

2005

OSAKA GAS GROUP

Sustainability Report

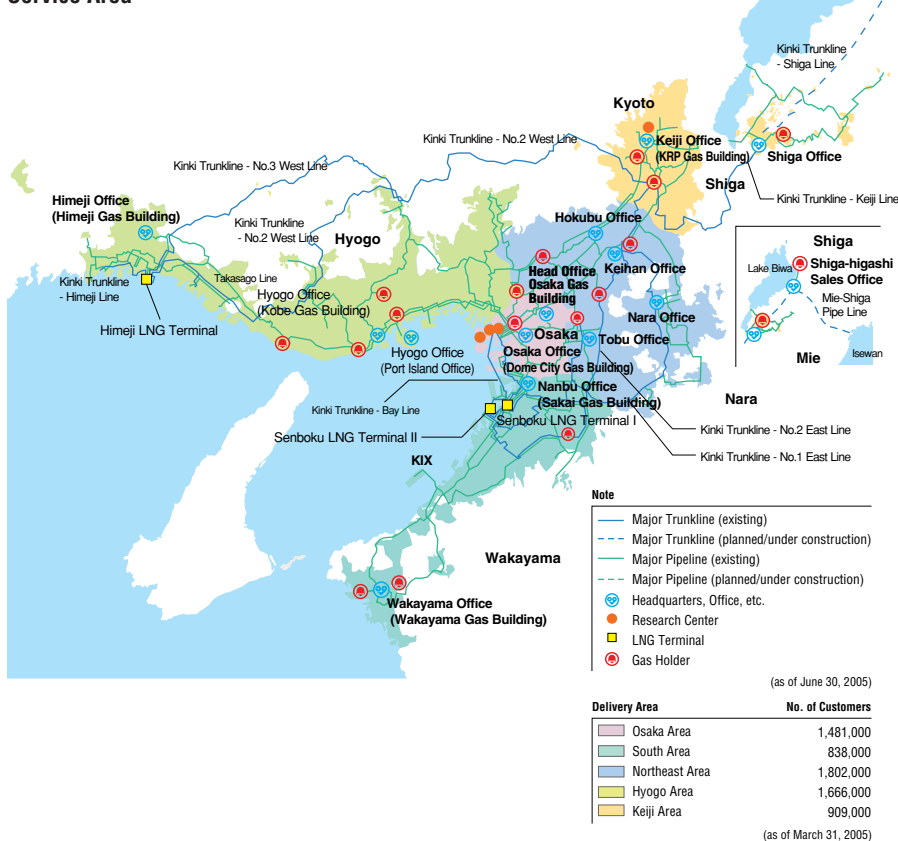
Fulfilling Corporate Social Responsibilities

Profile of Osaka Gas Group

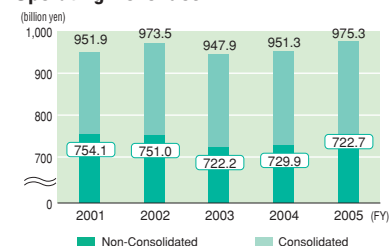
Corporate Profile (as of March 31, 2005)

Head office	4-1-2, Hiranomachi, Chuo-ku, Osaka 541-0046, Japan
Capital	132,166 million yen
Major Business Fields	(1) Manufacture, delivery and sale of gas (2) Delivery and sale of LPG (3) Generation, delivery and sale of electrical power (4) Sale of gas appliances (5) Installation of housepipes
Number of customers	6,697,000
Amount of gas sold	8,053 million m ³ (FY2005) Note: Equivalent to 45 MJ/m ³
Number of employees	5,570
Listed exchange market	Tokyo, Osaka, Nagoya

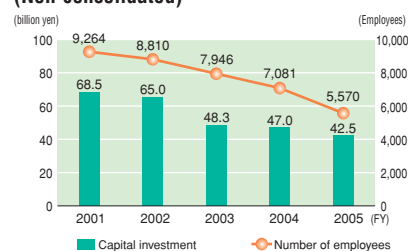
Service Area



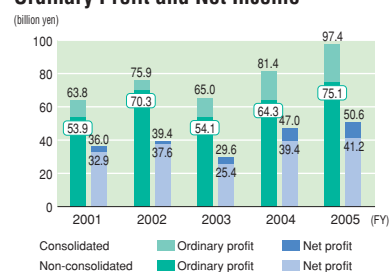
Operating Revenues



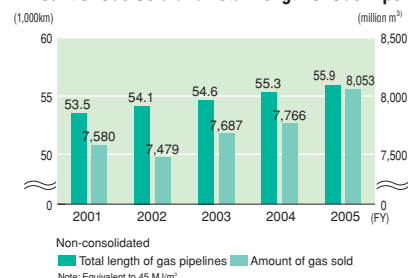
Capital Investment and Number of Employees (Non-consolidated)



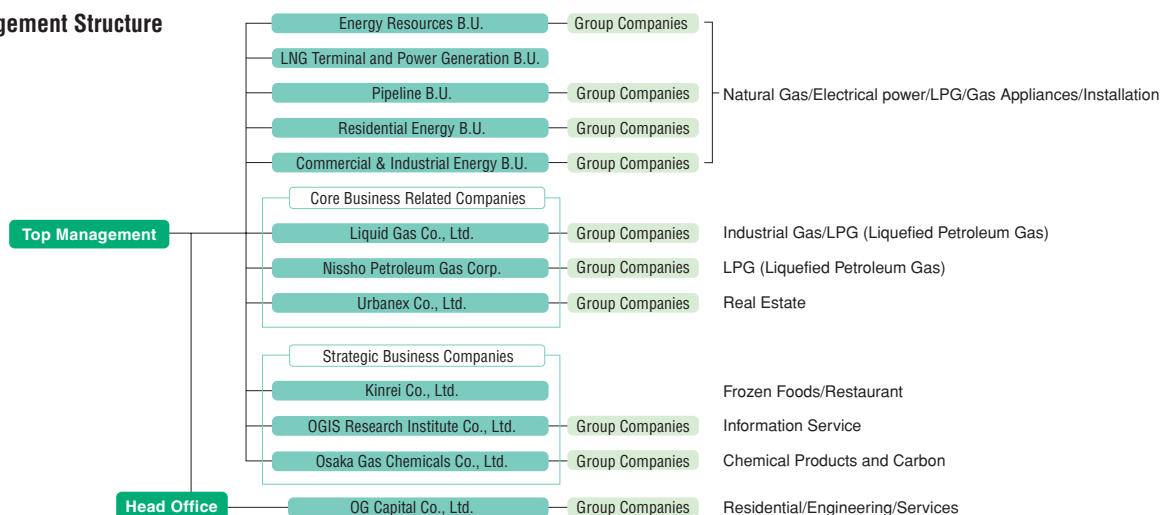
Ordinary Profit and Net Income



Amount of Gas Sold and Total Length of Gas Pipeline



Management Structure



Scope of this Report

1. Boundary

- (1) The Osaka Gas Group and its Affiliates.
Notation is made in the case of items being limited to Osaka Gas Co., Ltd. alone.
- (2) Environmental performance data have been compiled for a total of Osaka Gas Co., Ltd. and 82 affiliated companies.
(Excluding overseas companies or tenant companies for which data is difficult to gather.)

Calculation range of affiliates

Business Type		Affiliates
Osaka Gas	Core Company	
Pipeline B.U.	—	OG Road Co., Ltd. and 5 companies
Residential Energy B.U.	—	Osaka Gas Customer Relations Co., Ltd. and 13 companies
Commercial & Industrial Energy B.U.	—	Gas and Power Investment Co., Ltd. and 11 companies
—	Liquid Gas Co., Ltd.	Liquid Gas Co., Ltd. and 11 companies
—	Nissho Petroleum Gas Corp.	Nissho Propane Sekiyu Corp. and 11 companies
—	Urbanex Co., Ltd.	Urbanex Co., Ltd. and 7 companies
—	Kinrei Co., Ltd.	Kinrei Co., Ltd.
—	OGIS Research Institute Co., Ltd.	OGIS Research Institute Co., Ltd. and 3 companies
—	Osaka Gas Chemicals Co., Ltd.	Osaka Gas Chemicals Co., Ltd. and 3 companies
Head Office	—	Osaka Gas Engineering Co., Ltd. and 16 companies
TOTAL		82 companies

2. Period

April 1, 2004 – March 31, 2005

FY2005 and 2004/05 mean fiscal year from April 1, 2004 to March 31, 2005 in this report.

Editorial Policy

1. Editing based on four values of “Group Management Principles”

Enhancing Customer, Social, and Employee Value is at the core of our editorial policy. The environmental reporting is included at the beginning of Social Value.

2. Increasing the depth of reporting on Group-wide aspect

We included more environmental information for consolidated affiliates so that this report covers the Environmental and Social Activities of the Osaka Gas Group.

3. Ensuring credibility

We asked the combination of two types of third-party reviews: the “evaluation and recommendation” and the simplified version of “auditing”.

4. Reference to various guidelines

We referred to both the Ministry of the Environment’s “Environmental Reporting Guidelines (2003 Edition)” and the GRI (Global Reporting Initiative) “Sustainability Reporting Guidelines 2002”.



For your reference, please see our web page:
<http://www.osakagas.co.jp/indexe.htm>

For our environmental and social activities:
http://www.osakagas.co.jp/kankyo_e/index.htm

OSAKA GAS GROUP Sustainability Report 2005

Management Message & Highlights

Profile of Osaka Gas Group	1
Management Message	3
Value Creation Management and Corporate Social Responsibility	4
Review of the Past 100 Years	5
Osaka Gas Group Environmental Activities Philosophy/Policy/Code of Conduct	7

Social Value

Environmental Management

Environmental Management Structure	8
Osaka Gas Environmental Management Indicators (Gas Business)	9
Osaka Gas Environmental Accounting (Gas Business)	10
Medium-Term Environmental Targets and Results	11
Environmental Impacts of Our Gas Business in FY2005	13

Environmental Activities Policy I : Reducing Environmental Impacts of Our Business

Major Environmental Impact by Osaka Gas Group (Osaka Gas and 82 affiliates)	15
Reducing Emissions of Greenhouse Gases	15
Reducing Resource Consumption and Promoting Recycled Resource Use	18
Promoting Green Purchasing and Green Distribution	20
Environmental Education and Awareness Activities for Employees	21
Soil and Ground Water Conservation	21
Chemical Substance Management	21
Efforts at Affiliated Companies I	22

Environmental Activities Policy II : Reducing Environmental Impacts of Our Products and Services

Environmental Impact Reduction at Customer Sites	24
Promoting Energy-Saving Equipment and Systems	24
Promoting Natural Gas Vehicles	28
Promotion of Resource Recycling	28
Efforts on Eco-design	28
Efforts at Affiliated Companies II	29

Environmental Activities Policy III : Contributing to Improving the Environment Locally, Nationally and Globally

Development of New Environmental Technologies (Other than Gas Appliances and Systems)	31
---	----

Compliance, Information Disclosure, and Contributions to Local Communities Fulfilling Our Social Responsibilities

Compliance	34
Information Disclosure	35
Contributions to Local Communities	35

Customer Value

Always Seeing from the Customer’s Viewpoint

For a Comfortable Life for Our Customers and Business Development

To All of Our Customers	37
For Our Residential Customers	38
For Our Commercial and Industrial Customers	39

Employee Value

Employee Satisfaction at Work

Creating Comfortable Work Environment

Our Personnel System: “Management for Personal Growth” the Philosophy	40
---	----

Third Party Reviews

Third Party Reviews	42
On Reading the Osaka Gas Group Sustainability Report 2005	43
Our Response to Suggestions and Opinions	44
Evaluation Results of the Environmental Management Rating	44
Editor’s Postscript	44

Management for Creating Value: A New Commitment to Environment and Society



Design Your Energy 夢ある明日を
OSAKA GAS

Introduction

The year 2005 bears a special significance for Osaka Gas as the company observes the centennial of its operations. Utilization of gas went through a history of evolution during the past century, from its use for lighting to cooking and water-heating purposes, and further into advanced industrial and commercial applications. The conversion from coal- and oil-based manufactured gas to natural gas conducted during the period 1975-1990, the most environmentally benign energy of all fossil fuels, opened up new horizons for Osaka Gas. Since then, the company has exerted itself to achieve stable supply of this environment-friendly energy source while at the same time helping to reduce the environmental impact of energy consumption on the environment through supply of natural gas.

Management philosophy and corporate social responsibility

Energy services in the modern era need to respond to diversified customer requirements through value-added solutions in order to differentiate themselves under increasingly competitive market environment brought about by deregulation. Also, the maturity of the society with people's heightened environmental awareness stresses the need for enterprises to commit themselves to their corporate social responsibilities through their business activities.

Being aware of the changes in the business environment, the management of Osaka Gas conducted a full review of its managerial principles and developed a set of managerial principles in addressing their business challenges towards a new century. Improving our corporate value for stakeholders constitutes a core of our managerial principles where we place our highest priority on maximizing our value for customers through fair and transparent business practices. We will also focus our attention on enhancing our value for other stakeholders, namely shareholders,

society, and employees. Fulfilling this objective goes in line with our commitment to enhancing the corporate social responsibilities of the Osaka Gas Group.

Environmental activities

Of those activities related to enhancing social value of an enterprise including environmental activities, social contributions, compliance, information disclosure, etc., Osaka Gas places its greatest emphasis on its environmental activities. Our rationale is based on our firm belief that environmental activities represent inherent elements of energy businesses.

The environmental activities of the Osaka Gas Group are based on the following policies; (1) decreasing environmental impacts generated through business activities of the group, (2) helping to reduce environmental impacts deriving from the products and services offered by the group, and (3) contributing to improving the environment both within and outside the local community. These policies are translated into long- and medium-term targets and action plans. The results of our activities are reviewed annually and disclosed to the public through the Sustainability Report with external expert opinions.

Though natural gas is the cleanest of all fossil fuels, it is not free of emission of a greenhouse gas when combusted. As a major supplier of this fuel, our energy-related activities are deeply related to global environment and, therefore, we are responsible for making a positive contribution to the protection of the global environment.

We have also charged ourselves with the task of reducing the impact of natural gas on the environment on the demand side by increasing efficiency of gas utilization. Gas-fired cogeneration is a good case in point which realizes achieving overall energy efficiency in the range of 63-85% through power generation by natural gas as well as utilization of recovered waste heat from the equipment. After years of use in the commercial and indus-

trial applications, the scope of its utilization was expanded to households upon introduction of gas engine-driven cogeneration equipment for residential applications in 2003. Fuel cell, another advanced cogeneration system being developed, is planned for verification tests at household during 2005 for improving reliability and reducing equipment cost prior to market introduction.

Towards a more environment-friendly society

In order to realize a society more benign on the environment, it would be essential to maximize efficient energy utilization. Building a society sustained by cogeneration systems and other distribution energy equipment is an effective solution to the global environmental problems. Within a framework for achieving the targets of Kyoto Protocol, the distributed energy system has been positioned as a major action area.

Osaka Gas, utilizing its rich expertise in cogeneration and other energy utilization technologies, is determined to make a contribution to realizing a society based on distributed energy systems.

Becoming an enterprise group of choice

As a group of enterprises with energy businesses in its core, the Osaka Gas Group has grown together with the communities it serves through energy services. It will continue to play its positive role within the society through its constant business innovations, forward-looking environmental and social activities, to serve the well being of the society. We believe that our efforts will earn the trust and confidence of our customers and business partners alike so that we will become an enterprise group of choice in the coming years.

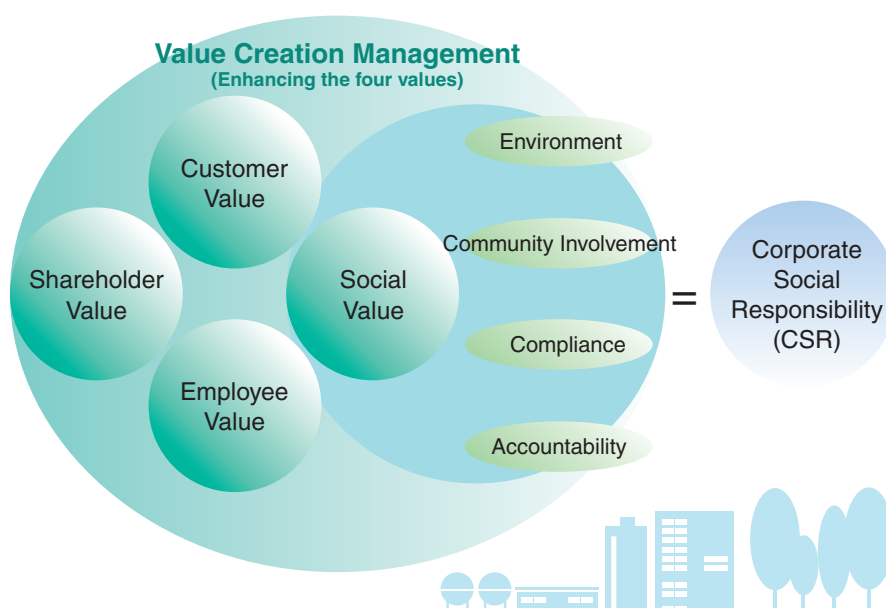
As we celebrate our centennial and embark on a new century in our operations, we intend to renew our commitment to continued innovations in the future.

August 2005

芝野博文

Hirofumi Shibano
President
Osaka Gas Co., Ltd.

The Osaka Gas Group's basic philosophy is "Value Creation Management", by which we seek to improve the value to all stakeholders, such as shareholders, society, and our employees, while keeping "Maximizing Customer Value" as our top priority. We recognize that fulfilling our Corporate Social Responsibility (CSR) means promoting "Value Creation Management" that improves the balance between these four values.



Customer Value

At the Osaka Gas Group, we seek to meet all the customer's needs in a timely fashion, and to respond to customer expectations by providing attractive energy solutions.

1. Through safe and steady supply of the energy, such as natural gas, electricity or LPG, corresponding to customer need, we seek to bring about use of the appropriate energy, with superiority in terms of service, quality, and environmental friendliness.
2. We seek to improve customer satisfaction by providing products and services that contribute to comfortable, convenient, and safe living as well as to business development.

●For all of our customers

- To sustain and improve our standards of gas manufacture, supply, and customer safety
- To make improvements to our business based upon customer feedback

●For our residential customers

- To develop and provide gas appliances that are convenient, economical and contribute to a good and comfortable life
- To bring our service provision to the next level

●For our industrial and commercial customers

- To improve our customers' energy conservation by expanding the use of high-efficiency cogeneration systems

Shareholder Value

The Osaka Gas Group will continue to meet shareholder expectations by continuing to improve results and provide stable dividends.

- SVA, current net profits, etc.
- Keep the dividend ratio at 20% or higher

(Note) This report covers only customer value, social value, and employee value. For details on shareholder value, please refer to the Annual Report 2005.

Social Value

The Osaka Gas Group is working to create a safe and livable society by reducing environmental impact through the attainment of a high level of dissemination and use of natural gas, which is kind to the environment. In addition, we seek to provide business activities that contribute to creating vitality in local communities. Accordingly, we will implement thorough compliance and information disclosure, and improve management transparency.

●Reducing environmental impact

- Reduce CO₂ emissions from our LNG terminals and business sites
- Reduce CO₂ emissions by customers through the dissemination of high-efficient equipments like cogeneration

●Creating a safe, livable society

- Make efforts in areas such as sound youth development, welfare, and environmental awareness

●Compliance and information disclosure

Employee Value

The Osaka Gas Group promotes human development management that nurtures employee individuality and self-initiative.

Osaka Gas Group employees constantly improve their knowledge and awareness, and to create new value for customers, shareholders, and society.

Employees and the company seek to maintain mutual trust and sensitivity, and work to build a sound organization.

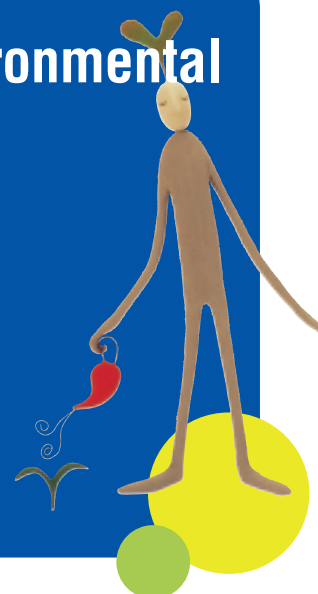
- Provide opportunities to demonstrate abilities and give fair evaluations
- Personnel development
- Establishment of workplace ethics regarding human rights
- Create a pleasant workplace environment



Review of the Past 100 Years

We have created new value through environmental management and advanced technologies

Osaka Gas first began supplying gas manufactured from coal 100 years ago, in 1905. Since then, in addition to our gas business, we have contributed to society by forging ahead to develop effective uses of gas by-products, such as cokes, tar, and benzol, in various industries such as steel and chemical. Our unbroken tradition of seeking to use Earth's precious resources without waste means that environmental consciousness is our mission. This has resulted, for example, in the birth of new businesses, such as the manufacturing of liquefied gas and frozen foods through the use of the cryogenic energy of LNG. On this occasion of the 100th anniversary of our founding, we would like to look back on the social contribution made through our company's deepening and expansion of the effective use of natural resources and the diversification of our business.



Natural Gas is Safe, Secure, Inexpensive, and Clean

The source of the gas Osaka Gas supplies to our customers is natural gas. Natural gas emits far less carbon dioxide (CO₂) when burned than other fossil fuels, such as petroleum or coal, and produces no sulfur oxide (SOx) emissions. Unlike petroleum, natural gas is found in various areas of the world with abundant reserve, so it is also advantageous in terms of steady and secure supply. Nevertheless, we at Osaka Gas believe that our mission to society consists of more than just providing a steady supply of clean energy.

