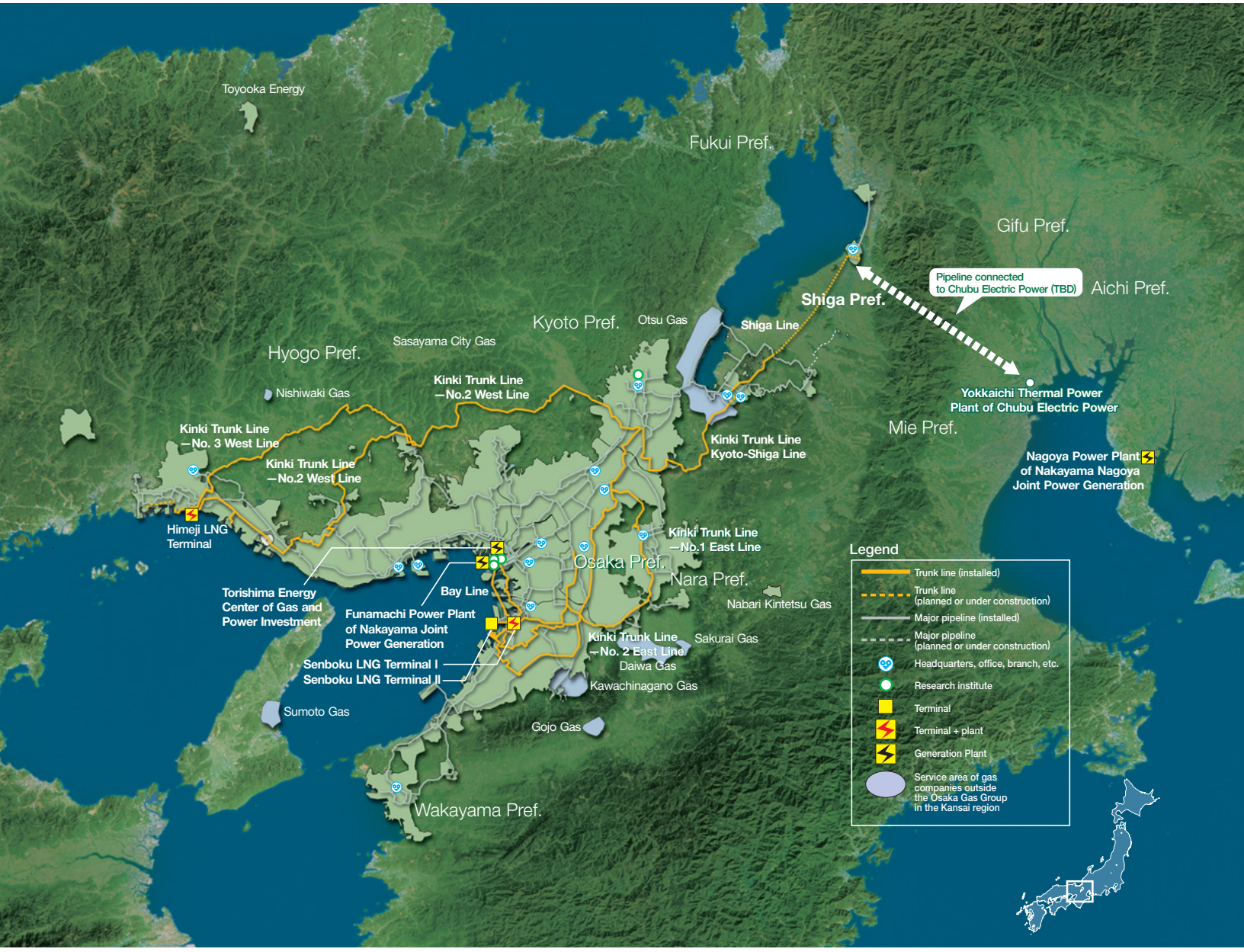
1 Natural Gas Segment



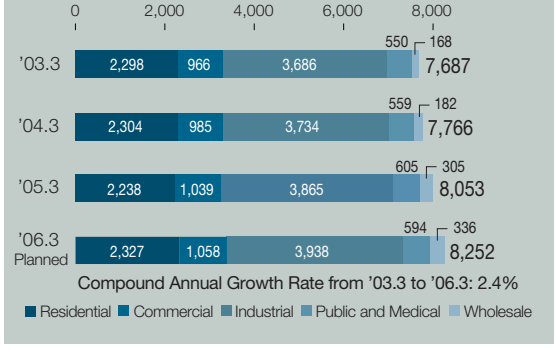
Service Area of the Gas Segment

With its gas sales volume of 8.05 billion cubic meters, Osaka Gas accounts for approximately 30% of total sales volume in Japan. Osaka Gas supplies gas to 6.6 million customers, which is approximately 25% of the nation's total.

While steadily expanding its service area, the Company currently supplies natural gas to customers residing in 72 cities and 38 towns in six prefectures of the Kansai region spread over approximately 3,136 square kilometers with gas pipelines extending about 55,800 kilometers as of March 31, 2005.

Gas Sales by Volume (Million m³ · 45MJ/ m³)

(Non-consolidated, including Toyooka area)



Characteristics of the Japanese Gas Industry

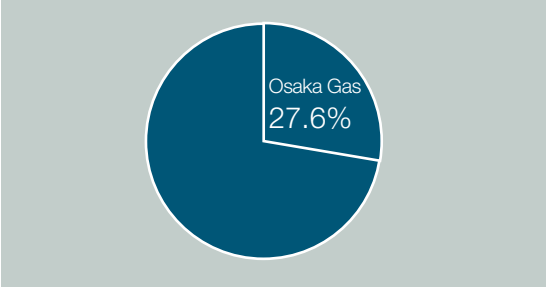
- While there are more than 200 gas companies in Japan, the market is dominated by a few major gas suppliers, such as Osaka Gas, which by itself accounts for approximately 30% of total gas sales volume in Japan.
- Supply of LNG, one of the main raw materials of gas, is mostly dependent upon import from overseas.
- In contrast to other countries, Japan does not have any gas pipelines interlinked nationally or internationally.
- The gas business is carried out in an integrated manner, from procurement and import to transmission/distribution to downstream gas supply and marketing.

