \end{array}$$

### ■ Example: Estimation of CO<sub>2</sub> emission reduction by power-saving for 200kWh



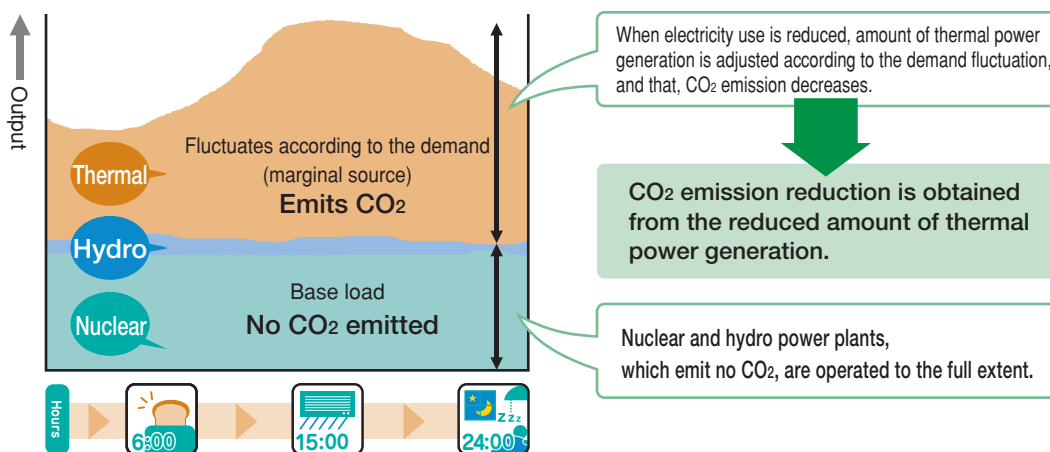
Example: Estimation of CO<sub>2</sub> emission reduction by power-saving for 200kWh

$$\begin{array}{c} 200 \\ (\text{kWh}) \end{array} \times \begin{array}{c} 0.69 \\ (\text{kg-CO}_2/\text{kWh}) \end{array} = \begin{array}{c} 138 \\ (\text{kg-CO}_2) \end{array} \Rightarrow \begin{array}{c} \text{CO}_2\text{ emission reduction} \\ 138\text{kg-CO}_2 \end{array}$$

## The marginal source in Japan: Thermal power generation

The power sources of Japan include thermal, nuclear and hydro power generation. The nuclear power plant maintains its generation except for occasions such as periodical inspections. Amount of generation of hydro power plant, operated to the fullest due to the low cost for operation, fluctuate affected by changes in precipitation and amount of snowfall. The power source of which generation fluctuate affected by changes in demand is the thermal power plant. Consequently, current marginal source is considered to be the thermal power source.

### Electricity generation curve



## International/internal standards for CO<sub>2</sub> reduction assessment

International standards provide the calculation practice using the marginal factor for assessment of CO<sub>2</sub> reduction as a result of reduction of purchased electricity. This practice is employed in the process of CDM, one of the mechanisms of the UNFCCC's Kyoto Protocol, as well as the international standards such as the Guidelines for Quantifying GHG Reductions from Grid-Connected Electricity Projects. Also, the guidelines for energy saving established by the Japanese government include the description of the practice.

### The estimation method of CO<sub>2</sub> reduction provided by GHG Protocol's "The Guidelines for Quantifying GHG Reductions from Grid-Connected Electricity Projects"

The marginal factor is used for the calculation of CO<sub>2</sub> reduction due to the effect of energy-saving efforts. The marginal factor is obtained by identifying the power source of which generation is reduced. In the light of this guideline, the factor of thermal power source is considered to be the marginal factor in Japan.

### The government guidelines employed the marginal factor (the factor of thermal power source)

- ◆ Targets Achieved Scenario Subcommittee Interim Summary, Global Environmental Committee, Central Environmental Council (July 2001)
- ◆ The "Environmental Report Guidelines 2007," the Ministry of the Environment (June 2007)
- ◆ The standard for green government building and its practical manual, edited by the Ministry of Land, Infrastructure, Transport, published by Public Buildings Association (2005)
- ◆ The standard for environmental performance examination/retrofit design and its practical manual, edited by the Ministry of Land, Infrastructure, Transport, published by the Building Maintenance & Management Center (2006)

# 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<sub>2</sub> emissions

### GHG emissions of Osaka Gas Group

FY	2004	2005	2006	2007	2008
	76 companies	81 companies	81 companies	81 companies	77 companies
CO <sub>2</sub> (1,000 t-CO <sub>2</sub> )	1,689	2,010	2,226	2,398	2,356
Osaka Gas	155	252	260	258	267
Gas business	141	143	145	141	160
LNG terminals	94	101	102	96	115
Business locations, etc.	47	42	43	45	45
Thermal energy supply business	15	14	13	14	15
Power generation business	–	95	101	103	93
Affiliated companies	1,534	1,757	1,966	2,140	2,089
Methane(t-CH <sub>4</sub> )					
Osaka Gas	141	93	127	115	105

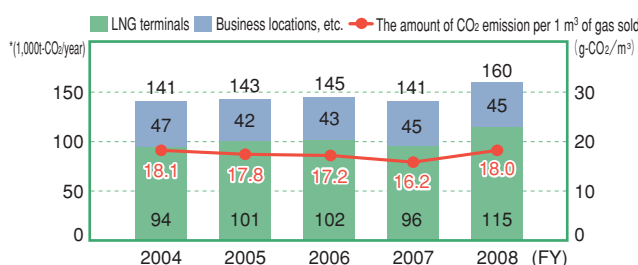
### GHG emissions of Osaka Gas Group

At Osaka Gas Group, efforts are continued to reduce CO<sub>2</sub> and methane emission from energy consumption of the gas supply business of Osaka Gas, as well as CO<sub>2</sub> emission from energy consumption of thermal supply/power generation businesses and affiliated companies.

## CO<sub>2</sub> emissions in Osaka Gas's gas business

### CO<sub>2</sub> emissions in Osaka Gas's gas business

#### Environmental impact subject to control



\*CO<sub>2</sub> emission factor for electricity:  
0.69 kg-CO<sub>2</sub>/kWh for thermal power generation (Please refer to July 2001 Targets Achieved Scenario Subcommittee Interim Summary, Global Environmental Committee, Central Environmental Council.)

In FY2008, CO<sub>2</sub> emission from gas business of Osaka Gas amounts to 160,000 t, increased by 19,000 t compared to the previous year, due to the increase in the purchased electricity at LNG terminals and the consumed gas associated with GTL tests (approximately 5,000 t-CO<sub>2</sub> equivalent.)

As to the former case, generation capacity decrease of the cryogenic power generation, which covers the half

amount of electricity required at the LNG terminal, resulted in the increased purchase of grid electricity (21,000 t-CO<sub>2</sub> equivalent.)

We will be striving for achieving the CO<sub>2</sub> emission reduction targets with full utilization of operating cryogenic power plant and further effort of energy-saving at business locations.

\*GTL: Gas to Liquids (see P.38)

#### (Reference) CO<sub>2</sub> emissions for comparison

FY	2004	2005	2006	2007	2008
Amount of CO <sub>2</sub> emissions (1,000 t-CO <sub>2</sub> )	84	84	100	99	102
CO <sub>2</sub> emission per 1 m <sup>3</sup> of gas sold (g-CO <sub>2</sub> /m <sup>3</sup> )	10.8	10.4	11.8	11.3	11.5
Amount of gas sold (million m <sup>3</sup> )	7,766	8,053	8,448	8,738	8,887
CO <sub>2</sub> emission factor for electricity (kg-CO <sub>2</sub> /kWh)	0.260	0.261	0.356	0.358	0.338

Note: For calculation of the yearly CO<sub>2</sub> emission of purchased electricity, the most recent emission factor of Kansai Electric Power (per electricity sold) is used. (e.g. The CO<sub>2</sub> emissions during FY2008 are calculated using the emission factor for FY2007.)

Note: The yearly CO<sub>2</sub> 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<sub>2</sub> emission does not reflect the effect of emission control measures.

### 〈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<sub>2</sub>/kWh) for calculation of CO<sub>2</sub> emission that is subject to control.

## Methane emission at Osaka Gas

Besides CO<sub>2</sub>, Osaka Gas emits methane (CH<sub>4</sub>), another greenhouse gas, in the production and supply of gas, measurement of gas quality and undertaking of gas fitting work. During FY2008, CH<sub>4</sub> emission totaled 105 t. We are striving to reduce the emission by changing over to measurement instruments that emit less CH<sub>4</sub>, increasing CH<sub>4</sub> recovery rate, and performing gas fitting work in a more environment-friendly manner.



## CO<sub>2</sub> emissions from affiliated companies

CO<sub>2</sub> emissions from affiliated companies during FY2008 decreased by 2.4% to 2,089,000 t from the previous year, which is attributable to emission reduction due to the reduction in power generation by the power generation businesses and energy-saving efforts by the real estate business, while proactive business expansion resulted in emission increase.

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<sub>2</sub> emissions at offices on a group-wide basis.

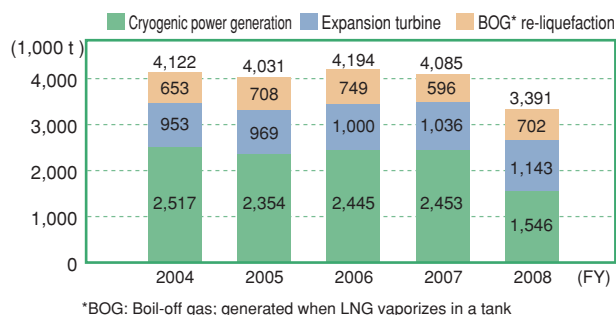
(Reference)

The specified CO<sub>2</sub> emitting business locations within the Osaka Gas Group are held responsible to report the amount of their CO<sub>2</sub> emissions under the Law Concerning the Promotion of the Measures to Cope with Global Warming. The amount of CO<sub>2</sub> emitted at 27 business locations of 13 companies during FY2008 totaled 238,000 t-CO<sub>2</sub>. (The amount include CO<sub>2</sub> emissions resulting from in-house energy consumption. CO<sub>2</sub> emissions associated with generation of electricity and thermal energy sold to customers is excluded.)

## Efforts to reduce CO<sub>2</sub> emission



### Use of LNG cryogenics



### 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<sub>2</sub> emission.

### LNG railway transportation service



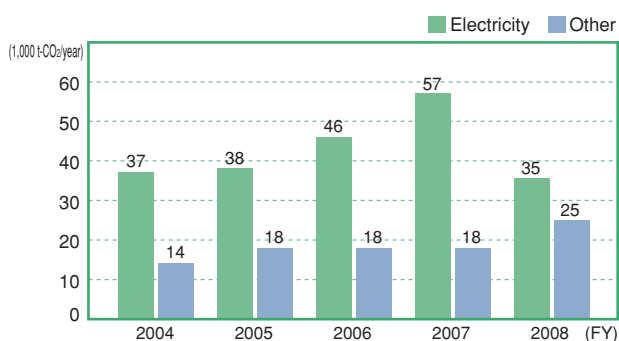
The 8th Logistics Environmental Award\* given for developing an outstanding technology to reduce the environmental impact of logistics in FY2008  
\* The award is sponsored by the Japan Federation of Freight Industries

### Measures at offices

We built our own Environmental Management System (EMS) based on ISO14001 to ensure energy management and CO<sub>2</sub> emission controls targets are properly attained at offices of each business unit and organization. Under the EMS, we strive to reduce CO<sub>2</sub> 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, in order to make employees of the Osaka Gas Group more aware of the importance of energy conservation and environmental protection. Additionally, we strive to reduce CO<sub>2</sub> emission accompanied with logistics by employing LNG railway transportation service.

### Reductions in CO<sub>2</sub> emissions due to reduced energy consumption



Note 1: The graph shows the estimated reduction in CO<sub>2</sub> 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<sub>2</sub> emissions factor for purchased electricity (thermal power average): 0.69 kg-CO<sub>2</sub>/kWh (Please refer to July 2001 Targets Achieved Scenario Subcommittee Interim Summary, Global Environmental Committee, Central Environmental Council.)

### Reductions in CO<sub>2</sub> emissions due to reduced energy consumption

As a result of the efforts to reduce CO<sub>2</sub> emission through power generation at our LNG terminals and energy-saving initiatives at offices, the CO<sub>2</sub> emission during FY2008 was reduced by around 25,000 t through the reduction in purchased electricity and consumption of other fuels. Meanwhile, CO<sub>2</sub> reduction resulted lower than last year affected by decrease of cryogenic power generation.

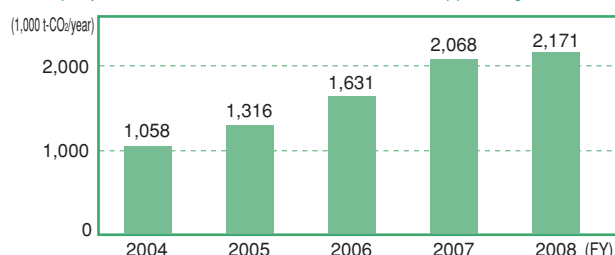
# Reduction of CO<sub>2</sub> Emission at Customer Sites

The Osaka Gas Group, with its focus on the energy business, strives to reduce CO<sub>2</sub> emission not only from our business locations, but also from our customer sites and society at large, for mitigation 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<sub>2</sub> emission control

### CO<sub>2</sub> emission reduction

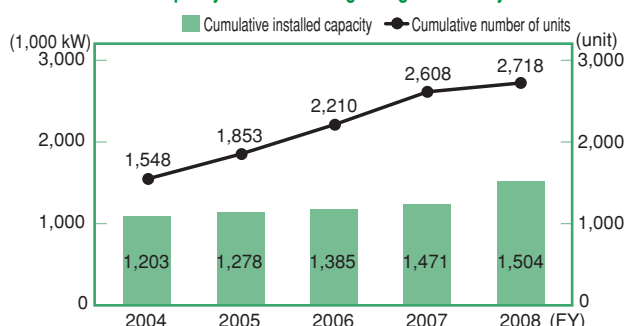
(compared with business-as-usual emission based on FY1999) (Excluding residential use)



By the use of high-efficiency equipment and systems, such as cogeneration systems, gas air conditioners and high-performance industrial furnaces, the CO<sub>2</sub> emission at customer sites was reduced by around 2,170,000 t in FY2008 from the FY1999 level.

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

### Cumulative capacity and number of gas cogeneration systems installed

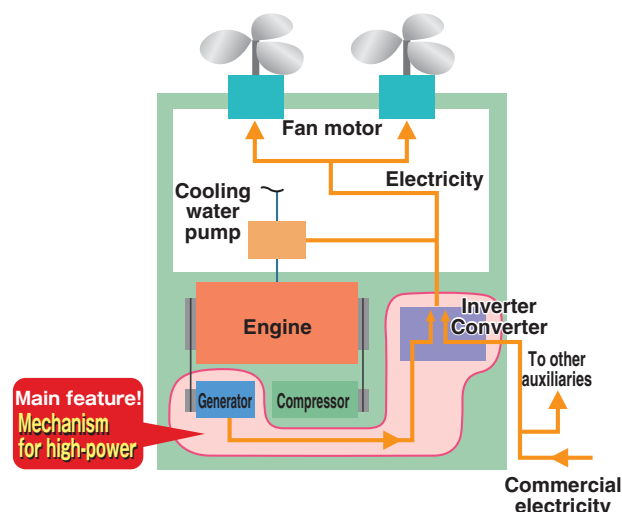


### High-efficiency cogeneration system for commercial and industrial use

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<sub>2</sub> 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. As such technology, Osaka Gas developed the advanced mirror cycle gas engine, of which generation efficiency reaches 41.7%, and introduced to the market. The efficiency of this system exceeds 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.