Environmental Management is “Osaka Gas’s Mission”

Our customers demand energy that can be used efficiently, conveniently and safely, and causes little environmental impact. Basically, added value comes to be the determining factor. Osaka Gas's most important role is the realization of efficient energy use through the provision of advanced gas appliances and gas systems. High efficiency is closely tied to environmental impact reduction. We can say that “environmental management is Osaka Gas's mission”.

Pollution Risk Reduction is Our First Consideration

The prevention of pollution was one of our goals when Osaka Gas introduced natural gas in 1972. Even before that time we were developing technologies for reducing the risk of pollution. Because gas was originally manufactured using coal, it contained some amount of hydrogen sulfide, which is an air pollutant. Our company therefore put its efforts into developing safe methods for the desulfurization of gas, and in 1958 we established the “FUMAX Process”, a new system for gas desulfurization.

Osaka Gas contributes to environmental preservation not only at our plants in Japan, but in China and South Korea as well.

Osaka Gas’s Environmental Technologies Overview

1905	Iwasaki Plant established; gas supply business begins	1972	Participation in the fuel cell target plan; Introduction of Brunei LNG begins	1977	Establishment of a collection and recycling system for used gas appliances
1958	FUMAX Process developed	1974	Development of low NOx burner for boilers	1982	The first Cogeneration System installed at Nichii Kakogawa; Beginning of installation of PE (polyethylene) pipes
1969	The first gas absorption-type chiller/heater installed at Osaka Toryo Hall	1975	Beginning of natural gas conversion (from 4,500 kcal/m ³ to 11,000 kcal/m ³)	1989	Test production of natural gas-powered vehicle
1970	District heating business started in Senri-chuo as its first in Japan				



Adjusting a boiler for natural gas conversion

Low Environmental Impact Energy Use Technology

The natural gas conversion began in the early 1970's, and the use of gas expanded into industrial and commercial fields. One development leading to this was the "Low NOx Burner". Prior to that, the main emphasis had been on eliminating nitrogen oxide (NOx), during the post-combustion processes. In contrast, the "Low NOx Burner" reduces NOx emissions during the combustion process itself. NOx are emissions when gas is burned and are causes of acid rain.



Percolation type boiler with low burner

Development of New Systems and Technologies

The onset of the 1980's heralded a revolution in the world of energy systems for plants and commercial facilities. Gas Cogeneration Systems (refer to page 24) made their debut. They generate electrical power by gas engines, while utilizing the exhaust heat for water heating and air conditioning. We were the first to plan and develop commercial-use cogeneration systems that combine high efficiency and energy conservation with reduced emissions of CO₂.

During the same period we were also developing fuel cells (refer to page 27). The demand for clean, high-efficiency residential-use systems using hydrogen is already apparent, and we are currently engaging in long-term durability testing to ensure reliability.

The latter part of the 1980's saw the advent of the use of PE (polyethylene) pipes for gas pipelines. PE does not rust, is highly recyclable (refer to page 18), and is difficult to damage because it retains strength even when bent or stretched. There was no breakage of PE pipes even during the Great Hanshin/Awaji Earthquake.



PE (polyethylene) pipe

We also made efforts in the residential field, developing our "Prior Eco" gas water heater using "latent heat" (refer to page 27), which had previously been impossible. This water heater realizes a high efficiency rate of 93% (for hot water supply).

The Spirit of "A New Beginning in Our 100th Year"

Osaka Gas is celebrating our 100th anniversary since our founding in 1905. We have taken this opportunity for progressive revision of our management philosophy, which we sum up as "Value Creation Management: Doing business for the next 100 years".

Based on our management philosophy, we at the Osaka Gas Group shall strive to create new value, and will seek to continue to evolve as a business group along with our customers.

1990 Natural gas conversion completed

1991 Establishment of Liquid Gas Co., Ltd. for the industrial gas and LPG (liquefied petroleum gas) business, Kinrei Co., Ltd. for the frozen food and restaurant business, and Osaka Gas Chemicals Co., Ltd. for the chemical products and carbon business

1993 Experimental Residential Complex "NEXT 21" completed

1995 No breakage of PE gas pipes during the Great Hanshin/Awaji Earthquake (while halting the supply of gas to approximately 860,000 buildings); Beginning of installation of the "Regenerative Burner System"

1996 Successful development of the "Miller Cycle Gas Engine for Cogeneration"

2000 Development of the "Prior Eco" residential gas water heater

2002 Beginning of recycling system for gas leak alarm speakers

2003 Development of "ECOWILL" residential-use cogeneration system

Osaka Gas Group Environmental Activities Philosophy/ Policy/Code of Conduct

Osaka Gas Group Environmental Activities Philosophy

Environmental conservation at both local and global levels is an extremely important mission for Osaka Gas Group. Bearing in mind that all of its business activities are closely related to the environment, the Osaka Gas Group pursues harmony with the environment and realizes the efficient use of energy and resources through its business activities. In this way, Osaka Gas Group will contribute to the sustainable development of society.

Osaka Gas Group Environmental Activities Policy

I . Reducing Environmental Impacts of Our Business

We aim to reduce the environmental impacts of our business activities. To this end, Osaka Gas Group will strengthen its environmental management system and promote internal activities aimed at saving energy and natural resources.

II . Contributing to Environmental Impact Reduction with Our Products and Services

By offering environmentally-friendly natural gas, and our products and services which contribute to reduce environmental impact, we are making our efforts in partnership with our customers to achieve environmental impact reduction. To this end, we will strive to develop energy-saving systems which contribute to environmental conservation.

III . Contributing to Environmental Conservation Locally, Nationally and Overseas

Osaka Gas Group aims to take an active part in environmental conservation activities in areas wherever we conduct business, both in and outside Japan.

Osaka Gas Group Code of Conduct

I . As a Good Corporate Citizen:

Respect human rights
Pursue environmental conservation

II . In Gas Production and Supply:

Fulfill duties as a gas company
Ensure the safety of products

III . In Business Transactions:

Ensure compliance with anti-monopoly laws
Conduct fair transactions with business partners

IV . As an Information Management:

Manage information properly
Disclose information appropriately
Manage intellectual property well

V . In the Workplace:

Create a reassuring work environment
and fair and equal employment conditions

VI . In Society:

Prohibit transactions with anti-social groups
Pay taxes fairly

Social Value – Environmental Management

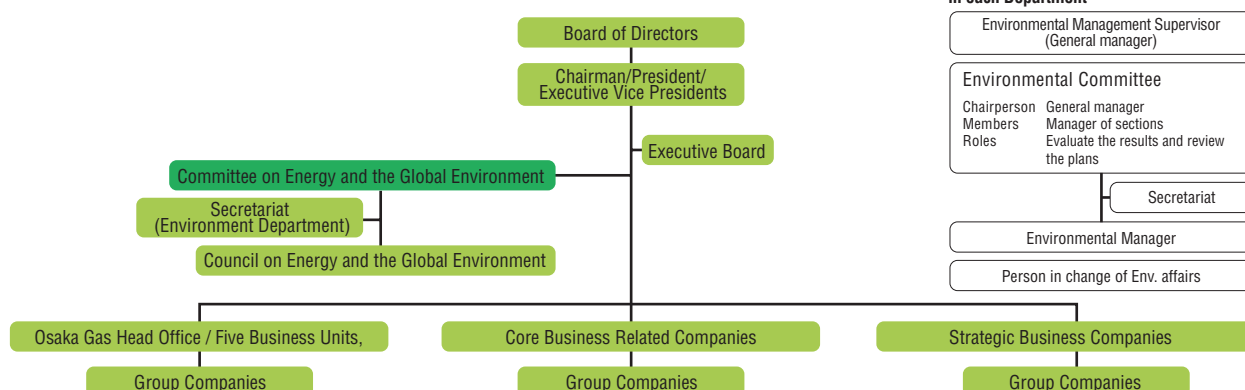
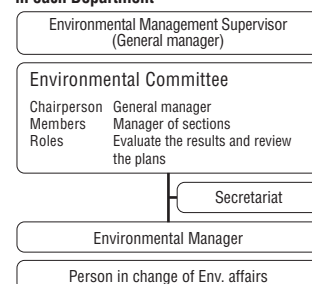
● Environmental Conservation Is the Important Pillar of Our Value Creation Management

Environmental Management Structure

The Structure and Role of Environmental Conservation Promotion

The Committee on Energy and the Global Environment has been established to formulate policy based on our Environmental Activities Philosophy/Policy, and to conduct follow-ups within the Osaka Gas Group. The Committee is chaired by the Managing Director of the Administration & General Affairs Division, and its members include the Directors of Divisions and Business Units at Group Headquarters, as well as the presidents of Osaka Gas Group Core Companies. The Committee promotes Group-wide environmental activities.

Environmental Activities Promotion System in each Department



EMS Implementation Plan of Osaka Gas and the Osaka Gas Group

Osaka Gas's ISO Certification Acquisition Status and Plans

Osaka Gas's ISO 14001 Certification Acquisition Status has progressed as shown in the table at right. Three business units (Pipeline Business Unit, Residential Energy Business Unit, and Commercial & Industrial Energy Business Unit) developed Environmental Management Systems (EMS) in FY2005.

As a result, the Pipeline Business Unit acquired ISO 14001 certification in May 2005 after external audit in April. Auditing is also planned for the Commercial & Industrial Energy Business Unit in October, and for the Residential Energy Business Unit in December. This will result in the

implementation of seven EMS's within the company overall, and company-wide completion of ISO 14001 certification acquisition during this fiscal year.

Status of EMS Implementation in Group Companies

Company-Wide EMS's Head Office Building EMS
LNG Terminal and Power Generation Business Unit EMS
Engineering Dept. EMS
Energy Technology Laboratory EMS
Pipeline Business Unit EMS
Residential Energy Business Unit EMS
Commercial & Industrial Energy Business Unit EMS

ISO 14001 certified departments in Osaka Gas Co., Ltd

Acquired Department	Date
Production Department	Oct. 1997
Engineering Department	Mar. 2001
Senri Energy Center * (Construction sector)	Mar. 2001
Transmission Department	Jun. 2001
Head Office Building	Sep. 2001
Osaka Business Headquarters	Mar. 2002
Research and Development Department (Kyoto Office)	Jul. 2002
Osaka Commercial & Industrial Energy Sales Dept.	Jan. 2004
Pipeline Business Unit	May 2005

Note: Department names are as they were at the time of acquisition.
* Currently operated by Gas and Power Investment Co., Ltd.

ISO 14001 certified companies in Osaka Gas Group

Acquired Company	Date
Liquid Gas Co., Ltd. *	Oct. 1997
CRYO-AIR Co., Ltd. *	Oct. 1997
Kinki Ekitan Co., Ltd. *	Oct. 1997
AD'ALL Co., Ltd.	Apr. 1999
KRI, Inc.	Sep. 2000
Gas and Power Investment Co., Ltd.	Mar. 2001
Nagano Propane Gas Co., Ltd.	Sep. 2001
Kinrei Co., Ltd.	Oct. 2001
Cold Air Products Co., Ltd.	Jan. 2002
Osaka Rinkai Energy Service Co., Ltd.	Jan. 2003
O.N.E. Co., Ltd.	Mar. 2004
Osaka Gas Chemicals Co., Ltd.	Apr. 2004

* Plant of each company acquired ISO 14001 in one body with Production Department of Osaka Gas Co., Ltd.

Status of EMS Implementation in Group Companies

EMS implementation is proceeding within the Osaka Gas Group as well, in accordance with our belief that proactive development of effective and consistent environmental conservation activities must be conducted across the Group.

An EMS will be implemented in each Group Company by the end of 2010.

The EMS to be implemented is to be determined according to the environmental impact, risk, and management needs of each particular company, and may take the form of ISO 14001, simplified external EMS certification (such as Eco-Action 21), or an EMS designed by Osaka Gas itself.

Violations of Laws Concerning the Environment and Penalties

During FY2005, there were no violations or penalties in connection with environment-related laws.

Osaka Gas Environmental Management Indicators (Gas Business)

Converting major environmental impacts into monetary values and developing indicators

Osaka Gas established Environmental Management Indicators in 2003 to monitor the progress of the total environmental activities more easily and to make it utilized for environmental improvement. Although there are a wide variety of environmental impacts, we have represented the progress of environmental improvements in our business activities in a single index to disclose and evaluate the progress of environmentally sustainable management. We convert each environmental impact and its reduction from the base year, 1998 into monetary values.

We specified the indicators in consideration of the characteristics of our business activities.

The target figures are set for major environmental impacts made by our business activities and customers (CO₂, disposed amount of excavated soil, industrial wastes, general wastes, NO_x and COD), based on the 2005 Medium-Term Environmental Targets.

For all indicators, larger numerical figures show that Osaka Gas has been effective in undertaking environmental actions and in reducing environmental impacts in business activities.

Review of 2004 results

The “Environmental Management Efficiency” in Policy I improved 16% over the previous year to 4.3 m³/yen, due to a large decrease in the amount of environmental impact as a whole (12% drop from the last year), in addition to an increase in the gas sales volume (3.7% increase over the previous year). The increase was attributed to substantial reductions achieved in industrial wastes (37% decrease) and excavated soil (14% decrease) to be disposed.

The “Monetary Value of Environmental Impact Reductions in Company Operations” increased 21% over the preceding year, to ¥350 million. The “Environmental Impact Reduction Efficiency in Company Operations” improved 13% over the previous year, to ¥43/thousand m³. Major reasons for these improvements were a 33% increase in the reduction of industrial wastes and a 12% increase in the reduction of CO₂ emissions relative to the base year 1998. We achieved the 2005 goals established for these indicators ahead of schedule, and will strive to achieve further reductions in CO₂ emissions and in waste management in our operations.

Incorporating environmental management indicators into the performance evaluation

Osaka Gas has an in-house Performance Evaluation System for assessing annual business performance in each division. In 1999, a new assessment item was introduced: an indicator for measuring the reduction of the environmental impact of business activities. This item will help us determine whether all employees have achieved their targets for reducing CO₂ emissions from energy consumption (electricity, gas, gasoline for vehicles, etc.) and the amount of paper used for copying.

With the aim of further reductions, from 2003, Osaka Gas set specific monetary value targets aimed at reducing the environmental impact of business activities under Policy I for each division (Figure 2).

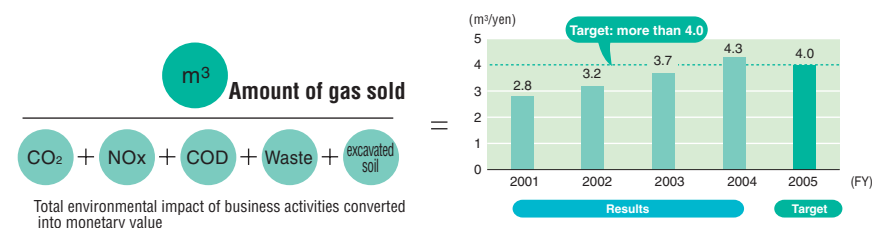
Under Policy II as well, the company set targets for the sales department to reduce the CO₂ emissions of our customers through new energy-efficient equipment and systems. The company incorporated these targets into its business performance evaluations.

These indicators now enable Osaka Gas to evaluate the reduction in overall environmental impact, not limited to energy consumption and the amount of paper used for copying. Osaka Gas evaluates its reduction in environmental impact such as NO_x, COD in wastewater, amount of wastes, and also the reduction of environmental impact of our products such as CO₂ emissions at customer sites.

Policy I

Reducing Environmental Impacts of Our Business Activities Environmental Management Efficiency (m³/yen)

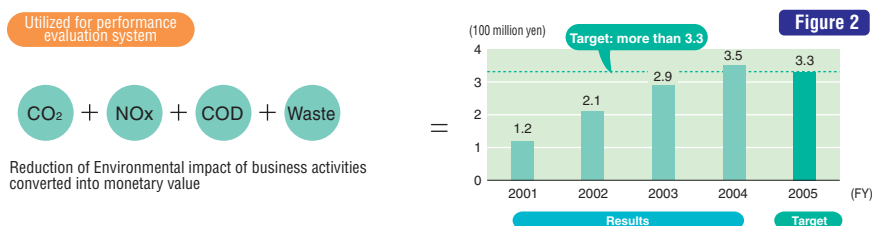
Figure 1



This is the amount of gas sold in a given fiscal year divided by the monetary value of the total environmental impact of business activities such as CO₂ emissions, excavated soil, and general/industrial wastes *1. For this index, the amount of gas is appropriate to represent our business activities because net sales are influenced by fluctuations in gas prices.

Monetary Value of Environmental Impact Reductions*2 in Company Operations (100 million yen)

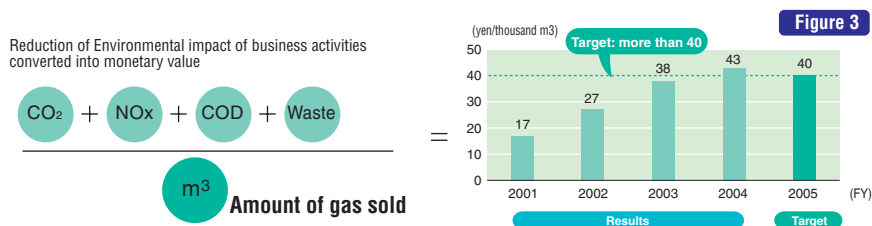
Figure 2



This shows the reduced amount of environmental impact, including CO₂ emissions and industrial wastes, expressed as a monetary value, resulting from environmentally-conscious activities, compared with the scenario where the company takes no action to protect the environment.

Environmental Impact Reduction Efficiency in Company Operations (yen/thousand m³)

Figure 3



Reduction of Environmental impact of business activities converted into monetary value

*1 Monetary value is calculated with reliable unit value of each item

*2 Amount of reduction compared to the base year, 1998

Osaka Gas Environmental Accounting (Gas Business)

Results for FY2005 (2004/05)

The environmental accounting in FY2005 showed investments of ¥360 million, expenses including depreciation cost of ¥4.3 billion (1), and internal economic benefits of ¥6.1 billion (2). With the social benefits of environmental conservation valued in monetary terms at ¥2.1 billion (3), the total benefits were ¥3.9 billion ((2)+(3)-(1)).

Investments were roughly even with the preceding year, but total expenses decreased by ¥350 million over the previous year, due to improved logistic cost efficiency through the implementation of the used gas appliance recovery system and a reduction of biotope-related expenses.

As for internal economic benefits despite improved cost reductions through reduction and recycling of excavated soil, there was a slight decrease in comparison with last year. This was due to an increase in commercial power purchased by LNG terminals.

Environmental Conservation Cost

Environmental Conservation Cost			(million yen)			
Items			Investment		Expenses	
Contents			2003/04	2004/05	2003/04	2004/05
In-company Activities	Global Environment	Energy saving, Ozone layer protection measures	153	209	911	594
	Pollution Prevention	Prevention of air and water pollution	12	0	108	104
	Recycling Resources	Excavated soil reduction, waste reduction	39	10	344	210
	Environmental Management	Green purchasing, environmental education, EMS	2	0	219	215
	Others	Greening at plants, soil surveys and countermeasures	8	0	594 ^{*1}	871
Environmental Impact Reduction at Customers	R&D	Environmental impact reduction technologies and products	129	139	1,711	1,718
	Recycling of Used Gas Equipment	Logistic related costs	0	0	203	139
Philanthropic Activities (Voluntary greening, environmental advertising, environmental information disclosure, etc.)			6	2	595	480
Total			349	360	4,685	4,331 ^{*2} (1)

Internal Economic Benefits (million yen)

Economic Benefits	2003/04	2004/05
Savings through reduction of excavated soil disposal	5,737	5,892
Sales of valuable resource (LNG cryogenic energy)	244	246
Savings through energy-saving investments	118	-65
Total	6,099	6,073 (2)

^{*1} Includes about 300 million yen for soil surveys and measures on land owned by Osaka Gas
^{*2} Includes 783 million yen for depreciation

Environmental Conservation Benefits Apr.1 2004–Mar.31 2005

		Level of environmental impact			Total amount			Reduction ^{*2}		
		Unit	2003/04	2004/05	Unit	2003/04	2004/05	Unit	2003/04	2004/05
Internal Efforts Osaka Gas	NOx (LNG Terminals)	mg/m ³	0.89	0.76	t	6.93	6.14	t	34.81	27.72
	COD (LNG Terminals)	mg/m ³	0.29	0.27	t	2.26	2.17	t	10.2	10.26
	CO ₂ (LNG Terminals) ^{*1}	g-CO ₂ /m ³	12.05	12.57	1,000t-CO ₂	94	100	1,000t-CO ₂	25	22
	CO ₂ (Other sites) ^{*1}	g-CO ₂ /m ³	6.05	5.26	1,000t-CO ₂	47	42	1,000t-CO ₂	24	31
	Final disposal of excavated soil	t/km	72	65	1,000t	70	60	1,000t	80	81
	Disposal of industrial waste	g/m ³	0.29	0.18	t	2,246	1,414	t	3,029	4,027
Environmental Impact Reduction at Customers	Disposal of general waste	g/m ³	0.08	0.02	t	647	185	t	544	1,047
	CO ₂ emission reduction							1,000t-CO ₂	1,031	1,257
	CO ₂ emission reduction through gas equipment recycling							1,000t-CO ₂	3,306	3,258
	Gas equipment recovery rate							%	79	80

Note : The amount of gas sold in FY2005 was 8,053 million m³ (7,766 million m³ in FY2004. Based on 45MJ/m³).
 The total length of new gas pipelines installed in FY2005 was 925 km (973 km in FY2004).

^{*1} CO₂ emissions associated with purchased electricity are calculated using the average coefficient of thermal power plants. See page 17 for further details about this method of calculation.

^{*2} Calculation of Environmental impact reductions: For NOx and COD, the amount of reduction was calculated with reference to legal emission levels.

For CO₂ industrial and general wastes, the amount of reduction was calculated using the data of 1998 as the base year.

For excavated soil, the amount of reduction in landfill disposal was calculated based on the amount of reduction in excavated soil and the amount of soil recycled.

Social Benefits from Environmental Conservation

In 2001, we began evaluating the monetary value of the social benefits accruing from the reductions in total environmental impacts.