Special Qualities of Natural Gas

- Compared to other fossil fuels, natural gas has a less adverse impact on the environment.
- Natural gas reserves are more abundant than those of crude oil and, unlike crude oil, are not concentrated in specific geographical locations.

From this standpoint, demand for natural gas is expected to increase in the future as the preferred fuel for the 21st century. The Osaka Gas Group mainly handles energy resources that are friendlier to the environment, giving it an advantage in business development. This trend is more and more accelerated in pace with the development of people's environmental awareness encouraged by the effectuation of the Kyoto Protocol.

Osaka Gas in Japanese Gas Market



Sales volume from April 2004 to March 2005
Source: The Japan Gas Association Web site

Reserve-Production Ratio of Natural Gas and Oil

Source: Oil and Gas Journal 2003/12, 2004/3

Emissions of Combustion Product by Fossil Fuel (Coal = 100)

	CO_2	SOx	NOx
Coal	100	100	100
Oil	80	68	71
Natural gas	57	0	20-37

Source: Field test on technology for measuring air pollution caused by thermal power plants Report (1990.3 The Institute of Applied Energy)
IEA (International Energy Agency) Natural Gas Prospects (1986)

150MW power plant at Torishima Energy Center (Osaka) that uses natural gas as fuel

Deregulation in the Electricity and Gas Sectors

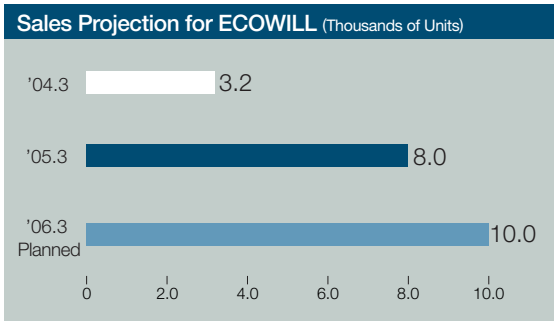
Background to Deregulation and Future Direction

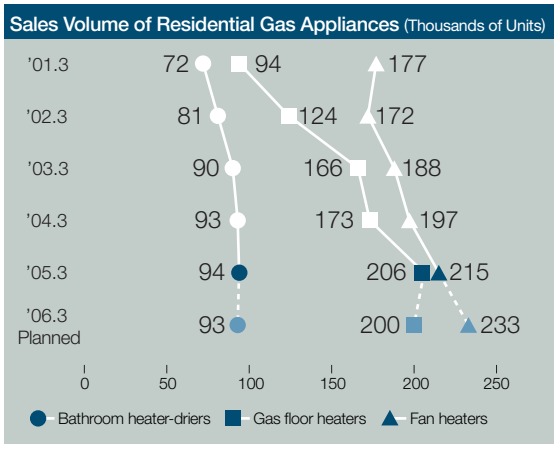
	Electricity Sector			Gas Sector		
	Scope of Liberalization	Share of national sales volume	Main points	Scope of Liberalization	Share of national sales volume	Main points
1996	———	———	Introduction of independent power producer (IPP) and fuel cost adjustment system	More than 2,000,000 m^3 per year	36%	Introduction of third party access to pipelines and fuel cost adjustment system
2000	More than 2MW	26%	Creation of power generation and supply business	More than 1,000,000 m^3 per year	40%	Third party access to pipelines made mandatory (major four companies)
2004	More than 0.5MW	40%	Abolishment of pancake tariff	More than 500,000 m^3 per year	44%	Third party access to pipelines made mandatory
2005	More than 0.05MW	63%	Creation of wholesale power market	———	———	———
2007	———	———	———	More than 100,000 m^3 per year	50%	———

Source: Denki Shimbun's "Description of Electric Power Liberalization and New Systems" and 2002 Urban Thermal Energy Committee materials

1 Natural Gas Segment

Being able to use energy as effectively as possible is important for the environment and economy. We will maintain our competitive edge against other types of energy by providing an optimal energy solutions from the customers' viewpoint.





Residential Gas Marketing

The residential gas engine cogeneration system ECOWILL is a revolutionary new product that generates electricity while supplying hot water. The fiscal 2005 was the second year after the substantial sales took off. Annual sales for fiscal 2005 totaled 8,000 units and a cumulative total for the two years run up 11,000 units, as customers embraced ECOWILL for its high efficiency and convenience in controlling overall energy costs.

The Osaka Gas Group concentrated its efforts on expanding sales of fan heaters and hot water floor heating systems, which contributed considerably to higher residential gas sales. Unlike oil heaters that require refueling, fan heaters are used in more than 30% of the households in our service area. Replacement demand is increasing from customers who have already purchased fan heaters, and new demand is rising as customers switch from heating equipment that uses other types of fuel. To meet this increasing demand and to supply products at competitive prices, the Group is further expanding the sales network to reach volume retailers of electric home appliances.

Sales are steadily expanding for our hot water floor heating systems, which are popular for providing heat from a person's feet upward and keeping room air clean. Hot water floor heating systems have become so popular that they are often included as standard features in newly constructed housing complexes such as condominiums. More recently, in addition to the new housing market, the Osaka Gas Group is encouraging the further proliferation of hot water floor heating systems by proposing their introduction along with other remodeling plans to the approximately 6.3 million homes in the Kansai region.