### High Power Excel Components



### Gas air-conditioning systems and high-performance industrial furnaces and burners

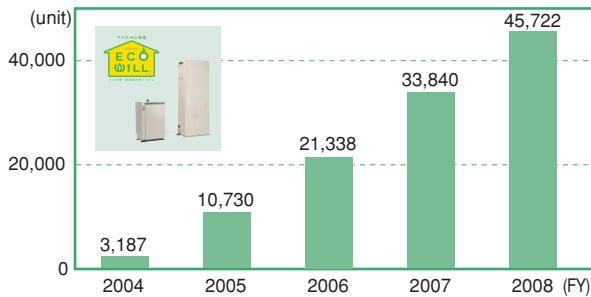
There are two types of gas air-conditioning systems - gas engine heat pump (GHP) and gas absorption-type chiller/ heater. For both types, development of models with enhanced efficiency and less CO<sub>2</sub> emission is underway. The High Power Excel GHP, launched in 2006, consumes no electricity itself but has a generator function that supplies power to the building in which it is installed. Due to this feature, the High Power Excel GHP brings benefits to office buildings and commercial facilities that have been hesitant to introduce cogeneration because of little demand for water heating.

To enhance energy saving efficiency of burners, Osaka Gas has developed high-performance control systems including 1,400 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 approximately 50% energy saving of furnaces in use in plants.

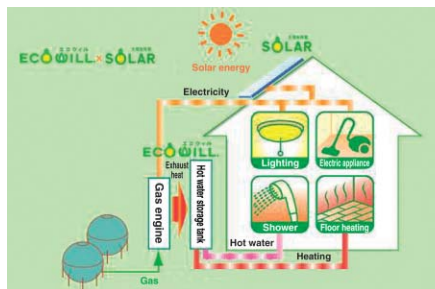


## Dissemination of energy-saving systems for residential use

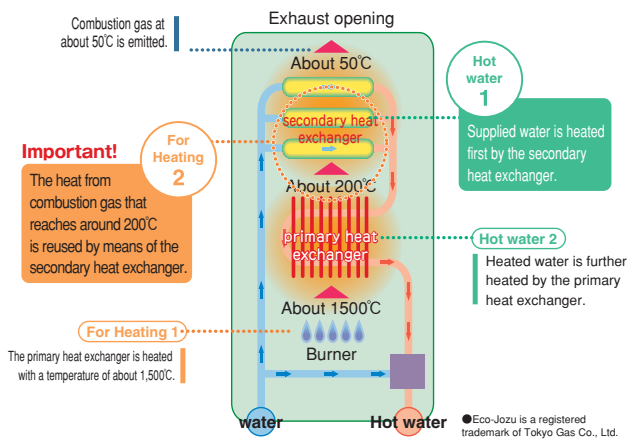
### ECOWILL use in Osaka Gas area (cumulative total)



### “Double generation” - realized by combination of ECOWILL and photovoltaic power generation



### Eco-Jozu Mechanism



The Blue & Green Project is implemented by the Center for Better Living, cosponsored by the Japan Gas Energy Promotion Council, and joined by 25 gas companies and gas equipment manufacturers including Osaka Gas.

### The ratio of equipment meeting the Energy Conservation Law standards

	Table top gas cookers		Built-in cookers	
	FY2007	FY2008	FY2007	FY2008
Burners for cookers (FY2007 standards)	100%	100%	100%	100%
Grills (FY2009 standards)	74%	87%	90%	99%

All of the cookers currently sold meet the standards.

Osaka Gas is working for energy-saving and CO<sub>2</sub> emission reduction at customers' through the dissemination of 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<sub>2</sub> emission by around 32%, thereby contributing to global environmental preservation. To enhance the environment friendliness at customers', Osaka Gas offers the “Double generation”, the combination of ECOWILL and photovoltaic generator.

### 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<sub>2</sub> emission reduced by the introduction of one Eco-Jozu unit is equal to the amount of CO<sub>2</sub> absorbed by 24 eucalyptus trees annually, assuming that one eucalyptus tree absorbs 9.25 kg-CO<sub>2</sub> a year.

### The Blue & Green Project

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 shipping number of energy-saving gas products, such as ECOWILL and Eco-Jozu. The fund is used for afforestation in Vietnam. Since its launch in June, 2006, total CO<sub>2</sub> reduction amounts 104,000 t, including CO<sub>2</sub> reduction by afforestation as well as implementation of those systems, as a result of shipping of about 380,000 units. Setting the higher target for FY2009, from “500,000 units & 500,000 trees” to “1,000,000 units & 1,000,000 trees”, the effort for the project is accelerating.

### High-efficiency gas cookers

At Osaka Gas, technical development of gas cookers is pursued by the optimization of the burner shape, the height of the pan supporters and the grill room design.

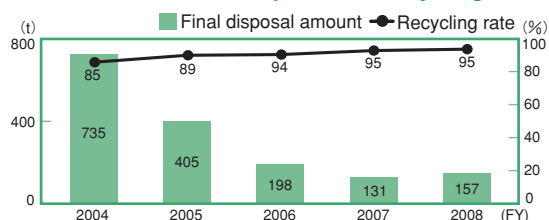


# Reducing Resource Consumption and Promoting Recycled Materials Use

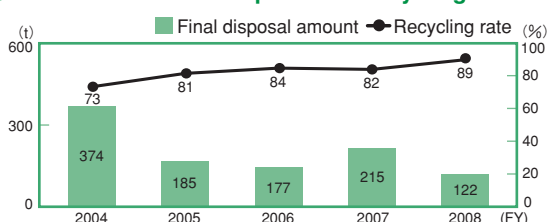
## Waste reduction and recycling



### Industrial waste final disposal and recycling rate



### General waste final disposal and recycling rate



### Water consumption

FY	2006	2007	2008
LNG terminals	General water (10,000 m <sup>3</sup> )	8	9
	Industrial water (10,000 m <sup>3</sup> )	102	99
	Sea water (10,000 m <sup>3</sup> )	41,782	38,208
Other sites	General water (10,000 m <sup>3</sup> )	41	37
		34	

### Industrial waste

The recycling rate of industrial waste in FY2008 achieved the mid-term target (95%, 180t) with almost same level as the previous year.

16 business locations of the Osaka Gas Group achieved zero emission (recycling rate being over 97%) in FY2008, compared to 12 locations in the previous year.

### General waste

The amount of general waste generated during FY2008 remained almost unchanged from FY2007, but the final disposal amount decreased 90t, which resulted in the increase of the recycling rate reaching to 89%, with an improvement of 7 point.

The number of business locations of the Osaka Gas Group achieved zero emission (recycling rate being over 97%) in FY2008 increased to 10, compared to 7 locations in the previous year.

### Reduction of water consumption

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.

## Promoting recycled materials use

### Promoting recycling of excavated soil and gas pipes



#### Recycling rate and final disposal of excavated soil

FY	2004	2005	2006	2007	2008
Reduced amount (10,000 t)	80	82	85	83	83
Recycling rate (%)	71	74	78	82	84
Final disposal amount (10,000 t)	7	6	5	4	3.5

#### PE pipe recycling rate

FY	2004	2005	2006	2007	2008
Amount recovered (t)	153	157	152	155	152
Recycling rate (%)	100	100	100	100	100

### 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 FY2008.

### 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 84% in FY2008, and the final disposal amount was reduced to 35,000 t.

### 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.

### Recycling of used gas appliances

At Osaka Gas, recycling of used gas appliances is promoted with its own system, "e-cycle". Additionally, we introduced the electronic manifest system in February 2007 in line with the policy of the Ministry of the Environment. In FY2008, we recycled 90% of the recovered gas appliances (on a weight basis).

### Compliance with the Home Appliance Recycling Law



Under the Home Appliance Recycling Law (enforced in April 2001), we also make efforts to dispose of residential gas air conditioners properly as well.

#### Recycling rate of residential gas air conditioners

Number of unit recycled	Weight disposed of through recycling (gross weight recovered)	Weight recycled	Recycling rate*
5,572	240t	199t	82%

\*The baseline required by the law: 60%

# Addressing Environmental Risks

## Soil and groundwater conservation

### ■ Soil treatment work (FY2007-FY2009)

Former plant site	Work period	Treatment work
Former Sakai Plant site	January 2007 - March 2008	Heat treatment, biological treatment, insolubilization <sup>*1</sup> and on-site encapsulation <sup>*2</sup> of highly contaminated soil
Former Iwasaki Plant site	April - October 2008 (scheduled)	Removal by excavation, on-site decomposition <sup>*3</sup> and installation of the impervious walls

<sup>\*1</sup> A method for preventing elution of contaminants physically and chemically by mixing solidification agents and other chemicals with contaminated soil.

<sup>\*2</sup> A method for encapsulating soil that does not meet the environmental criteria on-site by means of water cut-off wall or other devices.

<sup>\*3</sup> A method decomposing contamination by instilling medical agent and others into the soil.

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 disclosed the results of the investigations.

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.

## Asbestos management

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

Gas manufacturing and supply facilities	Gas appliances and incineration facilities	Buildings of Osaka Gas
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 nonasbestos facilities on a phased basis when they are upgraded.	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.	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

### ■ Guidelines for chemical management of Osaka Gas Group

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	3.45	3.45	0
Toluene	1.49	1.49	0

Note: Above figures are aggregated values reported based on the PRTR Law (FY2008).

<sup>\*</sup>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.

### 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 guidelines for managing chemical substances.

### PCB management

We are treating PCB waste in strict compliance with relevant laws and regulations. We continue the proper management of PCB in line with the administrative guidelines.

<sup>\*</sup>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.

### Towards the Eco-design of Gas Appliances

Since July 2006, household appliances has been designed/manufactured to include less chemical substances restricted by the RoHS directive as well as the J-Moss regulations in Japan. Gas appliances marketed by Osaka Gas uses no harmful substances exceeding the level restricted by the J-Moss.

# Promoting Green Purchasing and Green Distribution

## Green purchasing



Logo of Osaka Gas's Green Partner Initiative

Under the "Green Purchasing Guidelines" (issued in FY2001 and revised in FY2006), Osaka Gas, in cooperation with our business partners, makes an effort to become involved in purchasing products and installation contracts with less environmental impact while optimizing quality, price and delivery time.

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 business partners and register those who have met certain standards. 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."

## Green distribution

Osaka Gas adopted the "Green Distribution Policy" in 2001 and has since been promoting the environment-friendly 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.

# Communication effort on environmental information

## Environmental education for employees and participation in initiatives



### ■ Participation in major organizations and initiatives

- 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



Membership certificate of  
WWF Japan

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

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.

In addition, we distributed the CSR Report 2007 to all employees and held 18 “CSR Report reading sessions” at business locations. The opinions from our employees have been incorporated in the CSR Report 2008.

## Activities in association with G8 Hokkaido Toyako Summit



Environment Fair in KOBE

Osaka Gas participated and cooperated for the events held in conjunction with Kobe Environment Ministers Meeting and Osaka Finance Ministers Meeting, prior to the G8 Hokkaido Toyako Summit in July 2008. Those events gave good opportunities to Osaka Gas for appealing its environmental efforts and advanced technologies.

### Environment Fair in KOBE

Osaka Gas, in cooperation with Japan Gas Association, made a presentation at the “Environment Fair in KOBE” (estimated visitors amounts 30,000) held from May 23 to 26, 2008 in conjunction with G8 Environment Ministers Meeting. A number of people, including then Environment Minister, Mr. Kamoshita and overseas VIPs, visited our booth and appreciated our high-efficiency appliances/systems as well as environmental technologies and efforts.

### Environment Symposium 2008

Prior to G8 Osaka Finance Ministers Meeting, Osaka Gas, jointly with the Osaka Promotion Committee, hosted the Environment Symposium on June 4. The audience exceeding 300 from inside and outside of Osaka Gas gathered at the Osaka Gas Building for the symposium, entitled “Environment and finance.” We implemented the carbon offset for consumed electricity (approximately 16,000 kWh) of the venue through the Green Power Certificate (biomass electricity).



Environment Symposium



Green Power Certification



# Development of Environmental Technologies

## Research and development



Polymer electrolyte fuel cell (PEFC)

### Fuel cells for residential use

At Osaka Gas, work is continued tirelessly for developing fuel cells with higher efficiency and lower CO<sub>2</sub> emission.

For the development of PEFC using polymer membrane as electrolyte material, the durability test is likely to be completed with achieving 40,000 hours for its initial introduction to market. Osaka Gas accelerates its effort for cost reduction and reliability improvement to realize the commercialization in FY2010.

SOFC (solid oxide fuel cell) has a proven higher power generation efficiency of 45% (LHV basis). For this feature, the system is fit for use in a household with lower thermal energy requirement, and realizes maximum energy saving. Since FY2008, SOFC (20 units) are being tested at 20 houses as part of the field test subsidized by the New Energy Foundation.



HYSERVE 100 for industrial use



JHFC Hydrogen Filling Station

### Toward the hydrogen future

Osaka Gas together with Liquid Gas Co., Ltd. and Osaka Gas Engineering Co., Ltd. has introduced the two models of HYSERVE commercial hydrogen generator, which have the hydrogen production capacity (m<sup>3</sup>/h) of 30 and 100. The systems were employed by industrial customers, where Liquid Gas Co., Ltd. supplies hydrogen on-site.

Osaka Gas is 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.



A-ATG (Advanced Auto Thermal Gasification)  
field test

### Manufacturing process of synthesis gas for GTL

GTL (Gas to Liquids), which is produced from natural gas and associated petroleum gas through the process of synthesis gas, is the liquid fuel with lower NO<sub>x</sub> compared to liquid fuels derived from petroleum, and zero SO<sub>x</sub> in its exhaust gas. Jointly with JGC Corporation, Osaka Gas developed manufacturing process of synthesis gas and successfully completed the field test aiming for the early commercialization. For its compactness, the process is applicable to the synthesis gas manufacture of petrochemical industry and the utilization of associated gas at the offshore oil drilling.

Note: This research is sponsored by Japan Oil, Gas and Metals National Corporation.

# Pursuing the renewable energy business

## Electricity business



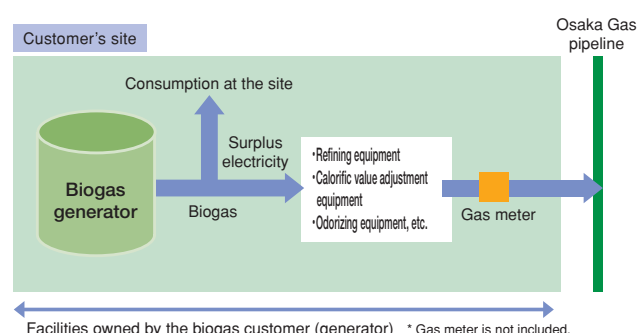
Hayama Wind Farm

Osaka Gas Group is working on the development of the wind power generation, as a business enhancing contribution to mitigating global warming. Hayama Wind Farm with a capacity of 20,000kW started its wind power generation in March 2006, while the operation of Hirogawa Myojinyama Wind Farm with a capacity of 16,000 kW is scheduled to begin in fall 2008.

In addition, we offer the “W generations” which is the combination of photovoltaic generation utilizing the natural energy and ECOWILL which generates electricity utilizing environmentally-friendly energy, natural gas (see P.34.)

## Efficient utilization of biogas

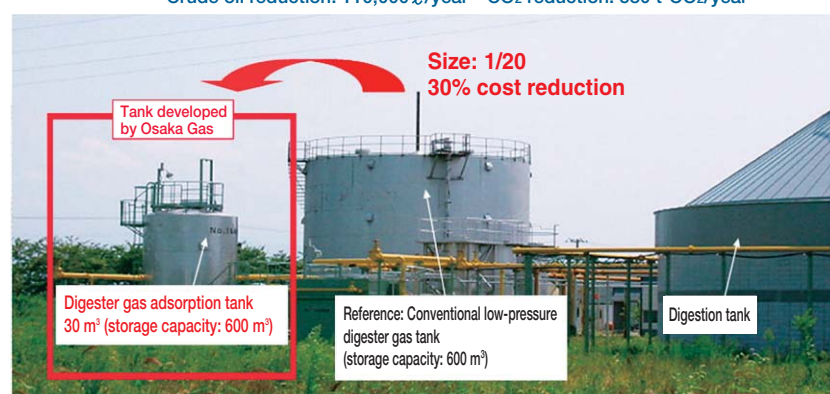
### ■ Biogas trading system



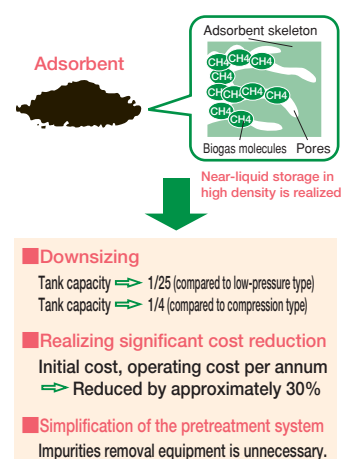
Osaka Gas is engaged in the development of high-efficiency methane fermentation unit with making full use of its biotechnologies. This innovative unit solubilizes biomass such as raw garbage at 80 degrees C. As a result, the biogas generation increases to 120%, as well as the amount of residue and waste water is reduced by half which was the hurdle for the methane fermentation process. The technology realizes both the economic efficiency improvement and global environment preservation. In addition, Osaka Gas adopted the guidelines for the procedures of purchasing the biogas and launched the biogas trading in FY2009.