We calculated the monetary value of the reduction in total excavated soil using a unit 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 used relevant data to estimate the monetary value of the social benefits deriving from our efforts to reduce the environmental impacts of our business activities. The combined total value of these benefits amounted to 2.1 billion yen, 60 million yen higher than from the previous year because of a decrease in the amount of excavated soil disposed of in landfills.

Monetary Evaluation of Social Benefits of Environmental Conservation by Osaka Gas Business Activities (million yen)

Reduced environmental impacts	2003/04	2004/05
Disposed soil	1770	1780
CO ₂	170	190
Others	120	150
Total	2060	2120 (3)

Monetary Evaluation of "Others" above (million yen)

	2003/04	2004/05
NOx	9.8	10.0
COD	15.3	15.4
Industrial wastes	92.8	123.4
General wastes	1.7	3.2
Total	119.6	152.0

In striving for early achievement of the 2010 Environmental Targets established in 2000, Osaka Gas set up 2005 Medium-Term Environmental Targets in 2003. Among these medium-term goals, 34 targets, including 24 quantitative ones, were established to promote environmental activities. 23 targets had been achieved ahead of schedule in this fiscal year.

Medium-Term Environmental Targets and Results

Objectives	Measures/Metrics	2005 Targets	Achievements in FY2005 (2004/05)	Results	2010 Targets
------------	------------------	--------------	----------------------------------	---------	--------------

I. Reducing Environmental Impacts of Our Business

Promotion of energy-conservation strategies in our gas operations	The amount of CO ₂ emission per cubic meter of gas sold ^{*1}	P.15	(1) 25g-CO ₂ /m ³ (1998) ^{*2} → less than 19g-CO ₂ /m ³ (25% reduction)	17.8g-CO ₂ /m ³	○	19g-CO ₂ /m ³ , 25% reduction compared with FY1999 (25g-CO ₂ /m ³)
NOx emission control	Introduction of natural gas vehicles within the company	P.28	(2) 19% (1998) → introduction rate higher than 50%	42.1%		Increase the number of natural gas vehicles within the company to 1,760 ^{*3}
Reducing & recycling of excavated soil	Final disposal of excavated soil	P.18	(3) Approximately 380,000 tons (1998) → less than 70,000 tons (approximately 80% reduction)	60,000 tons	○	The final disposal of excavated soil shall be reduced to 100,000 tons
	Excavated soil recycling	P.18	(4) Recycling rate ^{*4} 42.2% (1998) → more than 69%	73.8%	○	_____
Recycling of gas pipe materials	Recycling of waste polyethylene pipe	P.18	(5) Maintain 100% and improve the internal utilization rate	Recycling rate 100%, Internal utilization rate 100%	○	Recycling rate of waste polyethylene pipes shall be 100%
Promotion of Green Purchasing and Distribution	Improve the ratio of Green Purchasing (monetary terms)	P.20	(6) From 52% (2000) → more than 70%	Green purchasing rate for stationery: 70.7% (The 2005 target of 70% or better has been achieved ahead of schedule.)	○	Improve the green purchasing rate to roughly 100% in nearly all areas
	Expansion of Green Distribution	P.20	(7) Request our business partners to convert their distribution/sales vehicles to low-pollution vehicles	81 partner companies use low-emission vehicles ^{*5}	—	_____
Reducing & recycling of general/industrial wastes	LNG terminals	Aiming for zero emissions	P.19	(8) Final disposal (industrial/general): 230 tons (1998) → less than 25 tons ^{*6}	○	Final disposal of waste (industrial/general) shall be reduced to less than 25 tons ^{*6} ,
	Other than LNG terminals	Reduction of general waste and recycling rate	P.19	(9) Final disposal: approximately 1,000 tons (1998) → less than 500 tons. Recycling rate 43% (1998) → more than 75%	○	Final disposal shall be reduced to less than 100 tons,
		Reduction of industrial waste and recycling rate	P.19	(10) Final disposal: approximately 4,400 tons (1998) → less than 1,760 tons (60% reduction). Recycling rate 55% (1998) → more than 80%	○	_____
Improvement of environmental management system	Acquire ISO14001 certification	P.8	(11) Company-wide efforts should be made towards acquiring ISO 14001 certification in FY2006	EMS development at Pipeline Business Unit, Residential Energy Business Unit, and Commercial & Industrial Energy Business Unit in regions excluding Osaka district		Company-wide acquisition of certification

^{*1}The CO₂ emission of grid power consumption was calculated based on the average coefficient of thermal power generation (See page 17).^{*2} Calculation unit is equivalent to 46MJ/m³^{*3} 100% replacement of all automobiles (except for those required for emergency use) with natural gas vehicles.^{*4} Recycling rate of excavated soil = [Amount of utilized soil for gas pipe construction] / [Amount of excavated soil]
^{*5}We received valid replies to questionnaires from 157 main partner companies. Please refer to page 20 for "low-emission vehicles."^{*6} 25t is the 2.4% of the final disposal of 1,027 tons in 1993, the largest final disposal during the 1990's. The figure includes the residue from recycling. When not included, the final amount disposed of is approximately 0 tons.^{*7} This includes 159 tons of rubble and other debris from pipe installation and 1009 tons of discarded gas appliances.

II. Reducing Environmental Impacts of Our Products and Services

Dissemination of natural gas and energy-saving systems	Reducing CO ₂ emission at the customers' end	P.24	(12) Reduce the amount of increment of CO ₂ emission corresponding to the increase of city gas sold during 2005 by 20%, as compared with FY1999 level, through the dissemination and promotion of gas cogeneration and air conditioning systems	29.8%	○	Reduce the CO ₂ emission corresponding to the increase of gas sold during FY1999-2011 by 20% as compared with FY1999 level, through the dissemination of gas cogeneration, etc.
	Energy-saving at the customers' end		(13) Reduce the amount of energy consumption corresponding to the increase of city gas sold during 2005 by 6%, as compared with FY1999 level, through the dissemination and promotion of gas cogeneration and air conditioning systems	8.6%	○	Reduce the amount of energy consumption corresponding to the increase of gas sold during FY1999-2011 by 6% as compared with FY1999 level, through the dissemination of gas cogeneration, etc.
	Improvement of efficiency for gas engine cogeneration	P.24	(14) Commercialize large-type (6,000 kW) models with 13% increased generating efficiency as compared with 1998 level (generating efficiency 38% → more than 43%) (15) Commercialize high-efficiency Miller cycle gas cogeneration (380-1,000 kW) models with 20% increased generating efficiency as compared with 1998 level (generating efficiency 35% → more than 42%)	Commercialize large-type model (6,000 kW) with generating efficiency of 44% Commercialize mid-size (380 kW) long-stroke Miller cycle cogeneration model with generating efficiency of 41.5%	○	Develop a model with 20% or more increased generating efficiency compared with the 1998 level
Development of high-efficiency technology for gas devices and systems	Improve efficiency of air conditioners	P.25	(16) Commercialize large-type gas absorption-type cooler/heater (more than 100 RT) models with 60% increased efficiency as compared with 1998 level (COP 1.0 → 1.6) [*] (17) Commercialize GHP with 50% increased efficiency as compared with 1998 level (COP 1.0 → 1.5)	Commercialize the world's first double-effect absorption-type cooler/heater with cooling efficiency of COP 1.35 <HHV ^{*8} > Commercialize triple-effect absorption-type cooler/heater with COP 1.49 <HHV> Standardization of GHP with average COP 1.42<HHV>		Develop models with 50% or more increased efficiency, and more than 40% reduced NOx value, as compared with 1998 level
	Improve efficiency of water heaters for household use	P.27	(18) Develop condensing devices with 16% increased heating efficiency as compared with 1998 level (heating efficiency 80% → 93%) (19) Expand product variations of the above-stated devices, hot water heater (1 model → 3 models), new initiation of bath water heater product type	Commercialize condensing hot water heater with heating efficiency of 95% Condensing hot water heater (Eco-Jozu) product line up has expanded to 14 models	○ ○	Develop water heater models for household and business use, with 10% increased heating efficiency as compared with the 1998 level
			(20) Commercialize compact water heater model with 7% increased heating efficiency as compared with 1998 level (approximately 75% heating efficiency at standard combustion conditions → secure more than 80%)	Achieving more than 80% of heating efficiency in our compact water heaters	○	
	Cogeneration for household use	P.26~27	(21) Commercialize cogeneration system for household use	ECOWILL, gas cogeneration system for household use is on sale	○	Promote the development of highly efficient, low NOx Fuel Cell cogeneration models
Dissemination of low Nox device	Commercialize low NOx dryer		(22) Commercialize new ultra-low NOx (less than 15 ppm) direct fired laundry dryer for business use	Commercialize low NOx (less than 10 ppm) dryer	○	_____
	Commercialize low NOx boiler		(23) Commercialize low NOx hot water boiler (200,000-500,000 kcal) with 33% reduced NOx as compared with 1998 level (60 ppm → less than 40 ppm)	Commercialize low NOx (less than 30 ppm) boiler	○	_____
Dissemination of natural gas vehicles	Establishment of filling stations	P.28	(24) 44 locations (2001) → 90 locations	69 natural gas refilling stations in total		_____
Eco Design for gas devices	Household use	P.28	(25) Miniaturize and lighten ceiling-installation-type bathroom heater/dryer (40% reduction as compared with 2000 level, to be commercialized in 2003) (26) Continue and develop the shrink packaging	Reducing the volume of bathroom heater/dryers by 40% compared with FY2001 model	○	Promotion of Eco Design
Recovery and recycling of gas devices	Improvement of recovery rate		(27) As a group-wide effort, improve the 90% recovery rate for used gas devices	_____	—	Improve the recovery rate of 90%
	Improvement of recycling rate	P.28	(28) Improve the recycling rate to more than 80% for devices recovered through our recovery system	Recycling rate of 82%	○	_____

^{*} COP: Coefficient of Performance

^{*8} High heating value standard

III. Contributing to Improving the Environment Locally, Nationally and Globally

Environmental contribution domestically and internationally	Dissemination of environmental technologies	(29) Disseminate technology for wet catalyst oxidation process and waste hydrochloric acid recycling system (30) Disseminate afforestation technology with the VAM fungi, and commercialize the antibiotic microbial materials	Establishment in China of a joint venture company marketing the catalyst oxidation process Implementation of technical support for afforestation techniques utilizing VAM fungi in Indonesia	○ ○	Find new energy conservation and environmental projects to provide technological assistance
	Reducing the environmental impact in public facilities	(31) Disseminate unused energy utilization system for garbage incineration plants and water treatment plants	Biogas cogeneration sales reached approximately 10,500 kW (8 units at 3 locations)	○	
Develop new environmental technologies	Technology to process hazardous materials	(32) Develop and commercialize the dioxin processing technology	Developing a filter for absorbing and removing 99% of dioxin	○	_____
Environmental contribution to local communities	Ecological actions of employees	(33) Continue the environmental activities in communities where our business offices are located	Continuously promoted		Engage in and develop environmental activities in communities where our business offices are located
	Environmental educational activities	(34) Hold environmental classes and educational events utilizing our company facilities, and provide assistance to schools	Continuously promoted		

Environmental Impacts of Our Gas Business in FY2005

Note: Energy Consumption Waste LNG Gas

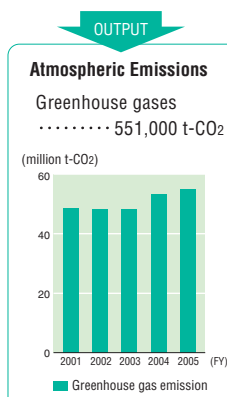
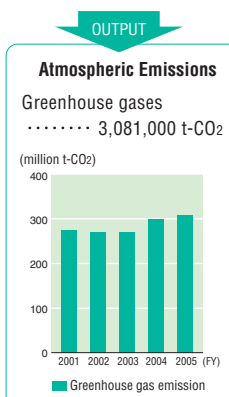
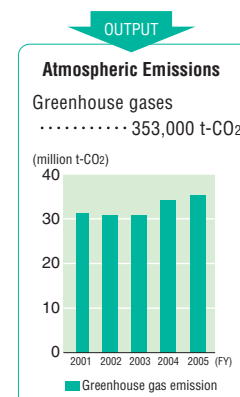
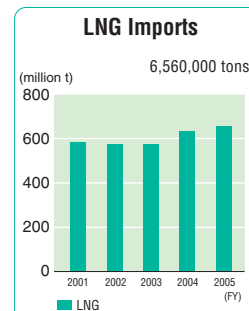
Overseas

At the mining sites of natural gas fields and liquefaction facilities

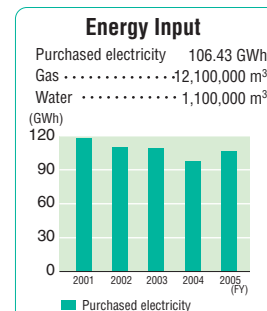
- Natural gas, which is of minor environmental impact, is used as fuel for electric power at the mining sites.
- Reducing environmental impact by improving generation efficiency through implementing waste heat recovery
- When the mined natural gas contains carbon dioxide, it is extracted and pumped into the underground.

In the shipping

- Natural gas is used as the fuel for shipping.

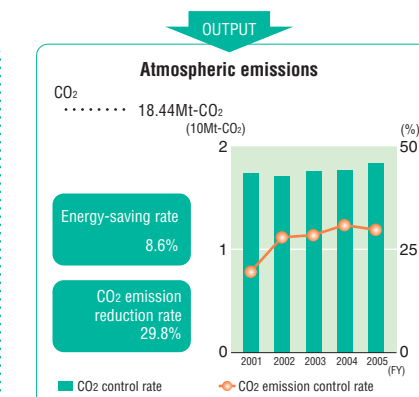
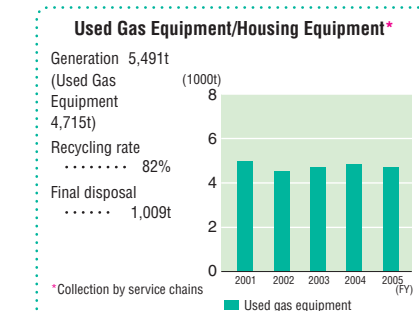
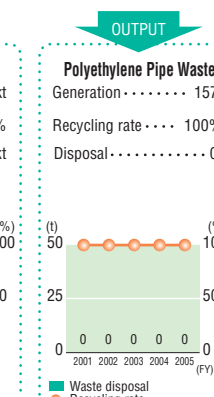
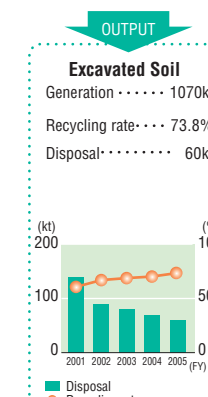
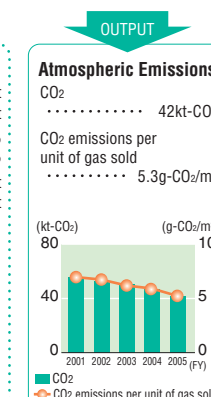
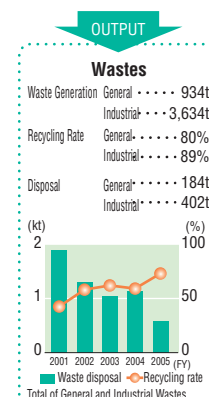
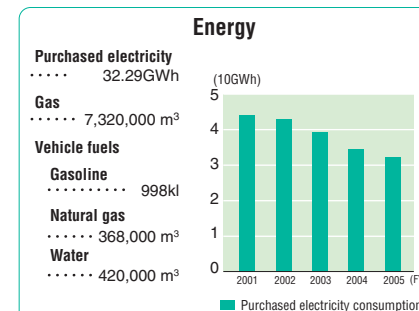
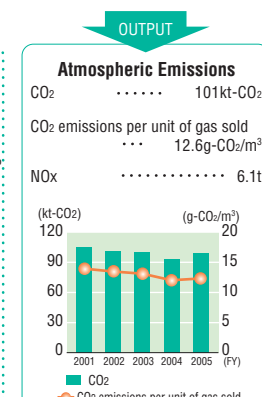
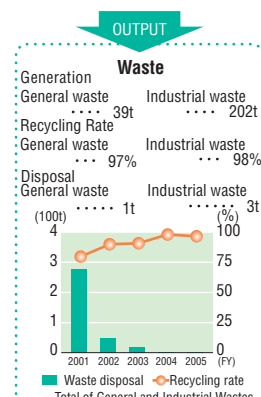


Japan



In-house Generated Power by Cryogenic 60.23 GWh

In-house Generated Power by Gas Pressure 23.36 GWh



Global Warming: The Efforts Made by Osaka Gas

Global warming is the most critical issue facing energy supply industry today. Osaka Gas is grappling with this issue from the following standpoints:

(1) Promotion of the natural gas

We work hard to disseminate and promote natural gas, the burning of which produces the least CO₂ among fossil fuels. The burning of natural gas also produces virtually no SO_x and less NO_x, both of which cause air pollution and acid rain.

(2) The reduction of CO₂ emissions in our business activities

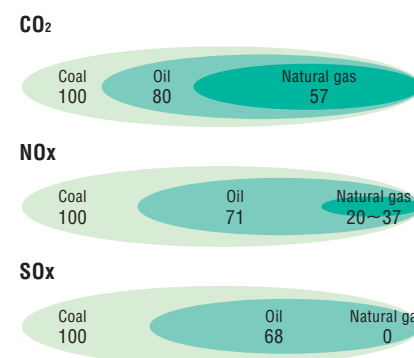
We make efforts to reduce CO₂ emissions stemming from our business activities to the lowest

possible levels. Our "in-house performance evaluation system" includes an evaluation of energy-use reduction, and CO₂ emissions targets are managed according to our Environmental Management Indicators.

(3) Development and dissemination of energy-efficient gas equipment and energy systems

We develop and disseminate even more efficient gas equipment and energy systems that will be effective in reducing CO₂ emissions when used by customers.

Comparison of Fossil Fuel Combustion Emissions (Coal: 100)



Sources:

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

Quality of the Gas Osaka Gas supplies

Note: Figures applied from March 2003

Heat Value (HHV)

45.0MJ/m³N (10,750kcal/m³N)

Physical and Chemical Properties

Appearance, etc.: A colorless gas having a characteristic odor

Specific gravity: 0.638(air=1)

Combustion range: 5~15vol%

Effects on the Human Body

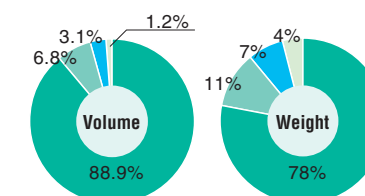
If the gas is inhaled at high concentrations for an extended period of time, it can have harmful effects on the human body, such as suffocation due to a lack of oxygen supply.

CO₂ Emission Coefficient in Combustion

50.9g-CO₂/MJ (2.29kg-CO₂/m³N)

Chemical Composition

- Methane (CH₄)
- Ethane (C₂H₆)
- Propane (C₃H₈)
- Butane (C₄H₁₀)



LCA^{*1} Comparison of GHG Emissions among Fossil Fuels

The table below compares total greenhouse gas emissions (specifically CO₂ and methane, expressed in CO₂ equivalent), from drilling to combustion, for various fossil fuels.

Comparison of Greenhouse Gas Emissions (g-CO₂/MJ, HHV)

Fuel	Coal	Oil	LPG	LNG	Gas
Production	4.58	4.06	5.16	9.74	9.18
Transportation	1.71	0.79	1.80	1.86	1.44
Equipment	0.11	0.08	0.11	0.12	0.52
Unit at time of fuel combustion	88.53	68.33	59.85	49.39	51.15
Total	94.93	73.26	66.92	61.11	62.28
Ratio	152	118	107	98	100

Note: Converted from g-CO₂/Mcal to g-CO₂/MJ, based on a report of the the Institute of Energy Economics, Japan (August/1999)

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

*2 The figures for gas equipment include the amount from the overseas production sites to gas pipeline construction sites.

Social Value – Environmental Activities Policy I

Reducing Environmental Impacts of Our Business

Major Environmental Impact by Osaka Gas Group

(Osaka Gas Co., Ltd. and 82 affiliated companies)

		CO ₂ (1,000 t)	Industrial waste		General waste		Excavated soil Disposal (1,000t)	Water consumption (10km ³)
			Generation (t)	Final Disposal (t)	Generation (t)	Final Disposal (t)		
FY2003	Osaka Gas	188	9,751	2,687	1,809	690	80	153
	Affiliates	500	24,000	—	364	—	—	205
	Total	688	33,751	—	2,173	—	80	358
FY2004	Osaka Gas	171	11,054	2,246	1,856	647	70	158
	Affiliates	647	56,703	8,477	1,200	—	—	341
	Total	818	67,757	10,723	3,056	—	70	499
FY2005	Osaka Gas	253	9,327	1,414	973	185	60	153
	Affiliates	762	68,193	8,596	875	—	—	432
	Total	1,015	77,520	10,010	1,848	—	60	585

Note 1: Osaka Gas's amount of industrial waste includes used gas equipment and housing equipment recovered from customers.

Note 2: Water consumption amount comprises clean water and industrial water.

Note 3: CO₂ associated with Osaka Gas's sold electricity to CRYO-AIR Co., Ltd. is included in affiliated companies' amount.

Note 4: In FY2004, Nakayama Joint Power Generation Co., Ltd. and Nakayama Nagoya Joint Power Generation Co., Ltd., both of which are IPP (Independent Power Producer), joined our affiliates.