Gas power generation and hot water floor heating system "ECOWILL"

Non-Residential Regulated Gas Marketing

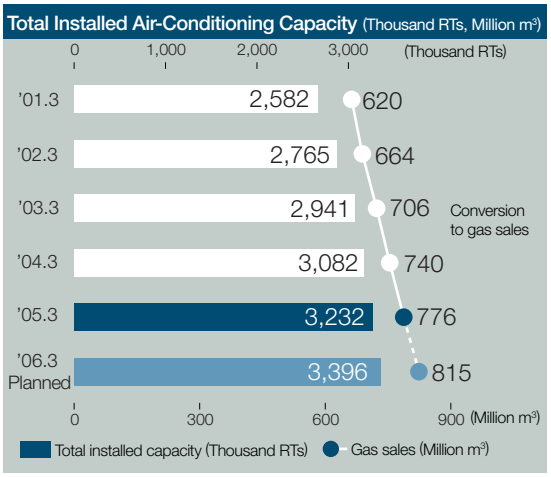
Regeneburners enable reductions in energy consumption of 35-50% using the accumulated heat burning method

Natural gas plays a crucial role as a principal energy source for a wide variety of industry, including steel, metals, chemicals, and machinery. Demand for natural gas is increasing as it compares favorably to other primary energies in terms of energy conservation, space conservation, and cleanliness, and Osaka Gas promotes detailed solution marketing activities based on a firm grasp of customer needs and its strong technologies.

For industrial use, natural gas is increasingly used for such cooling purposes as cooling processes and clean rooms, in addition to thermal energy for furnaces and boilers. Able to generate both heat and electricity simultaneously, cogeneration systems realize substantial energy savings in factory operations, and their utilization is increasing as needs grow for distributed power sources in society.

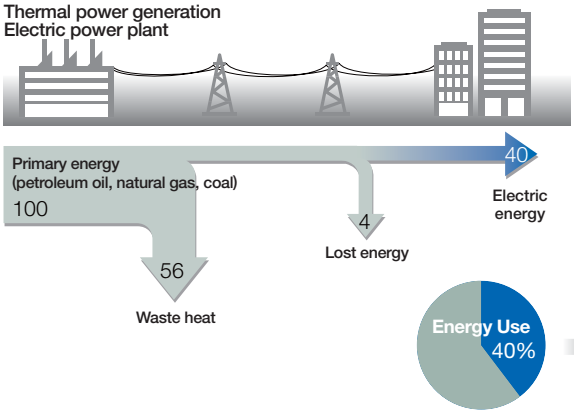
Gas sales to the commercial, public and medical sectors are increasing due mainly to the use of gas air conditioners and cogeneration systems. Gas absorption air-conditioning systems have become the dominant technology for air conditioning in large buildings, while gas heat pump air-conditioning systems are becoming increasingly popular in small and medium-sized buildings because of their convenience. The air-conditioning system Quick Multi, released in fiscal 2003, can be installed using existing cooling ducts, which acquired a good reputation. Sales are increasing, taking the opportunity of upgrading of air-conditioning systems in old office buildings.

Customers both large and small deploy cogeneration systems, ranging from major commercial facilities to hospitals, hotels, and retail stores. Our Gene-Light Series of compact 9.8 kW cogeneration systems for small and medium-sized office buildings and shops has been very popular since its launch in fiscal 1999. To date, more than 1,400 customers have installed the Gene-Light Series.

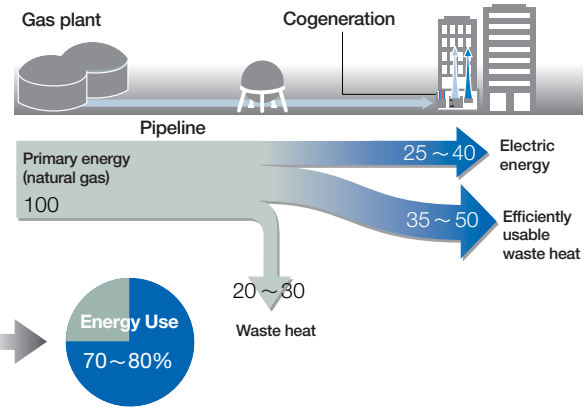


General View of Natural Gas Cogeneration

Power Generation System (Traditional)



Cogeneration System



Note: Power generation efficiency is calculated using fiscal 1999 results (LHV standard).

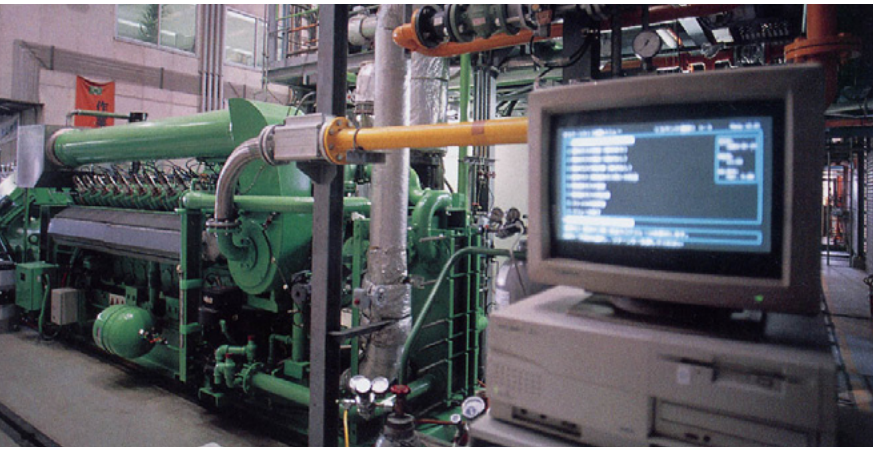
Source: The Japan Gas Association "Gas Cogeneration System"

1 Natural Gas Segment

Our energy consulting capability, backed by technological know-how, is one of the greatest strengths of Osaka Gas to stimulate customer demand and provide an optimal combination of products and systems developed to solve a specific problem.