### ■ Biogas adsorption storage technology

Crude oil reduction: 110,000 ℓ/year CO<sub>2</sub> reduction: 580 t-CO<sub>2</sub>/year



Digester gas adsorption storage plant in Shizuoka city (sewage plant) subsidized by the Ministry of Land, Infrastructure, Transport and Tourism (FY2000-2003)



CSR Charter II For further information on following topics, please visit our website.

● LNG railway transportation service



● Contribution to energy-saving at customers' sites



● High efficiency cooking stove



● Development of high-efficiency methane fermentation system using ultra-high temperature solubilization technology



● Providing energy-saving information



# CSR Charter III

Being a good corporate citizen contributing to society



## A Good Corporate Citizen

Businesses of Osaka Gas Group are closely linked to the lives of people in the community. As a responsible member of the regional community, that is to do our part as a good corporate citizen, we are committed to enhancing awareness and taking even greater action.

The Osaka Gas Group launched the corporate volunteer project known as “The Small Light Campaign” in 1981. This project was followed by the establishment of the Osaka Gas Group Welfare Foundation and the Osaka Gas Foundation of International Cultural Exchange in 1985 and 1992 respectively. These organizations assist health initiatives for the elderly, as well as educational programs for natural gas producers in Asia and Oceania.

In recent years, working from the perspective of environmental protection as well as education for the children and youth who lead the next generation, we have been actively engaged in the kind of projects that our Group does best, i.e. interacting with regional society through education on energy and the environment. Our goal is for our Group, as a good corporate citizen, to continue to develop together with the communities in which we operate.

## The Small Light Campaign

### ■ 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 gas flame in a circular glass cover of a gas lamp, and also because one of its floral languages is “plenty of goodwill and love.”



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

“The Small Light Campaign,” a volunteer project run by the Osaka Gas Group, was launched in 1981, International Year of Disabled Persons. The key to the success of the Small Light Campaign is that each and every one of our employees maintains an interest in the things around them, taking the lead to resolve community issues. Though it takes a small-scale approach, comprised of numerous small initiatives, we have managed to “keep the light going” to this day. In 2006, we celebrated the project’s 25th anniversary. To commemorate the occasion, we launched the Subsidy Program for Citizen Activities for the wellbeing of children with the Small Light Fund, which was created at the same time the project was launched. Through open recruitment, the program identified and assisted organizations that help children who, as upholders of the coming generations, deserve proper care.

At the present time, we conduct a variety of unique projects such as events to assist area orphanages as well as persons with disabilities, plus close-to-home projects like community clean-ups and blood drives.

We also support our employees’ community action work through several company systems, including giving the President’s Award to employees engaging in outstanding community action projects, offering time off for volunteer work, funding for community activities, and so on.



# Activities of The Small Light Campaign

## Working for the Wellbeing of Children



The Spring Vacation Nature Class for Parents and Kids



Cooking for Children



Children's theater



Volunteer Sweet-making

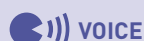
Sound education for our youth, upholders of the next generation, is an important project for society. The Osaka Gas Group, in collaboration with NPOs and volunteers, runs events designed to expose children to various experiences, including "The Spring Vacation Nature Class for Parents and Kids," "Cooking for Children," "Children's Theater," and more, with a view to helping as many children as we can to learn and grow.

## Healing Music Concert

As of 1997, Osaka Gas has held concerts at the Osaka Gas Building hall, with a view to providing a relaxing time for people in the community. A donation box is set up at the hall and the funds donated to NPOs and other recipients.



Healing Music Concert



[Stakeholder Comment]

### Great Encouragement for the Kids

I would like to thank Osaka Gas for having a donation box for our organization at the Healing Music Concert venue. It was extremely encouraging for the children to see for themselves that everyone at the venue listened so attentively to what we had to say, and to witness the people kindly putting money into the box. We will continue to do our best to ensure that as many of our kids as possible continue with their education, and to see to it that they get the emotional care that they need.

**Michio Ito**

Chief Manager, Kobe Rainbow House Ashinaga



## Working for the Wellbeing of the Elderly

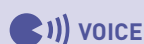


Singing Children's Songs and School Songs, a charity event



Excursion Trips for the Elderly

As Japan's elderly population continues to grow, we work together with NPOs to help ensure that older people, who supported our society in the past, can continue to live as active members of society.



[Stakeholder Comment]

### Excursion Trips for the Elderly, a Collaborative Project

Our project began to work with Osaka Gas in 1996, when we first held an event to get elderly people out of the house. It makes us happy that Osaka Gas works with us because it means that our project is not only for our own satisfaction: it shows us that we are socially acknowledged and that other people feel the same way we do. The support of Osaka Gas is a great encouragement for us.

**Yoshiko Nagai**

Director, Administrative Office  
The Out-of-the-house Assistance Project for the Elderly





## Working for the Wellbeing of Persons with Disabilities

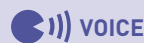


The Midosuji Neighbory Bazaar

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 enhancing public understanding of disabilities.

### The Midosuji Neighbory Bazaar

The Midosuji Neighbory Bazaar, which exhibits and sells items hand-made at facilities for the persons with disabilities, has been held in front of the Osaka Gas Building. The event provides economic support to facilities for persons with disabilities, and offers an opportunity such individuals to be active in society.



[Stakeholder Comment]

#### A Great Opportunity for Active Participation in Society

This year marks the fourth year that we will be participating in the Midosuji Neighbory Bazaar. We are working hard to offer items appropriate to a business district, such as baked goods including cookies, plus ceramics, and more, which are made by persons with disabilities. Thanks to your support, more and more people are purchasing our items, remarking how tasty the baked goods are. For both facility staff and the persons with disabilities who made the goods, this is a wonderful opportunity to interact with society.

#### Hisakazu Takahashi

Manager, Administrative Department  
Suisen Fukushima



## Osaka Gas Volunteer Club

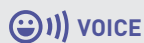
In 1982, the students of internal courses launched volunteering clubs.



Working on the Braille translation of calendars

### Braille Club "Tomoshihi"

The translated calendar is presented each year to schools for the blind.



[Stakeholder Comment]

#### Being a Part of the Braille Club

Each of us works on Braille translation in our free time. To add the finishing touches, we get together after work, joined by former employees, in a nice, friendly atmosphere.

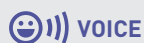
#### Yoshinori Shimada

Braille Club Representative,  
Land Planning Team, Administrative Department



### Sign Language Club "Tablecloth"

The activities include the study of sign language and providing sign language at events.



[Stakeholder Comment]

#### Being a Part of the Sign Language Club

Don't you agree it's amazing that you can express yourself by just moving your fingers and with your facial expressions? This club has an easygoing atmosphere so that anyone can feel comfortable, even if it's their first time.

#### Mayumi Okazaki

Sign Language Club Leader  
Sales Planning Team  
Living Environment Development Department



Sign Language Club "Tablecloth"



# Contribution to Local Communities

As a member of the community, Osaka Gas Group has been contributing by wide-ranging social activities including actions on preservation of the culture of the Kansai region and biodiversity conservation.

## Interaction with the Community



Cleanup project



Summer festival



Work experience for school Children



Volunteer Activities in Natural Disaster Impacted Areas

Cleanup projects are held around Osaka Gas business locations, including LNG terminals. With a view to facilitating interaction with the local community, the festivals are held and attract visitors. At the events held at our LNG terminals, we had some 4,000 visitors over a four-day period. The summer festival at our laboratory, which has been going on for more than 30 years, is also well-received by the community, having more than 1,200 visitors. As part of the prefectural projects, junior high school students experienced the works at the Himeji LNG Terminal.

In addition, we conducted a volunteer assistance project to help the recovery of the affected area of Niigata Chuetsu Earthquake.

## Contributing to Kansai Culture



OMS Drama Award winner selections are being made



OMS Drama Award Ceremony

### OMS Drama Award

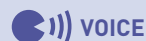
In 1994, with a view to perpetuating the unique culture of Kansai, we established the OMS Drama Award. The Award draws attention nationwide that has helped to bring many now-famous playwrights to prominence.

### A Project to Communicate the Findings of Cultural Study

As a part of efforts to contribute to revitalizing Osaka, Osaka Gas works for the research on the culture of the area. The finding is compiled as stories, and communicated by unique rendering using images combined with musical performance. Held four times in FY2008, the event has been very well-received.



The story teller of Naniwa works to spread information (Research Institute for Culture, Energy and Life).



[Stakeholder Comment]

### Participating in the Story Teller of Naniwa Project

The story teller of Naniwa project takes up Osaka's history and culture in great detail, encouraging renewed awareness of the great appeal and value of the town, and as such it is a very significant initiative indeed. The performance is highly entertaining, incorporating elements of visuals, music, and storytelling, bringing Osaka's history and culture alive in the present. In fact, it can be said that the project has itself become part of Osaka's culture.

### Keiichi Nishimura

Violinist and Actor







## Conserving Biodiversity



A family of raccoon dogs at the Himeji LNG Terminal



A commemorative tree-planting event at the Senboku LNG Terminal (October 2005)



As of June 2007, the trees had grown to the height of an adult



"Osaka Gas Forest": Employees and their families cut the underbrush.



An oxeye brings its babies food in the NEXT 21 green area.  
(Photo by Toru Sasaki, April 2008)



NEXT 21: resting place for birds

## Afforestation Projects at LNG Terminals

Osaka Gas takes an active approach to afforestation around its facilities, where we strive to achieve a rich green environment in harmony with the natural environment of the area.

At the Himeji LNG Terminal, we have utilized the area's indigenous plant life, creating forests of Hyogo Prefecture camphor trees and oaks of Himeji City with an ecologically sound approach. As a result of these initiatives, the more than 20% of the terminal's site area covered in greenery re-creates the local ecosystem. For about the past twenty years, generation after generation of wild raccoon dogs have lived in the area and local residents are now quite familiar to them.

At the Senboku LNG Terminal as well, the goal is to re-create the original ecosystem of surrounding area, focusing on local seed breeding in afforestation projects. After growing saplings from the nuts of local mountain forests, in 2005 we planted trees together with local children including sawtooth oak, *Quercus serrata*, ring-cupped Japanese blue oak, and more. These trees are now taller than most adults.

## Forest Conservation Activities: "Osaka Gas Forest"

Osaka Gas participates in the "Company Forest/Union Forest" program of Wakayama Prefecture, working on forest conservation together with the labor union. In March 2005, we planted some 2,600 broad-leaved saplings over one hectare of mountain forest of the Kii Mountain Range, which lies in close proximity to the Kumano Ancient Road, part of a World Heritage Site. Every summer, employees and their families participate in this program, clearing the underbrush. In July 2008, a total of 59 employees and their families, including Vice President Yokokawa, volunteered for the program. We plan to continue with afforestation initiatives in collaboration with the local communities including the Nakahechicho Forestry Association.

## NEXT 21 "A Corridor of Greenery and Birds" Exhibition

One major characteristic of the Osaka Gas Experimental Residential Complex NEXT 21 is that the entire structure features greenery, including the ecological garden of the first floor, the three-dimensional corridors, the individual gardens for each dwelling, and the rooftop gardens. Around the Uemachi Plateau, where NEXT 21 is located, there is also a variety of greenery, supporting various kinds of life, to be enjoyed from Osaka Castle Park in the north to Tennoji Park in the south. This stretch includes many groves of trees on cliff areas, temple and shrine grounds, and school grounds. The greenery of NEXT 21 was designed with the request that it be linked with the flora and fauna of the local area. With a three-dimensional structure, it represents a mid-town oasis where birds can rest their wings. Indeed, since construction was completed in the fall of 1993, more than 22 kinds of birds have been seen here. In this connection, the window exhibition, jointly organized with the Wild Bird Society of Japan, was based on the theme "The Uemachi Plateau: A Corridor of Greenery and Birds." It focused on the lives of animals and plants in close-at-hand environments.

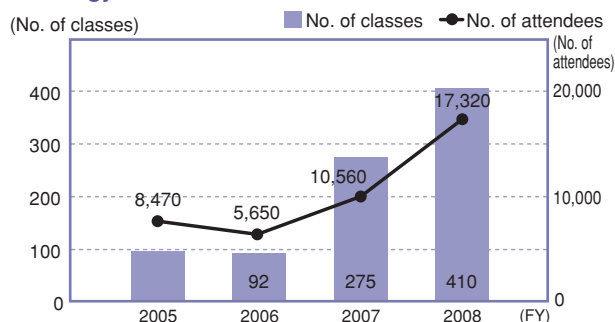
# Interaction with the Community

## Energy Environmental Education



Providing lectures at schools

### Energy and Environmental Education



At Osaka Gas, we offer classes at two other places besides the school, targeted mainly at upper-grade elementary school students, to learn about energy and the environment: the Gas Science Museum (located at the premise of the Senboku LNG Terminal) and the Himeji Gas Energy Hall (at the Himeji LNG Terminal). The number of visitors to the two museums in FY2008 reached some 62,000.

In addition, in response to needs related to energy and environmental issues as the subject to be taught in classes of elementary and junior high schools, we offer a school visit program for providing lectures on energy and environmental issues. Because energy providers are able to offer highly specialized classes on the subject, we have received many requests from schools, and we send Osaka Gas employees and retired employees to answer to these requests. We have three original programs to adopt according to the school grade and level, and each offers a fun way to learn about energy and environmental issues from a close-to-home perspective, e.g. through experiments, cooking, etc. In FY2008, we offered over 410 classes on-site at schools, teaching some 17,000 children. In recognition of the value of this project, we received the Information Center for Energy and Environment Education Operations Committee Chairman Incentive Award at the FY 2008 Energy Publicity/Publicity Institution Award given by the Information Center for Energy and Environment Education of the Japan Productivity Center for Socio-economic Development.

## Disseminating Information to Society



U-CoRo Window Exhibition (an experiment in local communication design)

■ The exhibition held so far

No. 1: Scrolls of Uemachi Plateau Festivals

No. 2: Children and How They Play at the Uemachi Plateau: Then and Now

No. 3: Knowledge to Save Your Life -

30 Approaches to Disaster Reduction and the Natural Disaster Record of the Uemachi Plateau

No. 4: The Uemachi Plateau: A Corridor of Greenery and Birds

The Osaka Gas Experimental Residential Complex NEXT 21 is located in close proximity to the Uemachi Plateau, a place that represents the beginnings of Osaka's history and culture. A Phase III experimental projects that began in the spring of 2007, it is a center of practical research on communication designs. Using a show case on the first floor of the U-CoRo Uemachi Plateau Communication Room, we offer window exhibitions, workshops, which are the collaboration broadly with local residents, as well as research institutes including universities and others.

In addition, we provide information on Eco Housing and Eco Lifestyle through a range of means, including newspaper columns, university lectures, and more.

## Osaka Gas Welcomes Interns



Private Sector Training for School Teachers



An intern from the University of British Columbia, Canada

Osaka Gas collaborates with the Keizai Koho Center, which works to promote better communication between the economic and educational spheres, to provide private sector training to school teachers, mainly from the Osaka City Board of Education.

Every year as of 1998, the Energy Technology Laboratories has hosted interns from abroad for long period of six months to one year. Interns acquire practical skills and knowledge through their research and our company gets exposure to new perspectives, leading to more creative research.



# Activities at Osaka Gas's Foundations

## Assisting the Elderly



Walking Rally



Laughter and Health Exercise

The Osaka Gas Group Welfare Foundation operates in six prefectures of the Kansai region, mainly engaging in 1) funding to welfare projects, research, and surveying of the elderly population and 2) health-promotion projects to help maintain and improve health for the elderly, both of which reinforce each other efficiently. The Foundation's initiatives are designed to foster dynamism amongst the elderly of Japanese society, who tend to enjoy great longevity.