Reducing Emissions of Greenhouse Gases

<CO₂ Emissions in the Gas Business>

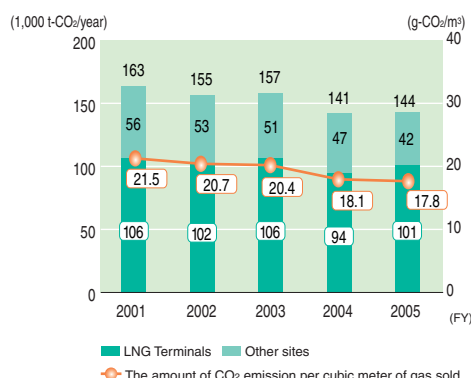
We are steadily reducing CO₂ emissions, and have achieved the 2005 target ahead of schedule

Osaka Gas's overall CO₂ emissions increased by 2.1% over the previous year, due to a 3.7% increase in gas sales. Our ratio of CO₂ emissions to

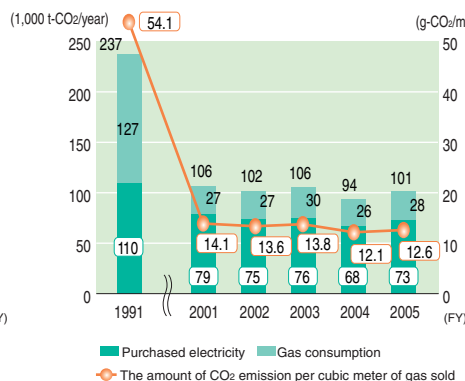
the amount of gas sold is now 17.8g-CO₂/m³, meaning we have already exceeded the 2010 target of 19g-CO₂/m³. We will continue to reduce CO₂

emissions by setting targets for each organization and providing the results in our performance evaluation.

CO₂ Emissions from overall Gas Business

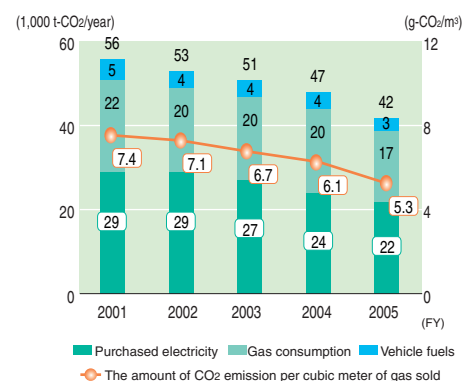


CO₂ Emissions from LNG Terminals



Note: The major reduction in carbon dioxide emissions from FY1991 is explained by the elimination of coke furnaces associated with the introduction of natural gas

CO₂ Emissions from Other Sites

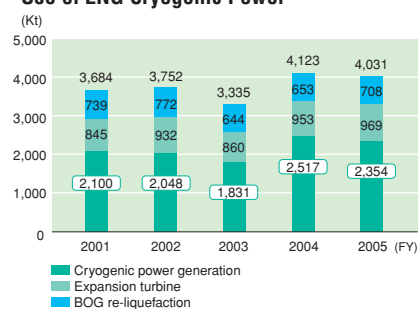


Measures at LNG Terminals

Osaka Gas is cutting back on purchases of power from electricity suppliers and thereby reducing CO₂ emissions. One way we do so is by generating electricity through the effective use of LNG cryogenic energy and gas pressure energy

(83.6 GWh in all plants). We also generate electricity through the highly efficient Gas Combined Cycle, which is fueled by natural gas, and in addition we strive for the utmost efficiency in all of our LNG terminal operations.

Use of LNG Cryogenic Power



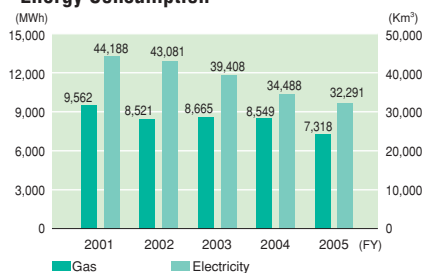
Measures at Sites Other Than LNG Terminals

Osaka Gas also monitors CO₂ at sites other than LNG terminals. Each employee is encouraged to engage in steady energy conservation efforts, and we constantly improve facilities by installing energy-saving equipment. This can be seen in the substantial energy conservation results achieved through the installation of cogeneration equipment and the use of natural energy sources at our Sakai Gas Building (in Sakai, Osaka),

which was completed in September 2003.

In FY2005, we implemented EMS activities throughout our organization. EMS implementation provides for thorough prevention of unnecessary use of lighting and effective air conditioning controls. Such efforts enabled us to achieve an approximately 10% year-on-year reduction in CO₂ emissions in FY2005.

Energy Consumption

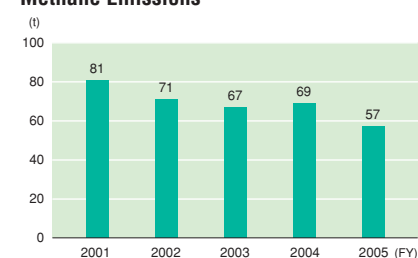


Reduction Measures on GHG other than CO₂

Most of the volume of greenhouse gases, other than CO₂, that LNG terminals emit is methane (CH₄) mostly from the equipment analyzing the gas quality. We are endeavoring

to reduce its emission by converting the equipment to the one with less emission and also recovering emitted CH₄.

Methane Emissions



<CO₂ Emissions from Other Businesses>

CO₂ emissions from thermal supply business

(FY2005)

Electricity sales (1,000 kWh)	Thermal sales (GJ)	Purchased electricity (1,000 kWh)	Gas consumption (1,000 m ³)	CO ₂ emissions (t-CO ₂)
7,815	115,461	4,536	4,825	14,179

CO₂ emissions from power generation business

(FY2005)

Electricity sales (1,000 kWh)	Gas consumption (1,000 m ³)	Purchased electricity (1,000 kWh)	CO ₂ emissions (t-CO ₂)
213,683	41,150	994	94,920

Note 1: Osaka Gas operates at 8 locations.

Note 2: Electricity sales is electricity used in common place of housing, generated with cogeneration.

Reducing Emissions of Greenhouse Gases

<Measures in our power generation business>

Osaka Gas brought a 18,000kW power generator online at the Senboku LNG Terminal in July 2002, and another 50,000 kW unit online at the Himeji LNG Terminal in June 2004. These power generation facilities use a high-efficiency combined gas and steam turbine cycle, the adoption of which allows for even greater power generation with less fuel usage, and greatly reduced CO₂ emissions in comparison with conventional thermal

power generation.

These power generation facilities are fueled by clean-burning natural gas, which prevents air pollution due to SO_x or dust emissions. In addition, the combination of lean premixed combustion and denitration equipment has made low NO_x emissions possible. Furthermore, the 50,000 kW generator employs LNG's cold energy to increase the amount of power generated. Through measures such as the

use of existing seawater facilities to provide seawater as coolant for the condenser, the manufacturing infrastructure is exploited to its maximum extent and superior energy conservation is realized.

Preparations are currently under-way for activation of a high-efficiency large-scale power generation facility in 2009.

Calculation of CO₂ Emissions from Purchased Electricity

Although using purchased electricity does not emit CO₂ on site, CO₂ is emitted in the process of thermal power generation. Therefore, the use of purchased electricity is in itself

$$\text{CO}_2 \text{ emissions from the use of electricity (kg-CO}_2\text{/year)} = \text{Purchased electricity (kWh/year)} \times \text{Average coefficient of all types of power generation (kg-CO}_2\text{/kWh)}$$

There are two main CO₂ emission coefficients, the coefficient for the average value of all electric sources and that for thermal power generation. The average coefficient of all types

considered a cause of CO₂ emissions, and therefore the following formula is generally used to calculate the emissions volume:

of power generation, including thermal, nuclear, and hydroelectric, is used in calculating the annual emissions values.

<CO₂ emissions reduction by reducing the purchased electricity >

The method described above is not appropriate for evaluation of the effectiveness for the reduction of purchased electricity. Such evaluations require calculation using the coefficient for power sources of which demand decreased (marginal power sources), depending upon implementation of the measure. Given the make-up of power plants

currently operated by electric companies and the companies' long-term power plant construction plans, "marginal power sources" may be thought of as thermal power sources. Therefore, CO₂ emissions reduction by reducing the purchased electricity should be calculated as follows:

$$\text{CO}_2 \text{ emissions reduction by reducing the purchased electricity (kg-CO}_2\text{/year)} = \text{Amount of power reduction (kWh/year)} \times \text{Coefficient of Thermal power generation (kg-CO}_2\text{/kWh)}$$

Coefficient Used in This Report

Coefficient for measuring the demand:

Average coefficient of all types of power generation

FY2002 and before (Estimated demand side value for FY1997)
0.37kg-CO₂/kWh

FY2003 and after
0.36kg-CO₂/kWh*

Coefficient for evaluating the electricity demand reduction:

Coefficient of Thermal power generation

FY2002 and before (Estimated demand side value for FY1997)
0.67kg-CO₂/kWh

FY2003 and after
0.69kg-CO₂/kWh*

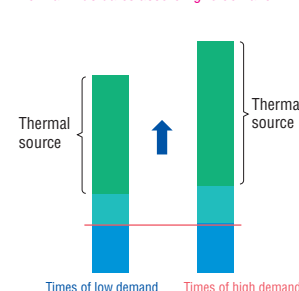
* Source: Interim Report by the Research Working Group of Ministry of Environment, July 2001

Osaka Gas emphasizes accurate evaluation of the effects of measures for reducing purchases of electricity, and has instituted controls on the CO₂ emissions amount calculated using the CO₂ emissions coefficient for thermal power generation. (For reference we have also listed at our website the CO₂ emissions calculated with average coefficient of all types of power generation, which we use to monitor power usage with regard to the annual emissions amount.)

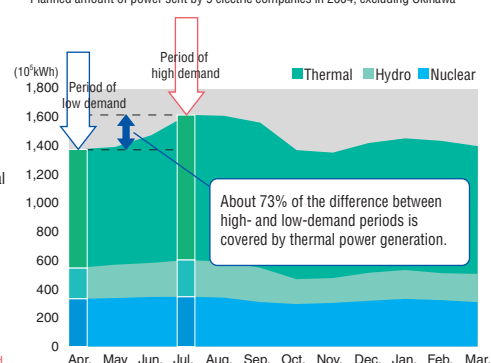
Power Load Fluctuation

Nuclear: Roughly even throughout the year
Hydro: Fluctuates somewhat according to rainfall amount
Thermal: Fluctuates according to demand

Thermal: Fluctuates according to demand



Source: Created by JGA based upon "Outline of Electricity Supply and Demand in 2004"
*Planned amount of power sent by 9 electric companies in 2004, excluding Okinawa



An evaluation of power load fluctuation demonstrates that efforts to reduce CO₂ emissions should be calculated with the coefficient of thermal power generation.

Reducing Resource Consumption and Promoting Recycled Resource Use

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

Reduced and Recycled Amount of Excavated Soil

		FY2001	FY2002	FY2003	FY2004	FY2005
Estimated amount generated by conventional method	(10,000 tons)	177	194	184	193	189
Reduced amount	(10,000 tons)	62	77	72	80	82
Generated amount	(10,000 tons)	115	117	112	113	107
Recycled amount	(10,000 tons)	71	79	78	80	79
Recycling rate	(%)	61.4	67.4	69.6	70.7	73.8
Utilized amount	(10,000 tons)	30	29	26	26	21
Disposal amount	(10,000 tons)	14	9	8	7	6

Note: Recycling rate is the rate of recycled into improved soil and recycled roadbed material in Osaka Gas Group. Utilized amount is used as farmland etc., outside of Osaka Gas Group.

Curbing the Generation of Excavated Soil

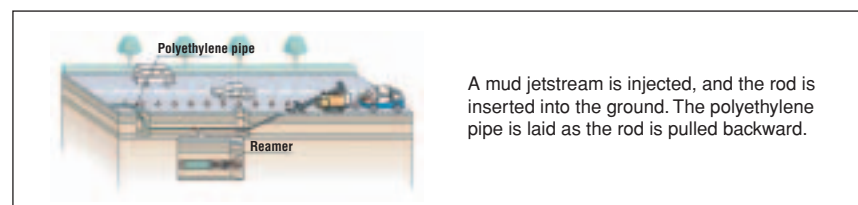
Osaka Gas succeeded in reducing excavated soil by 820,000 tons by promoting the application of pipe replacement methods that do not require excavation (such as the Bore More Method, Compact Pipe Jacking Method and Pipe Splitter Method), as well as shallow pipe installation.

Promotion of Shallow Pipe Installation

On March 31, 1999, the government issued a directive urging gas companies to develop shallow burying methods for gas pipes. Osaka Gas's response was to seek to develop excavation methods combining

Replacing Pipes Without Excavation: The Bore More Method

This method makes it possible to lay new polyethylene piping without excavation.



reduced excavation area with greatly reduced amounts of excavated soil and backfill gravel both of which lead to reduced environmental impact. In FY2005, we received approvals from 99% of the municipal governments in the supply area, and moved forward with these methods.

Comparison of previous gas pipe installation method with shallow burying currently in use

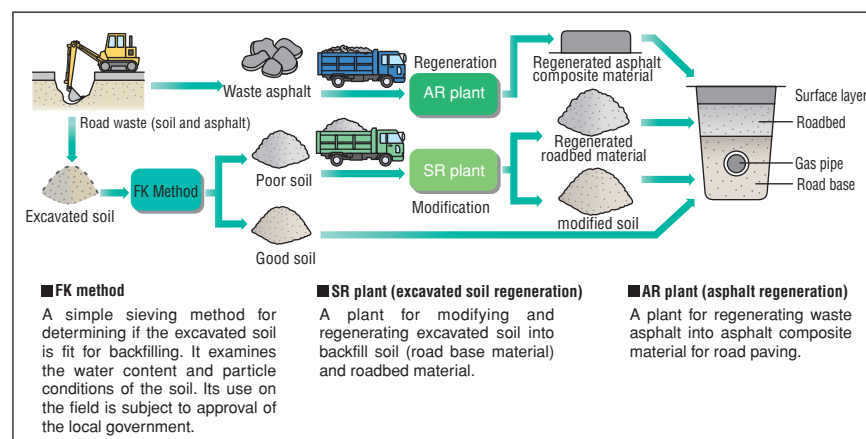


Reuse of Excavated Soil

Excavation for gas pipes creates large emissions of soil and waste asphalt. Since 1983, Osaka Gas and its affiliates have been operating a comprehensive soil and asphalt recycling system. We are striving to expand the use of the "FK Method" and "SR (recycled soil)". As a result, the recycling rate has reached 73.8%. If limited to soil, the SR application rate reached 58% (56% in the previous year) and the FK application was 27% (28% in the previous year), achieving a recycling rate of 85%.

Comprehensive Road Waste Recycling System

This system divides road waste into waste asphalt and excavated soil, reusing the former as asphalt and the latter as either regenerated roadbed material or improved soil.



Recycling of Used Gas Pipes

Osaka Gas uses polyethylene (PE) gas pipes. Wastes of them generated in gas pipe works are reused as pipe indication posts for locating buried gas supply pipes.

PE Pipe Recycling Rate

		FY2001	FY2002	FY2003	FY2004	FY2005
Amount wasted	(t)	105	140	133	153	157
Amount recycled	(t)	105	140	133	153	157
Recycling rate	(%)	100	100	100	100	100

Reducing Resource Consumption and Promoting Recycled Resource Use

Industrial Waste Reduction and Recycling

Osaka Gas achieved large-extent reduction in industrial waste emissions in FY2005. This was due to changes in the collection route for used gas appliances and residential equipment, the encouragement of Osaka Gas and every member of the service chain to

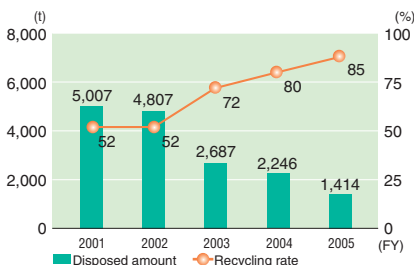
dispose of waste properly, and the sale as a value-added commodity of a portion of our industrial waste during a booming scrap metal market. Also, our non-consolidated resource recycling rate has reached 89% as a result of efforts, such as changing our waste

disposal and recycling contractor.

Our LNG terminals have been achieving zero emissions* since FY2003.

*The final disposal amount is to be roughly zero after deduction of post-material or thermal recycling residue.

Industrial Waste Disposal and Recycling Rate (Gas Business total)



Industrial Waste and Its Recycling Status

Waste type	Content details	Generated (a)		Recycled (b)		Disposed (a-b)		Recycling rate (b/a)	
		FY04	FY05	FY04	FY05	FY04	FY05	FY04	FY05
Sludge	Wastewater sludge	69	54	33	23	36	31	48%	43%
Waste oil	Lubricant oil	62	186	38	154	24	32	61%	83%
Waste plastics	PE pipe scraps, insulator	931	704	754	624	177	80	81%	89%
Metals	Flexible piping	1,637	726	1,552	692	85	34	95%	95%
	Used gas equipment*2	4,784	—	4,306	—	478	—	90%	—
Glass, Concrete Ceramics	Used fluorescent lamps	192	16	1	14	191	2	1%	88%
Debris	Waste asphalt and concrete	1,814	1,986	1,766	1,848	46	138	97%	93%
Others	Waste construction materials	1,565	164	358	76	1,207	88	23%	46%
Osaka Gas Total		11,054	3,836	8,808	3,431	2,244	405	80%	89%
Breakdown	LNG terminals	202	202	201	199	1	3	100%	98%
	Other sites	976	732	464	489	512	243	48%	67%
	Customers*1	9,876	2,902	8,143	2,743	1,733	159	82%	95%
Service Chain*2	Used gas equipments	—	5,491	—	4,482	—	1,009	—	82%
Gas Business Total		11,054	9,327	8,808	7,913	2,246	1,414	80%	85%

*1 This is debris, pipe scrap, PE pipe scrap, and other waste generated during installations.

*2 Due to changes in the system for collection of used gas equipment in FY2005, the data is counted in service chains.

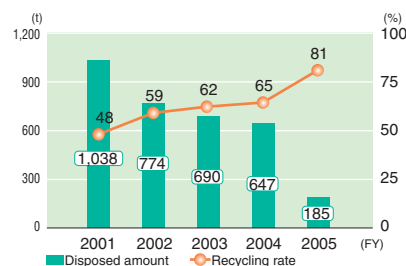
General Waste Reduction and Recycling

In FY2005 we redoubled our efforts at general waste separation throughout the company, with the goal of company-

wide acquisition of ISO 14001 in FY2006. As a result, our year-on-year recycling rate broadly increased, from

65% to 81%. This means we have achieved our 2005 Environmental goal of 75% one year early.

General Waste Disposal and Recycling Rate (Osaka Gas)



General Waste and Its Recycling Status

Waste type	Generated (a)		Recycled (b)		Disposed (a-b)		Recycling rate (b/a)	
	FY04	FY05	FY04	FY05	FY04	FY05	FY04	FY05
Paper								
Paper (copy paper)	227	246	214	235	13	11	94%	96%
Newspapers	141	74	90	74	51	0	64%	100%
Magazines	71	91	62	91	9	0	87%	100%
Corrugated cardboard	287	190	277	185	10	5	97%	97%
Confidential documents	147	89	75	89	72	0	51%	100%
Total paper	873	690	718	674	155	16	82%	98%
Cans	17	9	13	9	4	0	76%	100%
Bottles	14	11	14	10	0	1	100%	91%
Kitchen wastes	299	97	183	67	116	30	61%	69%
Plastics	187	19	135	16	52	3	72%	84%
Others	467	147	147	12	320	135	31%	8%
General waste total	1,857	973	1,210	788	647	185	65%	81%
Breakdown								
LNG terminals	25	39	23	38	2	1	92%	97%
Other sites	1,833	934	1,187	750	646	184	65%	80%

Using Less Water

Our steady efforts to save water have resulted in a reduction in industrial water used at our LNG terminals of 7% in comparison to the previous year.

Water Consumption

		(10,000 m ³)	
		FY2004	FY2005
	Clean water	7.9	7.4
LNG terminals	Industrial water	110.9	102.8
	Sea water	41,358	42,257
Other sites	Clean water	39.4	42.4

Promoting Green Purchasing and Green Distribution

Green Purchasing

Revision and Thorough Application of the Green Purchasing Guidelines

In April 2005, Osaka Gas revised the Green Purchasing Guidelines established in May 2000. Our goal is to promote cooperation with our trading partners in not only optimization of quality, price, and delivery date, but also as a system for purchasing low-environmental impact products and installation contracts.

Our total green purchasing amount for FY2005, including stationery, copy paper, recycled polyethylene pipes, work uniforms, and printed materials, was ¥1.12 billion. There was an increase in products registered as “green” of 136 items, for a total of 827.

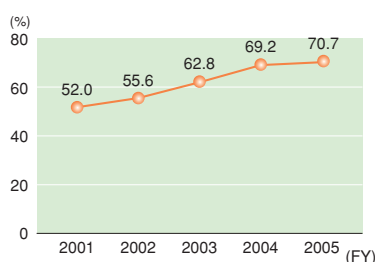
We established a green purchasing target rate for product areas designated under the Green Purchasing Law, and plan to bring it up to roughly 100% for nearly all areas by the end of FY2011.

While the Green Purchasing Guidelines are applied to Osaka Gas Co., Ltd., we aim to encourage and promote awareness among our affiliates as well. We plan to strengthen the collaboration with Group Companies.

The Green Partner Initiative

We have initiated our “Green Partner Initiative” for evaluating environmental efforts, such as EMS acquisition, by our trading partners from which we purchase pipe materials. We held explanatory meetings for our trading partners in March 2005 and examined the current situation. We will work together with them to ensure that our pipe materials purchases are from “Green Partners”.

Trends of the Green Purchasing Rate in Stationery



Pipe indicating tapes recycled by PE pipe.

Green Purchasing Rate: Targets and Results (monetary basis)

Field	FY 2005 Results	2005 target	2010 target
Copy paper	100%	100%	100%
Stationery	71%	70%	100%
OA Equipment	100%	100%	100%
Work uniforms	100%	100%	100%
Printed materials	76%	80%	100%
Gas pipe	Use as much recycled soil and asphalt as possible for burying	—	—
installation	Make sure that environmental measures specified in spec sheets	—	—

Green Distribution

Osaka Gas has been promoting “Green Distribution” from a comparatively early period, and established a “Green Distribution Policy” in December 2001. “Green Distribution” means taking actions to reduce emissions of atmospheric pollutants in the region by using “Low-Emission Vehicles”^{*} for distribution and business operations.