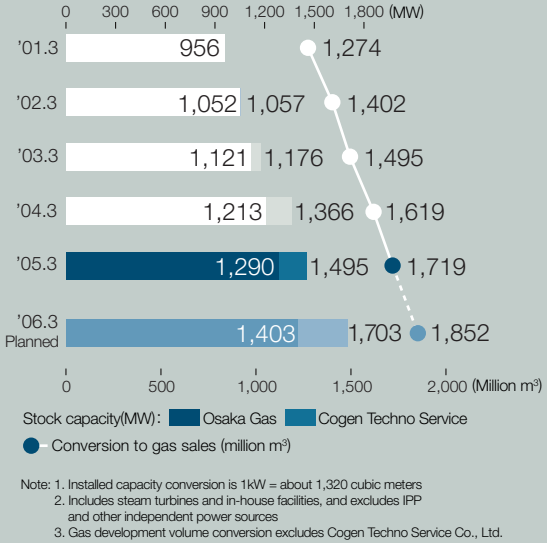
Cogeneration Systems

Installed at the customer's location, cogeneration systems recover heat emitted from power generation and use it for air conditioning and thermal applications. Energy usage efficiency improves approximately 70%–80% with the use of cogeneration systems, as exhaust heat can be effectively utilized, and there is minimal transmission loss because electricity is generated at the customer's location.



Featuring cutting-edge technology, this 1 MW class high-efficiency engine boasts power generation efficiency of approximately 41%.

Total Installed Cogeneration Systems (MW, Million m³)



Note: 1. Installed capacity conversion is 1kW = about 1,320 cubic meters
2. Includes steam turbines and in-house facilities, and excludes IPP and other independent power sources
3. Gas development volume conversion excludes Cogen Techno Service Co., Ltd.

Strengths of Osaka Gas Cogeneration Systems

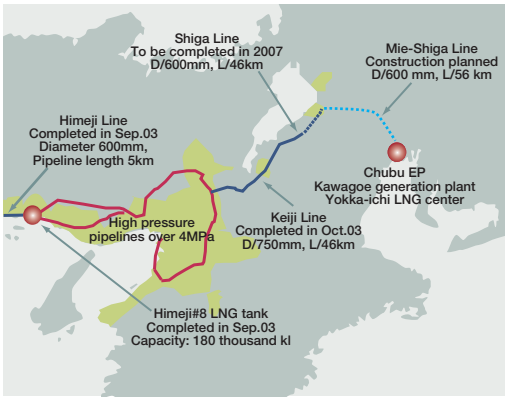
1) High efficiency in power generation
Compared with the average efficiency of approximately 40% at existing thermal power plants, our advanced cogeneration systems achieve power generation efficiency of around 43%. As a result, there are an increasing number of customers that enjoy the cost benefits of introducing Osaka Gas cogeneration systems.
2) Secured service and maintenance quality
Our maintenance system, which includes the remote observation system Echo Line, leads the industry in service and maintenance quality.
3) A variety of financing schemes
Osaka Gas offers various financing schemes that answer customer needs such as for not wanting to own capital assets, and wanting to preset rate fluctuations to changes in fuel costs.
4) Services outside the area
For franchise chain owners with stores located outside our service area, we meet customer needs through our subsidiary Cogen Techno Service Co., Ltd., which is in charge of cogeneration operations outside our service area.
5) A variety of products
In addition to natural gas as a fuel, Osaka Gas also provides a wide variety of cogeneration systems, including engines that use biogas as fuel as well as agricultural systems that supply CO_2 to plants. Through these strengths, the Osaka Gas Group has delivered cogeneration systems with a total generation capacity of approximately 1,500 MW.

Osaka Gas is extending natural gas infrastructure to meet future growth in demand in its service area while strengthening ties with local natural gas providers in Western Japan.

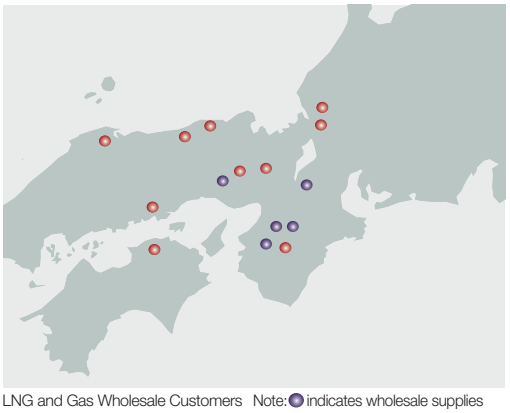
Extending Natural Gas Infrastructure

Osaka Gas is able to provide stable supply of natural gas through existing LNG tanks, vaporizers and other basic infrastructure. The Osaka Gas Group plans to construct the following two high-pressure gas pipelines in areas of growing demand and to improve the stability of supply.

1) Shiga Line
   To expand demand and stably supply natural gas in southern Shiga Prefecture, Osaka Gas is constructing the Shiga Line stretching for approximately 46 kilometers between Kusatsu City and Taga Town in this prefecture. The region is expected to have demand for approximately 200 million cubic meters of gas.
2) Mie-Shiga Line
   Osaka Gas finalized the plan to construct an approximately 56-kilometer pipeline connecting the Taga Regulator Station on our Shiga Line to the Yokkaichi Thermal Power Plant of Chubu Electric Power Co., Inc., in an aim to improve supply capacity and stability between Kyoto and Shiga.