### Funding Programs and Health Promotion Programs in FY2008

	No. of projects	Disbursement Amount
Welfare funding for the elderly	90	¥23,000,000
Research and survey funding	17	¥14,000,000

	No. of classes	Participants
Health promotion projects	257	15,300

### VOICE

[Stakeholder Comment]

#### Upbeat, Fun, and Active

We at the Health and Welfare Department of the Hyogo Prefecture Hanshin Senior College very much appreciate the annual health meeting event put on by the Osaka Gas Group Welfare Foundation. We are working hard with a view to preserving our own health by our own means, as well as to live an upbeat, fun, and active life as long as we can, which is a goal of the health meeting. We look forward to your ongoing support.

#### Hisashi Kamiya

Professor  
Hyogo Prefecture Hanshin Senior College



## Doing our Part on the International Scene



Scholarship presented at University Malaysia Sarawak.



A grant-endowed school

The Osaka Gas Foundation of International Cultural Exchange disburses grants to schools in more than 10 localities in natural gas-producing Asian and Oceanic countries. This assistance focuses mainly on four areas (educational materials, experimental research, scholarships, training). In addition, we are expanding funding to cover new areas such as short-term Japanese language training, disaster prevention training, and more, to help encourage better mutual understanding between Japan and these countries.

### VOICE

[Stakeholder Comment]

#### Assistance for Disaster-affected Areas of Indonesia

We at the Jambo Minda Foundation implement projects to assist the children of Aceh, Indonesia, which was hit hard by the massive tsunami. The Osaka Gas Foundation of International Cultural Exchange actively assists us with scholarships as well as mobile library programs, which is a great source of encouragement in the recovery process.

#### Mr. M. Ridha

Jambo Minda Foundation



### Total assistance provided in FY2008

	Disbursement Amount
Educational materials	¥6,500,000
Experimental research	¥6,600,000
Scholarships	¥9,140,000
Training	¥2,670,000
Other	¥1,640,000



### CSR Charter III

For further information on following topics, please visit our website.

● A Cleanup around the Osaka Gas Building



● Social Welfare Seminars



● The Charity Calendar Fund



● The Osaka Gas Suzuran Club (a club of former employees) Cultural Exhibition Charity Fundraiser



● The Hand-made Dustcloth Volunteer Project



● A Cooking Class for Organizations Working for the Blind



● Donation of Unused and Scrap Postcards



● Cooperation on Blood Drives



● Donations of Used Stamps and Cards



● Charity Concert by In-house Musical Clubs



● An Afforestation Project in Australia



● Visitors to our corporate museums





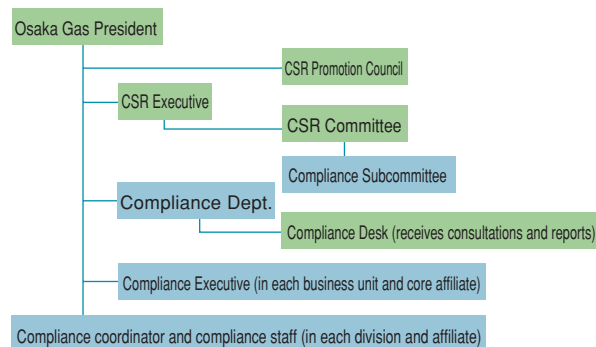
# CSR Charter IV

## Strengthening compliance and respecting human rights

### Compliance

#### Organization for Strengthening Compliance

##### ■ Compliance Structure



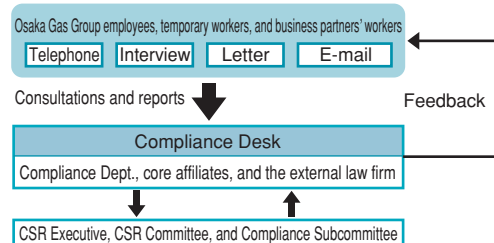
Measures to promote compliance are deliberated and status of compliance is monitored by the CSR Promotion Council, CSR Executive, and the CSR Committee, which fall under the supervision of the president of Osaka Gas. At each business unit and core affiliate, the Compliance Executives are selected who are responsible for monitoring, promoting, and providing advice and recommendations on compliance-related activities. In each division of Osaka Gas as well as affiliate, a compliance coordinator and a compliance staff are appointed to take responsibility for planning and promoting compliance activities, awareness raising, and training.

The Compliance Department functions as secretariat to the CSR Committee and Compliance Subcommittee and as a dedicated entity responsible for promotion of compliance activities.

As an advisory body to the Board of Directors, Osaka Gas has also established a Corporate Ethics Committee in order to provide recommendations from an external perspective on compliance activities and improvement of corporate ethics. (see P.10)

#### Compliance Desk (internal notification system)

##### ■ Organization of Compliance Desk



The Compliance Desk was established in FY2004 to provide a channel for persons seeking advice and reporting on compliance with laws and internal rules, and it receives about 40 to 50 inquiries and reports from group employees and temporary workers in a given year. Upon receipt of notification, an initial examination is made, following which a fair investigation of the facts is conducted and any necessary corrective measures are implemented.

With the entry into effect of the Whistleblower Protection Act, the system's scope of application has been expanded to include workers at our business partners, and referral desks have been established at core affiliates to make it easier to report cases. Anonymous referrals are also accepted.

#### Internal Training and Awareness Raising

##### ■ Participation in Compliance Training

Fiscal year	2005	2006	2007	2008
Lectures for management by outside experts	150	170	180	170
Group training and e-learning for supervisors and managers (including new appointees)	224	811	1,906 (all managers)	802
Group training for compliance staff	—	110	98	93
Group training and e-learning for general employees (including new recruits)	6,389	8,084	16,514	29,487

Note: In addition to the above, compliance training is organized by each division.  
Figures indicate the cumulative number of participants in each category of program.

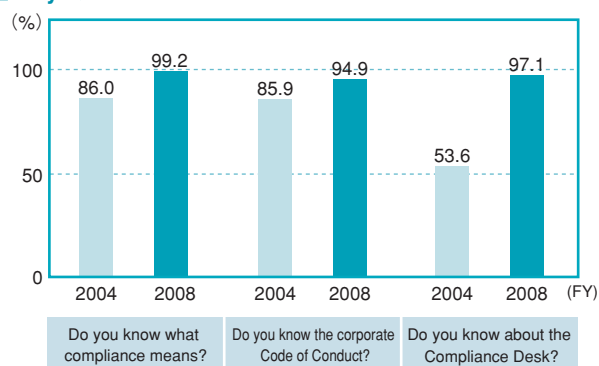
Each year, compliance training is provided for every level of the workforce, from management to new recruits. Employees act as instructors and use actual case studies from within and outside the company to provide employees with concrete and practical training in compliance.

Up to FY2008, the program covered all employees of the Osaka Gas Group and a cumulative total of over 60,000 employees had received training. Similar educational programs will be continued to further establish and broaden awareness of compliance among the workforce.

Other materials used to enhance compliance awareness include manga comics and posters, regular publication of information on compliance, and posting of information on the company intranet.

## Internal Questionnaires on Compliance

### Key Questionnaire Results



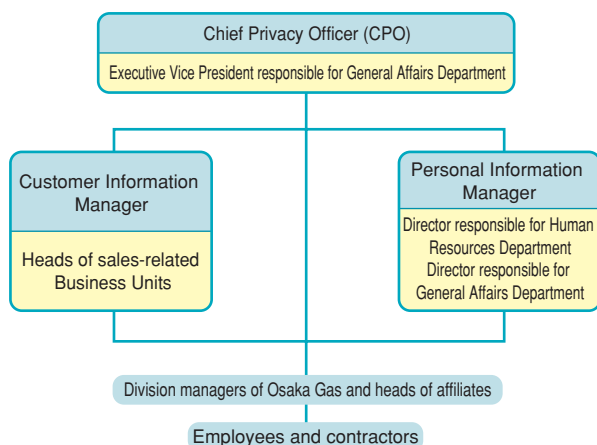
Yearly surveys of employees are conducted to ascertain levels of awareness and practice of compliance, and to incorporate the result into the future measures. The survey takes the form of a questionnaire that is completed anonymously by 4,000 randomly selected employees of the Osaka Gas Group.

The first survey in FY2008 garnered a response rate of 79%. The findings indicate that recognition and understanding of compliance are rising by the year, and compliance awareness and practice in the workplace are steadily rising. At the same time, however, the results indicate there to be a lack of knowledge of laws and other rules, and so a greater emphasis will be placed on strengthening and broadening knowledge of legislation in education and training in the future. Considering it necessary to strengthen promotional activities by supervisors and managers in order to inculcate a boarder awareness of compliance, training for supervisors and managers will be enhanced.

These surveys will be continued on a regular basis as an instrument for furthering the employees' awareness of compliance.

## Protection of Personal Information

### Organization for Protecting Personal Information



As a utility, the Osaka Gas Group handles enormous amounts of personal information. Of such information, protecting personal information, as epitomized by customer information, is particularly important, and we are working to protect personal information through various safety management measures based on a system of personal information management.

Nevertheless, customer data was lost on several occasions in FY2008 by contractors used by Osaka Gas and its affiliates. However, the lost data was not found to have been divulged to or used by any outside parties.

In order to prevent incidents of this kind, protection of privacy has been made a theme of compliance training, and risk management of personal information is also practiced using the "G-RIMS" self-inspection risk management system. In March 2008, an e-learning course on protection of personal information for all employees was launched, and this was taken by all employees and follow-ups were provided for those who have to participate. Rigorous action will continue to be taken to protect personal information and prevent any recurrence of such incidents.

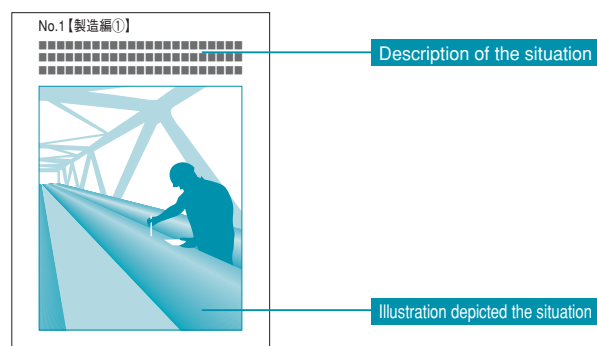
### Leaks of personal information

Time	Case	Circumstance of leak
September 2007	Loss of customer information	Sole proprietor contracted by the Group lost list of customers to be visited while visiting corporate customers serving as distribution points for free newsletters published by affiliates (82 cases).
February 2008	Loss of customer information	Loss of customer visit cards by staff of contractor affiliate (147 cases).

# Examples of Action on Compliance

## Activities of LNG Terminal & Power Generation Business Unit

### Overview of Compliance Hazard Prediction Sheets



Members of the LNG Terminal & Power Generation Business Unit discuss the following issues with the use of sheets that depict by means of hand-drawn illustrations the compliance risks commonly encountered by members.

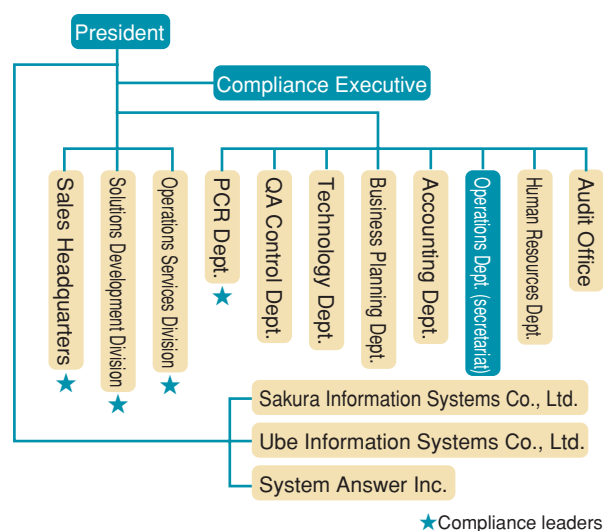
#### Main areas of discussion

- 1) What are the potential compliance issues that may arise in the situation depicted?
- 2) What would you do in such a situation?
- 3) Have you ever had any similar experiences?
- 4) What secondary risks could conceivably result?
- 5) What points should be focused upon in everyday work?
- 6) Can problems be prevented from arising in the first place?
- 7) Should any action be incorporated into how you perform your work to remedy the situation?

In addition to taking part in company-wide trainings, LNG Terminal & Power Generation Business Unit engages in its own independent activities to develop and raise awareness of compliance among its members. Adopting the approach that it is better to maximize effect through having the individual employees involved in actual operations “understand” and “practice” rules and social norms rather than depending on one-way communication from the secretariat, these activities revolve around the use of study groups employing the unit’s original hazard prediction sheets. Using these, case studies are examined with full participation organized at the team and group level. In FY2008, 318 participants took part in these activities, which are producing suitable improvements as a result.

In addition, the efforts include risk management self-check system, voluntary audit on business practice and environment management, and voluntary audit on safety management, are implemented aiming for improvement of compliance awareness as well as appropriate revision of systems.

## Action by Osaka Gas Information System Research Institute Co., Ltd.



The OGIS Research Institute Group\* is working to raise compliance, and staff of its Compliance Secretariat visit establishments to conduct group training. Training takes the form of participant participation through face-to-face discussion of case studies and lectures on laws and regulations designed to cover points of particular concern to the information service industry in order to further deepen understanding. 10 compliance leaders are in addition selected by each division to serve as on-the-spot advisors for developing compliance arrangements and strengthening collaboration with the secretariat. Compliance leaders take the Business Law Examination, which is provided by the chamber of commerce, in order to gain knowledge and sensitivity to the legal matters.

\* Osaka Gas Information System Research Institute Co., Ltd., Sakura Information Systems Co., Ltd., Ube Information Systems Co., Ltd., System Answer Inc.



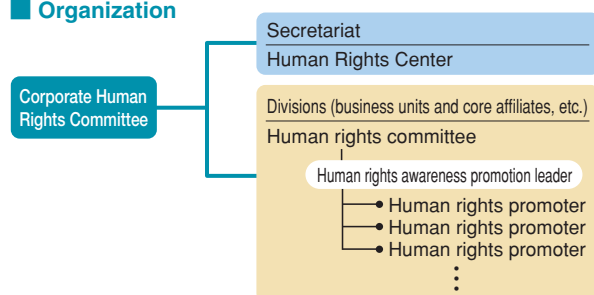
# Action on Human Rights

With public awareness of human rights growing, businesses must now show more respect for human rights than ever in every aspect of their corporate activities. The Osaka Gas Group organizes training and pursues awareness raising activities to deepen understanding of various human rights issues and raise awareness of respect for human rights, and to create a working environment in which mutual concern is shown for human rights.

In FY2008, awareness-raising activities were pursued on the focused areas in order to promote respect for diversity in the workplace.

## Arrangements for Raising Awareness of Human Rights

### ■ Organization



Activities to raise awareness of human rights in the Osaka Gas Group as a whole are organized by the Corporate Human Rights Committee, headed by the director responsible for the Human Resources Department and with the Human Rights Center in the Human Resources Department acting as the point of contact. Each of Osaka Gas's business units and core affiliates also has its own human rights committee, whose members pursue activities to raise awareness of human rights.

### ■ Human Rights Awareness Plans

1. Enhancement and strengthening of human rights awareness structure
2. Enhancement of human rights education and awareness raising activities
3. Training of human rights awareness promotion leaders within each division to promote raise awareness of human rights
4. Gathering of information on human rights and dissemination within the company
5. Participation in human rights associations for businesses and information gathering

## Human Rights Training

### ■ Group Training

Participants	Period	No. of participants
Directors	February	11
Supervisors and managers	June, July, September, November, December	207(cumulative total)
General employees	March	456
New recruits	April	94
Managers at affiliates	July, August	642

Osaka Gas's Human Resources Department organizes group training for all employees and also training for each division's human rights awareness leaders. Group training consists of graded education for managers and new recruits, while various lectures held outside the company are utilized to train leaders. For newly appointed managers, training in the "basics of human rights issues" and "case study training" is provided. The "basics of human rights issues" is taught by video learning with lectures and discussion, while "case study training" looks at actual cases of rights infringement, such as sexual and power harassment. Human rights training is also provided for managers of affiliated companies.

### ■ Participation in External Courses

Course name	No. of participants
Anti-discrimination and Human Rights Issues Awareness Raising Course (managers)	43 (cumulative total)
Human Rights and Anti-discrimination Issues Corporate Awareness Raising Course	
Buraku Liberation and Human Rights Summer University Course, etc.	