Osaka Gas is actively seeking cooperation among Group companies and our trading partners to use “Low-Emission Vehicles” in distribution to Osaka Gas business sites.



Low-Emission Natural Gas Vehicles

^{*} “Low-Emission Vehicles” are natural gas-powered vehicles, electric vehicles, hybrids, methanol-powered vehicles, and highly fuel efficiency, low-exhaust certified vehicles (vehicles for which a lower vehicle tax rate is applied because of their low environmental impact), as well as fuel cell vehicles.

Environmental Education and Awareness Activities for Employees

Reaching Out to All Employees

Osaka Gas has implemented a variety of environmental education activities to increase employee awareness about environmental conservation. We offer environmental education programs tailored to employee status like new employees, etc., and hold environmental education programs annually at business sites that have acquired ISO 14001 certification. In addition, we hold “In-House Environmental Activities Case Study Meetings” and “Environmental Symposium” once a year. Our environmental awareness activities also include the annual awards by the President.

Program for newly-appointed supervisors

Implemented in June and November 2004 (50 attendees)

Program for new employees

Implemented every April (80 attendees for 2004)

President's Environmental Contribution Awards (For 2004)

Content	Organization
Development of “ECOPURGE”, a compressor-mounted vehicle	Pipeline B.U.
Development of Pipe -friction reducing additive	Energy Technology Labo.
Development of non-chemical fertilizer for greenery	Energy Technology Labo.
Implementation of Catalytic Wet Oxidation	Engineering Dept.
Outreach Service of Gas Science Museum	Corporate Communication Dept.

Environmental Symposium 2004



Soil and Ground Water Conservation

Voluntary Program Against Soil and Groundwater Contamination

Beginning in January 2001, Osaka Gas launched a series of voluntary investigation of former plant sites for coal gas production in order to determine environmental risks to soil and groundwater. The investigation was completed in FY2005.

In cases in which contamination was discovered in the course of an audit, reports were filed with the government agencies in charge and proper risk control measures under the guidance of the government agencies were taken for environmental improvement.

Plant Site Land Investigation Results and Risk Management (FY2005)

Former plant sites	Analytical results (Amount of solution) ^{*1}		Risk management measures
	Cyanides	Arsenic	
Former Kyoto plant site (Publication on July 5, 2004)	10mg/L	0.10mg/L	<ul style="list-style-type: none"> Asphalt paving Elimination of contaminated soil in the area
Acceptance criteria ^{*2}	Not detected ^{*3}	Under 0.01mg/L	

^{*1} Substances whose quantity exceeded the standards are listed. No substance in groundwater was found to exceed the standards.

^{*2} Criteria determined in the Soil Contamination Countermeasures Law.

^{*3} Not detected: The analytical results are below the determination limit (0.1 mg/l).

Chemical Substance Management

Our Policy for Measures to Chemical Substance Management

1. Compliance with laws and regulations concerning the use of chemical substances.
2. Risk assessment of chemical substances implemented in the course of our environmental management activities, such as ISO 14001; also, efforts to reduce waste.
3. Disclosure of information on chemical substance management in this report and on our website.

Although there has been the implementation of regulations on volatile organic compounds (VOC), we, however, have no facilities subject to these regulations.

Substances Subject to Reporting, under the PRTR Law.^{*1} (FY2005)(t)

Item	Handled	Released	Transferred
Xylene	1.7	1.7	0
Cyclohexylamine	1.8	0	0

^{*1} The PRTR Law was announced in 1999. Businesses are required to report the emission or transfer in the event that more than a specified amount of any of 354 substances is handled.

Efforts at Affiliated Companies I (1)

Nabari Kintetsu Gas Co., Ltd.

Diversified Approaches within the Company and in the Community

Nabari Kintetsu Gas is taking a diversified approach to environmental action both within the company and in the community. Some of the measures being taken within the company include more efficient use of lighting and air conditioning, trash separation, the implementation of "paperless conferences" using digital data, and reduced paper use through use of the backs of paper copies and two-sided copying. The company is also

an active participant in environmental beautification efforts organized by Nabari City and local organizations, and it makes an effort in community activities.

The company continues to promote energy-efficient, environmentally superior gas appliances and systems through the dissemination of natural gas.



Local cleanup executed monthly in the vicinity of the company

URL <http://www.kintetsugas.co.jp/>
TEL:0595-65-2311

Liquid Gas Kyoto Co., Ltd.

Acquiring Certification on Environmental Management System

Liquid Gas Kyoto has formulated an environmental policy and acquired an environmental management system. It will proceed with construction of the environmental management system beginning in FY2005, and aims to acquire a Step. 2 of KES Environmental Management System*1 by the middle of FY2006. The company announced its environmental policy in December 2004, emphasizing reductions in the use of electrical power, LPG for air conditioning, and vehicle fuel.

The company has instituted environmental awareness measures such as having each employee carry a compact environmental action manual and refilling vehicles according to scheduled amounts, rather than simply filling the tank. As a result of these efforts, environmental impact during the period of time has been reduced by 1% in comparison with the previous year.



The entrance to Liquid Gas Kyoto, which announced its environmental policy in December 2004

*1 The environmental management system promoted by the "Miyako Agenda 21 Forum". This system consists of requirements identical to ISO 14001.

URL <http://www.liquidgas.jp/kyoto/>
TEL:0774-21-2145

Nagano Propane Gas Co., Ltd.

Switch from Kerosene to LPG

Nagano Propane Gas began its efforts toward acquiring ISO 14001 certification in October 2000, with the goal of reducing environmental impact and improving resource and energy efficiency in its role as member of the business community. In addition to seeking to reduce waste, paper usage, and energy consumption, the company is also engaged in efforts to make the

switch in the region from kerosene to LPG, which produces lower CO₂ emissions. The company has already achieved 63% of its targets for kerosene to LPG conversion, while all other targets have been reached. ISO 14001 certification, which was first acquired in September 2001, was renewed in September 2004, with efforts ongoing at this time.



Nagano Propane Gas which renewed its ISO 14001 certification

URL <http://www.nagano-pg.co.jp/info/company.html>
TEL:0268-38-8585

DONAC Center, Osaka Gas Chemicals Co., Ltd.

Reducing Environmental Impact in Distribution

The only rolled carbon fiber in the world made from coal pitch is produced at the Osaka Gas Chemicals DONAC Center. With "Clean and Safety" as their motto and basic policy, employees work constantly to make improvements in the entire process, from production to delivery.

The Distribution division instituted a "modal shift", from truck delivery to lower-environmental impact rail transport, in 2003. The main issue is how to reconcile "environmental impact with cost and on-time delivery".

Based upon the data of the Land,

Infrastructure and Transportation Ministry, rail transport delivers superior CO₂ emissions performance, at 21g-CO₂/ton kilo vs. 181g-CO₂/ton kilo for standard business use vehicles. Products are loaded onto JR-designated containers, with transport order as follows: truck → cargo terminal → rail → cargo terminal → truck.

The results (cumulative- 25 times) have been an 11t-CO₂ reduction and a rationalization of ¥100,000 in freight charges, meaning the cost reduction and the environmental improvement simultaneously.



DONAC Center of Osaka Gas Chemicals which implemented a modal shift

URL <http://www.ogc.co.jp/e/index.html>
TEL:06-6262-3427

Efforts at Affiliated Companies I (2)

Osaka Gas Housing Equipment Co., Ltd.

Reducing Waste at New Construction Sites through the Waste Point System

Osaka Gas Housing Equipment has implemented a "Waste Point System" for developers of new construction to reduce waste at new construction sites. This system calculates points per unit of floor area and provides awards to developers according to the total waste disposal amount and number of waste hauling. The average

disposal amount has been reduced to 21.59 m³ per site, an 8% improvement over 23.44m³ per site of the period prior to the implementation of the awards system. Other efforts toward waste reduction include eliminating chips and shavings from boards during construction.



"Waste Point System" Chart

URL <http://www.ogj.co.jp/>
TEL:06-6441-4382

OG Auto Service Co., Ltd.

Support System for the Introduction of Natural Gas-Powered Vehicles

In the mid-term plan for FY2005, 1% of the ordinary profits of the previous year were budgeted, and thereby paid back into the global society, for promoting the environmentally-friendly natural gas vehicles (NGV). Low-environmental impact NGVs are drawing great attention and our goal is to promote the spread of NGVs by

assuming a portion of the owner's expense in converting ordinary vehicles into NGVs (excluding the subsidy of the New Energy and Industrial Technology Development Organization). We currently are operating a support system for contractors and the Osaka Gas Service Chain.



A natural gas vehicle, greater use of which is anticipated through our Support System

URL <http://www2.ogas.co.jp/mycar/>
TEL:06-6462-9701

Amounts of PRTR Law listed substances handled, released, and transferred by our affiliates.*1

Osaka Gas Group comply with all laws and ordinances concerning the use of chemical substances, and disclose data concerning the handling of these substances.

The PRTR Report for Osaka Gas Affiliates in FY2005 is as shown in the table at right.

(t)

Toluene			Benzene		
Handled	Released	Transferred	Handled	Released	Transferred
499	35	300	48	18	0

*1 A survey was conducted for 82 Osaka Gas Affiliates. The report contains data for two companies which are subject to PRTR Law.

TOPICS Liquid Gas wins the "Encouragement Prize of Osaka Environmental Award 2005"

Theme: Global Environmental Improvement through hydrogen production from natural gas

Until recently for steel heat treating, the usual method had been using the mixed gas of nitrogen and hydrogen derived from ammonia due to space and cost limitations. Liquid Gas proposed a low-space, low-cost method to produce hydrogen from clean natural gas. This method was adopted by Nisshin Kogyo, a secondary fabricator of stainless steel rod.



The hydrogen production equipment installed at Nisshin Kogyo

URL http://www.liquidgas.co.jp/liquid_e/index.html
TEL:06-6202-1700

For more information, please visit the website of Osaka prefectural government.

Social Value — Environmental Activities Policy II

● Reducing Environmental Impacts of Our Products and Services

Environmental Impact Reduction at Customer Sites

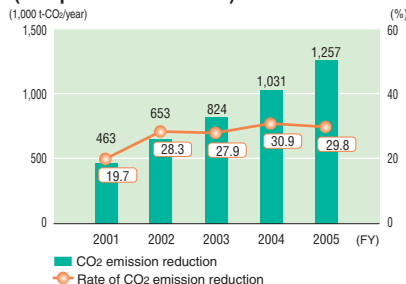
Achievements in CO₂ Emissions Reduction

We at Osaka Gas are promoting CO₂ emissions reduction by the dissemination of our high-efficiency equipment and systems, such as those for cogeneration.

While an increase in CO₂ emissions rates might have been expected to accompany the increase in the amount of gas sold during the period FY1999 to the present, the

promotion of our equipment and systems actually allowed us to achieve a “CO₂ Emissions Reduction Rate at Customer Sites” of 29.8%, exceeding the 2010 target of 20% well ahead of schedule.

CO₂ Emission Reduction (compared with FY1999)

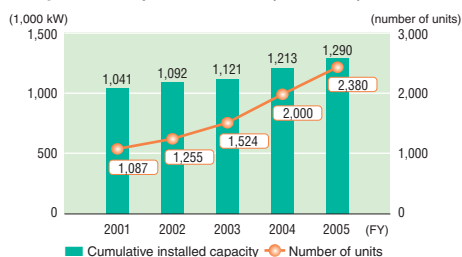


Promoting Energy-Saving Equipment and Systems

Promoting Natural Gas Cogeneration Systems

Osaka Gas puts great effort into spreading our natural gas cogeneration systems, which provide much greater energy savings and reduce CO₂ emissions. We have recently been pressing forward with the installation of high-efficiency, small-scale generators that are capable of generating power on a par with large-scale facilities.

Cumulative Capacity and Number of Gas Cogeneration Systems Installed (Osaka Gas)



Cumulative Capacity of Gas Cogeneration System Installed (Japan)



Aisin 6 kW



Sanyo 8 kW



Yanmar 5 kW



Yanmar 9.9 kW

High-efficient Gas Engine (GE)

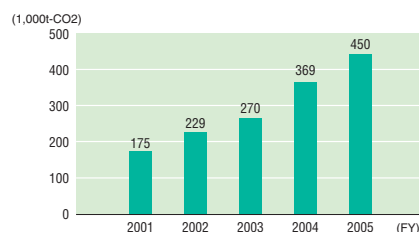


Jenbacher GE



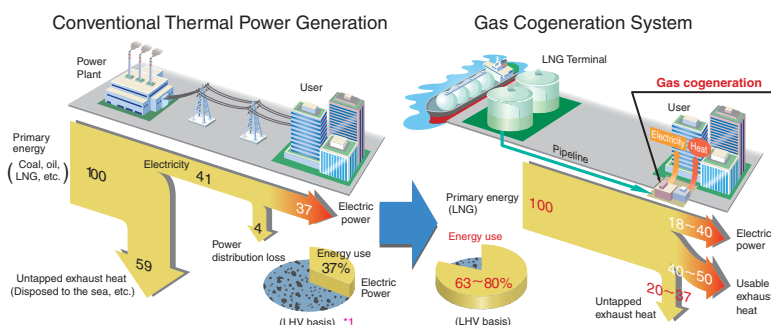
Mitsubishi Heavy Industries Miller-cycle GE

CO₂ Emission Reduction through Cogeneration (Compared with FY1999)



What is Natural Gas Cogeneration System?

Not only generating electrical power with gas engines or gas turbines using natural gas as fuel, but the system also exhaust heat, which is efficiently used for air conditioning, hot water and industrial steam supply and other purposes. In the “New Energy Law” the government too demonstrates its commitment to the promotion of natural gas cogeneration systems.



*1 Heating value extracted from condensed latent heat of steam produced when the fuel gas is completely burned. (Low heating value)

Promoting Energy-Saving Equipment and Systems

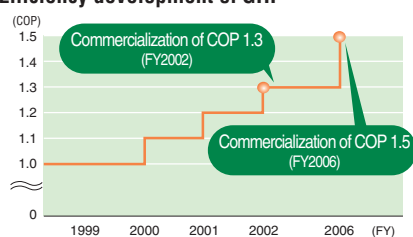
Commercial and Industrial Equipment and Systems

Gas absorption-type chiller/heater, GHP

Gas absorption-type chiller/heaters are air conditioning systems that do not use CFC or CFC substitutes. As these become ever more efficient, Osaka Gas is working for dissemination of “Green Models” (equipment models that contribute to reductions in environmental impact). These models have been chosen according to the “Absorption-Type Green System” established jointly by Osaka Gas, Tokyo Gas, and Toho Gas. Efficiency is also improving for gas engine heat pumps (GHP) which compressor is

powered by a gas engine. COP*1.5 ultra-high-efficiency equipment went on sale in April 2005.

Efficiency development of GHP



Gas absorption-type chiller/heater and GHP that have achieved COP 1.5



Sanyo gas absorption-type chiller/heater F-WE Series

Yanmar Energy System GHP G Series

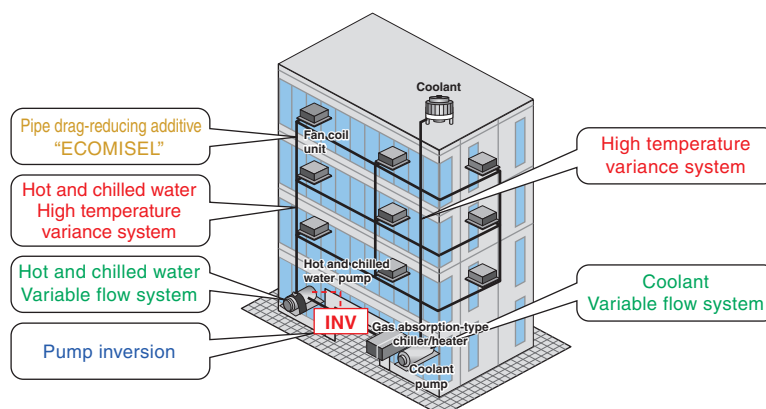
* COP (Coefficient of Performance)
This is an indicator of energy efficiency. The formula is expressed with the figure increasing with the energy.

Energy-saving diagnostics and upgrading technology

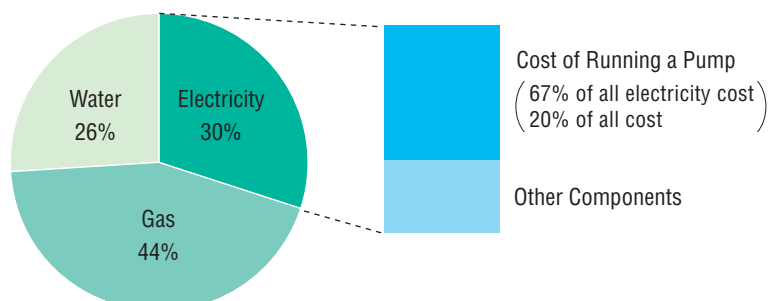
Osaka Gas provides “energy-saving diagnostics” consulting services to reduce energy expenses at commercial sites, such as office buildings and factories. We offer the entire range of services, from proposal through installation. We are also promoting a new service, whereby cogeneration or air conditioning equipment comes with a remote monitoring system connected by wireless or through the Internet, allowing for remote energy-saving diagnostics. Osaka Gas has also developed pipe drag-reducing additive for reducing friction in the water

pipings resulting in reduction of power consumption.

Component power consumption reducing technology



Breakdown of the Running Cost of Gas Absorption-type Air Conditioning System



Note: The running cost was calculated under the following conditions:

Cooling load	1,055kW (300RT)
Heating load	844kW
Annual operating hours	3,600h/year
Gas charges	Summer gas cooling contract
Electricity charges	High voltage for business use
Water charges	¥450/m ³ (Varies from municipality)

High Performance Industrial Furnaces

We are making advances in our development of the “Regeneration Burner” industrial furnace, which has realized tremendous energy savings. “Regeneration Burner” refers to a burner that is used to provide combustion air accumulated as

exhaust heat in the heat accumulator. This provides a maximum 50% energy savings.

The government also provides incentives for installation of high-performance furnaces at small and medium businesses.

Non-ferrous metal fusion furnace using “Regeneration Burner”



Residential Equipment and Systems – ECOWILL, the Home Gas Engine Cogeneration System

What is ECOWILL

ECOWILL is a residential gas engine cogeneration system capable of generating 1kW. It was developed by Osaka Gas for single-family homes, which consume comparatively large amounts of energy and also are able to maintain space for the housing of a cogeneration system.

While ECOWILL itself is small, it achieves an impressive energy utilization rate of 85%, about the same rate as large gas cogeneration systems. This is because it employs exhaust heat transfer equipment with a high heat recovery rate, in addition to recovering heat from the engine itself.

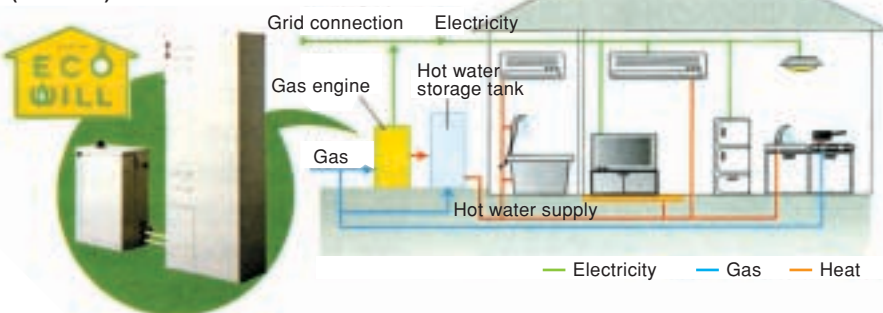
ECOWILL can provide approximately 30% of the power use and most of the hot water and air conditioning demand (including an under floor heating system) of a typical family of four in a single-family home.

Environmental Considerations

ECOWILL's gas engine uses about 20% less energy to produce 1 kWh of electricity than do conventional hot water generators fueled by electricity from grid for room heating and hot water supply. In addition, because it burns clean natural gas, CO₂ emissions are cut by around 30%. It has a built-in computerized control system, "learning function", that learns to detect patterns in electricity and hot water/air conditioning use.

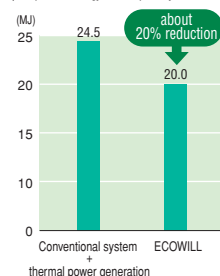
This allows it to make adjustments for the household according to season and day of the week, so that it automatically selects time periods with the highest energy conservation effect for generating electricity. (The unit with expanded learning capacity went on sale in April 2005.)