Expanded Infrastructure for Natural Gas Business



LNG and Gas Wholesale Customers Note: ● indicates wholesale supplies of LNG and gas through pipeline.

Strengthening Ties with Local Natural Gas Providers

The Osaka Gas Group engages in the wholesale supply of natural gas to four gas companies in the Kansai region. From April 2004, we started the wholesale supply of natural gas to Itami Sangyo Co., Ltd., in Nishiwaki City. On occasion, gas providers in the Kansai region have approached Osaka Gas with a request to take over their operations. The Company obliges when it deems it will receive a sufficient return on its investment. Osaka Gas has taken over the operations of Miki Gas, Tenri Gas, Nabari Kintetsu Gas Co., Ltd., Sasayama Gas, and Kinosaki Gas in recent years.

For gas providers unable to purchase natural gas from our LNG bases and pipelines in regions spanning from Chugoku to Kansai and Hokuriku, we are actively engaged in LNG wholesale operations supplying gas by trucks. Furthermore, the Osaka Gas Group established Cogen Techno Service in 2000 to promote the proliferation of cogeneration systems along with regional gas providers. The total generation capacity at the customers' sites exceeded 200 MW at the end of March 2005, and thus it has enjoyed favorable growth.

Ujigawa Pipeline Bridge

1 Natural Gas Segment

We are actively promoting natural gas upstream operations along with new concepts in the LNG trading and transportation business and the natural resource development business.

Material Procurement/Natural Gas Development/Transportation Business

For the procurement of natural gas, Osaka Gas endeavors to secure price competitiveness in the energy business by reviewing the price structure for existing contracts and shifting to new contracts that are relatively inexpensive. In addition, the Company is branching out to LNG transportation and resource development businesses to expand its business toward the upstream of the natural gas value chain.

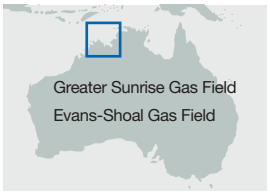
The transportation business is designed to increase the transparency of transportation costs and then reduce them by owning, through Osaka Gas International Transport, LNG carriers for the transportation of LNG we purchased under an FOB contract. It also aims at bringing profit by transporting LNG for other companies through utilization of vacant space that we tend to have at the start-up period of the LNG contract. Transportation contracts mainly for transporting LNG from the Western Australia Expansion Project as well as for Qalhat LNG are measures to realize this policy.

For the expansion of the resource development business, it focuses on the following three categories:

1) Participation in the gas field development, aiming at upgrading it to an LNG project
2) Participation in the project from which Osaka Gas purchases LNG as one of the minority shareholders (including participation in the liquefaction project only)
3) Acquisition of the rights of oil and gas fields in production operation

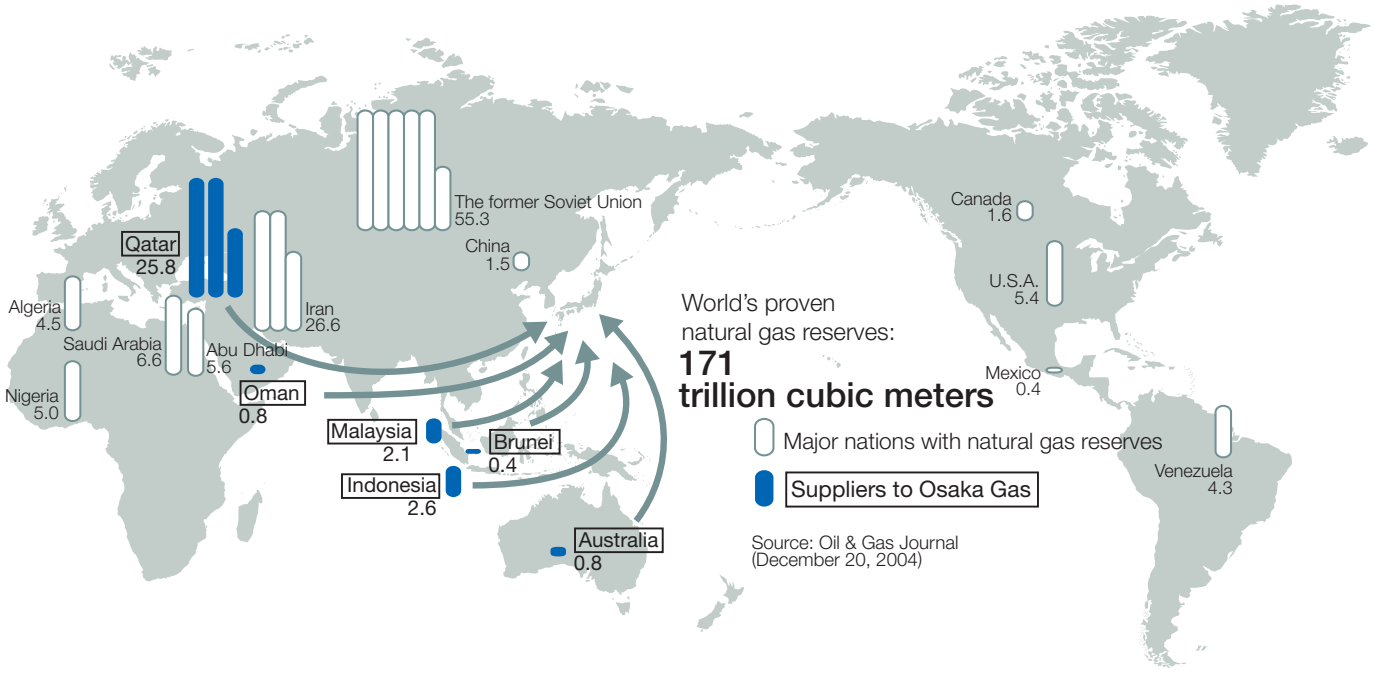
Currently operating businesses include participation in the Northern Australia Gas Venture and investment to the gas field concessions in operation in Indonesia.