Note: Organized mainly by the Buraku Liberation and Human Rights Research Institute and other organizations.



A poster for raising awareness

# CSR Charter V

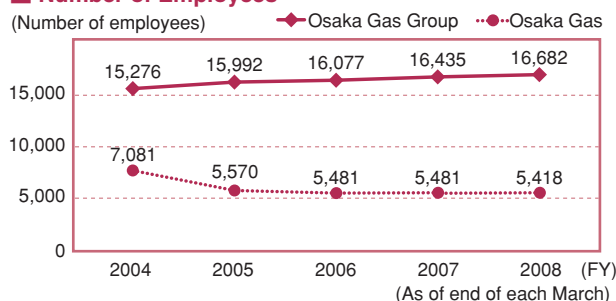
## Management policy of achieving growth of employees



## Employment

### Action on Employment

#### Number of Employees



#### Employment Situation at Osaka Gas

● Data on employees as of end March 2008 (excluding employees on loan)

	Total	Men	Women
No. of employees	5,418	4,675	743
Average age	42.1	42.5	40.0
Average length of service	21.0 years	21.2 years	19.7 years

● Number of new hires (April 1, 2008)

	Total	Men	Women
No. of new hires	96	88	8

● Turnover rate (FY2008)

Turnover rate among employees aged under 50	0.67%/year
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#### Rate of Employment of Disabled Persons by Osaka Gas

Year	2005	2006	2007	2008	2009
%	2.04	2.18	2.37	2.43	2.30

Statutory minimum rate of employment of disabled persons 1.8%

(As of April of each year)

#### Reemployment after Mandatory Retirement at Osaka Gas

Time of mandatory retirement	March 2006	September 2006	March 2007	September 2007	March 2008
No. of retirees	24	28	46	36	54
No. of persons seeking reemployment	11	17	22	23	22
No. of persons reemployed	11	17	22	23	22
Rate of reemployment of persons seeking reemployment	100%	100%	100%	100%	100%

Under the management principle achieving growth of employees together with ensuring growth of a business enterprise, we practice fair and equal employment, matching individual employees' aptitudes and work styles with the abilities and working conditions, and also actively employ people with disabilities. In addition, the Career Development Center has been set up in Osaka Gas's Human Resources Department to provide post-retirement support to employees.

#### VOICE

[Stakeholder Comment]

##### Internship Experience

I did an internship with Osaka Gas while still a student to discover what work was like, gaining as a result a sense of the fun and weight of responsibility of the energy industry. The free and active corporate culture that attracted me then remains unchanged now that I am actually working at the company as a regular employee. Every day brings you into contact with the customer, challenging you to come up with new ideas and proposals that contribute to their quality of life.

**Naosuke Isayama**

Osaka Energy Sales Department



#### VOICE

[Stakeholder Comment]

##### Using the Short-term Contract Reemployment Scheme

I took advantage of the short-term contract reemployment scheme in order to make good use of my years of experience after mandatory retirement, and I now work three days a week doing onsite joint inspections of gas pipe installation work and inspections after the completion of installation work. Every day brings its own reward, including being able to play a part in the development of the next generation of engineers.

**Masashi Yamazaki**

Hokutoku Pipeline Department



# Balancing Work and Family

## Helping Employees to Balance their Work and Family



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



Guidebook on support for balancing work and childcare

At Osaka Gas, we strive to create a corporate culture and working conditions that allow individuals to make maximum use of their abilities. A variety of programs introduced include “community leave,” “volunteer leave,” and “citizen judge leave,” in order to actively help employees to contribute to society as volunteers and perform their duties as citizens (such as their duties as citizen judges under the newly introduced citizen judge system).

In accordance with the Law to Promote Measures to Support Development of the Next Generation, Osaka Gas's labor and management together work on the promotion activities.

We have also introduced a scheme allowing parents to take childcare leave up to the end of the month in which a child reaches his/her third birthday. In parallel, a support program assists employees returning to the workplace.

In recognition of these activities, Osaka Gas became in April 2007 the first company in the electricity and gas industries to be certified by the Minister of Health, Labour and Welfare as an enterprise that actively supports childcare in accordance with the above law.

### Number of employees taking childcare and nursing leave

(Number of employees)

FY	2004	2005	2006	2007	2008
Childcare leave	35	38	31	29	33
Nursing care leave	1	5	0	4	2
Nursing care time	1	1	1	1	0

#### VOICE

[Stakeholder Comment]

#### Taking Parental Leave

I took three weeks of parental leave to coincide with the birth of my second child. I am very grateful to everyone who helped in all kinds of ways and made it possible to take this time off work. My family was delighted that we could spend such an important time together, enabling me to play a full part in caring for our new daughter, and every day was filled with fun and joy. It really was a precious time that I wouldn't have missed for the world. I intend to tell everyone about my experience so that others will take childcare leave in the future.



#### Takeshi Yamashita

Emergency Safety Group 1,  
Emergency Safety Team, Hyogo Pipeline Department

#### VOICE

[Stakeholder Comment]

#### Becoming an Appealing Employer by Contributing to the Work/life Balance

The fourth year students have largely finished their searches for jobs, and now embark on their chosen career path entertaining a mixture of hope and uncertainty. Talking to students, one finds that they are interested not only in a company's future potential and pay level, but also in how much weight is given to employees' private lives. In the faculty of economics to which I belong, a high proportion of students, in fact over 70%, are male, but quite a few are concerned about whether they will have time for their hobbies after work or be able to make use of provision for parental leave in order to spend time with their children. In particular, almost all of them appear to be interested in playing a part in raising their children. One student commented that, like his own father, he wouldn't know what to talk about with his child if he did not have much contact with him or her. Many of these students also want to work locally, and this tendency is even more pronounced among female students. Enterprises in our own Kansai region that

encourage employees to make the most of their abilities and allow them to place a strong emphasis on their family and private lives offer exactly the kind of attractive workplace that they are looking for. For enterprises, creating an agreeable working environment naturally boosts their chances of recruiting high-caliber human resources. I strongly believe that Osaka Gas's well-developed arrangements to help employees to balance the demands of work and family, and the sight of its employees happily working as they make use of these arrangements, appeal strongly to students.



#### Tomo Nishimura

Assistant Professor, School of Economics,  
Kwansei Gakuin University

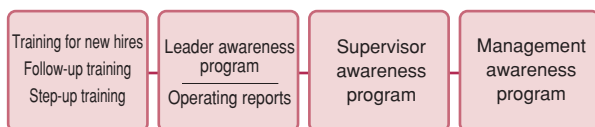


# Human Resource Development and Reward

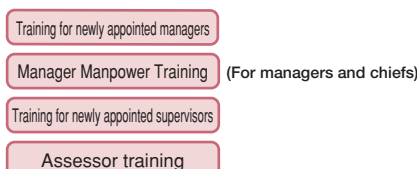
## Development of “Valuable Human Resources”



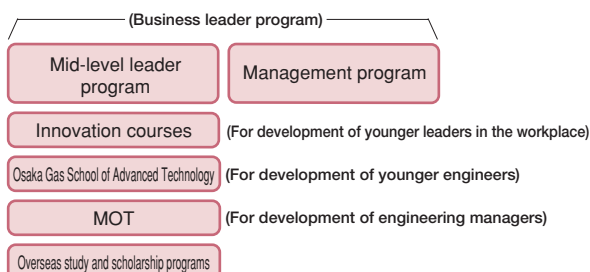
### ■ Stage-specific training



### ■ Management training



### ■ Leader training



Taking as a basic goal the development of “valuable human resources” to sustain the Osaka Gas Group’s competitive advantage, we aim to develop human resources equipped with both the “offensive” and “defensive” skills required to maximize the performance of the group as a whole.

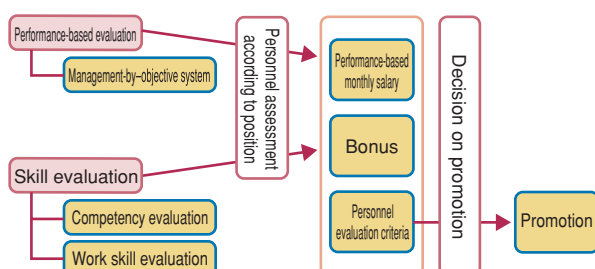
Osaka Gas’s human resource development system comprises a variety of programs, including stage-specific training based on employees’ duties and qualifications, management training for managers, and leader training.

A focus of training in recent years has been on further boosting the training of younger employees, including motivational training for prospective employees, training for new hires, one-to-one education given by supervisors in the divisions to which employees are assigned, and periodic follow-up training six months, two years, and three years after assignment.

Manager Manpower Training is designed to equip managers with basic knowledge of management (sharing of management models), enable them to determine their own management strengths and areas for improvement through 360-degree assessment, and so further raise their own individual management skills as managers.

The business leader program for general managers of sections and departments, which is designed to develop their vision as managers through internal courses on business management in general, and inter-industry training organized with other companies. Targeting mainly younger employees who are directly involved in work in the field, innovation courses and the Osaka Gas School of Advanced Technology (OSAT) provide training to selected participants with the aim of developing their abilities as the potential managers and supervisors of the future.

## Employee Performance Evaluation and Interview



To motivate employees and encourage their growth, Osaka Gas established a favorable cycle for clarifying expectations, assessing performance based on these expectations, and giving the individual accurate feedback to assist his/her development, while at the same time appropriately reflecting the results in terms of pay and other treatment, and a focus is placed on enhancing meetings between superiors and subordinates.

Employees set their own challenging goals, and progress toward them is evaluated. It is also important that other elements, such as performance in areas not covered by these goals, should be taken into consideration, and so these too are incorporated into evaluations.

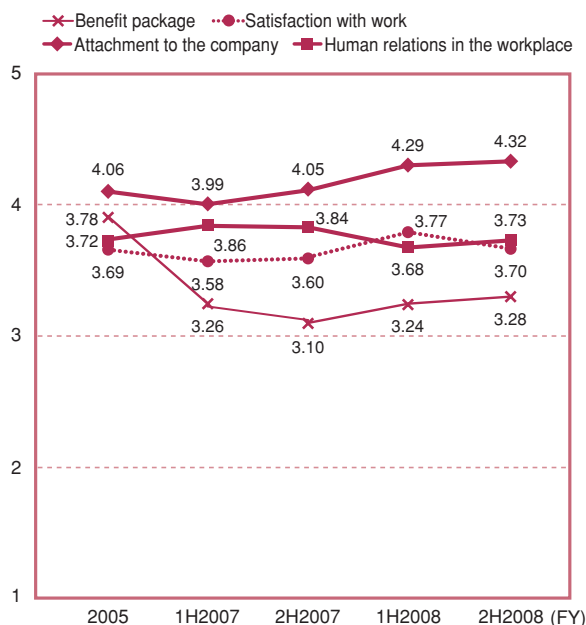
In order to provide an opportunity for employees to review their satisfaction with and performance of their work and to proactively map out their medium to long-term career paths and aspirations, “self-observation interviews” are held with superiors. Osaka Gas has also introduced a system for internally advertising positions to assist employees who want to proactively take on new challenges, and this system has already been used by over 200 employees.

# Communication

## Communication between Company and Employees



### Trends in Satisfaction (excerpt)



5 : Satisfied  
4 : Somewhat satisfied  
3 : No opinion  
2 : Somewhat dissatisfied  
1 : Very dissatisfied



Dialogue meetings between then president Hirofumi Shibano and employees

### Holding results

Fiscal year	Number of meetings	Number of participants
2008	12	450
Total number of meetings and participants since 2005	44	1,774

### Employee Awareness Surveys

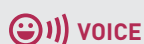
Osaka Gas conducts periodic surveys of employee opinion to investigate how employees feel and think on a day-to-day basis about their own work, the working environment, their superiors, programs, and the company in general.

Originally conducted around once every five years, these surveys have been conducted twice yearly since FY2007 in order to regularly and continuously track employees' motivation levels and views directly, and to incorporate the findings into the design of personnel measures in a more positive and timely manner than in the past. In FY2008, approximately 1,600 employees were surveyed in summer and winter respectively.

Of all the categories surveyed, employees have since FY2004 registered greatest satisfaction concerning "attachment to the company," and this high level of attachment is one of our company's major strengths. While satisfaction with work and human relations in the workplace is higher than at other enterprises in general, the answers given in the general comments section of the questionnaire reveal that employees want more action to be taken to improve mutual understanding and collaboration concerning inter-division communication and teamwork. Looking ahead, we intend to continue to take action to raise employee motivation.

### Dialogue Between Top Management and Employees

Since FY2005, the president of Osaka Gas has toured each of our operations, including the Tokyo block, to create opportunities for direct dialogue with employees. The purpose of this is to enable the president to convey to employees in the workplace the challenges faced in business, Osaka Gas's vision for the future, expectations of the workplace, and so forth, and for employees to share through discussion the challenges that they themselves face in the workplace and to improve their ability to meet these challenges.



### Building Sound and Healthy Relations Between Labor and Management

With a membership of approximately 6,000, the Osaka Gas Workers Union pursues a variety of activities to improve its members' lives and work satisfaction. One particular focus of activity is on strengthening our capacity to monitor and act in partnership with management. What this involves in specific terms is conveying the views of our members in the workplace and putting forward suggested measures at meetings with the president and department heads, and where necessary negotiating and exchanging views with the company further to thorough prior consultation in order to enhance the level of discussion and consultation between labor and management.

Following the discovery last year of instances of non-compliance, the union is now working all out with management to restore confidence in the company. In our position as a labor union, we intend to continue to play a monitoring role to ensure compliance and fulfillment of corporate social responsibilities, such as general review through regular dialogue with our members, from the point of view of the man or woman in the workplace, and the from the point of view of society.

**Toshikazu Honda**  
Chairman, Osaka Gas Workers Union

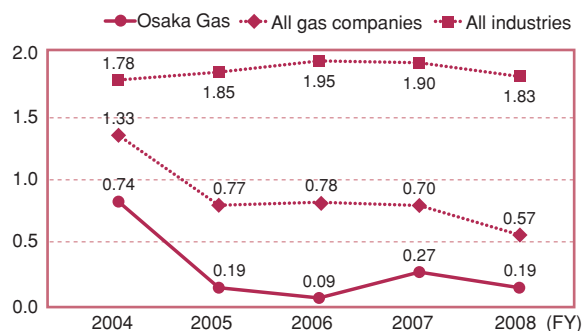


# Health and Safety

The Osaka Gas Group is actively committed to enhancing employee health and safety throughout the entire group, including at partner companies. As well as naturally complying with occupational health and safety related legislation, Osaka Gas has established its own set of Health and Safety Management Regulations and produces a number of manuals to ensure that they are followed, such as the “Company Vehicle Use Manual.” The leading role in promoting health and safety activities is played by the Health and Safety Management Organization.

## Action on Health and Safety

### Industrial accident incident rate (based on frequency of accidents causing absences from work)



Onsite safety check with partners



Course in progress at one of our safe driving training centers



Campaign to improve road manners of company car drivers

### Developing a Culture of Safety

Osaka Gas pursues safety activities in an organized and planned manner based on a work health and safety management system approach. Each business unit and division follows a cycle of setting goals, formulating plans, executing these plans, assessing outcomes, and making improvements in its everyday operations, and a culture of safety is embedded within the company by making the PDCA cycle into a spiral.

### Evaluation of Safety Activities

If an industrial accident occurs at Osaka Gas, the unit or division concerned is required to present a full report to management, which is later followed up to ensure that appropriate action has been taken to prevent a recurrence. The content of these reports is shared across the company to further reduce the risk of recurrences. The safety activities of each unit and division are also assessed based on an “accident index” calculated by quantifying the extent of industrial accidents by means of a unique formula.

### Safety Activities Undertaken by the Osaka Gas Group in Concert with its Partners

Osaka Gas supplies gas in cooperation with numerous affiliates and partners. In order to ensure the safety of all gas-related operations, therefore, opportunities are provided for training and sharing of information on safety with these companies, and consultation bodies are established to promote safety activities.

### Safe Driving

The Osaka Gas Group and its partners use a large fleet of vehicles. Because of this, all employees driving company vehicles must be licensed under our own internal licensing program, and they must also take courses at one of our safe driving training centers, located at Osaka Gas facilities, in order to acquire or renew their licenses. To ensure local communities' confidence in our commitment to safe driving, safe driving campaigns are held to improve the road manners of employees of the Osaka Gas Group and partner companies who drive cars bearing the Osaka Gas logo.