Household Gas Cogeneration System (ECOWILL)



Primary Energy Consumption

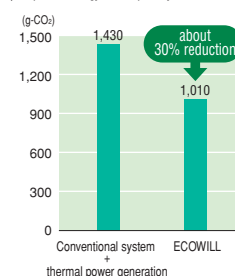
(Compared to energy consumption by ECOWILL 1 kWh)



* Primary Energy equivalent :
Electricity 9.83MJ/kWh
Gas 45MJ/m³
Hot water heating efficiency:80%

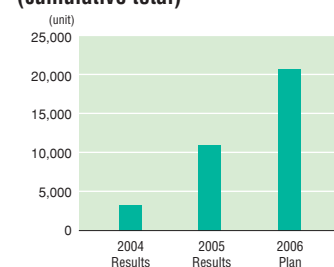
CO₂ Emission

(Compared to energy consumption by ECOWILL 1 kWh)

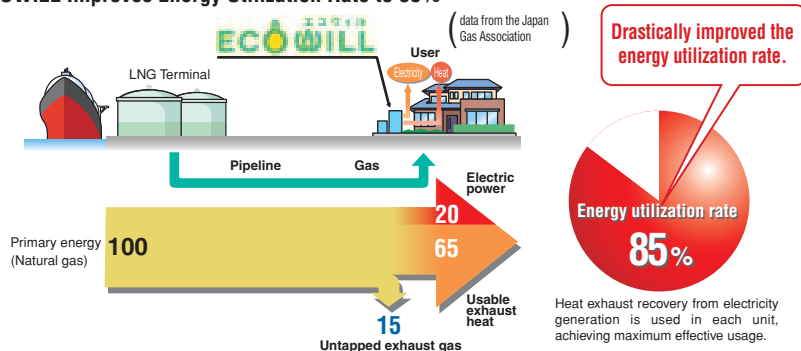


* CO₂ emissions factor :
Electricity 0.69kg-CO₂/kWh
(Source : Interim Report by the Research Working Group of Ministry Environment, July 2001)
Gas 2.29kg-CO₂/m³ (our company data)

ECOWILL Use in Japan (cumulative total)



ECOWILL Improves Energy Utilization Rate to 85%



Proliferation of ECOWILL

ECOWILL has received high marks from customers since Osaka Gas took the global lead in providing this system in March 2003. The sale of more than 10,000 units over the past two years indicates a high level of energy conservation awareness amongst homeowners.

Also, our company has been working hard with other gas companies to disseminate this product, contributing to environmental improvement nationwide through the proliferation of ECOWILL. We seek to continue promoting this product nationwide in FY2006.

Promoting Energy-Saving Equipment and Systems

Residential Equipment and Systems / Hot Water Heaters and Gas Stoves

Hot Water Heaters

The world's first latent heat recovery-type hot water heater for residential use, the "Prior Eco", went on sale in June 2000. It has been widely praised for its environmental contributions, such as CO₂ reduction through high thermal efficiency ratings of 93% for water heating and 88% for space heating, and garnered the "Energy Conservation Grand Prix Award (Award of the Minister of Economy, Trade and Industry)" in 2001. Model 2 in the series, with improved thermal efficiency ratings of 95% for water heating and 89% for space heating, went on sale in October 2002, and took the "Energy Conservation Grand Prix Award (Energy Conservation Center Chairman's Award)" for 2003. In addition, beginning in April 2005 we renamed it as "ECO-JOZU", in order to promote better nationwide distribution.

Gas Stoves

Ingenuity of the burner design, optimization of the height of the pan supports, and other similar technology have been developed. Sales ratios for our high-efficiency stoves* were 97.9% for tabletop stoves and 97.5% for built-in stoves. The percentages sold of stoves meeting the Energy Conservation Law standards were 47.8% for tabletop stoves and 49.3% for built-in stoves.

* Burners with thermal efficiency of 50% or higher.



ECO-JOZU



Glass Top stove (one type of high efficiency stove)

Development of a Polymer Electrolyte Fuel Cell (PEFC) Cogeneration System – 40 % Reduction of CO₂ Emissions –

1. What is a fuel cell?

A fuel cell is a chemical power generator using a reaction that is the reverse of the electrolysis of water; it generates water and electricity by making hydrogen and oxygen react. Fuel cells are characterized by highly efficient and clean power generation, because they generate power directly from a chemical process instead of a conventional mechanical process, in which heat is transformed to power that then turns a generator. In addition to the high efficiency, PEFC cogeneration systems have the special ability to make effective use of the exhaust heat produced when power is generated. They are therefore 26% more energy-efficient than conventional systems, while reducing CO₂ emissions by around 40%. This results in great attention being paid to PEFC systems for their ability to contribute to environment.

2. Development at Osaka Gas

Osaka Gas is moving ahead with the commercialization of PEFC cogeneration systems in the 1 kW class. We pursue the following in order to spur fuel cell system development:

- (1) Development of small, low-cost and world class-performance fuel reforming equipment suitable for industry (equipment for producing hydrogen from gas or LPG).

- (2) Development of a heat recovery system with computer learning control component built in for maximum energy conservation ability.

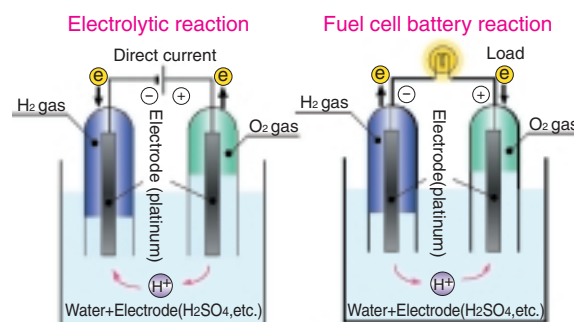
We also sell this technology to both domestic and overseas manufacturers. Since 2004 we have engaged in joint development of PEFC cogeneration systems with a fuel cell manufacturer. Together we conduct operational tests, including field tests, of the achievement of specification targets, reliability and durability. We also examine ways to reduce the costs of commercialization.

Since 1999 we have tested the durability of the cell stack (battery) which is

the component that produces electricity through chemical reaction of hydrogen and oxygen. We also analyze and evaluate causes of deterioration and develop accelerated deterioration methods.

In FY2006 Osaka Gas began participating in the "First-Term Stationary Fuel Cell Large-Scale Demonstration Research" program sponsored by the New Energy Foundation, whereby PEFC units were placed in 28 actual residences and sequential operations commenced. We aim to establish long-term reliability data, especially for cell stacks, as well as work to reduce costs through the program henceforth.

The fuel cell power generation principle at work within the cell stack

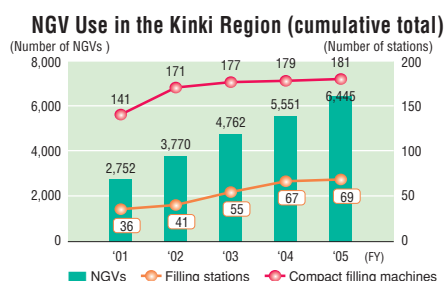


Generating electricity through a reverse process of electrolysis

Promoting Natural Gas Vehicles

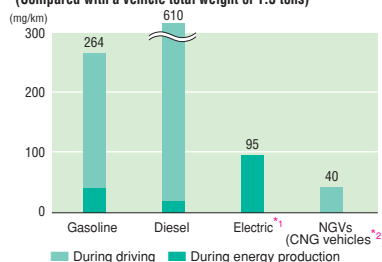
Promoting the Use of NGVs both Inside and Outside the Company

Natural Gas Vehicles (NGVs) are clean vehicles that run on natural gas, and Osaka Gas has been promoting the spread of their use. At the end of March 2005, the number of NGVs in the Kinki Region had reached a cumulative total of 6,445 (24,263 nationwide), with 69 natural gas filling stations (288 nationwide). We have gradually been switching over to NGVs for our company vehicles as well.

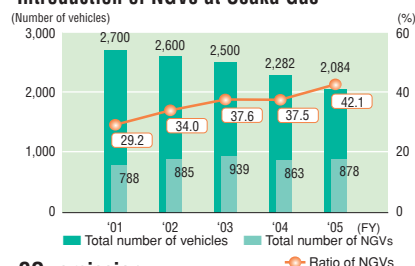


NOx emission

(Compared with a vehicle total weight of 1.5 tons)

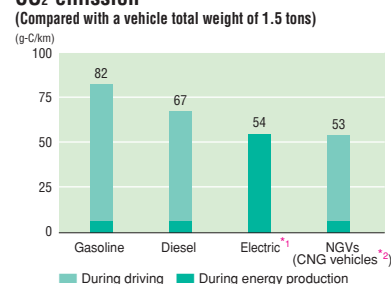


Introduction of NGVs at Osaka Gas



CO₂ emission

(Compared with a vehicle total weight of 1.5 tons)



Source: Extracted from Proposals for Mass-Diffusion of Low-Pollution Vehicles (1994) by the Environmental Information Center
 *1 Based on emission factor of power generation for Metropolitan Areas. *2 CNG means Compressed Natural Gas.

Promotion of Resource Recycling

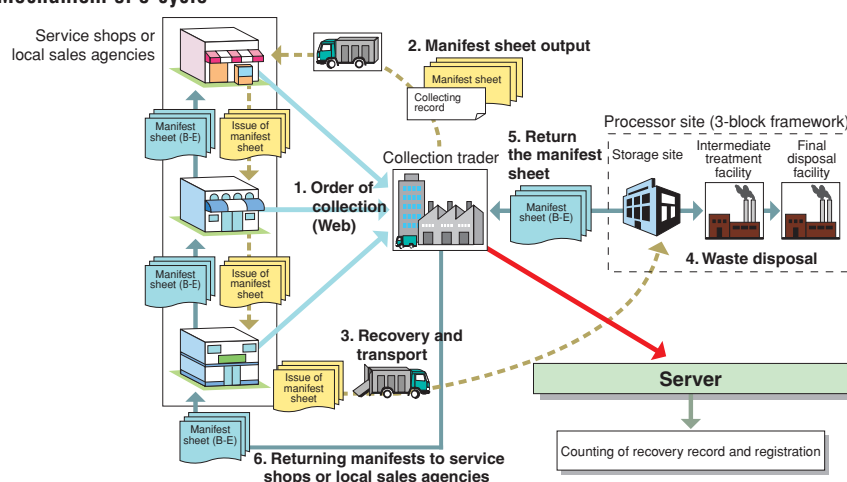
The “e-cycle,” a Waste Collection/Disposal Control System

Osaka Gas re-examined the collection and recycling system for used gas appliances that had been implemented in 1977, and developed “e-cycle,” which was introduced in February 2004. “e-cycle” is an Internet-based information system for industrial waste recovery and disposal control. We are also currently planning to improve a system for recycling and proper disposal of waste that is generated in gas appliance and pipe sales and installation.

In addition, we are making efforts toward proper disposal/recycling of our residential-use gas air conditioners, which are subject to the requirements of the Home Appliance Recycling Law. Our rate of refurbishing of recovered

appliances was 80% in FY2005 (as opposed to the legally mandated 60%).

Mechanism of e-cycle



Efforts on Eco-design

Compliance with RoHS

Restrictions on Hazardous Substances (RoHS) sales regulations on electrical equipment that contains chemical substances are going to be enacted in

Europe. Through the Japan Gas Association, Osaka Gas is encouraging gas appliance manufacturers to reduce the use of hazardous chemicals in gas

appliances as has been done in the case of home electric appliances.

Efforts at Affiliated Companies II

Gas and Power Investment Co., Ltd. (GPI)

Comprehensive ESCO Services

GPI conducts the comprehensive ESCO services. Since 1998 it has contributed to energy conservation and CO₂ reductions by conducting 36 energy conservation audits, 4 Guaranteed ESCO^{*1} contracts, and 12 Shared ESCO^{*2} contracts. ESCO services were launched at 4 facilities in FY2005. In particular, the Kinki University

School of Medicine, which installed a cogeneration system in October, has reduced its primary energy use by 20,000 GJ and CO₂ emissions by approximately 2,000 tons annually.



The Kinki University Cogeneration System

URL <http://www.gasandpower.co.jp/>
TEL:06-6205-4557

^{*1} In this method, the client procures funds, and the energy conservation renovation costs are paid all at once up front. The facilities become the property of the client.
^{*2} The ESCO operator does the fund raising and owns the facilities. The client makes no up front investment.

Cogeneration Technology Service Co., Ltd.

Contributing to CO₂ Emissions Reduction Nationwide

Osaka Gas has been working for more than 20 years to promote the dissemination of natural gas cogeneration, reaching a cumulative capacity of approximately 1.3 million kWh. In June 2001 we established Cogeneration Technology Service Co., Ltd. so as to employ our accumulated know-how to further promote more widespread use of cogeneration throughout Japan.

Since its establishment, this company has worked with local gas businesses to reach the current level of 105 contracts with customers for 204,732 kW. For

example, at Yamaha in Shizuoka Prefecture, Cogeneration Technology Service Co., Ltd. propose the use of high-efficiency cogeneration combined with a switch to natural gas at the production facilities. This has contributed greatly to CO₂ emissions reductions by the client (10,100 t-CO₂ annually).

Cogeneration Technology Service Co., Ltd. will continue to contribute to environmental impact reduction and promotion of energy conservation focusing on cogeneration technologies.



Yamaha 11,640 kW cogeneration system

URL <http://www.cogene.co.jp/>
TEL:06-6584-8853

i Support Co., Ltd.

Resource Conservation through Paperless Strategies

Provision of the “i Support System”, which is designed to support improved efficiency in personnel-related indirect office work through the use of IT is one of i Support's main lines of business. This company supports clients in realizing work efficiency, cost reduction benefits, and also, by going paperless, resource conservation. By changing from a conventional system using paper and thereby eliminating pay slips and reducing the slips associated with year-

end adjustments, as well as by changing to automatic data searching and processing, landmark achievements in resource conservation are realized.

i Support will continue to work to develop and offer system functions and services that contribute to resource conservation.



URL <http://www.isupport.jp/>
TEL:06-6205-4763

Nissho Gas Kanto Co., Ltd.

Efforts to Disseminate “ECOWILL”

Since last year, the company has implemented a company-wide campaign to market ECOWILL. It is a gas appliance of vital importance as it greatly reduces environmental impacts of energy utilization. We have been conducting a PR campaign that consists of visits to customers using LP gas in the Kanto region along with more than 40 annual

events. We have also been promoting ECOWILL by providing product education and proposals through workshops for more than 100 of our LP gas distributors. We are engaging in activities such as tie-up events for large-scale housing developers in the new housing development business.



ECOWILL product explanation at the client's location

URL <http://www.nisshogas-kanto.co.jp/>
TEL:042-394-3810

Techno Green Co., Ltd.

Chemical-free Fertilizers and Natural Environment Studies

Techno Green contributes in its business operations to environmental conservation through environment-related technologies utilizing the potential of animals, plants and microorganisms. One example is the development of microbial materials facilitating the absorption of water and nutrients by plants to negate the damage of repeated cultivation. These are sold for agricultural

and gardening use. In addition, we developed and are selling a "Greening Mat (Zero Mat)," which is a mat seeded with native plants and trees that grow with the help of microorganisms without any chemical fertilizers. Furthermore, our staff specialists conduct studies and evaluations of the natural environment of the regions and worksites where we do business.



100 days after placement of a "Zero Mat"

URL <http://www.tec-green.jp>
TEL:06-6205-4713

Osaka Gas Chemicals Co., Ltd.

Production and Sales of Absorbent Carbon Materials

Osaka Gas Chemicals is contributing to global environmental conservation and environmental cleanups through the production and sale of its various absorbent carbon materials and products.

The company is developing and selling products that meet society's needs, such as primary products using high-performance activated carbon fiber-AD'ALL and activated charcoal, as well as absorbent carbon composite

technologies. Up to the present, activated carbon has been used in a broad array of applications, including filters for air purification systems, residential water purifiers, air conditioners at art museums and semi-conductor plants, solvent recovery equipment, and desulfurizing absorbent materials, and the range of applications is expected to continue to broaden. Osaka Gas Chemicals will continue to develop innovative technologies and offer creative products.



Water purifier using absorbent carbon materials

URL <http://www.ogc.co.jp/e/index.html>
TEL:06-6262-3427

Osaka Gas Engineering Co., Ltd.

Sewage Sludge Processing and Recycling

Osaka Gas Engineering has been working to disseminate our various environmental conservation and effective energy-use technologies. Of these, we have delivered our coke bed sewage sludge melting process to a total of 10 sites. In this process, sludge is decomposed and cooked using the exhaust

gases from coke superheated to 1,500°C and above. The sludge components that are not burnt are melted or converted to slag on the coke bed. This means that even toxic materials in the sludge are stably solidified so they may effectively be used in building materials, etc.



The coke bed sewage sludge melting process at the Osaka Aigawa Treatment Facility (Furnace No. 2)

URL <http://www.ogc.co.jp/english/index.html>
TEL:06-4804-2600

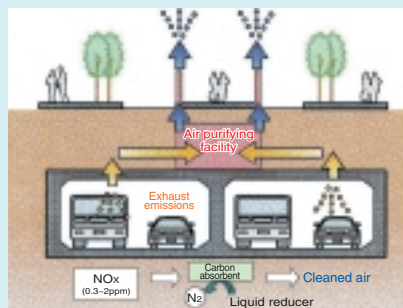
KRI, Inc.

Advanced and Leading-edge Technology Research Services

KRI engages in research and development, with one management goal being to contribute to society through the results of its environmental conservation research service projects.

In FY2005, KRI contracted for more than 100 research projects, one of which was for low-concentration ambient temperature denitration technologies. While NOx emissions from moving vehicles such as cars have been reduced through the proliferation of denitration catalysts, there is problem with accumu-

lation of low concentrations of NOx in enclosed spaces, such as tunnels and underground parking garages. Working together with Nishimatsu Construction, KRI developed a denitration system that absorbs NOx at room temperature and detoxifies it using carbon materials. Although compact in size, this new system has a guaranteed durability of 5,000+ hours. We expect further environmental conservation improvements through its proliferation.



Basic concept of purification system

URL <http://www.kri-inc.jp/index.e.html>
TEL:075-322-6830

Social Value — Environmental Activities Policy Ⅲ

● Contributing to Improving the Environment Locally, Nationally, and Globally

Development of New Environmental Technologies (Other than Gas Appliances and Systems)

The Osaka Gas Group conducts business spanning both energy (focusing on gas) and non-energy areas. We possess a vast array of environmental technologies within our lines of business, such as CO₂ reduction, disposal/effective use of waste, resource recycling, afforestation, and hydrogen energy technologies. The Osaka Gas Group will continue to contribute proactively to the development, deployment, and dissemination of superior environmental technologies at the local, national, and global levels.

Environmental Technologies Employing the Special Characteristics of Natural Gas

Development of Tri-generation for Industry and Agriculture

“Tri-generation” means making use of an engine’s heat exhaust in addition to electricity and heat (steam and hot water). We currently engage in the development of industrial and agricultural-use tri-generation. Industrial tri-generation uses the CO₂ in cogeneration exhaust to neutralize alkaline wastewater, resulting in reductions of CO₂ emissions at the textile plant where it is being field-tested as well as

broad reductions in the amount of sulfuric acid, which had been used as the neutralizing agent. In agricultural tri-generation, the CO₂ from cogeneration exhaust can be used to promote plant photosynthesis, which increases crop yields. Its use is therefore currently being tested in rose hothouses and hydroponic clover hothouses.



Industrial tri-generation
(alkaline wastewater neutralizing equipment)

Development of Melting and Detoxification Technology for Reduction of Incinerated Ash from Urban Garbage and Sewage Sludge

Much of incinerated ash that is generated from incineration at urban waste incineration plants and sewage treatment plants is disposed of at landfills. This has created problems, such as a shortage of dump yards and toxic substances contained in incinerated ash. Osaka Gas is developing a technology to melt incinerated ash by using

gas to reduce its volume, and at the same time make it harmless.

Also, we are looking into a chemical recycle that uses waste plastic as an oxidation agent, with results so far being reduction of acid gas emissions, melted slag improvement, and recovery of usable metals.



New Catalyst Technology for Flue Gas Treatment

Having succeeded in realizing a general flue gas treatment catalyst employing Activated Carbon Fiber (ACF), together with Mitsubishi Heavy Industries, Ltd. we established OMviro Co., Ltd., for production and sales of these catalysts. By employing a fine nanostructure on the ACF surface, we can continuously eliminate toxic SO₂ in the flue gas

emissions as sulfuric acid. These filters also simultaneously eliminate SO₃, which was problematic in previous designs, which contributes to a broad reduction in flue gas treatment costs. We delivered the first model using this catalyst in 2005.



ACF general flue gas treatment catalyst demo plant
Mitsubishi Heavy Industries Nagasaki Shipyards

Toward a Hydrogen Society

One of the hallmarks of hydrogen, which is garnering a lot of attention as the next generation clean energy source, is that it

can be manufactured from a variety of raw materials. Of these, natural gas is itself being looked to as clean, highly

efficient, and low-cost source of hydrogen.

Development of Hydrogen Filling Stations

Osaka Gas is currently engaging in hydrogen filling station technology development for supplying hydrogen fuel for the Fuel Cell Vehicle (FCV) we are hoping to make a reality. Our national hydrogen filling station project continued

in FY2005 with safety testing and research concerning leaking and other issues, as well as with durability testing of equipment for producing hydrogen from natural gas.



Filling up a Daihatsu Fuel Cell Vehicle

Commercialization of Compact Hydrogen Production Equipment

Osaka Gas has commercialized HYSERVE, our hydrogen production equipment that has realized a 50% size and cost reduction in comparison to our previous model. The HYSERVE 30 was awarded the FY2005 Engineering Merit Special Prize (of the Engineering Advancement Association of Japan) for achieving a hydrogen production

capacity of 30Nm³/h. In FY2005 we began selling a 100Nm³/h production capacity model. We proceed with development of 300Nm³/h equipment, and we intend to maintain our full-scale development efforts in all areas, from the industrial hydrogen market to future hydrogen filling stations.



Using New Energy and Biogas

Cogeneration Technologies Using Biogas Electricity

Biogas is generated at sewage treatment facilities, food processing plants, animal waste treatment facilities, and other similar venues. Osaka Gas is developing biogas cogeneration that converts biogas into electricity at a high efficiency rate of roughly 37%. In

FY2006 we operated at around 18,000kW*. We are also looking into the possibility of using biogas in natural gas vehicles.

* Accumulation since 2001

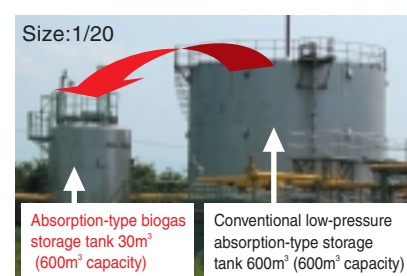


Systems for Effective Biogas Use: Absorption-Type Gas Storage Technologies

One technology under development by Osaka Gas that contributes to the effective use of "carbon-neutral"* biomass energy is a high-efficiency, effective system for biogas refinery and storage tanks using absorptive materials. Development of this technology will

lead to more efficient, space-effective, and lower-cost design, construction, and operation.