LNG tanker Jamal



The Northern Australia Gas Venture (NAGV)

World's major nations with natural gas reserves and suppliers to Osaka Gas



2 LPG, Electricity and Other Energies Segment

IPP facilities in Spain Osaka Gas financed in 2005

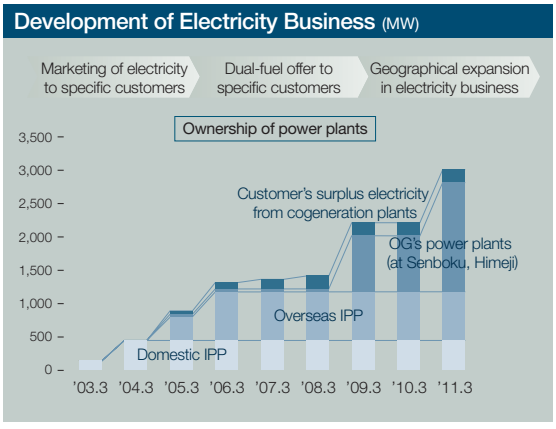
The lower barriers of market entry provide Osaka Gas with an opportunity to expand its energy business. Osaka Gas remains proactive in turning challenges resulting from deregulation into business opportunities based on its strategy of shifting to multiple energy services and geographically expanding operations.

Making Advances into the Electricity Sector

The electric power sector is an area where the Osaka Gas Group can leverage its strengths in the natural gas business, namely its upstream infrastructure, solution marketing capabilities and customer networks. Grasping deregulation in the electric power sector as a business opportunity, the Osaka Gas Group is making inroads into the electricity business based on the following strengths.

1) The Osaka Gas Group generation capacity for wholesaling of electricity to power utilities from three 150 MW IPP. Based on long-term contracts, we expect these three power plants to provide a stable source of revenues of approximately 18 billion yen annually. In fiscal 2005, Osaka Gas finalized the plan to acquire a 700 MW portion of IPP plants in Texas, U.S.A., and Spain.
2) In Senboku, we plan to construct a power plant with a capacity of 1,100 MW within one of our LNG receiving terminals, making efficient use of existing land and natural gas line facilities. Osaka Gas will minimize power generation costs by using cutting-edge combined cycle gas turbines.
3) Targeting customers that already use gas cogeneration systems, Osaka Gas is able to provide one-stop energy solutions for both electricity and gas.

Development of Electricity Business (MW)



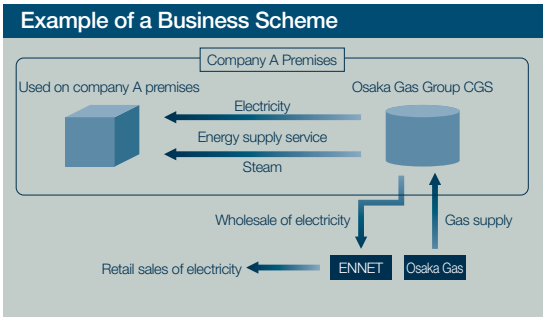
2 LPG, Electricity and Other Energies Segment

Combining Gas and Electricity Businesses

Osaka Gas aims to combine the gas and electricity businesses through surplus electricity from customer's cogeneration plants schemes, which are cogeneration systems designed to sell excess electricity in addition to providing electricity for on-site use. Excess electricity is generated by using thermal load as a basis for determining cogeneration scale and balancing it with the customer's electricity requirements. The Osaka Gas Group purchases this excess electricity and uses it in the retail electricity business as a power source.

Customers, whose primary energy source is heat, generate excessive electricity from exhaust heat, supplying relatively inexpensive electricity.

Example of a Business Scheme

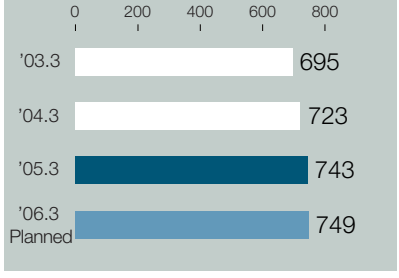


LPG Business

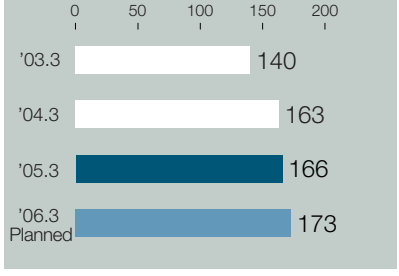
The Liquid Gas Group, comprising Liquid Gas Co., Ltd., and 14 other companies, together with the Nissho Petroleum Gas (NIPG) Group, made up of Nissho Petroleum Gas Corporation and 18 other companies, develop the LPG business. LPG sales volume increased 2.6% year on year to 743,000 tons in fiscal 2005, as the number of retail customers rose by 3,000 to 166,000 (as of the end of March 2005).

We aim to further increase sales volume and the number of retail customers in fiscal 2006 through the sale of strategic equipment such as *ECOWILL* and floor heating systems as well as acquiring sales outlets. The Osaka Gas Group aims to raise profits through efforts to reduce costs, streamline distribution and transmission, and engage in one-lot purchases of LPG in necessary volumes.