## Employee Health and Fitness



Health checkup at the Health Services Center

### Health Services Center

Osaka Gas has established a Health Services Center in the Human Resources Department to lead measures to promote mental health and prevent lifestyle-related diseases in compliance with the Ministry of Health, Labour and Welfare's "Health Maintenance and Promotion Initiative." Activities include the organization of health checkups and provision of health counseling services. Employees of affiliated companies also have access to these services if their employers opt in.

### Health Checkups and Guidance

All employees receive yearly checkups as required by law in the interests of early detection and prevention of diseases. Employees are informed of the results of their checkups on the same day and are given personalized advice following their checkups regarding nutrition, exercise, rest, and daily life in general by industrial health experts in order to promote health and fitness appropriate to their level of health.

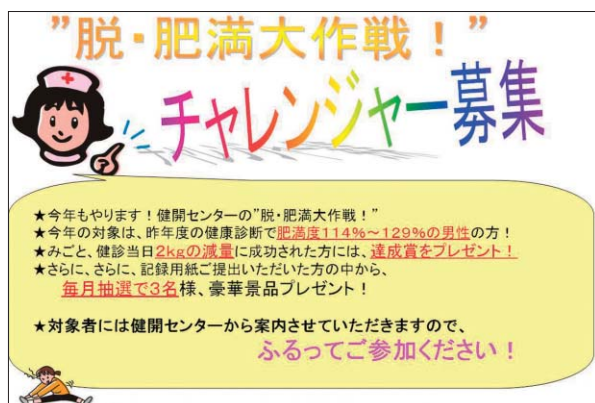
### Measures against Obesity and Lifestyle-related Diseases

A weight-loss support program has been developed to help obese employees to lose weight. Participants in the program set themselves goals for action two months before their checkups and record their weight with the aim of losing at least 2 kilograms compared with their weight the previous year by the day of the checkup.

### Measures to Promote Mental Health

Mental health education for managers and supervisors at Osaka Gas was expanded to cover managers and supervisors at affiliates in FY2008. Training in mental care has in addition been made an essential component of training for newly-appointed managers and supervisors, and promoting the mental health of junior employees has been made a management priority.

Regarding self-care, stress checks were introduced for all recipients as part of health checkups from FY2008. Since the following year, individualized follow-up has been provided to employees found to be experiencing particularly high stress levels.



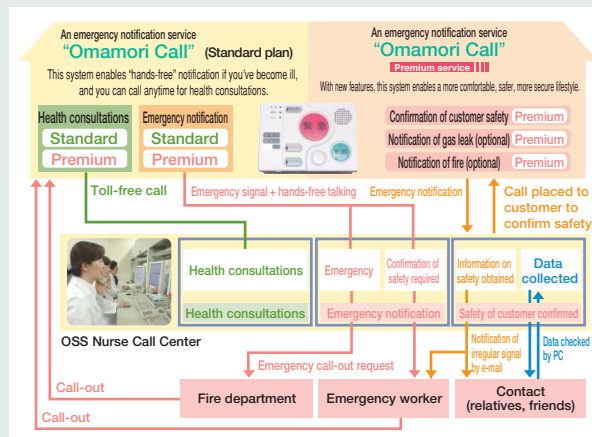
Pamphlet advertising the weight-loss support program

# CSR Activities of Affiliated Company

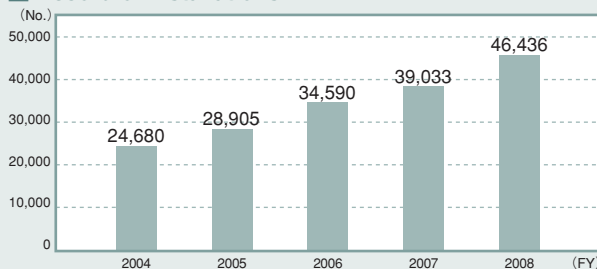
At the Osaka Gas Group, we work to resolve social problems through our business. The following is an overview of our affiliated company activities, including ensuring safety and security for elderly individuals living alone, office sector CO<sub>2</sub> reductions—for which expectations are high—and so on.

## Emergency Notification Systems for Elderly Persons Living Alone

### The emergency notification service system



### Record of Installations



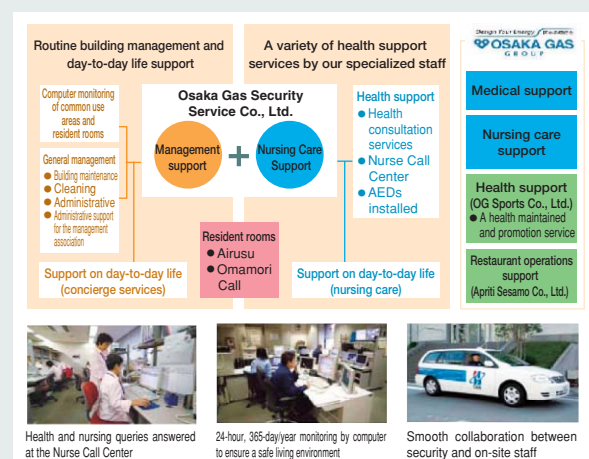
### Osaka Gas Security Service Co., Ltd.

We run a project to install emergency notification systems in the homes of elderly persons living alone. The project also offers health consultations and responds to emergencies. The Nurse Call Center, run by our company, is staffed by certified clinical and health nurses who handle consultations and emergency calls 24 hours a day, 365 days a year. We also offer a service where we install sensors in customer homes that automatically notify the Nurse Call Center when no movement is detected after a certain period of time. With this system, even if the individual is unable to press the emergency button themselves, the service detects any irregularities and responds.

The emergency notification service is outsourced to us mainly by municipalities of the Kansai region, and it is currently utilized in the homes of some 50,000 customers. We also have a service where we contract directly with the customer, called the "Omamori (protection) Call" service. Through these initiatives, we are committed to guarding the safety and security of elderly persons living alone.

## Management Support for Condominiums for Seniors

### Chart of support systems



### Osaka Gas Security Service Co., Ltd. OG Sports Co., Ltd.

We provide support services for condominiums for seniors designed to ensure safety, a sense of security, comfort, and assistance on health issues. Specifically, utilizing the Osaka Gas sales network, we offer a total health support system for residents that incorporates the collaboration of local hospitals, health checks and exercise classes by affiliated company, OG Sports, and more.

In addition, Osaka Gas affiliate Osaka Gas Security Service works to support an even more comfortable life for condominium residents, providing safety and security 24 hours a day, 365 days a year with emergency notification systems and other security devices installed in the home. The company also offers comprehensive operational services including concierge staff in the condominium building, as well as full-time management staff. The system has been incorporated into 12 facilities in the Kansai region, including future contracts. Our goal is to continue to provide the services that customers choose.

### VOICE

#### Building a Community within the Condominium

In managing the buildings, Osaka Gas Security Service works to help build a community for the elderly who have chanced to come to live together under one roof here, providing welcome parties and assisting club activities, conducting publicity within the building, and more. The hope is that the residents will come to support and assist

with each others' needs.

#### Osamu Nishijima

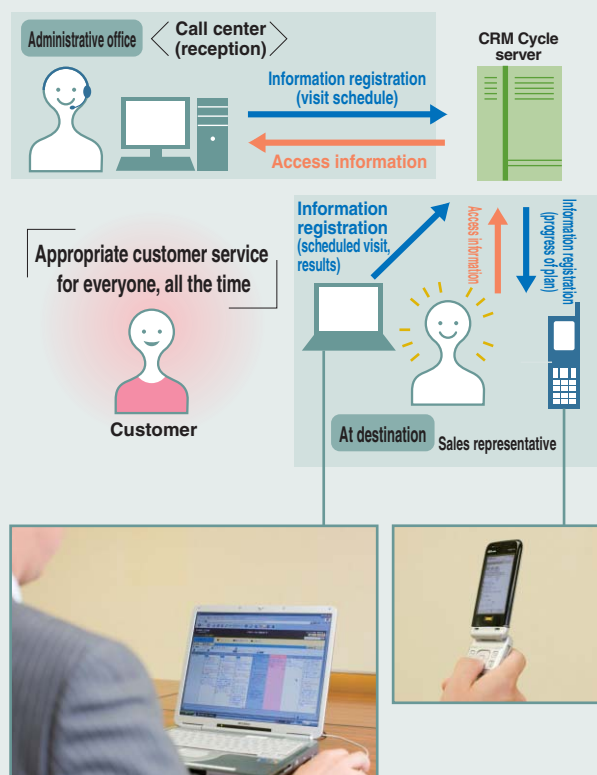
Chairman of the Board,  
Aging Court Sakaihigashi Management Association

[Stakeholder Comment]



## Achieving Fast and Reliable Customer Service

### CRM Cycle Flow Chart



### Osaka Gas LPG Co., Ltd.

With each passing year, our customers are becoming more and more aware of, and interested in, the safety, economy, ecology, and comfort level of the energy they use. To ensure that people feel at ease using LP Gas, it is important to interact with them in a way that carefully addresses their needs. Our company has its own specially-developed system (the CRM Cycle, an information system designed to enhance our relationship with customers) in which information such as planned day of contact, results of contact, etc., can be input for LP gas customers. As such, the goal is even quality, accurate service for customers that does not rely on the experience level of each individual. For instance, the system can pull the data of a customer who we have not met for a long period of time, enabling us to assess the customer's situation by targeted follow-up. In using this system, we can make recommendations on products as well as providing our own gas pricing plans, which helps to improve customer satisfaction.



[Stakeholder Comment]

### The CRM Cycle

Since 2005, the Kyoto Branch has taken the lead in creating a "CRM Cycle," the first branch to do so in the company. The system enables us to quantitatively assess our contact with customers, and to utilize this information to provide appropriate and well-planned customer visits.

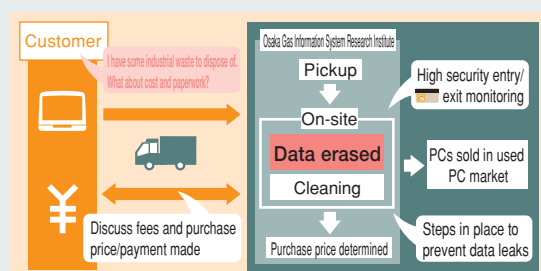
### Atsushi Kobayashi

Kyoto Branch Sales Team,  
Osaka Gas LPG Co., Ltd.



## Contributing to Environmental Conservation by PC Recycling

### The Re-Use Business System



### Osaka Gas Information System Research Institute Co., Ltd.

Now, in these times when the PC is an indispensable business tool, preventing the risks, such as information leaks from PCs disposed of by the owner as well as illegal dumping of PCs, are issues to be tackled. The Osaka Gas Information System Research Institute runs a data erasing business where we dispose of used PCs for companies in a manner they can trust, as well as a used PC business. We recycled about 6,000 PCs in FY2008, cutting some 683 tons of CO<sub>2</sub>. We intend to continue with this business, and expand upon it, so that we can do our part for the environment as a responsible member of society.



[Stakeholder Comment]

### Increasing Awareness of Environmental Issues

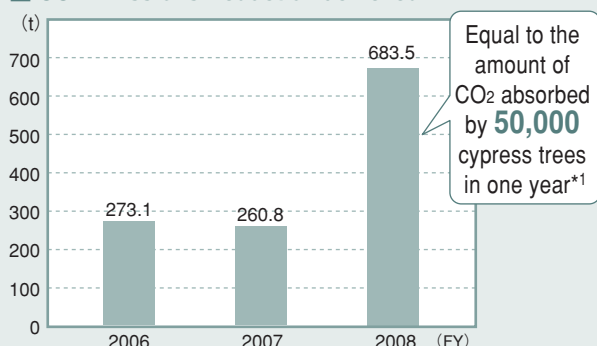
When we first began in the used PC business three years ago, in many cases our customers were more concerned about cost-cutting than about the environment. Recently, however, we have seen an increase in the number of customers interested in our service due to greater awareness of environmental issues. In this connection, we are working to convey the importance of the effort for the environment to our customers through our business, and to contribute to environmental conservation.

### Shingo Okao

PCR Team II, PCR Department  
Osaka Gas Information System Research Institute Co., Ltd.



### CO<sub>2</sub> Emissions Reduction achieved



Source: RITEA\*2 Quantitative Assessment of CO<sub>2</sub> Emissions Reduction No. C-120, Issue 06-07

\*1 CO<sub>2</sub> absorption of 50-year-old trees measuring 26cm in diameter and 22 meters high=13.9 (kg-CO<sub>2</sub>/year/tree), Forestry White Paper, 1997

\*2 Refurnished (Reuse) Information Technology Equipment Association



## Energy Conservation Activities at Buildings

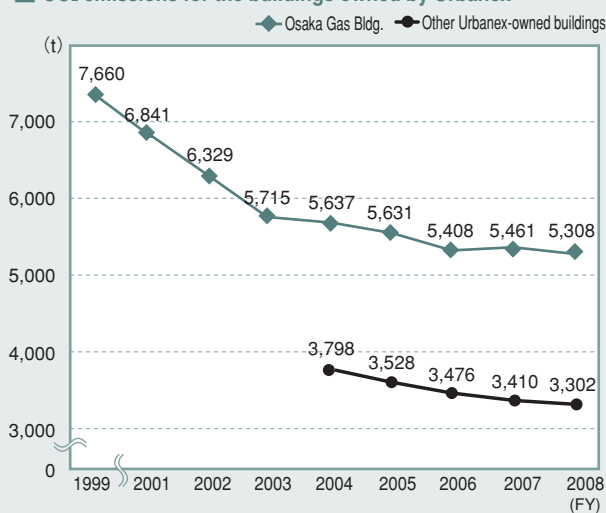


Osaka Gas Building



Bingomachi Building

### CO<sub>2</sub> emissions for the buildings owned by Urbanex



### Urbanex Co., Ltd.

Urbanex, a corporation engaged in various aspects of the real estate business including housing and commercial buildings/facilities, is a key company of the Osaka Gas Group. As the real estate company of the Osaka Gas Group, it engages in a variety of environmental issues as a matter of course.

For the past 10 years, the Osaka Gas Building has been re-worked with energy conservation in mind, ever since we began to upgrade the facility's heating and cooling systems in 1998. During this time, we have introduced cogeneration systems running on the Miller cycle gas engines. We have also reduced power required for conveyance purposes by using inverters and energy-conserving belts, and we have cut electricity through the use of lighting equipment inverters and other means. The result is a reduction of CO<sub>2</sub> emissions from 7,660 tons in FY1999 to 5,308 tons in FY2008, or 30.7%\*.

We are also working to achieve similar results with other buildings owned by Urbanex. All our buildings utilize energy-conserving belts in their exhaust fans, and also employ initiatives to reduce power used for conveyance. On an ongoing basis, we have adjusted the length of time ventilation fans are run in the switch rooms and mechanical rooms, used sensors to control the fans, and switched to the latest energy-saving devices in our heating and cooling systems. In some buildings, we have taken additional steps to conserve energy such as changing the guide lights to the high-intensity energy-saving type (Bingomachi Bldg.), attaching dampers to OA ducts (Awajimachi Bldg.) to reduce outdoor air load, using sensors to detect movement of people for restroom lighting and fans (Morinomiya Sky Garden Heights), and more.

The revised Law Concerning the Promotion of the Measures to Cope with Global Warming will go into force in April 2009. To accommodate the provisions of the new law, we will work to reduce CO<sub>2</sub> emissions by 1% annually as of FY2010. FY2009 will be a year of preparations.

\*Emission factor: 0.69kg/kWh (the average factor of thermal power generation) for electricity, and 2.29kg/m<sup>3</sup> for gas

### VOICE

[Stakeholder Comment]

#### Doing Our Part for the Environment as an affiliate of the Osaka Gas Group

As an affiliate of Osaka Gas, we consider it our mission to address energy conservation issues, and we have utilized our knowledge in this area over many years in the business. Energy conservation in the building management business consists of many small initiatives, but we know that these add up to big things. We plan to continue to gather technologies from the entire Osaka Gas Group, so that we can do our part—even if it is a small part—for the environment.

#### Kyozo Marumo

Section Manager  
Commercial Group, Sales Department  
Urbanex Co., Ltd.