* Feature has no effect on carbon dioxide levels



Absorption-type storage tanks use 1/20 the space for the same 600m³ volume.

Development of New Environmental Technologies (Other than Gas Appliances and Systems)

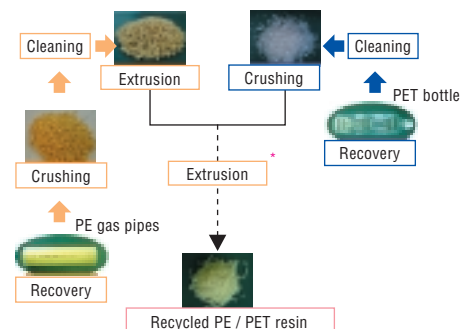
Efforts toward Future Technologies

Development of Composite of PET Bottle Waste and PE Pipe Waste as Material for Gas Appliance Parts

As awareness is growing of the need for recycling, Osaka Gas is developing technologies that produce high-added value recycled plastics by combining gas PE pipes waste with PET bottle waste using our resin compounding technology * (see diagram at right). We

introduced this compound in the case for electric controls of our tabletop stove, and we are developing technology for similar application in the improvement of plant origin resins.

* Special melting technology is utilized to compound PET with PE.

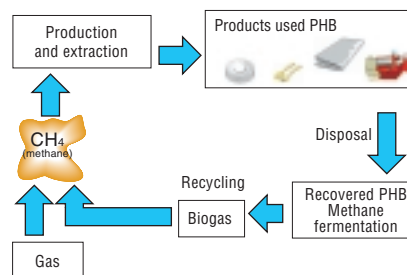


Development of Recyclable, Biodegradable Plastics

Biodegradable plastics that are more environmentally friendly than those used up to now are gaining attention. Of these, a PHB (polyhydroxy butyrate) compound combining ingredients from natural gas and biogas processed

from raw garbage can be easily recycled because it can be used again as raw garbage to create biogas. Osaka Gas is also developing technology for low-cost production of high-quality PHB using biotechnology.

PHB production and recycling



Contributing to Environmental Technologies Overseas

Australia: Afforestation Project Launched in 2001 Continues

Osaka Gas paired with Mitsui & Co., Ltd. to launch a eucalyptus planting project in Australia in 2001. By 2004, approximately 400ha had been planted. This was the first such project undertaken by a Japanese gas company. While one goal of this afforestation is the gaining of raw materials for

paper manufacturing, the planting of trees on what had been pastureland has the effect of increasing the CO₂ fixing effect, thereby helping to reduce global warming. The plan is to plant 100ha of trees annually in a 1,000ha area in two ten-year cycles.



Afforestation business, steadily converting plains to forest

Indonesia: Use of VA Mycorrhizal (VAM) Fungi in Afforestation Technology

We have worked with the Indonesian Science Institute and the Indonesian Ministry of Forestry to develop afforestation technologies for rain forest areas (acidic soil) using VA mycorrhizal (VAM) fungi, which are microorganisms that promote plant growth. Up to the present, we have confirmed a triple growth rate for acacia and eucalyptus in our 18ha growing area. We have also established large-scale VAM fungi production tech-

nology adapted to the region, and have completed our technology transfer.

The Indonesia Ministry of Forestry is currently planning to apply this technology in the restoration of natural forests in the Bodogol Region of Java, which were ruined by deforestation. Osaka Gas will provide technological follow-up for this project.



Site of the upcoming natural forest restoration project of the Indonesia Ministry of Forestry

Social Value: Compliance, Information Disclosure, and Contributions to Local Communities

● Fulfilling Our Social Responsibilities

Compliance

Promoting Compliance

Osaka Gas Group Code of Conduct

Osaka Gas established the “Osaka Gas Activities Policy” in October 1998 with the goal of fulfilling our mission as a public utility and fostering understanding of our corporate activities on the part of society, communities, and especially our customers. In addition, we established the “Osaka Gas Group Code of Conduct” in February 2000 as the clear-cut standards of conduct to be upheld by all Osaka Gas Group directors and employees. 15 items are covered, including respect for human rights, environmental conservation, maintenance of product safety, and fair trade practices. The Code has since been revised three times for further improvement.

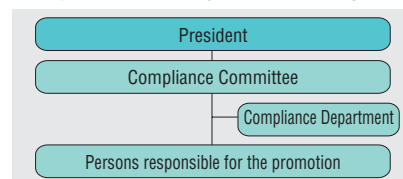
Compliance Promotion Structure

Osaka Gas has established the Compliance Committee made up of Osaka Gas Directors, Presidents of core companies, labor union representatives, and knowledgeable outsiders. The Committee conducts deliberations on compliance policies and measures, while monitoring the compliance situation. The Compliance Dept. takes the role of the secretariat and is tasked with responsibility for compliance promotion, while each Osaka Gas organization and affiliated company selects an employee with responsibility for the promotion of compliance.

Internal Education, Survey, and Reporting System

We hold annual compliance training to ensure that it permeates and takes hold in our system. In FY2005, roughly

Compliance Activity Promotion System



6,300 employees had participated. In FY2006, we will focus on the training of 7,500 employees that have not yet participated, with our plan being that all employees complete training. We regularly monitor the compliance situation through employee questionnaires, training for newly-appointed managers and supervisors and new employees, and Compliance Seminars. We also established our Internal Reporting System for Compliance in FY2004, which handles roughly 30 requests for consultation annually.

Protection of Personal Data

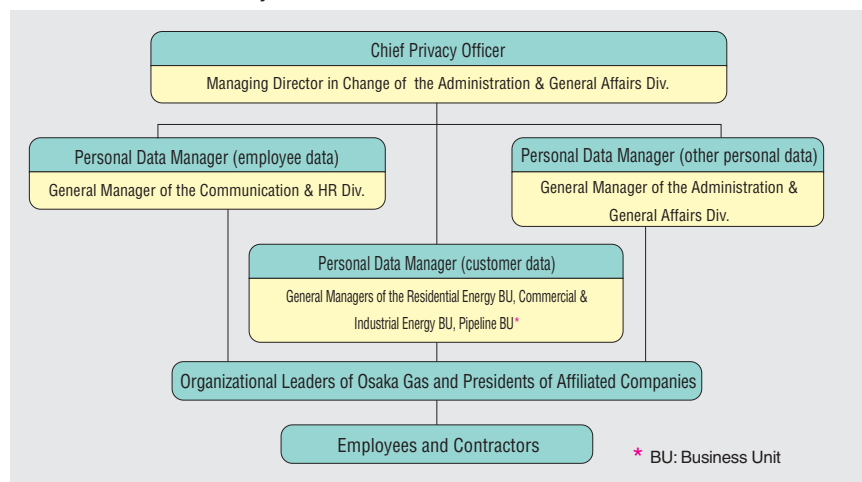
Basic Policy

The Osaka Gas Group treats all customer information as personal data from the outset, and we work hard to protect that data and perform all controls as stipulated by the Act for Protection of Computer Processed Personal Data and the guidelines issued by the Ministry of Economy, Trade and Industry.

Implementation of an Array of Safety Measures

We have been working in various ways to control personal data, through the internal regulations we established and our compliance training. In April 2005 we continued in our efforts, responding to the all-out enforcement of the Act for Protection of Computer Processed Personal Data by revising our internal systems and regulations. This was announced as our “Privacy Policy Concerning the Handling of Customer and Shareholder Data”, and it sets forth the policy on the handling of personal data, including aims of its use, provision to third parties, and requests for disclosure. In order to

Personal Data Protection System



prevent accidents, such as the leakage of personal data, we have constructed a system of organizational, personnel, and technological safeguards, in which all of our employees and contractors are well-versed.

Internal Awareness Training

We have composed internal regulations that are set forth in a manual,

and conduct internal education. All employees are familiarized with the items to consider when dealing with personal data.

Promotion System

Chief Privacy Officer (CPO) leads the system of Personal Data Managers responsible for the protection of personal data.

Information Disclosure

Our Information Disclosure Policy and Disclosure Medias (Booklets and Internet)

The Osaka Gas strongly endorses a policy of information disclosure in an appropriate manner. The group's principle is to facilitate public understanding about its activities through disclosing information so that we will be recog-

nized by our customers, shareholders, and other stakeholders as a business entity open to the society. We publish our "Corporate Profile" for the general readership and our "Annual Report" and "Business Reports" for our

investors and shareholders. Please refer to our website for details.



<http://www.osakagas.co.jp/indexe.htm>

Contributions to Local Communities

Philosophy

As a corporate citizen, the Osaka Gas Group seeks to coexist with everyone in our local communities. We hope to contribute through our business activ-

ities to creating a society in which everyone can lead comfortable and rewarding life.

Community Activities

Our corporate volunteer program, "The Small Light Campaign", was inaugurated in 1981 (the International Year of Disabled Persons). We have engaged in a variety of activities through this campaign over the past

20+ years, which forms the base of the Osaka Gas Group's social contribution activities. We are also devoted to issues such as youth education, welfare, and environmental awareness.

Activities

"The Small Light Campaign"

- * Youth education support
- * Support for the elderly
- * Support for handicapped self-sustaining
- * Encouragement of environment awareness
- * Promotion of culture in the Kansai Region



Children's Theater

We invite children from child welfare facilities to musicals with the theme, "Love, Dreams, and Courage" (1987~)



Helping the elderly get out of the house

We created an elderly-support NPO to assist the elderly, who tend to have few chances to get out of the house, to go out and enjoy the scenery of the seasons. (1996~)



Midosuji Neighborly Bazaar

Handmade items from cooperative handicapped facilities are on display for sale at this charity bazaar held in front of our Gas Headquarters as part of our efforts to deepen understanding of the handicapped to many people in our community. (2000~)



Clean & Walk

This is a cleanup activity that we hold annually together with everyone in the local community, with the goal of "helping to create a beautiful, litter-free town". (1985~)

TOPICS Forest Conservation: "The Osaka Gas Forest"

Osaka Gas has teamed up with the Osaka Gas Labor Union for forest environmental conservation through the "Company Forest /Union Forest" business promoted by Wakayama Prefecture. In March 2005, 100 employees participated in planting 2,600 broadleaf (quercus serrata, sawtooth oak,

zelkova, mountain cherry, etc.) seedlings in the forests (1 ha) near the Kumano Old Road in the Kii Mountain area. In the future, we will work to get the cooperation of the Nakahechicho Forest Association for efforts toward nurturing the trees (cutting the grass around them, etc.).



"A View of the Osaka Gas Forest"
Carefully digging and planting each seedling, one by one

Osaka Gas Group Welfare Foundation

On the 80th anniversary of the founding of Osaka Gas in 1985, and in appreciation for our customers, we established the Osaka Gas Group Welfare Foundation. We have since been working on two projects involving senior citizens. In our assistance program, we are supporting community-based programs and social participation support activities aimed at senior citizens, along with research and studies aimed at enhancing their quality of life and maintaining and

improving their health. In our Keeping Fit Program, we are pursuing activities that help senior citizens stay healthy and lead fulfilling lives. These include



Song Square

health classes and workshops, healthy cooking lessons, walking events, and other activities to improve the life of senior citizen.



"Life Savings" exercises



<http://www.osakagas.co.jp/com-s/htm/welfare.htm>

Osaka Gas Foundation of International Cultural Exchange

The Osaka Gas Foundation of International Cultural Exchange was established in September 1992 for the support of education in natural gas-producing countries. We provide support

in four areas educational materials, R&D, scholarships, and training. Over the past 13 years support has been given in approximately 250 regions and schools.



http://www.osakagas.co.jp/com-s/htm/foreign_e.htm



Indonesian technical school students using donated equipment

Support for Environmental Education

Our Activities and Results

The Osaka Gas "Gas Science Museum" (in the Senboku Terminal) and the Himeji Gas Energy Hall (in the Himeji Terminal) focus on providing primary schoolchildren with extracurricular learning opportunities pertaining to energy and the environment. We also provide the "Class Delivery

Service" to a much broader group, from primary school through the university level. Community events are held at each location, with environmental awareness activities concerning matter such as basic energy conservation methods at home.

Environmental Education Results (2004/05)

Targets	Number
Elementary school	40,335
Junior high school	2,380
High school / vocational school	1,749
Adults / other	30,312
Total	74,776



Gas Science Museum

The museum was opened in October 1982 as a general science museum for gas and energy. It was the first such museum opened in Japan.



Gas Science Museum

Children have fun learning about gas.



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



Environmental education at school



Himeji Gas Energy Hall

Having fun learning about the planet, science, and energy, with "the global environment and natural gas" as the basic concept.



Himeji Gas Energy Hall

Participatory exhibitions and PC-based visual explanations are used.



<http://www.osakagas.co.jp/community/enekan/>



Educational pamphlets

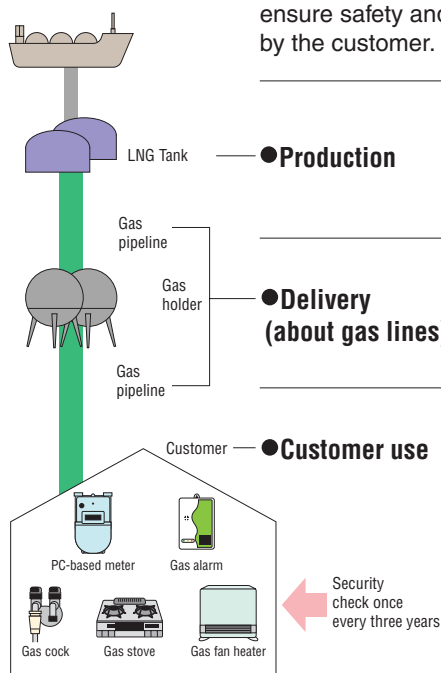
Customer Value — Always Seeing from the Customer's Viewpoint

● For a Comfortable Life for Our Customers and Business Development

To All of Our Customers

Stable, Safe, and Secure Supply

We at Osaka Gas strive to provide all of our customers with a stable supply of gas. We also seek to ensure safety and security at every step in the process, from gas production through delivery and use by the customer.



●Production

Prevention - Early detection - Containment

There are three pillars to our 24-hour security structure. "Prevention" means we maintain sufficiently durable facilities for withstanding damage when disasters, such as earthquakes,

occur. "Early detection" is our strategy employing monitoring systems and detectors in case there is a leak. The third, "Containment," relies on our disaster-prevention equipment.

●Delivery (about gas lines)

24-hour security system

We have constructed a security system that functions 24 hours a day, 365 days a year so that we can provide our more than 6.7 million

customers with safe gas delivery. We seek to strengthen our safety measures by conducting drills and facility reinforcement.

●Customer use

Providing safe equipment and gas appliances

We provide our customers with safe home use of gas through our development and dissemination safety equipment such as PC-based meters, excess flow-preventing gas cocks, and gas alarms. We have also worked hard to develop and disseminate gas appliances with safety mechanisms, such as hotplate burners with pilot safety devices, overheating prevention functions for deep frying oil, and mechanisms for blocking gas flow when gas fan heaters tip over.

Gas facility inspection

By law, gas companies are required to pay a visit to customers to check for gas pipe leakage and to inspect equipment air intake and flue ventilation (gas water heaters, etc.). Depending on the location of the air intake and flue ventilation and the gas meter, inspection may occur with the customer present, or it may take place outside the building. After inspection we provide an "Inspection Report" and a pamphlet for the safety use.

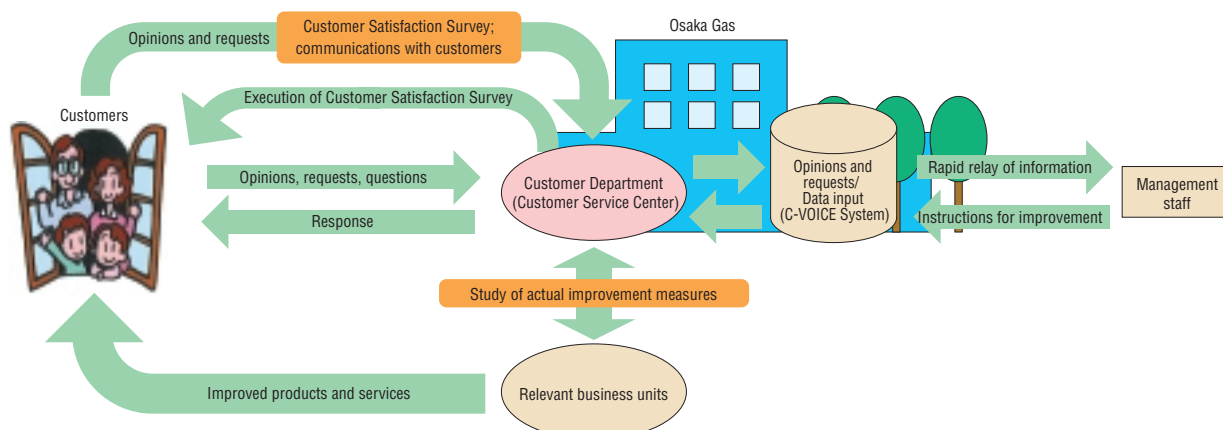
Aiming to Improve Customer Satisfaction

Improving Our Operations Through Customer Feedback

Osaka Gas is improving the operations by listening to our customers. We conduct "Customer Satisfaction Surveys" to find out how customers evaluate our services, and act quickly to find out what the issues are and

seek a solution. We also operate our "C-VOICE System" throughout our company to share the views and requests expressed by customers through the Call Center (Customer Service Center). The views of

customers are immediately relayed to management staff, who work with the relevant business unit to provide services that will satisfy the customer.



Variety of Fee Menu Service

As gas prices continue to keep the current level, we focus on the following:

1. Comprehensive administrative cost reductions
2. Development of gas demand by improving equipment efficiency, such as residential-use floor heaters, gas air conditioners, cogeneration, etc.

We also plan to expand our diversified fee menu. A wide range of fee sched-

ules are on offer to the 270,000 homes we service.

For example, the gas fee for customers using gas hot water floor heating will be specially designated as "Hot Fee", while customers using "ECOWILL" will be served with a "Home Eco Fee". Other examples include a "Residential Air Conditioning Fee" for those using gas heating and cooling, and a "Total Discount" plan for customers using a combination floor

heating + bathroom heater/dryer + gas stove set.

As of July 2005 we will also be offering "Residential High-Efficiency Water Heater Contracts" to our residential customers for latent-heat recovery high-efficiency water heaters (ECO JOZU). We offer fee contracts with optional clauses to our commercial and industrial customers as well.

For Our Residential Customers

We provide clean, comfortable, economical and safe life.

Offering the Good Life

Kitchen Life

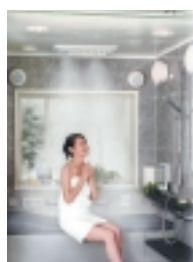
Osaka Gas offers a range of helpful appliances, from our powerful, economical, safe, and convenient gas stoves through our gas high-speed ovens, rice cookers, dish washers, and other fine products. We strive to offer "good taste" and "home energy conservation".



Kitchen Life

Bath Life

A full tub of hot water from our gas hot water heaters "relieves and washes away daily stress". Our bathroom heater/dryer, "KAWACK", is always available for drying, warming, and mildew prevention in the bathroom. Our "Mist Sauna KAWACK" for health and beauty went on sale in April 2004.



Mist Kawakku

Heating and Cooling

We offer comfortable heating and cooling for the entire home with diversified products ranging from the NOOK underfloor heating system that provides a "heads cool and feet warm" environment, through powerful and economical Gas Fan Heater, and Housing Multi central heating/cooling system.

Home Power Generation

The "ECOWILL", which produces electricity from gas and uses the exhaust heat effectively to produce hot water. (Please see page 26.)

Offering "IRUSU" Home Security

"IRUSU" is a home security that uses the internet circuits provided by NTT Western Japan, and is linked to the consumer by cellular phone. It provides for defense against crime through its 24-hour safety and security features, and also has home automation functions for a new level of home life comfort.

Osaka Gas DILIPA Residential Showroom

DILIPA is the Osaka Gas all-around residential showroom where a variety of living plans for "Good Life" can be seen and experienced. It is an enjoyable experience for family members of all ages, from children to adults.



Inauguration: November 1991
(renovated and reopened July 2005)
Senri-Banpaku Kouen,
Suita City 565-0826 (Tel: 06-6878-8061)

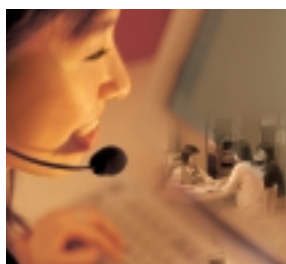
For Our Residential Customers

Aiming to Improve Our Level of Service

Our “Hello Service” for Safety

We operate our Hello Service System so that customers can enjoy confident use of our gas and appliances. Hello Service also serves to handle “order and dispatch” times when requests are made for repair of equipment and other matters when gas service is being initiated. We have constructed a computer system called the “Hello Network” to support this service, and our comprehensive Customer Service Center is improving speed and certainty by relaying requests and

queries to the proper business units via this network. We also develop “Internet Customer Service Center”.



A receptionist at the Customer Service Center

Rate of Prompt Completion for Gas Appliance Service

We strive for a service completion rate for Osaka Gas-brand products of “the date desired or one day later” (0-1 completion rate). We also make all efforts to improve both the skills of our service technicians and our system for personnel assignment and parts distribution. (In FY 2005 we achieve our 0-1 completion rate target of 90%.)

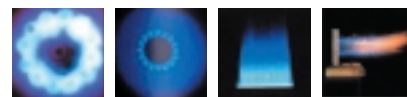
For Our Commercial and Industrial Customers

Expanding the Applications of Natural Gas

At Osaka Gas, we contribute to energy conservation and environmental impact reduction by encouraging the switch to natural gas through the development of new burners and furnaces for commercial customers currently using diesel and

similar fuels. Other ways we are expanding the applications of natural gas is through the ever-growing popularity of gas air conditioning due to developments in high-efficiency GHP/ gas absorption chiller/heaters, and the ever-expanding development

and use of low NOx/low CO₂ natural gas vehicles.