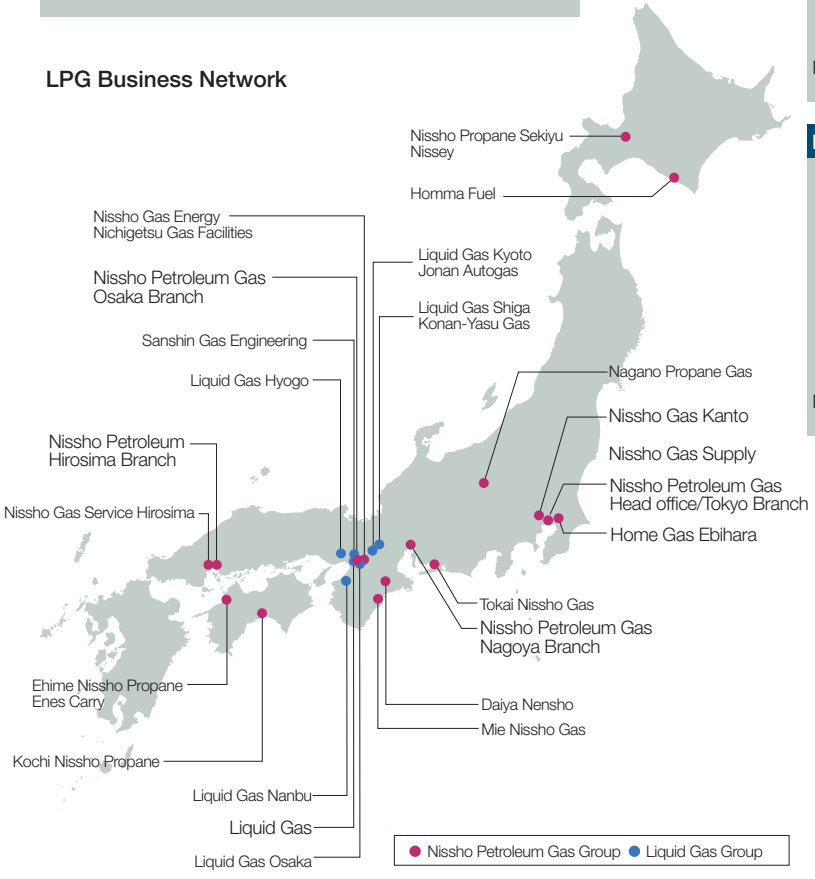
LPG Sales (1,000 tons)



Number of LPG Retail Customers (Thousands)



LPG Business Network



LPG Recharging Station

3 Gas Appliances and House-Pipe Installation Segment

The Group expands business to increase gas users and to contribute to gas sales.

The Osaka Gas Group engages in the sale of gas appliances and house-pipe installation with the ultimate aim of contributing to the expansion of natural gas sales volume.

We endeavor to develop inexpensive, easy-to-use, high-quality gas appliances and promote the wider use of gas equipment in order to increase sales of natural gas.

For home gas appliances, the Group exerts efforts to expand the sales of the residential gas engine cogeneration system ECOWILL, which generates both electricity and heat required for households efficiently.

It also promotes development of fuel cells for home use and succeeded in installing fuel cells in housing complexes in March 2005. A mist sauna function was added to a bathroom heater/drier as the new product MIST KAWACK. For a glass-top stove, safety, usability, and design were further pursued and the new product, Class S Premier, was put on the market. In the field of industrial gas appliances, the Group promotes the sales expansion of a gas heat pump style air conditioner, Gas Heat Pump, and gas cogeneration systems.

It also succeeded in developing a gas micro cogeneration system (cogeneration system less than 100 kW) of 25 kW, which boasts power generation efficiency at the world's highest level of 33% and started sales.

In house pipe installation, we install pipes in a customer's house at an affordable price in order to increase the number of customers and gas fixtures inside homes.

4 Real Estate Segment

The Group enhances liaison with the energy business in terms of pervasion of utilization of gas, based on the group's real estate management business.

Consolidated subsidiaries involved in the real estate business consist of Urbanex Inc. Urbanex Development Inc., Urbanex Service Co., Ltd., OSC Engineering Co., Ltd., Kyoto Research Park Co., Ltd., and six other companies. Urbanex Development Inc., and Takara Enterprise Co., Ltd., became subject to consolidated accounting this fiscal year. Urbanex Inc., and Urbanex Development Inc., develop and manage office buildings and homes to effectively utilize the real estate holdings primarily of the Osaka Gas Group. Urbanex Service Co., Ltd., OSC Engineering Co., Ltd., and Takara Enterpise Co., Ltd., provide office building and maintenance services.

In the fiscal year under review, the Urbanex Group posted an increase in sales due to an increase in the sales of houses as well as growth in the office building management business.

We are focusing efforts on expanding the rental and sale of real estate and the facility management operations, as well as strengthening the liaison with the Company's energy business to maximize the synergy effects.

Large-scale urban development project raising people's expectations as the base for new business creation in Kyoto < Kyoto Research Park Co., Ltd.>

5 Other Segment

Each independent business segment adds to the overall capabilities of the Osaka Gas Group through synergies and mutually beneficial relationships.

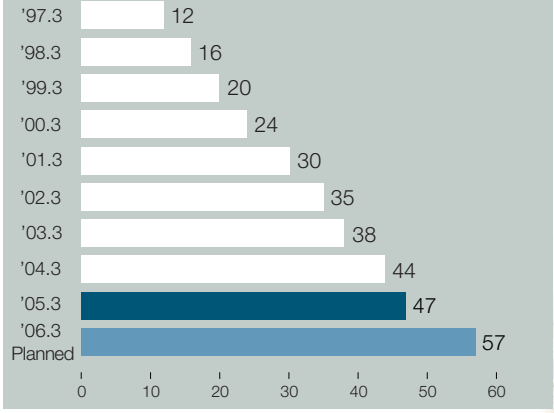
Restaurant and Food-Related Business Operations: Kinrei Co., Ltd.