## Environmental Conservation Activities by Affiliated Gas Companies



The Tajima Eco Festival: come try out the popular fuel cell car

Toyooka Energy Co., Ltd./Nabari Kintetsu Gas Co., Ltd.  
Sasayama Toshi Gas Co., Ltd./Shingu Gas Co., Ltd.

The four affiliated gas companies of the Osaka Gas Group have set up a system of environmental initiatives and an environmental policy, compiling annual data on energy use, waste volumes, water use, and other data related to environmental stress. This data is incorporated into the Group's CSR report. This fiscal year, we are not stopping with simply collecting data. Instead, in order to facilitate the PDCA cycle, we are taking the additional step of creating the Osaka Gas Environmental Management System (OGEMS®). In addition, Toyooka Energy takes part in community environmental initiatives such as exhibiting in the "Tajima Eco Festival," sponsoring community cleanup projects such as the "Tajima 100,000-People Cleanup Project," and so on.

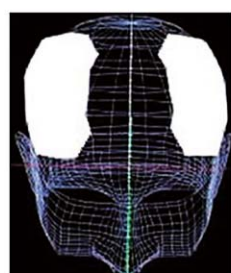
## Cooking Classes to Stimulate the Brain: For Kids and Parents



### The cooking class in progress

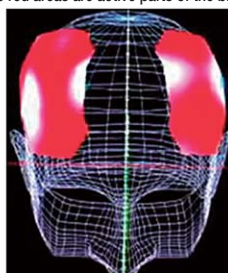


### Measuring children's brain activity while cooking



The brain at rest

The red areas are active parts of the brain.

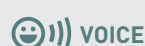


The brain during cooking (making pancakes on a gas stove)

### Apriti Sesamo Co., Ltd.

At Apriti Sesamo, we offer the "Parent and Child Cooking in Pairs" class as part of our "education by cooking" and "communication by cooking" initiatives. Starting in 2007, we have held the "Communication through Cooking to Stimulate the Brain" seminar for elementary school children and their parents during spring and summer vacations. This event was organized in light of joint research findings by Osaka Gas and Dr. Ryuta Kawashima of Tohoku University. The research showed that cooking together facilitates communication between parents and children. By making a habit of cooking together, the brains of both the kids and their parents are stimulated. In the summer of 2007, working with the themes of "Eco Cooking" and "the environment close at hand," we offered cooking sessions for parents and their kids with a view to both stimulating brain activity and teaching the basics of dietary education, and thereby to promote both sound mind and body. For this fiscal year's spring vacation class, the theme was the importance of breakfast in creating an orderly life. The kids and their parents worked to prepare balanced breakfasts.

In collaboration with Osaka Gas, Apriti Sesamo plans to continue to hold cooking classes for parents and kids to enjoy learning about food.



[Stakeholder Comment]

### Facilitating Communication Between Kids and Parents

Comments from participants included, "I was so happy to cook with my mother today", "The food I make myself tasted really good!", "My child stopped being so picky about food", "My kid has started helping around the house," and so on. These comments show us how cooking can facilitate communication between parents and children, and how this is an opportunity to really gain the confidence to live life to the fullest.

### Kazue Yamamoto

Chief Instructor  
Cooking School Yodoyabashi, Project Headquarters  
Apriti Sesamo Co., Ltd.



### Participation

	Spring vacation	Summer vacation
FY2008	505	580
FY2009	680	550(estimated)

# Environmental Performance Data

	FY	2004	2005	2006	2007	2008	Reference
Affiliated companies: No. of consolidated companies*1		76	81	81	81	77	
■Energy consumption*2							
(1) Total energy consumption (crude oil equivalent: kl)		619,718	750,497	873,798	955,975	957,005	
Osaka Gas		65,771	114,360	118,562	118,357	119,903	
Gas business		58,631	59,561	60,741	59,577	65,837	
LNG terminals		38,350	41,445	42,230	39,875	47,014	
Business locations, etc.		20,281	18,116	18,511	19,702	18,823	
Thermal energy supply business		7,141	6,768	6,444	6,557	6,982	
Power generation business		—	48,031	51,376	52,223	47,083	
Affiliated companies		553,946	636,137	755,236	837,618	837,102	
(2) Electricity (1,000 kWh)		450,025	476,588	466,523	450,874	512,982	
Osaka Gas		137,004	144,247	141,673	132,596	167,763	
Gas business		132,552	138,717	136,542	127,466	162,636	
LNG terminals		98,064	106,426	104,441	95,801	124,970	
Business locations, etc.		34,488	32,291	32,101	31,665	37,667	
Thermal energy supply business		4,452	4,536	4,301	4,343	4,463	
Power generation business		—	994	830	787	664	
Affiliated companies		313,021	332,341	324,851	318,278	345,219	
(3) Gas (1,000 m³)		213,848	288,207	409,644	474,545	486,103	
Osaka Gas		24,999	65,394	69,548	71,362	64,886	
Gas business		19,835	19,419	20,882	21,870	19,454	
LNG terminals		11,286	12,101	13,219	13,104	12,792*3	P.24
Business locations, etc.		8,549	7,318	7,663	8,766	6,662	P.27
Thermal energy supply business		5,164	4,825	4,598	4,686	5,025	P.28
Power generation business		—	41,150	44,068	44,807	40,407	
Affiliated companies		188,849	222,813	340,096	403,184	421,217	
(4) Vehicle fuel (gasoline: kl)		3,121	3,445	3,809	3,663	3,676	
Osaka Gas: Gas business		1,186	998	1,046	1,058	1,016	
LNG terminals		2	1	1	1	1	
Business locations, etc.		1,184	997	1,044	1,057	1,015	
Affiliated companies		1,935	2,447	2,764	2,605	2,660	
(5) Vehicle fuel (diesel oil: kl)		444	355	369	664	1,064	
Osaka Gas: Gas business		16	13	15	14	11	
LNG terminals		7.1	4.9	4.3	3.7	3.1	
Business locations, etc.		8.7	8.0	11.0	10.1	7.5	
Affiliated companies		428	342	354	651	1,054	
(6) Vehicle fuel (gas for natural gas vehicles: 1,000 m³)		407	458	474	424	509	
Osaka Gas: Gas business		372	370	367	380	430	
LNG terminals		12	12	11	12	12	
Business locations, etc.		360	358	356	368	419	
Affiliated companies		36	87	107	44	79	
(7) Other fuels (coal, heavy oil, etc.) (crude oil equivalent: kl)		251,985	289,340	273,884	284,634	255,766	
Affiliated companies		251,985	289,340	273,884	284,634	255,766	
■Atmospheric emissions							
(1) CO <sub>2</sub> (1,000 t-CO <sub>2</sub> )*2		1,689	2,010	2,226	2,398	2,356	
Osaka Gas		155	252	260	258	267	
Gas business		141	143	145	141	160	
LNG terminals		94	101	102	96	115	
Business locations, etc.		47	42	43	45	45	
Thermal energy supply business		15	14	13	14	15	
Power generation business		—	95	101	103	93	
Affiliated companies		1,534	1,757	1,966	2,140	2,089	
Reference: Data of CO <sub>2</sub> emission for comparison (1,000 t-CO <sub>2</sub> )*4		1,495	1,805	2,070	2,248	2,182	
Osaka Gas		97	191	213	214	208	P.24
Gas business		84	84	100	99	102	P.27
LNG terminals		51	56	67	64	71	P.28
Business locations, etc.		32	28	32	35	31	P.31
Thermal energy supply business		13	12	12	12	13	P.32
Power generation business		—	94	101	103	93	
Affiliated companies		1,399	1,615	1,857	2,034	1,974	
(2) Methane (t-CH <sub>4</sub> )		141	93	127	115	105	
Osaka Gas: Gas business (production and supply)		141	93	127	115	105	
(3) NO <sub>x</sub> (t)		16	182	469	521	343	
Osaka Gas		16	29	17	24	24	
Share of gas business		9	16	9	7	6	
Affiliated companies		—	153	452	497	319	

\*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.

\*2 The following per-unit calorific values and emission factors are used for the calculation of energy consumption and CO<sub>2</sub> emissions.

	Purchased electricity	Gas	Gasoline	Diesel oil	LPG	LNG	Heavy fuel oil A	Kerosene	Coal
Per-unit calorific value	9.97	45.0	34.6	38.2	100	45.0	39.1	36.7	26.6
	GJ/1,000 kWh	GJ/1,000 m³N	GJ/kl	GJ/kl	GJ/1,000 m³	GJ/kl	GJ/kl	GJ/kl	GJ/t
Emission factor	※ 0.69	2.29	2.32	2.62	5.98	2.23	2.71	2.49	2.41
	t-CO <sub>2</sub> /1,000 kWh	t-CO <sub>2</sub> /1,000 m³N	t-CO <sub>2</sub> /kl	t-CO <sub>2</sub> /kl	t-CO <sub>2</sub> /1,000 m³	t-CO <sub>2</sub> /kl	t-CO <sub>2</sub> /kl	t-CO <sub>2</sub> /kl	t-CO <sub>2</sub> /t

\*CO<sub>2</sub> 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<sub>2</sub> emission. \*3 Including the gas before adding LPG as a process of calorific value adjustment

Sources:  
Emission factor of purchased electricity (average factor of thermal power source\*): 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	2004	2005	2006	2007	2008	Reference
■Water consumption							
(1) General and industrial wager (10,000 m³)		718	735	675	842	771	P.24 P.27 P.28 P.35
Osaka Gas (excluding its thermal energy supply business)		158	153	151	145	150	
LNG terminals		119	110	110	107	117	
Business locations, etc.		39	42	41	37	34	
Affiliated companies		560	582	525	698	621	
(2) Sea water (10,000 m³)							
Osaka Gas: Gas business		41,358	42,257	41,782	38,208	38,827	
■Waste							
(1) General waste (t)							P.24 P.27 P.28 P.35
Osaka Gas							
Generated		1,392	973	1,120	1,177	1,126	
Final disposal		374	185	177	215	122	
Recycling rate		73%	81%	84%	82%	89%	
Affiliated companies							
Generated		1,369	1,039	1,086	1,062	831	
Final disposal		1,084	678	850	773	540	
Recycling rate		21%	35%	22%	27%	35%	
Total							
Generated		2,761	2,012	2,207	2,240	1,957	
Final disposal		1,458	863	1,027	988	662	
Recycling rate		47%	57%	53%	56%	66%	
(2) Industrial waste(t)							
Osaka Gas (excluding used gas appliances, etc.)							
Generated		4,965	3,836	3,358	2,913	2,938	
Final disposal		735	405	198	131	157	
Recycling rate		85%	89%	94%	95%	95%	
Affiliated companies							
Generated		57,727	67,328	75,447	78,286	92,679	
Final disposal		8,984	7,716	7,869	9,086	10,047	
Recycling rate		84%	89%	90%	88%	89%	
Total							
Generated		62,692	71,164	78,805	81,198	95,616	
Final disposal		9,719	8,121	8,067	9,218	10,204	
Recycling rate		84%	89%	90%	89%	89%	
(3) Used gas appliances, etc. (t)							P.28 P.35
Generated		6,089	5,491	5,523	4,786	4,327	
Recovered		4,784	4,715	4,811	4,060	3,894	
Recycled		4,578	4,482	4,570	3,900	3,541	
Final disposal		1,511	1,009	953	887	786	
Recycling rate		75%	82%	83%	81%	82%	
(4) Recycling of polyethylene pipes (t)							P.28 P.35
Recovered		153	157	152	155	152	
Recycled		153	157	152	155	152	
Recycling rate		100%	100%	100%	100%	100%	
■Excavated soil (10,000 t)							
①Estimated amount of soil generated in case of use of a conventional method*5		193	189	183	184	183	P.26 P.28 P.35
②Reduced		80	82	85	83	83	
③Generated (①—②)		113	107	98	101	100	
④Recycled		80	79	76	83	84	
⑤Recycling rate (④÷③)		71%	74%	78%	82%	84%	
⑥Utilized*6		26	21	18	14	12.5	
⑦Final disposal (③—④—⑥)		7	6	5	4	3.5	
■Used copy paper (10,000 sheets)							
Osaka Gas		3,602	4,033	3,608	3,851	4,004	—
■Environmental impact reduction at customer sites							
CO <sub>2</sub> emission reduction (1,000 t-CO <sub>2</sub> )		1,058	1,316	1,631	2,068	2,171	P.33
■Environmental management indicators							
Environmental management efficiency (yen/1,000 m³)		273	234	196	163	154	P.25
Monetary value of environmental impact reduction (100 million yen)		2.9	3.5	3.8	4.3	3.9	
Environmental impact reduction efficiency (yen/1,000 m³)		38	43	46	49	43	
Monetary value of environmental impact reduction at customer sites (100 million yen)		37	46	57	73	76	
Environmental impact reduction efficiency at customer sites (yen/1,000 m³)		480	575	680	833	860	
Reference: Amount of gas sold by Osaka Gas (million m³)		7,766	8,053	8,448	8,737	8,887	P.28

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

\*4 Following factors are used for calculation of the CO<sub>2</sub> emission of purchased electricity.

FY	2004	2005	2006	2007	2008
Emission factor kg-CO <sub>2</sub> /kWh	0.260	0.261	0.356	0.358	0.338

The yearly CO<sub>2</sub> 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<sub>2</sub> emission does not necessarily reflect the effect of emission control measures.

\*5 "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.

\*6 "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.

# Third Party Review

The Osaka Gas Group contracted with the Institute for Environmental Management Accounting (IEMA) for a third-party review including assessment and recommendations, which also encompassed simple audits.

## Evaluation and Comments on Environmental Management and Activities



To Osaka Gas Co., Ltd.

July 16, 2008

中島 道靖

Michiyasu Nakajima, Professor, Kansai University,  
and Director, Institute for Environmental Management Accounting (IEMA)

梨岡 英理子

Eriko Nashioka, Certified Public Accountant and Certified Tax Accountant,  
and Director, Institute for Environmental Management Accounting (IEMA)

### 1. Purpose of the Review

We strive to enhance the reliability of the Osaka Gas CSR Report 2008 by assessing the social and environmental management initiatives mentioned therein, from our position as a third party with no business relationship with Osaka Gas.

### 2. Procedures

To clarify how social and environmental management projects are planned and implemented at Osaka Gas, and how environmental performance data, which measures the results of such projects and which represents the basis of disclosed information, is assessed and utilized, we interviewed Zenzo Ideta, CSR Executive and Executive Vice President, as well as other persons in charge at Headquarters. As for the Senboku LNG Terminal and the subsidiary Gakuenmae Gas Center (Nara City), we conducted basic auditing to ascertain the use of certain systems on source information for publicly disclosed figures, applying financial auditing methodology where required.

### 3. Assessment and Opinion

It is the policy of Osaka Gas to promote multi-energy business consisting of natural gas, the company's main business, as well as LPG, electric power, and thermal energy, as it strives to achieve and maintain both a stable energy supply and environmental conservation. In this age when we are faced with difficulties in securing resources, Osaka Gas considers it an important social mission of theirs to continuously supply energy with minimal environmental impact, and we believe that this report shows that Osaka Gas is doing just that. FY2008 was the second fiscal year of the company's Medium-Term Environmental Goals plan (which goes through FY2009), and clearly the company is making steady progress toward achieving its objectives. FY2009 is the last year of the plan, and we believe that for Osaka Gas to achieve its goals, the company must follow up closely on areas where they have not reached their objectives. From this point on, the establishment of medium-term goals for FY2010 and later will take on greater importance. In FY2008, the CSR initiatives of Osaka Gas were stepped up, including the company's announcement to participate in the United Nations Global Compact, stakeholder dialog, and more, and we at IEMA highly regard these initiatives. Osaka Gas will continue to actively facilitate communication with its various stakeholders, and we look forward to ongoing initiatives to incorporate this communication into CSR activities. Further, in addition to the environmental aspect, we also recommend the setting of goals for social activities, since we consider quantification to be critical to the foundation of the Osaka Group's management activities. No serious issues on the computation of environmental performance data were identified by the basic audit described above.