Custom burners

Proposing Energy Solutions

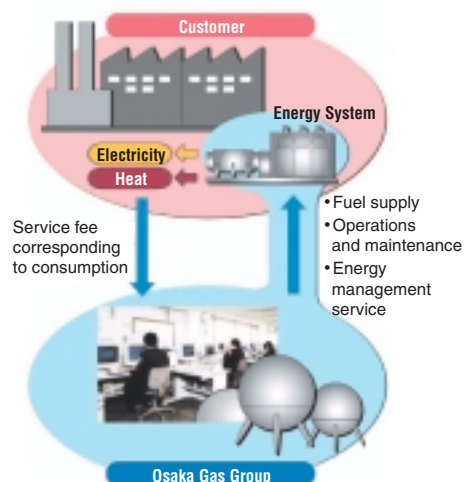
In addition to customized technology development and engineering designed to meet the multi-layer, diverse needs of our commercial and industrial customers, we at Osaka Gas also offer a diverse Energy Solution Menu.

For example, EcoWave is power generation-linked service with gas facilities at the customer's site corresponding the fees to energy consumption. For customers wanting to limit new investment and not desiring to increase fixed assets, a cumulative sales amount of 344,016 kW (44 cases) has been achieved. Our remote monitoring and operating IT technology, “Sky Remote (using GHP)”, for the gas facilities of widely dispersed sites is receiving high marks

from owners wishing to conduct all such operations under an integrated system. We offer a comprehensive package of facilities, funding, and personnel required for improving energy conservation. In addition, we have up to now started 12 ESCO businesses, which cover all of the expenses of reducing utility bills as business requires.

“Security” is another of Osaka Gas' important solutions. We offer an order-made inspection menu corresponding to the needs each of our large-scale customers, one at a time. In addition, we offer a 24-hour back-up to those customers who never shut down their facilities.

EcoWave Power Generation-Linked Energy Service



Employee Value — Employee Satisfaction at Work

● Creating Comfortable Work Environment

Our Personnel System: “Management for Personal Growth” the Philosophy

The Osaka Gas Group promotes management that fosters employee individuality and self-control.

Osaka Gas Group employees always strive to acquire skills and awareness, and work to create new value corresponding to our customers' needs. The employees and the company work together in a spirit of trust and sensitivity to nurture a sound organization.

Providing Opportunities to Demonstrate Abilities and Appropriate Evaluations

The philosophy of the System

1. Emphasize employee results
2. Let employees make their own decisions
3. Maintain high level of transparency
4. Give employees flexibility

Based upon this philosophy, we are able to conduct fair and transparent evaluations and assignments, and create a personnel system that allows for a good work environment and corresponds to a diversity of value systems and lifestyles.

Evaluations and Assignments

We conduct a “personnel rating” based on “results evaluation” and “ability evaluation” that is reflected in the work duties.

Employee Opinion Polls

We conduct regular opinion polls of employees. The results are reflected in personnel measures.

Self-Realization Leave System

It is possible for employees to take leave of up to 4 years to pursue volunteer endeavors or gain qualifications.
FY2005: 11 employees on leave

Job Posting System

Anyone in the Osaka Gas Group can apply for job challenging to new business.
FY2005: 20 cases

Human Resource Development

Human Resource Development Policies

1. Develop “high-value personnel” that will bring competitive advantage to the Osaka Gas Group
2. Promote the development of self-starting personnel that are able to think and act for themselves, and support career development (employability improvement) based on personal responsibility.
3. Swift and deliberate development of imaginative and innovative personnel (leaders)

The above policies are for expending efforts in the development of professionals that are strong in business affairs.

Stage by Stage Training

Training is conducted at suitable occasions during company life, based upon duties and qualifications.

Management Training

Supervisors essential to the operations of the organization will receive training to enhance the management level.

Leader Training

We strive for rapid and deliberate development of leaders who will be the source of future innovation.

Assistance for Self-Learning

“Challenge Seminar” training (open to all)
28 courses, 505 participant

Balancing Work and Home

Creating a Comfortable Work Environment

In seeking to create a work environment in which employees can work without anxiety, we established the “Labor and Management Promotion Committee” to deal with “working hours” and “supporting a balance between work and home”. Also, in FY2005 the labor union and the company co-sponsored a “Work/Life Balance Seminar” for efficient use of working hours.

Receipt of the “Family Friendly Corporate Award”

We received the 2001 “Family Friendly Corporate Award” from the Ministry of Health, Labor and Welfare.

Childcare/ Nursing Leave System

Any employee, male or female, is entitled to take “Childcare Leave” from the time their child is born until the month of the child's third birthday, and a maximum total of 366 “Nursing Leave” days may also be taken. Additionally, we have plans such as “Childcare Half-Employment”, “Short Working Hours System for Childcare”, “Leave to Care for Sick Children”, and “Short Working Hours System for Nursing.”

Our Personnel System: “Management for Personal Growth” our Philosophy

Our Employment Efforts

Employment Policy

Osaka Gas maintains a policy of practicing fair and equal employment practices. The company seeks individuals with the following qualities;

- (1) High motivations and abilities to make proper judgments,
- (2) Ability to seek self-improvement through work,
- (3) Having spirit of overcoming professional challenges.

Employment Status.

Number of Employees: 5570

Average Age: 41.3

Average Years of Service: 19.9 (end of March , 2005)

Number of New Graduates Hired: 77 (as of April, 2005)

Note: Workers on loan are not included.

Hiring of the mentally and physically challenged

We make proactive efforts to hire the challenged. Besides hiring the legal quota, we also have made efforts toward a more barrier-free workplace.

“Second life” support and re-hiring system

We have established a Career Development Center within the Human Resources Department, to support “Second life” of our employees. For employees who wish to continue working after their retirement at 60, we have a system that allows those who satisfy certain work requirements to continue working part-time until 63 years old.

Creating equal employment opportunities

Our system complies with the spirit of the Equal Employment Opportunities Law, with no sex discrimination in our hiring, assignment, duties, or training policies.

Respect for Human-Rights

Principle of Promoting Human Rights

The Code of Conduct of the Osaka Gas Group sets forth the principles of its behaviors as good corporate citizens in which we expect our employees to adhere to respect for individual and human rights. We are making the group-wide efforts to disseminate the principles in order to establish a culture of honoring rights of individuals.

Human Rights Awareness-raising Promotion System

The Human Rights Awareness Center established in the HR Department is the secretariat and origin of the Company-wide Human Rights Awareness Raising Committee. This Center is charged with human-rights promotion activities for the Osaka Gas Group as a whole, in cooperation with Human Rights Awareness Promotion Committee in each division and group company.

Preventing sexual harassment

We have established a sexual harassment consultation section in the HR Department, and each division has a person to coordinate activities. We also train newly appointed managers, and provide sexual harassment education in each workplace.

Human rights education & training courses

The Osaka Gas HR Department provides training on human rights, designed for all company employees, as well as programs within each organization conducted by Human Rights Awareness promotion leaders from the various divisions. From members of the board to newly employed people, each level has a human rights training and education program.

Creating a Pleasant Workplace

Health and Safety Policy

- (1) Organizational efforts have been made to establish and to maintain high levels of health and safety in the working environment of our employees.
- (2) Not only limited to physical safety, the Osaka Gas Group works positively to promote mental health of employees respecting their qualities to prompt their self-help for improvement.

Health and Safety Management Organization

We and our affiliates engage in proactive safety and health activities with the goal of ensuring the safety and health of our employees. Our Safety and Health Management Organization plays the main role in promoting these measures.

Safety activities

The Osaka Gas Group maintains its own internal rules and manuals on safety in order to achieve the maximum level of safety in the workplace. In driving the company vehicles, for example, employees are required to obtain in advance the internal driving permit established on the basis of these rules.

Mental and physical health

We provide individualized advice for employees over the age of 35 based on testing, conducted at clinics for early detection and prevention. We also make concentrated efforts in the area of mental health.

Third Party Reviews

There are two kinds of third-party reviews on environmental report: (1) those for qualitative evaluation or advice, and (2) those for quantitative verification. This time, we have gathered opinions from four experts according to each major for type (1) review. For type (2), we asked Institute

for Environmental Management Accounting (IEMA) to examine our report focusing on the status of environmental management system utilization, environmental impact data and environmental accounting data collection system, and express its opinion based on the results.



Katsumi Makino
Chairman, Committee on Energy
and the Global Environment
Osaka Gas



Katsuhiko Kokubu
Professor at Kobe University;
Director of IEMA

Evaluation and Comments on Environmental Management and Activities

July 19, 2005

To: Osaka Gas Co., Ltd.

From: Institute for Environmental Management Accounting
Katsuhiko Kokubu (Director/Professor, Graduate School of Business Administration, Kobe University)
Eriko Nashioka (Director/Certified Public Accountant)

1. Purpose of the Reviewing

As a third party not involved with the business of Osaka Gas Co., Ltd., we evaluated the environmental performance described in the "Sustainability Report 2005," which Osaka Gas Co., Ltd. prepared, and hereby express our opinion on it, for the purpose of improving its credibility.

2. Procedures

In order to ensure the reliability of information that is presented in the "Sustainability Report 2005," it was necessary for us to deepen our understanding of how environmental activities are planned and implemented, and environmental performance, which is the result of such activities and the basis of the disclosed information, is evaluated internally. To accomplish this goal, we interviewed Managing Director Katsumi Makino, Chairman of the Committee on Energy and the Global Environment, as well as questioned persons in charge and made on-site inspections. With respect to the responses and results, we examined whether actual steps were implemented as intended by the systems in place by reviewing supporting documents, starting with original vouchers and tracing a flow when necessary, and by sampling checks which are commonly used in financial audits. In order to construct our opinion, we made visits to the head office and the Senboku LNG Terminal.

3. Evaluation and Opinion

Osaka Gas has established appropriate quantitative goals for each important environmental conservation action, and has achieved sufficient results in their environmental management. We give high marks to the management system and the environmental management indicators in place for the attainment of environmental goals, in particular for their unique features. The new inclusion of employee value in the Management Philosophy and making it CSR management goal demonstrates a high degree of awareness. An important issue in the future will be expanding the environmental conservation activities of the Osaka Gas Group as a whole, and we believe that the key to this will be the deployment throughout the entire Group of the technology developed at Osaka Gas. In addition, the development of CSR management will also depend on improved communications with stakeholders and how the results of that are reflected in the management of the Osaka Gas Group. We found no serious errors in the calculation of environmental performance data during the course of our check.

<Environmental Performance>

1. Efforts made as a Group

Environmental efforts are being made by the Group companies as a whole, with examples of the acquisition of ISO 14001, and the goals of the planning and installation of Osaka Gas's own environmental management system. We hope that Osaka Gas itself, which is at the forefront of environmental initiative, spreads the same environmental actions conducted by itself throughout the Group.

2. Communication with local communities (Senboku LNG Terminal)

We give high marks to the way that the Senboku LNG Terminal to sustain ecology system in line with its policy of cherishing community life. Excellent relations are maintained with the local community, as is proper for a business with strong ties to the community. The burden of waste emissions data management at the terminal itself should be reduced through improvement in the data entry format and automatic data compilation, and management providing post-entry verification is also desired. While we believe this issue must be worked out in conjunction with Headquarters, improvement of the reliability of the data is important when using performance indicators for environmental management.

<Sustainability Report 2005 >

The Sustainability Report 2005 has been composed in line with the Management Philosophy, and we find it a readable report that makes good use of the internet. It does well in expressing Osaka Gas's corporate social responsibility concepts, and one gets the sense of their mission and resolve entering their 100th anniversary as a company with public nature and strong regional characteristics. We hope to see inclusion of the Group-wide information in the future.

On Reading the Osaka Gas Group Sustainability Report 2005

Efforts to prevent global warming

Sachiko Takami
Chief Executive
The Natural Step International, Japan

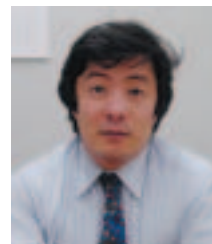


While natural gas is certainly cleaner than petroleum or coal, it nevertheless is a fossil fuel. I would like to see the Osaka Gas Group take up the challenge of transitioning to sustainable energy systems, to change from thinking about “How can we improve on existing products?” to “What strategy do we need at this time to quickly achieve the transition to sustainable energy systems?”

From that perspective, of Osaka Gas’s measures against global warming, the most interesting to me are district heating and cooling, utilizing water temperature differences, and the production of biogas from sewage treatment plants. Great advances are possible in both of these areas. In urban areas in particular, biogas has the potential for use not only in electricity generation, but also as a fuel for trains, buses, and automobiles. I look forward to seeing Osaka Gas take up these great challenges.

Resource productivity

Hiroyuki Tada
General Manager
Operational Quality Department
Sony EMCS Corporation



One important feature of Osaka Gas is the introduction of Environmental Management Indicators to measure the social benefit from the perspective of social value. Osaka Gas demonstrates its serious approach by quantitatively monitoring its environmental impact, including that of affiliated companies, evaluating its progress in achieving target values, and disclosing detailed information. My particular interest is in the notion of environmental conservation through its main business by promotion of its ECOWILL and the development of innovative technologies such as fuel cell cogeneration systems, as well as the development of a business model for a distributed energy society. I believe that more sustainable strategy would be to consolidate the four values outlined in the Management Philosophy, rather than take them as individual, separate concepts. It is my hope that Osaka Gas, as a forward-thinking company, will continue to give deep consideration to what kind of society will be sustainable, and to evolve its vision.

Consumer protection and product responsibility

Iku Hayashi
Director
Kansai Consumers Association



Traceability (product history) is connected to the creation of social value.

I have noticed that the word “traceability” has arisen in connection to the concept of corporate social responsibility as a keyword in the corporate scandals in recent years. Reading this Sustainability Report has reinforced my impressions concerning the importance of traceability.

The “Osaka Gas Group Code of Conduct” described in this report covers a broad array of subjects, such as product safety, consumer relations, fair trading, information disclosure, and the work environment. I give Osaka Gas credit for their assuming responsibility for all aspects of their business, from procuring the raw materials to the delivery of gas and equipment to every household. I would like to recommend that Osaka Gas, as an energy company, implement a special traceability system with inspections at all important stages, solicit third-party evaluation, and disclose the results.

CSR and Communication with stakeholders

Ichiro Mizuno
Professor of Accounting
Assistant Dean
Faculty of Commerce
Kansai University



The goal of becoming a “good corporate citizen” and thereby creating value is a strategic issue for the modern corporation. This year’s report, which is structured around the themes of social value, customer value, and employee value, has from that perspective with greater clarity. Osaka Gas has taken a timely approach by clarifying the company’s position and policies concerning compliance promotion and protection of personal data in the latter part of the social value section of the report. At the same time, nothing important has been omitted concerning measures dealing with the increasing importance of customers and employees as stakeholders. The most important improvement over last year is the greater size of the headings and readability of text. The inclusion of website addresses on every page in Japanese version does seem like a bit too much detail, and I hope that a more effective use of the new approach of linking to web-based information will be found.

Our Response to Suggestions and Opinions

(1) Regarding the Third Party Review conducted by the Institute for Environmental Management Accounting

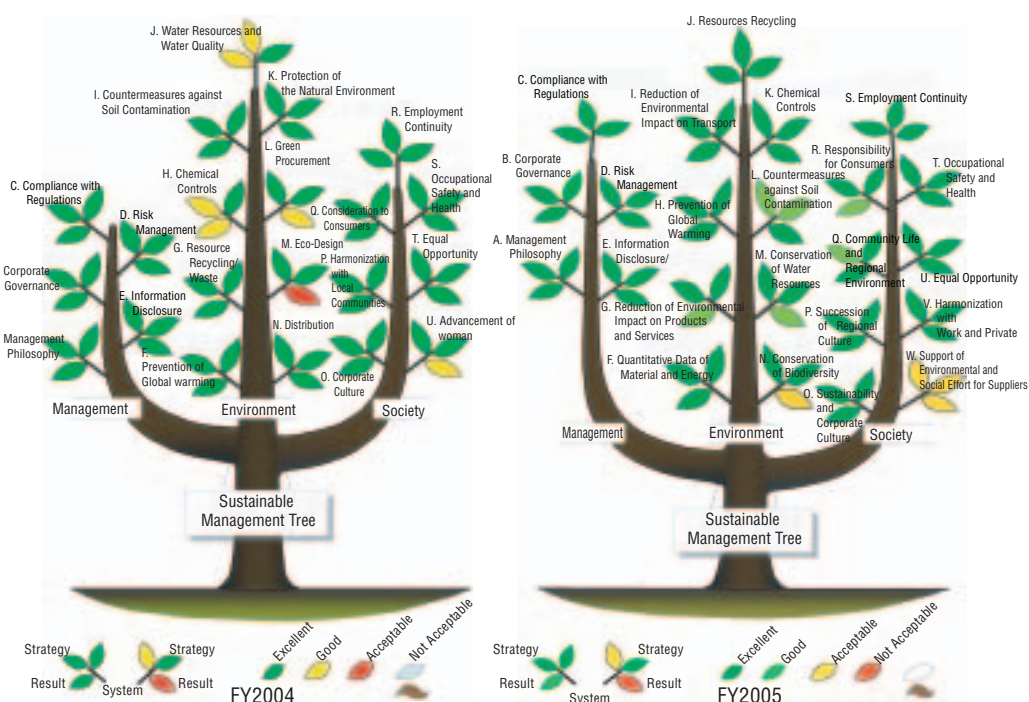
Opinion	Our Response
We hope that Osaka Gas will expand its environmental efforts to all of its affiliates and provide greater information disclosure.	The Osaka Gas Group will have installed EMS in each company by 2010, expanding our environmental efforts. In addition, we will also disclose more information.
We hope that communications with stakeholders will be improved, and that the results will be reflected in management.	We are operating the "C-VOICE System", which relays the opinions of our customers directly to our management (see p. 37). Also, we relay the opinions received from consultations with consumer groups to the relevant organizations. We will try to communicate with an even greater variety of stakeholders.
Please provide more accurate performance data for items such as wastes.	We are improving our system to avoid errors in data compilation and consolidate the compilation periods for all data. This will improve precision and allow the data to stand up to verification.

(2) Regarding the opinions expressed by four experts

Opinion	Our Response
Osaka Gas should take up the challenge of the transition to sustainable energy systems.	We engage to increase the popularity of our ECOWILL (p. 26), and to develop biogas cogeneration (p. 32), Tri-generation (p. 31), and PEFC fuel cell cogeneration (p. 27).
Osaka Gas should give consideration to what kind of society will be sustainable, and evolve its vision.	We contribute to making the distributed energy society a reality through our efforts to increase the use of our high-efficiency equipment and systems for natural gas supply, cogeneration, etc.
Osaka Gas should not limit its consideration to environmental concerns, and conduct inspections at all important stages for topics such as product safety, as well as solicit and disclose the results of third-party evaluation.	We continue in our efforts not only in the environmental field, but also in product safety, customer relations, fair trading, and the work environment. We also seek to disclose the opinions of third parties through this report.
Osaka Gas should find a more effective way of linking this report to the information available at its website.	We greatly expanded the links between the print version and the web in this edition. We will continue to improve readability and the means for data access.

Evaluation Results of the Environmental Management Rating

Continuing a process that began in 2003, we have again received an environmental management rating evaluation based on Sustainable Management Rating Institute. The evaluation covers 69 questions in three areas, *Management*, *Environment*, and *Society*. We received *Excellent* marks (green leaves) for 59 items, *Good* marks (light green leaves) for 6 items, and *Acceptable* marks (yellow) for 4 items.



Editor's Postscript

There is no question that the top environmental issue on this year's agenda was the enactment of the Kyoto Protocol on February 16. The efforts to prevent global warming thereby became even more imminent across the globe and in Japan, as well as in the industrial world and individual companies.

There was also no let up this year in reports of regional and unusual weather all around the world. While it is not the case that a link between global warming and the reports of unusual weather has been scientifically established, it is certainly true that we in the present time must assume responsibility and alter our behavior for the sake of the future.

We have explained our Corporate Social Responsibility (CSR) activities in this year's Osaka Gas Group Sustainability Report according to the four values embodied in our Group Management Principles, which were revised on the 100th Anniversary of the founding of Osaka Gas. Our Management Principles clearly shows the importance we place on environmental and social activities. In accordance with recent trends, which place greater emphasis on

performance of the corporate group rather than individual companies, we have expanded our coverage of Osaka Gas Group companies.

We tried to improve the design of this year's report by increasing the number of graphs and photos while reducing the amount of text. Our editorial policy also included improvement of overall readability and linkage of the detailed explanations to our website. Also, as part of our efforts to increase the reliability of this report and enhance communications with stakeholders, we underwent a simplified external audit this year as well, and also sought advices from four experts from different fields.

We will continue to work every year to create a more easily understandable, comprehensive, and reliable report. We would certainly appreciate suggestions from our readers about how we might publish a better report in the future.



Ritsuo Sakurai
General Manager,
Environment Dept.

August 2005

This year's cover design art is from a poster created by Shinsuke Ishihara of Faculty of Arts, Tokyo Polytechnic University. It was selected from among entries submitted in the "2nd Youth Eco Message Poster Design Competition" hosted by Global Environment Forum-KANSAI.

Design Your Energy 夢ある明日を



Osaka Gas Group Sustainability Report 2005

The Committee on Energy and
the Global Environment, Osaka Gas Co., Ltd.
Published in October 2005 (First edition)

4-1-2, Hiranomachi, Chuo-ku, Osaka 541-0046, Japan
For inquiries, contact the Environment Department on
+81-6-6205-4605



This brochure is printed on recycled paper with highly biodegradable soy ink that allows easy recycling of printed matter.