Consolidated subsidiary Kinrei Co., Ltd., operates restaurant chains, mainly the Kagono-ya chain of Japanese-style restaurants. Kinrei also produces and sells frozen foods, such as frozen noodles, using refrigeration know-how derived from cryogenic technology employed in Osaka Gas's LNG operations. There are a total of 47 Kagono-ya restaurants in the Kansai region as of March 31, 2005. Kinrei Co., Ltd., is a consolidated subsidiary of Osaka Gas.

In fiscal 2005, Kinrei revenues and profits increased both in restaurant operations due to the increased number of restaurants and in the frozen food field thanks to the increased sales of frozen prepared noodle products. Kinrei plans to increase the pace of restaurant openings with a particular concentration of management resources in Kagono-ya restaurant operations.

Plans call for the opening of 10 restaurants in fiscal 2006 to build a more robust foundation in the Kansai area while making advances into the Kanto region. In the food sector, Kinrei aims to increase sales by strengthening the line-up through new product introductions, improved brand authority, and diversification of sales channels.

Number of Restaurants Operated by Kinrei



Kagono-ya < Kinrei Co., Ltd.>

Information-Related Service Operations: OGIS Research Institute Group

The OGIS Research Institute Group comprises four consolidated subsidiaries: OGIS Research Institute Co., Ltd., OGIS International, Inc., Ube Information Systems, Inc., and System Answer Co., Ltd. OGIS International was added to the scope of consolidation in fiscal 2005.

Established as offspring of the Information System Department of Osaka Gas, OGIS Research Institute provides a wide spectrum of information-related services, including system installation, consulting, development, administration, and maintenance. The company's object-oriented programming technology, which is essential to the efficient development of advanced systems, is among the most advanced in Japan.

In fiscal 2005, revenues of the OGIS Research Institute Group declined slightly despite efforts to expand orders for system development from customers outside the Group, as a result of reviewing product line-ups from the viewpoint of profit margins. In October 2004, the Group transferred shares of Canyon Blue, Inc., which develops computer software design tools in the U.S.A.

OGIS Research Institute plans to further promote its system development services to customers outside the Group, mainly in areas of core competence; object-oriented programming, and UML. In addition, OGIS Research Institute will accelerate the formation of a more solid group foundation by considering conclusion of strategic alliance including merger and acquisition activities and by utilizing its strength.

Carbon Materials and Chemical Products: Osaka Gas Chemicals Group

The Osaka Gas Chemicals Group comprises four consolidated subsidiaries: Osaka Gas Chemicals Co., Ltd., Taiyo Kasei, Ltd., Donnac Co., Ltd., and Shanghai Dongdao Carbon Chemical Industry. The group draws on the accumulated carbon-related technology of the Osaka Gas Group to promote sales of various industrial products. In the chemical product field, the Group provides a variety of products derived from coal tar and crude benzene, which are primary ingredients in the chemical industry. In the carbon material field, the Group manufactures and sells electrode materials for lithium-ion batteries used in cellular phones, activated carbon fiber cartridges for household water, and air purifiers, as well as activated carbon itself, and lightweight heat-resistant materials for aircraft and trains. In the fine material field, the Group produces and sells high-performance materials for optical equipment.

In fiscal 2005, sales increased in the Osaka Gas Chemicals Group on account of the rocketing market price of coke and benzene and expansion of the fine material business.

In April 2005, the Group acquired shares of its subsidiaries and affiliate companies, including Japan EnviroChemicals, Ltd., one of the leading manufacturers dealing in the activated carbon business and the preservative business including wood protective coating materials. In the same month, it also merged Osaka Gas Chemicals, Taiyo Kasei, and Donnac to further enhance the liaison between processes from production to sales. Hereafter, the Group aims at expanding the carbon material business including activated carbon by bringing together the technological ability and know-how owned by Osaka Gas Chemicals and Japan EnviroChemicals and focuses on the growing businesses including electrode materials and fine materials to extend the scale of the operation.

Other Operations: OG Capital Group

The OG Capital Group consists of 18 consolidated subsidiaries that engage in a wide array of activities related to engineering, housing, security, sports, services for the elderly, and other services. Five companies including Homepro Co. Ltd. and OUD Co., Ltd., were added to the scope of consolidation in fiscal 2005. Osaka Gas Security Service Co., Ltd., provides security-related services such as the Internet home security system Irusu. OG Sports Co., Ltd., manages sports facilities including the COSPA fitness centers. Homepro Co., Ltd., mediates home renovation via the Internet and OUD Co., Ltd., runs a deluxe sento (public baths).

In fiscal 2005, the amount of sales increased due to the increase in sales housing equipment and devices (Osaka Gas Housing Equipment Co., Ltd.), growth in the fitness business, and expansion of the automobile leasing business (OG Autoservice Co., Ltd.).

While advancing selection and concentration of various group operations, the OG Capital Group aims to expand earnings by investing management resources in businesses with growth potential, such as athletic and security businesses.

COSPA Goido fitness facility in Kashiba City, Nara Prefecture, directly operated by OG Sports

Health Spa Banpaku Oyuba <OUD Co., Ltd.>

Shuri Castle in Okinawa Prefecture using high-performance wood protective coating from Japan EnviroChemicals

A plant of Full Fine Co., Ltd located in Okayama Prefecture began operations in August 2003