#### [Environmental Management Systems at Osaka Gas]

Osaka Gas has integrated seven ISO 14001 environmental management systems (EMS), a move that has had the result of boosting awareness on environmental initiatives on the part of all its employees. Though the company has implemented group-wide environmental initiatives for some time, these were accelerated in FY2008, and the number of affiliated companies devising environmental management systems has increased. The Osaka Gas Group environmental management initiatives have been integrated throughout the Group, and as a result we expect to see greater impact. Due to the fact that the target is larger, we believe that data collection and other aspects must be organized effectively into integrated systems. Environmental management systems are in place at the Senboku LNG Terminal and at the Gakuenmae Gas Center, which indicates that the Group's policies on environmental management are indeed being effectively implemented.

#### [Multi-energy Business]

We visited the Senboku LNG Terminal, main location of Osaka Gas' electric power business, which comprises the company's second largest business next to its gas business. The highly efficient terminal features an integrated arrangement of equipment including LNG tanks, all in a large space that places priority on safety issues. In addition to this, clearly the terminal facility has taken steps to protect the natural setting and to provide a pleasant environment for people as well. It naturally offers a comforting atmosphere of greenery, where a variety of birds can be observed. The grounds also feature public facilities, such as the Gas Science Museum, which are visited by a great number of people including students on field trips, helping to facilitate communication.

The power plant inside the facilities, currently under construction, utilizes the latest combined cycle gas turbine power generation unit. It is run on natural gas, which is currently drawing attention as a clean energy source. In addition, the plant also has a variety of other equipment designed to reduce environmental stress. It was clear to us at the outset, starting with the explanation, that the facility places significant emphasis on protecting the environment.

Society demands that global warming be mitigated. Taking advantage of the inherent characteristics of the business, Osaka Gas is investing in effective use of natural energy including electric power utilizing natural gas, which emits minimal greenhouse gases, technical development to promote the use of biogas, its wind power business, and more. In addition, Osaka Gas is also working to reduce environmental stress through research and development of hydrogen use, currently well known as a next-generation energy source, which we believe is an important social responsibility for the company to fulfill. In the near future, it is our hope that Osaka Gas will provide information to the public on their research and development, as well as business development, related to the use of these multiple energy sources, thereby contributing to the realizing of a sustainable society.

#### [CSR Report 2008]

This report is structured after the Osaka Gas CSR Charter, and it clearly delineates the CSR actions of Osaka Gas. The activities are described in detail, and the layout is easy to peruse with numerous charts and photographs. The special feature in the front discloses information on misconduct. Further, the feature article on preventing global warming through popularization and advanced use of natural gas is a fine piece of work that clearly expresses the point of view of Osaka Gas. We find it extremely useful as a communication tool providing appropriate information. IEMA holds high expectations for the company's plans to gather the opinions of various stakeholders and incorporate these into company management, which we believe will facilitate even more sophisticated CSR management.



Michiyasu Nakajima, Professor, Faculty of Commerce, Kansai University (center)  
Eriko Nashioka, Certified Public Accountant and Certified Tax Accountant, and Director,  
Institute for Environmental Management Accounting (IEMA) (right)  
Zenzo Ideta, Executive Vice President and CSR Executive, Osaka Gas (left)

The Osaka Gas Group obtained IEMA's assessment/opinions on the planning and implementation of social and environmental management activities. We have also had an audit conducted on our environmental performance data collection systems, and obtained opinions on the subject. For this review, we requested an audit of Headquarters, the Senboku LNG Terminal, and our affiliate Gakuenmae Gas Center, which obtained the Eco Action 21 Certification in FY2008. In addition, at the Senboku LNG Terminal, we held an observation tour of the construction site of the Senboku Natural Gas Power Plant, which is the center of multi-energy business at Osaka Gas, as well as the Gas Science Museum.

Based on the results of these audits, Dr. Nakajima and Ms. Nashioka (certified public accountant), held interviews with Mr. Ideta, CSR Executive, to assess the CSR initiatives of the Osaka Gas Group. They also offered advice on how to further deepen CSR activities.

## Interview with the Top Management



Audit at the Senboku LNG Terminal



Tour of the Gas Science Museum



Audit at the Gakuenmae Gas Center

## Message from Zenzo Ideta, CSR Executive

In FY2008, we announced our participation in the United Nations Global Compact. This marked the beginning of our systems to promote CSR, starting with the revision of our Osaka Gas Group Code of Conduct. Thus FY2008 was the first year of our CSR activities.

It goes without saying that compliance is the most important underlying factor behind CSR activities. Unfortunately, certain inappropriate actions have been identified with businesses receiving funding within our Group, including affiliated companies, and as a result these businesses no longer receive subsidies from the Ministry of the Economy, Trade, and Industry. Taking the situation seriously, we devised five strategies to prevent reoccurrence. In addition to enhancing our compliance structure, we also implemented thorough compliance training for all of our employees.

In FY2009, in order to achieve our goal of becoming a corporate group preferred by stakeholders, compliance is considered a given, and we are focusing on CSR so that each of our employees will keep in mind our responsibilities to society, including on environmental issues, on a daily basis, and so that we can properly manage our CSR projects. To achieve this, we are engaged in compiling the criteria on social aspects besides the environment, in which we are taking up CSR initiatives in keeping with our new Medium Term Plan.

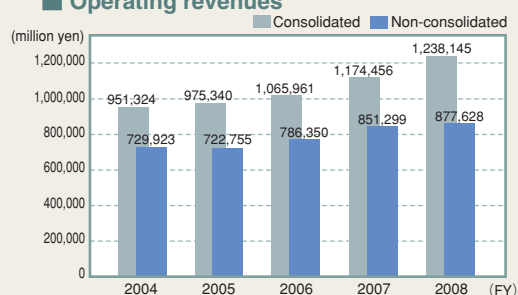


# Profile of Osaka Gas Group

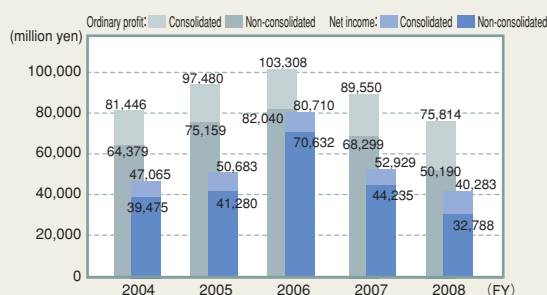
## Corporate Profile (as of March 31, 2008)

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) 5,418 (including operating officers, directors and temporary employees, and excluding employees temporarily transferred to affiliated companies) (Consolidated) 16,682 132,166 million yen
Capital	
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

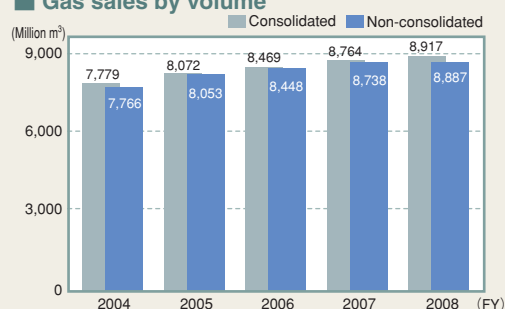
### Operating revenues



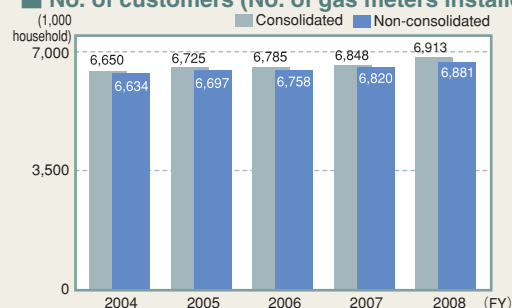
### Ordinary profit and net income



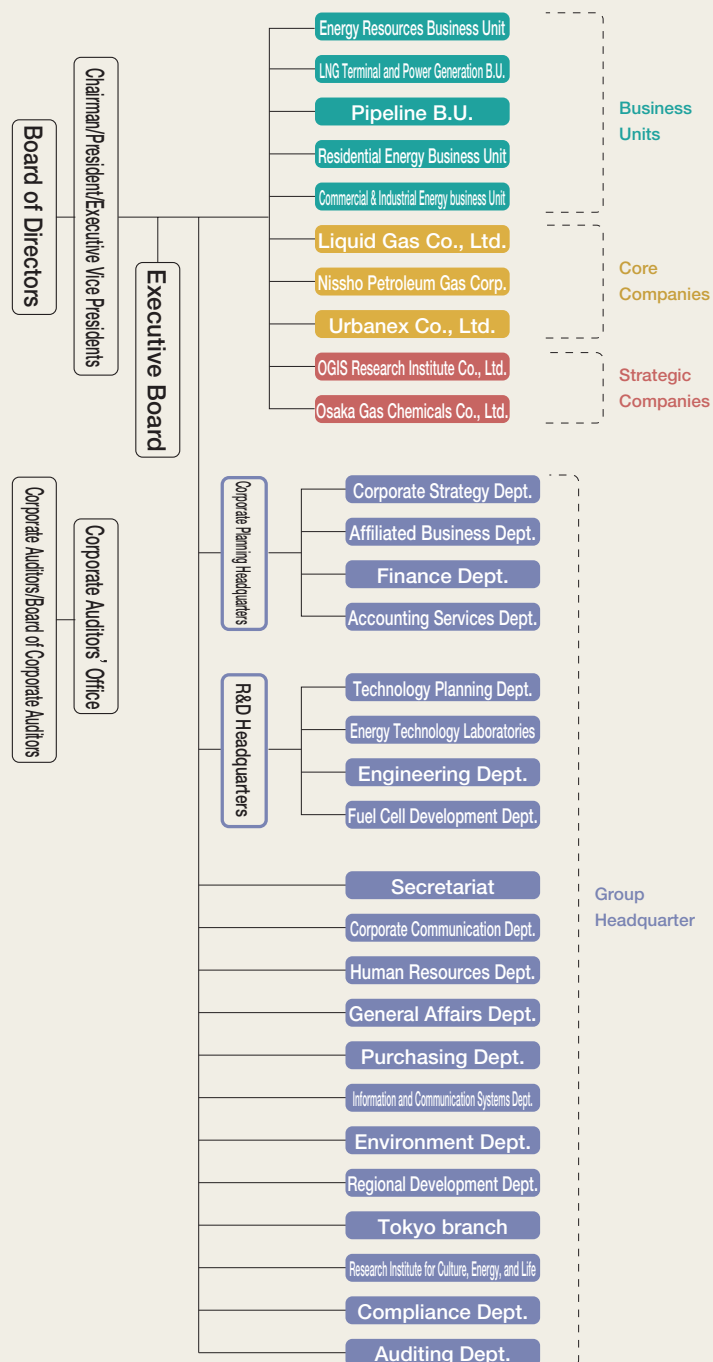
### Gas sales by volume



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

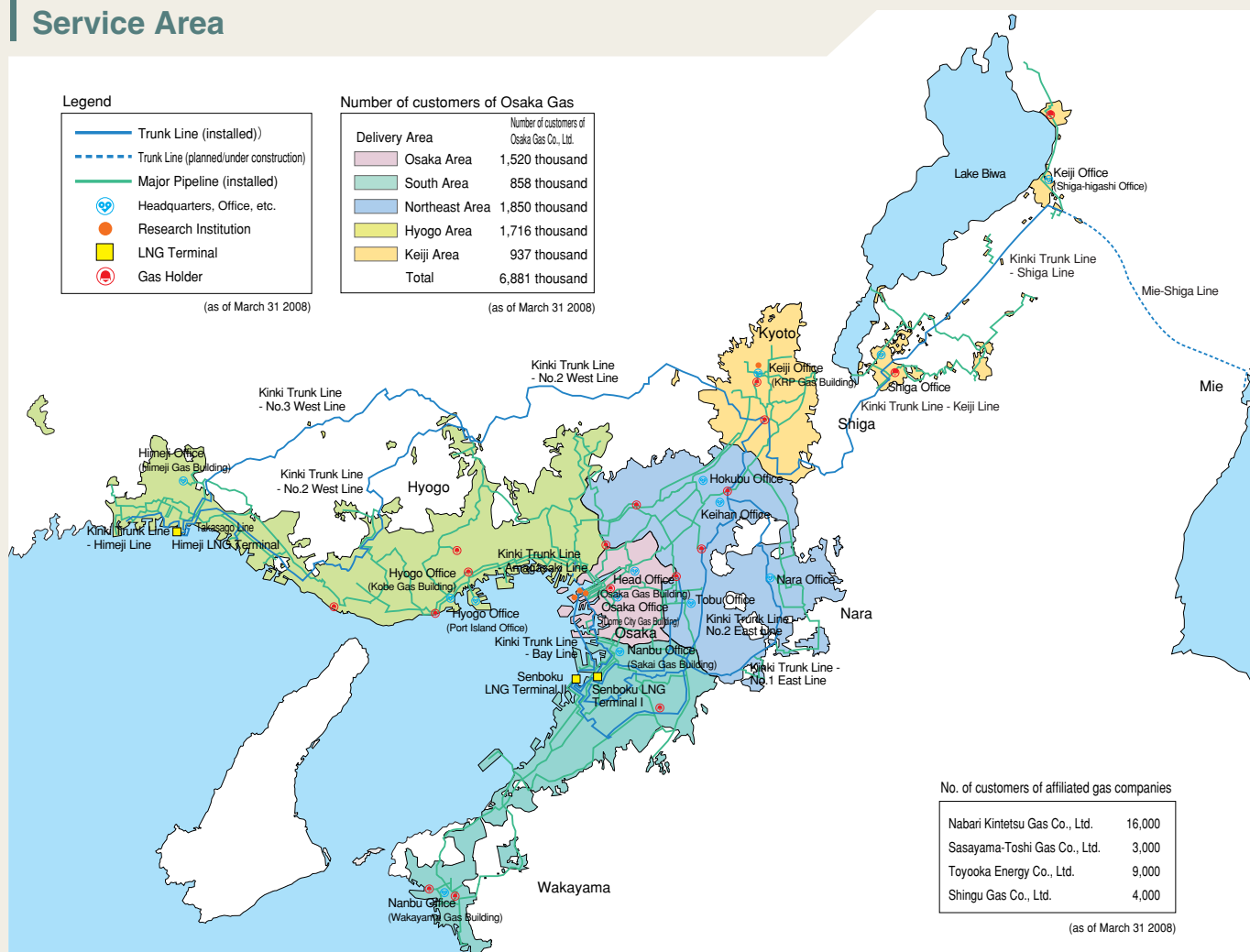


## Osaka Gas Group Management Structure (as of June 27, 2008)

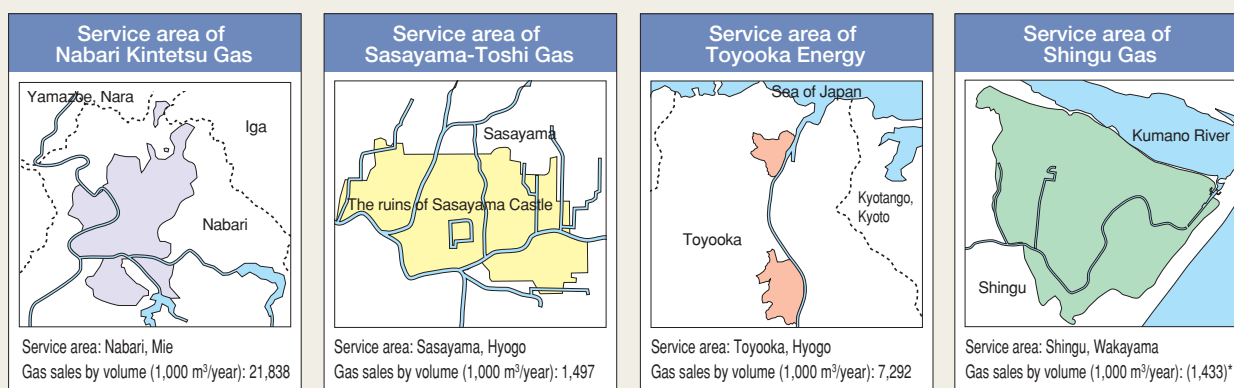


Note: Organizations other than those denoted by corporate names are part of Osaka Gas Co., Ltd.

## Service Area



### Gas companies of Osaka Gas Group (as of March 31, 2008)



\*Since Shingu Gas joined the Osaka Gas Group in the middle of FY2008, its gas sales volume is not included in the gas sales data on P.65.

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Osaka Gas Co., Ltd.  
4-1-2, Hiranomachi, Chuo-ku,  
Osaka 541-0046, Japan

For inquiries, contact the Environment  
Department on +81-6-6205-4605

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